UNIVERSITY OF TURKU

Faculty of Humanities

Baltic Sea Region Studies

Master's Thesis

"CLIMATE AMBITIOUS CITIES IN EUROPE" – CASE STUDY OF MOTIVATINAL DRIVERS BEHIND URBAN CLIMATE RESPONSE OF BOLOGNA AND TURKU

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June 2019

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Abstract

From the beginning of 2000, cities have globally stepped up in the vanguard of the battle against climate change. This thesis concentrates on cities and motivation behind climate policy targets of urban climate governance.

Why have cities set challenging climate targets that even more ambitious than similar targets of their nation states? To find out reasoning, I have sought to unwrap urban climate governance and environmental motivation with the assistance of perceptions of two case cities and drivers behind their climate policies and targets. These cities are Finnish city Turku, which aims to reduce greenhouse gas emissions and become carbon neutral, along with Italian Bologna, which has drawn a comprehensive adaptation plan of climate change. Remarkably, the before mentioned cities have set stricter goals than their states in a similar field. Additional to findings of case cities, thesis leans upon previous results of climate and environmental motivation in cities.

Through categorization of five motivational drivers: economic, ecological and liveability, political and cultural, framing and social, I have sought to explain, what kind of drivers have spurred cities for the collective expression of climate motivation and to establish climate policy objectives.

This thesis explains how urban actors are motivated to act in a global challenge, which for them, is not required field of policy practice. Turku and Bologna display rich insight on motivation towards policies, which aim to greenhouse gas emission reductions and adapting to climate-induced changes. Despite different goals, distinct drivers often coexist in harmony. Reasons for urban climate action in municipalities are multifaceted and plenty. Objectives are both in the prevention and creating new possibilities. Justifications vary between benefits for the local community to doing one's share in global responsibility. Overall, mitigation policies are less justified with environmental and liveability than adaptation, and more often, drivers of economy and framing have a decisive role.

By defining targets and measures, case cities have been able to create governability over the global issue. These cities have managed to turn global warming into wholeness, which impacts the urban

environment, and local measures can be separated. In overall picture, without urban climate action, repelling global warming is next to an impossible task.

Index words: urban climate response, climate motivation, mitigation, adaptation, global warming, vulnerability, resilience

Abbreviations: UNFCCC, UN, IPCC, OECD, WMO, BLUE AP

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1. Introduction

The climate on the Earth has changed throughout history, but since the mid-20th century, rapid global warming has been recorded at a rate that is unprecedented over decades to millennia. This warming trend is extremely likely to be the result of human activity, and over the last few decades in particular, humankind has increasingly seen both evidence for rapid climate change and its physical aftermath.

The history of research-based policies to reduce global warming has been tracked since 1988 when the Intergovernmental Panel on Climate Change (IPCC) was established to offer scientific assessments to international climate policy negotiations and to provide expertise in managing risks related to extreme weather events. Yet only during recent years, has climate policy work taken the floor in most significant global arenas and negotiations as well as penetrated all levels of governance - including lower levels of decision making.

In October 2018, IPCC published a much-anticipated report Global Warming of 1.5 °C. This report was the latest alarming message that raised the anxiety of how serious threat global warming would in the near future be. The report was a response to a task laid in the 21st Conference of Parties of the United Nations Framework Convention on Climate Change - the Paris Agreement.[1]

Same autumn, the World Meteorological Organization announced in its provisional Statement on the State of the Climate in 2018, that at that current rate of global warming, mean temperature rise might increase 3-5°C by the end of the century, and even more if all known fossil fuel resources are exploited. According to IPCC, even increase of 1,5 to 2°C would cause robust differences in regional characteristics, like in mean temperature; hot extremes in inhabited regions; heavy precipitation and drought as well as species losses and extinction. As our understanding of the severity of climate change has amplified throughout the last decades of alarming findings of climate researchers. In the context of this severe global challenge, this thesis takes hold on the prevention of global warming at one fraction of large and ambiguous ensemble of solutions.[2]

Most significant climate agreements are approved, and diplomacy practiced under the United Nations. Similarly, emission reduction targets have been formulated on a national or supra-national level to achieve meaningful results. Yet in recent years, a new set of climate leaders have emerged

[1] Intergovernmental Panel on Climate Change 2018.
[2] World Meteorological Organization 2018.

to the very center of climate policies: cities. This thesis concentrates on cities and climate policy targets of these lower level actors of decision making and governance. Other vital concepts of this research are "driver" and "urban climate motivation." In short: in following chapters, I seek to explain, what kind of motives drive cities to set climate policy targets and why municipal authorities practice climate action, when usually and initially such efforts have taken place in decision levels far above urban actors?

To find out explanations, I scrutinize research literature of environmental motivation at the municipal level, explain outcomes of previous studies in this research field, and explore further two European case cities, which both have set significantly ambitious climate targets. These cities are Finnish city Turku, which aims to reduce greenhouse gas emissions and Italian Bologna, which has drawn a comprehensive adaptation plan of climate change. Remarkably, the before mentioned cities have set stricter goals than their states in a similar field. This setting enables to untangle the very reasons of why some cities deliberately choose objectives, that are so distinguished to what the usual climate actors have undertaken.

1.1. Urban response to climate change - objectives of this research and research questions

"I commend this report to all concerned with improving the ability of towns and cities to mitigate climate change and adapt to its impacts. How cities and towns are planned affects not just the health and well-being of their inhabitants, but the global environment and our prospects for sustainable development."

These are the forewords of Mr. Ban Ki-moon, Secretary-general of United Nations, in UN's Global Report on Human Settlements 2011.[3] This report has been one of the turning points of acknowledging the meaning of urban premises in the history of climate policies, and words of Mr. Ki-moon illustrate the justification. Global warming is the most substantial crises of our time; hence, it affects each corner of the world somehow and alters present living environments as we know them. Besides objects of change, when it comes to accelerating and slowing down this natural scientific phenomenon, cities are also subjects.

[3] United Nations 2011.

Cities are essential in the narrative of global warming for two reasons, primarily: most of the planet´s people live in cities, and secondly, cities are locations in which the most severe of climate hazards occur. In 2014, 54% of the world's population resided in urban areas. Moreover, urbanization is projected to increase dramatically in the future: by 2050, 66% of the world's population is expected to be urban. Cities also produce a large share of global greenhouse gasses – due to increasing urbanization, growingly so. Urbanization is an essential driver of development and poverty reduction for populations in both urban and rural areas, and much of the national economic activity, government, commerce, transportation, and international trade concentrated in cities. Thus, from late 2000, cities have gained increasingly space in the limelight of global warming discussion. Whether in the developed or developing world, human and economic losses occur most of all in urban areas. [4]

Whereas climate policies of the European Union are implemented by member countries and under Effort Sharing Regulation, the amount of emission reduction allocated for member countries, several cities have set even more ambitious objectives than their states. But why have cities chosen to set targets to reduce greenhouse gasses or adapt to climate change? For towns, after all, none of the climate policies are nor obligatory, nor described as core responsibilities, nor usually funded by the state. And why in some countries, some cities have set more ambitious climate targets than even their states? The research question of this thesis twines round cities' reasons to establish climate targets. Within the theoretical framework of environmental motivation, climate motivation, and urban motivation, I ask, why cities set goals regarding climate change and require these optional efforts from themselves.

To answer this question, I could examine any cities that have de facto set climate targets. On the other hand, to truly capture drivers behind these motives, it is profitable to emphasize actors that orchestrate exceptionally plenty of climate action. Therefore, two European cities that live up to this criterion have been chosen to be case cities for this thesis research. These cities, Bologna in Italy and Turku in Finland have set climate targets that require exceptionally drastic measures to be met. In Turku and Bologna, dissimilar targets in greenhouse gas emission reduction and climate adaptation both stand in the level of ambition, which other cities in their countries have not yet chosen to pursue. With each other, these cities have little in common, except that both are one of

[4] United Nations 2014, 23.

the largest cities in their state, they locate in European Union and therefore follow same regulation and take part the same negotiation party in Climate Conferences of the United Nations.

The city of Turku has decided in 2018 of new emission reduction target, that exceeds corresponding of the state and other Finnish municipalities: to reach carbon neutrality by 2029, while Finland strives for 2050. In 2012, City of Bologna launched a visionary and demanding plan for adapting to climate change-related environmental changes, while Italy approved in 2015 its Strategy for Adaptation to Climate Change. Besides, both cities have gained a significant international reputation for their efforts in the climate policy field.

Global climate targets and mitigation mechanisms may be designed, negotiated, and approved between parties in conferences of the UN, but cities have growingly shown willingness and capacity to tackle climate change. Urban actors possess many tools to shift towards low-carbon future; therefore, cities are no longer neglected when solutions for combatting global warming are sought. To reduce global warming, it is therefore essential to know what motivates cities to take part in climate policies in their own terms.

Main research question of this thesis is: What motivates cities into climate action? Supporting questions for the main question are:

- Why cities set more ambitious climate targets than their states?
- How does findings from these two European medium size cities seem in the light of findings in previous research?
- On the grounds of case study, how do motive drivers differ in adaptation and mitigation efforts?
- What do these findings tell us about how urban actors can accelerate or be driven to increase climate policy work?

1.2 Cause and consequence - role of adaptation and mitigation in global warming

Approach to climate change involve policies that aim to reduce and stabilize level of emitted greenhouse gases. Besides these mitigation actions, need for measures that aim to adapting to the climate change that already takes place or enhance resilience to projected local outcomes, is growing. The main goal of mitigation policies is to avoid significant human interference with climate

system and this way, prevent human induced global warming taking place at a level, in which ecosystems cannot adapt naturally to changing climate. Climate has been always changing, but never during history of human beings at rate that we are now experiencing. Pace of climate change exceed the course of natural adaptation and therefore, adaptation policies have gained foothold next to mitigation. Adaptation measures seek adjustments to the actual or expected future climate. Additional key words in climate policy discussion are vulnerability and resilience. Adaptation measures are linked to reduction to vulnerability of ecological or social systems and economy. In the context of climate change, vulnerability is perceived with harmful effects of climate change, such as extreme weather events, sea level rise or local mean temperature rise. Besides these, adaptation encompasses, how to exploit potential opportunities of projected changes, such as longer growing seasons or increase in yields. According to the UNFCCC, "Resilience in the context of climate change refers to the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning. Resilient social and ecological environment is capable to adapt to stress and change". [5]

In the most usual sense, climate policy formulation takes place in international negotiations, as I further describe in chapter 3. Whereas mitigation is the utmost goal of global climate agreements, theme of adaptation has in recent years pierced through each scale of climate policy planning. Importance to enact climate policies have since the beginning of 1990 spread into strategies of nation states, regional authorities, municipalities, but also private sector, universities and organizations. One of the reasons for widespread climate action is sense of urgency. This sense of urgency associate growingly to both two approaches: mitigation and adaptation. Regardless of emission reduction measures, global warming is in the phase, where adaptative measures are necessary. Success in mitigation leads to less need for adaptation, yet the two do not exclude each other.

I have chosen to examine urban response to both mitigation and adaptation. City of Bologna represents an exceptional urban adaptation strategist and city of Turku ambitious plan for emission reductions. Number of researchers before me have reflected and compared cities' climate action, usually either from perspective of mitigation or adaptation. Question of if it is feasible to evaluate motivation of adaptation and mitigation policies, is valid. This thesis presents qualitative analysis of

[5] The United Nations Framework Convention on Climate Change 2014, 1.

urban climate motivation and I do not seek to set forth quantitative outcomes – an approach that would suit well for research of either approach. I have processed my research material bearing this dualism of adaptation and mitigation in mind. Justification for my choice of having both approaches in my research arouse from centre of research question, which does not examine neither adaptation nor mitigation policies, but motivation behind these climate actions. Obviously, cities have distinct reasons to enact climate policies but when we figure out why municipal authorities take climate action, each climate policy apply, whether its goal emission reduction or adaptation. In a way, this dual approach has, in my opinion, enabled me to extract irrelevant elements and outline the disposition of motivational indicators. It is not worthwhile to claim, that with this method, findings of this thesis represent overarchingly urban climate motivation. For this reason, I have discussed this problematization in final conclusions and sought to reflect, how motivational drivers of urban adaptation and urban mitigation policies differ in this study.

1.3. Significance of anticipated results

"*Clearly, cities are playing an increasing role in responding to climate challenges and are therefore in need of knowledge to aid in their policy development*", wrote Rajendra Kumar Pachauri, chair of IPCC in his foreword for a study Climate Change and Cities: First Assessment Report of the Urban Climate Change Research Network. [6]

The objective of this thesis is to take a closer look of climate motivation in two ambitious cities, and through that, have an impact on the broader debate concerning environmental governance and urban climate response. Findings of this thesis can foremost offer perspectives in broadening understanding, as policy transfer, on why cities operate with climate policies and which motivative drivers need to develop if urban climate response needs to be hastened. For the very reason of diverse climate policy response of the cities, this thesis enables new information on how motives behind urban adaptation and mitigation procedures differ and are alike. For cities, information like this serves as means to build goals for their climate action and help understand diversity of benefits that climate policy operation has brought for climate pioneer cities. Interestingly, while I was finalizing my thesis, Bologna and Turku launched climate cooperation, which I come back to in

[6] Rosenzweig et al. 2011.

chapter of conclusions. Possibly, this thesis research can provide insights into the two cities' future agreement.

2. Methodology and theoretical framework

Research in the area of climate governance has, in recent years, been abundant. In previous research, urban climate policies are mainly perceived through barriers or distinctive features in capacity. Noteworthy, in research literature, there is a geographical bias towards developed economies, in which this thesis does not make an exception. Primarily research has focused on mitigation and studying case cities is a somewhat repeated method, when it comes to urban climate governance or local climate policies. Number of researchers have studied urban characteristics, for example, in land use planning or energy policies.

To discover answers to the research questions, findings in this thesis have been drawn based on secondary and primary material sources. Previous findings of climate and environmental motivation research function as a secondary source for analyses, as policy documents; marketing material; press releases and interviews of two case cities are the primary source.

Previous studies related to my research field are abundant, and the closer we come to 2019, the more relevant and to the point the research of urban climate governance and environmental motivation has evolved. Several scholars have studied concepts of climate governance and transformation of urban governance and urban response in terms of global issues or environmental preservation. While my study particularizes in climate policy motivation in urban governance and environment, there is a whole lot of specialization and newly formulated research questions, especially around power shift in governance from nation states to cities. Another widely discussed angle is, whether urban climate agenda setting has led to sustainable practices and reduction of greenhouse gas emissions. These issues are relevant in arguing about urban motivation to act in the global challenge. However, in need of setting limits to this thesis research, I chose to restrict these popular angles out of my study and concentrate solely on finding out the drivers, that motivate cities to set climate agenda.

Following chapters sieve through a more thorough description of data and research material, research methods as well as evaluation of other possible weaknesses, and overview of the significance of anticipated results.

2.1 Data description – methods of data collection

In this thesis, I have extrapolated research material from previous studies and empirical material of policy documents, marketing material, and press releases of case cities and three interviews. For my thesis, pieces of material of Bologna and Turku have allowed an opportunity for a comprehensive insight into urban climate policy processes. Lastly, I evaluate these findings in light of previous research material and then assembled into conclusions in chapter 6.

Research method choices are essential parts of the credibility of the research and when presenting findings. Therefore, I have chosen previous studies by evaluating research literacy in the field of urban climate governance and environmental motivation carefully. For a closer investigation of case cities, I wanted to interview each city's climate policy specialist, who has followed closely, how their city develops and implements climate policies and who to some extent, oversees environmental governance in the city administration. The advantage in the interview compared to a questionnaire is flexibility. In discussions, it is possible to repeat the question, correct misunderstandings, clear out expressions and wording and have a conversation with respondents. Interviews have been conducted in English, and Finnish and secondary research material for this thesis has been in English.

I have chosen interviewees from Turku and Bologna following elite interview sampling. Each of the interviewees has been recommended by one or more environmental specialists and been singled out as primary sources of information for this thesis. Description of selection for informants in these interviews is the closest snowball sampling method.

I pondered upon whether taking more interviews or interview local politicians but discarded both choices for risk of biased interpretation of city councillors, whose political background might reflect into interpretations of policy motivation. Interviewees, therefore, are officials who work in municipal administration and have experienced climate policy work of the municipality during several electoral terms. On that notice, neither this choice is indisputable, and each respondent perceives the topic through their own experience and within one's profession, an agenda. For example, it is likely, that experts of environmental administration are more prone to have a more

positive attitude to urban climate policies than average of decision makers. I have sought to dismantle this case by separating individual motivation from societal drivers in the phrasing of a question. Yet, information from interviews consists still of interpretations, and for the purpose to sample as broad material as possible, policy documents are an essential part of this study.

Besides two elite interviews, I have interviewed Ph.D. Margaretha Breil from Centro Euro-Mediterraneo sui Cambiamenti Climatici, for background information of governance system and decision-making regime in Italy. In conducting these three interviews, I chose the semi-structured type to the optimal way for questions of "how" and the "why," and to be able to steer two city officials' interviews with similar structure but with including individual supplementary questions. All the questions are enlisted as appendixes in the tail end of this thesis.[7] Transcribed interviews form essential empirical data, which have been unraveled alongside with rest of material in chapter 5.

Alongside with transcribed interviews, I have analyzed policy documents, strategies, and marketing material of Turku and Bologna in their original language – Finnish and Italian. Lastly, I have assessed the content in interconnection with the nation state's climate policies in the equivalent field of adaptation or carbon neutrality. I have gone through climate program, strategy 2029 and strategic programme 2029 of Turku (Turun kaupungin kestävä ilmasto- ja energiatoimintasuunnitelma 2029, Turku 2029 – pohjoisen Itämeren kiinnostavin kaupunki, Kilpailukyky ja kestävä kasvu) as well as adaptation plan, climate profile and resilience report of Bologna (Piano di adattamento della Città di Bologna: strategia di adattamento locale, Profilo Climatico Locale di Bologna, Bologna città resiliente). I have analyzed these materials in two phases. First, I have picked up contents, that relate to motivation and keywords, which have been used to categorize drivers in previous studies. After this phase and careful breakdown of the texts, I was forced to discover that this categorization was not sufficient, which led me to draw new categorization, that based on the previous ones but is developed further with findings of my case study. After formulating new categorization, I moved to the second phase, in which I coded the material correspondingly to my categorization. The final categorization includes five drivers that are similar to those that have been formulated in two research articles: Why do cities get involved in climate governance? Insights from Canada and Italy by Emiliano Scanu and Geneviève Cloutier & What Explains Cities' Climate Policy - Making? A Review of Drivers and Barriers by Maike Sippel and Till Jenssen. I present the five drivers for urban climate

[7] Sarajärvi & Tuomi 2018.

response in chapter 2.4.1. Previous studies and interview material are used as quotations in this thesis, but to conclude chapters thematically. I have had doubts considering this style but ended up following notion of Eskola & Suoranta, that original phrases may have two purposes: one either strives for justifying an earlier presented claim or uses quotations of bases to one's interpretation.[8]

2.2 Research methods

This thesis research constructs upon qualitative research methods, and more precisely, follows the inductive approach. Analysis in this thesis follows Alasuutari's description of fact perspective, in which research material is considered more or less realistic and truthful interpretations of reality. For fact perspective, it is typical to make a clear distinction between reality and allegations of existence. Characteristic to fact perspective is that research material is a source, through which informants illuminate or omit the researcher of the topic. [9]

I have not, however, pursued to present statistic generalization, but rather describe a broad phenomenon from a specific angle: climate policy motivation in progressive European cities. In conclusion, my objective has been to produce based on research material, one interpretation of the phenomenon. Consequently, to meet this purpose, I have chosen the case study as a primary method for my research.

Case study method focuses on a single unit for analysis. Sandana et al. explain in Fundamentals of Qualitative Research, that "the purpose of case study is not to develop an argument for how the single case represents or reflects comparable individuals or sites or generalize, but to examine the phenomenon in-depth". This applies to purposes of my thesis as well. Validation for the choice of case study method more or less is, that cases I have chosen represent individual units of a more substantial group of European climate progressive cities. This method offers material and opportunity to develop categories of motivational factors to urban climate response. Each case serves as a building block to this categorization and hence drawing assumptions as findings of this thesis. As Sandana et al. illustrate: "multiple cases might be examined simultaneously or consecutively for comparison and contrast."[10]

[8] Eskola & Suoranta 1998.
[9] Alasuutari 2011.
[10] Sandana & al. 2011, 8.

By harnessing case study method, I have been able to present findings of motivational reasons for European cities to be climate progressive. Professor Sharon Crasnow has written, that case studies provide *evidence for causal claims*. [11] If by case study, a particular cause of a specific effect is sought, and we want to study how a particular phenomenon exists within a real-world context, case study method is a competent choice for the research.

Finding out causes for particular motivation in qualitative research requires a way to elaborate on the research material. This thesis follows a traditional approach of explanatory case study model, which attempts to explain why certain behavior has occurred by determining causes. In this case of the research question set, the determined cause is an exceptional activity of municipality in setting climate targets.

Conclusions of this thesis have been formulated as described so far in this chapter. At the beginning of this analyses, I did not know if I end up in conclusions of the thesis, to present the results by coherence or by particular characteristics of case study material.

2.3. Literature review

Literature and research material on urban climate policy and climate motivation are abundant. As urban climate response increase and spread, so does research on urban climate action. This has been the case in recent years of climate research. Within abundant literature, I have chosen to follow the line of urban climate motivation. In this context, literature delimits.

The first in-depth and interdisciplinary analysis of the role of cities in addressing climate change Cities and Climate Change from Michelle Betsill and Harriet Bulkeley in 2002. This research illustrated the multilevel nature of climate change governance, which has been later studied more. Betsill and Bulkeley argued, that local authorities have been acknowledged in international agreements as essential actors to implement globally agreed climate policies, but that local governments have not just responded to predefined policy goals set within national and international arenas. According to them, local governments have rather governance of global issues in their own right, such as taking action on sustainability independently of a national government, creating networks to exchange best practices and lobby at a national and international scale. [12]

[11] Crasnow 2001, 655.
[12] Betsill & Bulkeley 2002, 2-4.

For a closer match of motivational drivers, it is rational to examine parallel examples of players, that have previously executed climate policies as pioneers or with high ambition. For some decades, the US and the EU have been the parties in UN conventions, that have high motivation in environmental policy setting and reducing greenhouse gas emissions. The US gained its pioneer status in the early 1970s, as it executed preparations for the 1972 UN Conference on the Human Environment and championed treaties. The US demonstrated leadership again in the mid1980s, acting as the driving force behind the 1987 Montreal Protocol on Ozone Depleting Substances. In Kelemen's argument, states and other entities are inclined to practice environmental protection, when there is public demand for it. In the last two decades, however, the EU has emerged as the undisputed leader in international environmental politics. The EU has emerged as a conductor supporter of every major international environmental treaty since 1989.

Climate efforts of the EU have been widely studied, and besides spreading post-materialist values, the literature suggests a variety of reasons why the union has made such a priority of dissemination of its environmental norms. Ian Manners has dealt the issue from perspective of the union's efforts to legitimize its purpose and distinguish itself from another great powers on global stage of geographical superpowers. By establishing itself as "normative power" in policies considering democracy, human rights and environmental issues, the European Union has sought to differentiate its identity in contrast to for example the US. This literature suggests that the EU has asserted leadership on questions of global environmental governance to carve out an identity and a profile for itself as a 'normative' or 'civilian' power on the world stage. As Daniel R. Kelemen has argued, "the interaction of developments in domestic politics and international regulatory competition has been the factor to provide a compelling explanation for the emergence of EU environmental leadership". [13] Unlike in the United States, the EU itself lacks decisive power to act on affairs that do not derive from either the member countries or are accepted by the MEP's elected from the member countries. Therefore, there is a reason to assume, that amongst the member countries, there are also progressive or pioneer countries. With this presumption we come back to the governability of the effects of global warming. In the following chapter, cities' activity towards combatting global warming and the motivational factors in concrete, are perceived more precisely.

[13] Kelemen 2010, 3-7. Manners 2007.

Instead of states, this thesis seeks to explain what drives climate policy efforts of cities. In this connotation, cities are micro-societies within their nations. The argument of individual motivation can hardly explain cities' climate actions entirely, as citizens are not the only defining unit for cities. Although cities are not single units with homogenous values, they do consist of many individuals. In this hierarchy, the role of citizens, businesses, and non-governmental organizations cannot be overlooked either. However, this thesis concentrates on the official decision makers in cities.

Behind policies, there is a considerable number of individuals who are motivated to support climate change-related policies. Therefore, in order to examine climate motivation drivers of cities, it is reasonable to investigate individual motivation in the context of environmental action. This perception has been studied in abundance. For example, in a worldwide survey in 1995, 62% of the respondents indicated that they would agree to an increase in taxes if the extra money were used to prevent environmental damage. In 2000, a survey of 11 developed and 23 developing countries found that 83% of all respondents were concerned a fair amount (41%) to a great deal (42%) about environmental problems. Already in 1995, the majority of the people globally were both concerned about environmental degradation, then what has development been on the level of different administrative entities. [14]

Local Governments for Sustainability (ICLEI) - the leading global network of more than 1,500 cities, towns and regions committed building a sustainable future describes its vision in the following way: "ICLEI envisions a world of sustainable cities that confront the realities of urbanization, adapt to economic and demographic trends and prepare for the impacts of climate change and other urban challenges".[15] In their research, published in 2008, Qi et all used a perspective of collective expression of motivation, when pursuing to explain climate motivation of they define the collective expression of the motivation as "the collective expression of the motivation of key government officials and top leaders in the local government. " [16] Harriet Bulkeley's review of environment and resources argues, that based on earlier studies' suggestions individuals can only take climate change action to a certain point. Broader institutional capacity for climate action is necessary to overcome constraints of administrative structures, party politics, and political timetables, as well as the loss of

[14] Leiserowitz, Kates & Parris 2005, 26.

[15] ICLEI - Local Governments for Sustainability 2016, 2.
[16] Qi et al. 2008, 390.

particular individuals. [17] Therefore, as said, a system-wide, collective expression of climate motivation in a city requires commitment and motivation of significant and necessary individuals, but to succeed into addressing climate change, the stable capacity of several institutional actors is needed.

In 2014, Bamberg; Rees and Seebauer wrote in their article in the Journal of Environmental Psychology, that to that date, there had not been systematic research on collective climate action. Hence, they provided, what they called "starting point for such a research program". They describe skepticism, that was shown regarding an approach, in which transformation toward sustainable society is approached focusing on individual behavior. Hence, the more useful setting is to understand how, when, and why people act conjointly to engage in sustainable manners and community-based collective action initiatives. They found out that "participative efficacy, individual efficacy, and especially social identity are essential drivers of collective action participation in the environment and climate protection field". [18]

For transition to climate awareness and low-carbon economy, individual change is premise to system-wide transformation in human society. Without individual behaviour, system-wide change can hardly take place. In the following chapters I explain through policy documents and interviews, which kind of drivers have spurred cities for the collective expression of climate motivation and to establish climate policy objectives.

2.4. Theoretical framework

Notably, in questions of environmental conservation and exploitation of natural resources, the concept of the tragedy of commons is often used to describe the complex nature of the dilemma. In the tragedy of commons, shared resource of a public good is exploited by individuals, of whom no one holds responsibility and ability to govern the resource. Combatting global warming, in a sense, is the tragedy of commons of the modern age. For the common good, each actor must mitigate producing greenhouse gasses without benefitting directly from the effort.

Complex, unpredictable, and often unmeasurable and unexplained environmental issues are challenging for governance. Yet, in the light of the tragedy of commons, to be governed, the

[17] Bulkeley 2010, 234.
[18] Bamberg, Rees & Seebauer 2015, 155-156.

resource needs to be governable. Climate change stands as an exceptionally relevant example of an environmental problem, that is troublesome from the perspective of governability. However, Francis Santosa and Jorge Pachecob introduced an evolutionary dynamics approach, which led them to claim that in fact, risk of collective failure provides an escape from the tragedy of the commons. Santosa and Pachecob argued, that instead of involving a large number of people, local agreements raise the probability of success.[19] When urban authorities face the troublesome tragedy of commons, which sort of drivers urge them to work for the common good? What kind of policies cities establish in an operational environment where the outcomes of their efforts may not actualize within their borders? Can cities have governability over global warming, when the issue itself is so complicated in terms of governability?

Preventing global warming or reducing its effects are objectives, that serve the purpose of ensuring the viability of world and local surroundings as we know it. Besides this higher purpose, cities, states, and countries have several distinct reasons on many magnitude for activity in the climate policy field. Additionally, these reasons remodel the display of tragedy of commons into challenges, changes, and prognoses that are governable to city authorities.

Local climate response has also spurred studies and hypotheses of reconfiguration of political authority between cities and nation states. “Devolution revolution,” asks, if urban climate governance is restructuring. In her article Cities and the Governing of Climate Change, Harriet Bulkeley reviews, that according to recent studies’ views, multilevel governance is regarded as a stage upon which urban responses to climate change and urban governance are played out. What she notes, is that “less attention has been given to the possibility that the urban governance of climate change may be a key site in the reconfiguration of state-based political authority.” The situation may provide an opportunity, where the nation-state authority reduces. [20] In the case of climate governance, the molding of a new paradigm of power shift is suggested taking place.

Abundant previous studies of climate and environmental motivation have been feasible material to examine the motivational factors. Professor of Political Science R. Daniel Kelemen has approached this theme from a perspective of the development of the society, the wealth of the state and distribution of wealth within the nation states. Kelemen has asserted, that overall increases in

[19] Santosa & Pachecob 2011, 421–425.
[20] Bulkeley 2010, 231-232.

wealth encourage the spread of post-materialist values. This development inspires, according to Kelemen, greater public support for environmental protection.

When this support develops further through the political process, it transforms into a higher propensity of states to practice climate policies and sign and ratify international environmental treaties.[21] In Kelemen's argument, states and other entities are inclined to practice environmental protection, when there is public demand for it.

To scrutinize climate motivation of cities, we must first define, what we mean when we use the term "city." Cities are always a somewhat loose formation of a group of heterogeneous people. For example, the European Union does not have a specific definition of what is a city. In this thesis, I use the term "city," when I mean the official local authority, local government, and the municipality – a collective actor, that represent the inhabitants in its territory.

To examine cities further, we must bear in mind the undeniable fact, that cities are represented by particular individuals, who use power and give a face to the city. The city council, a committee, city government, mayor, or a civil servant are each position, in which particular individuals form the city's policies. Cities do not operate in a vacuum but are parts of multi-level governance in a complex network of inter-relations. Bearing this in mind, this thesis focuses on discovering motivational factors, which can be tracked to formulate among city authorities.

2.4.1 Drivers for urban climate motivation

Emiliano Scanu and Geneviève Cloutier define economic and social drivers as implication factors in their article Why do cities get involved in climate governance? Insights from Canada and Italy. Economic and political/cultural drivers originate from Maike Sippel and Till Jenssen's article: What explains cities' climate policy – making? A review of drivers and barriers as drivers for local climate governance. Besides these, I have created new categories that are drivers and developed existing ones. Reasons for re-formulation of new categories of drivers was that I found existing ones too generalized. In my view, this applies especially to a common ground between economic drivers and framing.

[21] Kelemen 2010, 6-7.

Following table consists of drivers of local climate governance of Sippel and Jenssen and of Scanu and Cloutier:

Sippel and Jenssen: Drivers for local climate governance – secondary sources from the literature	
DRIVER	SPECIFICATION
Economic	Cost savings, revenues, smart growth
Political / cultural	External pressure and trickle down, international pressure, reputation, trend setting, altruism
Liveability	Air quality, traffic, social aspects, other liveability
Informational	Perceived vulnerability
Scanu and Cloutier: Urban climate governance analytical grid, municipal involvement in climate governance	
Ecological factors	Geomorphological and climatic conditions
Economic factors	Funds and subventions, growth opportunities
Institutional factors	Normative frameworks and climate knowledge
Political factors	Political will to tackle climate change
Social factors	Social issues related to climate change
Framing factors	How climate change is problematized

As for my own table, I have integrated liveability driver and ecological factor into one driver, after making resolution of liveability being in my material connected substantially to environmental and

ecological objectives. Framing factor of Scanu and Cloutier have been broadened to comprehend both issues of framing and building a reputation. Reputation has become one of the main drivers on the grounds of research material, and this theme blends in framing. As I have examined drivers for collective urban climate response, I have encountered individual motivation. Personal motivation problematizes making conclusions regarding collective civic motivation. Options with disassembling and coding elite interviews in my research have been to exclude individual motivation from the whole material or merge individual drivers under other drivers or define a separate category for drivers behind individual action. I have chosen the first option, but not without questioning its applicability. Each of the options, in my opinion, have weaknesses, but I found that having a separate category for individual drivers would create disbalance in this precise study. In the end, personal motives, such as promotion, professional urge to action or building network, are not relevant for my research question. Drivers for urban climate policy action in Bologna and Turku and primary themes for coding is presented in the following table.

Ratilainen: Drivers for urban climate policy action in Bologna and Turku	
Economic	Funds and subventions, growth opportunities**,** cost saving, revenue, investments, business, jobs, efficiency, possibilities to sell expertise, green growth, smart growth
Ecological and liveability	Disaster risk reduction, vulnerability, mitigation, resilience, adaptation, scarce water, intensification, casualties, flood, heat waves, temperature, intensity, air quality, liveability, health, natural resources, carbon sink, quality of life, aesthetics, biodiversity, geomorphological and climatic conditions, air quality, traffic, other liveability
Framing and reputation	How climate change is problematized publicity, communication, fore runner, leadership, reputation, trend setting
Political and cultural	Political will to tackle climate change, cooperation, networks and partners, authority, public pressure, governmental activity, authority, External pressure and trickle down

Social	Social issues related to climate change, health issues, groups of vulnerable people, enforcing self-motivation, community spirit, social resilience, wellbeing, equity, alleviating poverty, equality, global justice, global responsibility

3. Global warming and development of urban climate response

Discussion of global warming and climate policies as such, merged robustly into a worldwide topic in 1990, when the Intergovernmental Panel on Climate Change (IPCC) released its first assessment report about temperature increase – statement, that would be in years to come recognized as game-changing piece that led to adoption of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992. This report was the one to reveal that global temperature mean has increased by 0,3°C to 0,6°C over the last 100 years. In 2015, for the first time in the planet's history, annual average global carbon dioxide concentrations reached 400 parts per million. The primary reason for this is that the amount of produced greenhouse gas (GHG) emissions, has grown significantly since pre-industrial times, with an increase of 70 per cent between 1970 to 2004. Additionally, total anthropogenic GHG emissions have continued to increase at accelerating rate between 2000 and 2010, despite the fact, that never has policies that aim to mitigate greenhouse gas emissions, been so abundant as now. [22]

Although the mechanism of the greenhouse effect has been understood for almost 200 years now, and the share of GHG emissions in the atmosphere has been observed for decades, political leaders of the world have not always paid attention to the seriousness of outcome: global warming. By 2016, global warming had caused the temperature mean to reach a crucial milestone of 1,1°C compared to the prehistoric period, thus making 2016 hottest year in history. In 2014 the IPCC published its already Fifth Assessment report, which was a wake-up call for participants of the upcoming UNFCCC climate convention in Paris, a conference which was followed all over the world with high expectations. According to the assessment report, the increase of global mean surface temperature by the end of the 21st century - relative to 1986–2005 - would likely range from 0.3°C to 4.8°C. Each

[22] World Meteorological Organization, 2016. IPCC 5-7, 2015.

of the scenarios would have drastic effects on life on the planet in different ways and on different scales. [23]

Amongst UN's climate conventions, the following year, 2015, would remain in the history of successful climate diplomacy. In COP23 in Paris, nations reached consensus, acknowledging the anthropogenic cause of global warming and the urgent need for action, to prevent an absolute climate catastrophe. In the outcome, Paris Agreement, countries set a mutual emission reduction target for the first time: "increase in the global average temperature would need to be restrained below 2°C above pre-industrial level and pursue to limit temperature rise in 1,5 °C". Moreover, the following text from the agreement highlights the other significant area of climate efforts, which: adaptation. The aim of all parties in the agreement is: "increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production".[24]

Consequently, in the history of global climate negotiations, mitigation has been in indisputable position, but during recent years, adaptation and the concept of loss and damage have risen on par. Nations in Paris and earlier, the scientific community, recognized that the global temperature mean will continue to rise and will have massive effects on the ecosystems and viability of the planet. Regardless of the pace and number of reductions in greenhouse gas emissions, there is a need for adaptation.

3.1 Development of urban climate response

The first wave of municipal responses to climate change had begun to take form in early 2000, as individual cities, predominantly in North America and Europe, engaged with the issue. 1987 published Brundtland Report had recognized and highlighted the importance of local action as a means of securing global sustainable development. In the aftermath, in 1992, the game-changing United Nations Conference on Environment and Development took place in Rio de Janeiro. Cities started to organize for this summit, and three different transnational municipal networks were formed: Local Governments for Sustainability (ICLEI), The Climate Alliance and Energie-cités. [25]

[23] Fleming 1999. IPCC 2018, 10.
[24] United Nations 2015, 1-3.
[25] Bulkeley 2010, 229-230.

Nevertheless, these urban efforts, much attention, was not first given to urban climate actors. For national governments and international regime, emphasis regarding local activity was on sustainable development, sustainable growth, population and environmental degradation in urban areas, rather than climate change. Local authorities had engaged in sustainable development on a large scale within the urban sustainable development plan Agenda 21, which was widely seen as the central environmental task for regional actors. Within the history of Conference of the Parties of UNFCCC, local governments did not have a role in the first conference in Kyoto 1992, but since that, municipal leadership summits held parallel summits to COPs and in recent years, gained an institutional foothold on the meetings. Significantly, since 2005, the Local government and municipal authorities has been one of the observer constituency's in COPs. [26]

Towards 2010 and after, the number of urban climate initiatives has multiplied, and urban climate agenda become increasingly known. At COP16 in 2010 in Cancun, local and subnational governments were recognized as governmental stakeholders. At COP19 in Warsaw in 2013, the COP Presidency hosted the first Cities and Subnationals Dialogue, gathering mayors and ministers from all geographies and scopes at a roundtable discussion. These interactions resulted in a decision recognizing the role of cities and subnational authorities in raising the global level of ambition for the pre-2020 period. [27]

Cities have established, enhanced and accelerated collaboration, firstly on a smaller, yet transnational scale. Be it means to operate within the framework of UNFCCC, share knowledge of urban climate impacts or find solutions in collaboration for reducing greenhouse gas emissions, cities have founded remarkable and influential constituencies on the very core, where global warming is discussed, and climate policies imposed.

3.2 Beyond 2020: cities demand climate leadership and rise into vanguard of climate policy actors

During the last decade, urban response to climate change is overall evolved from underestimated to mainstreaming issue. Besides, if in the 1990s, urban engagement with global warming was more

[26] UN Habitat 2011, 25-27. Bulkeley 2010, 234. United Nations Human Settlements Programme (UN-Habitat) 2011, 25.
[27] ICLEI – Local Governments for Sustainability 2015, 4 & 25.

on the focus of small and medium-size pioneer cities, in 2010, the urban hierarchy had shifted as metropolitan, and capital cities of the world have steadily involved urban climate networks. [28]

Betsill and Bulkeley wrote in 2003: ”however, local governments have not just responded to predefined policy goals set within national and international arenas but represent an important site for the governance of global issues in their own right”. Besides ICLEI, The Climate Alliance and energie-cités, various noteworthy climate networks, like The Large Cities Climate Leadership Group (C40), the World Mayors Council for Climate Change or the Covenant of Mayors, have since been established by the cities and for the cities. [29]

2017 COP23 in Bonn was followed closely for its importance in preparing the Paris Agreement rulebook, which was set to be finalized and approved in COP24 in Katowice. Alliances of urban climate actors gathered in the conference. If in 1990s cities had little role at global climate negotiations, by 2017 they had consolidated their position as a significant party. In COP23, ICLEI and Covenant of Mayors announced that they would facilitate dialogues in 40 countries around the world in 2018 at local and regional level on how to increase ambition to reach goals of Paris Agreement. In the aftermath of COP23, UN Climate Change Executive Secretary Patricia Espinosa gave a statement that described the role of urban actors aptly: “Local and regional governments have become a powerful catalyst towards ever higher climate action”. [30]

In their 2007 published article, Betsill and Bulkeley ask in their article: rhetoric or reality? Researchers had identified a persistent gap between the policy discourse and the reality of local climate action. Cities struggled in keeping climate engagement as a priority within municipal policies, which leads to a lack of impact. Eventually, this gap has been further studied abundantly as more urban initiatives have been launched and implemented whether national or local climate agenda, alike today, debate and observation of the relationship between rhetoric and reality is constant. Whether the 1990s or 2020s, a broad variety of reasons related to capacity, circumstances and motivation affect efficacy or failure of urban climate agenda. In the following chapters, I investigate findings of motive drivers from previous research and two case cities, who have been profiled as cities of climate action rather than not in rhetoric but in reality.

[28] Bulkeley 2010, 233.
[29] United Nations Human Settlements Programme 2012, 26.
[30] United Nations 2018.

4. Case study: climate motivation in two climate ambitious European cities

Bologna and Turku differ from each other in their geography, climate, population as well as regime, administration, and jurisdiction. Cities operate, make policies, and set strategies in a multifaceted operational environment. From Finland to Italy, decision-making processes and the distribution of power between jurisdictions and administrative levels vary. So do culture, custom and relation on how municipalities and state collaborate.

And yet, there are affinities. The most apparent and relevant relationship in climate policy field is European Union legal framework. Being a hybrid system of supranational and intergovernmental decision-making, the union decides upon climate policies, but not without member states. Finland and Italy have both, alongside the EU, ratified the climate treaties, as well as adopted the Unions' climate-related regulations and directives into national legislation and implementation. Through the European Commission, the European Parliament and the European Council, Finland and Italy are involved in climate change policies of the EU. Based on the Lisbon treaty of 2007 and the Amsterdam Treaty of 1997, climate and energy policy are shared competences of the EU and its member states.[31] EU legislation applies to the national level in each of its member countries through the Commission's directives and regulations, which have significant influence member states and regional and local governments. In the case of climate change, the core target among member states is in the EU Climate-Energy Package 2013-2020.

In the global climate summits of the UN, both countries are a part of the same regional Party of Western European and Other States. Within this position, each country is also perceived separately by its policies and role in global climate negotiations and the EU. As the EU Member States, Finland and Italy contribute in the Intended Nationally Determined Contribution (INDC) of the European Union, submitted to the United Nations Framework Conventions on Climate Change (UNFCCC).

Coming down to the local level in governance, spheres of authority become more tangible. Local authorities in Europe often have ownership over decision-making regarding land-use, traffic planning and transportation, waste management, energy issues as well as zoning and building regulation. However, variation is substantial across national contexts. Varying from country to country, national and regional governments have also actively supported civic actions. After all,

[31] Climate Policy Observer, 2018.

opportunities and constraints are not shaped within the boundaries of local government but constructed through emerging forms of multilevel governance. Cities are under the hierarchy of a nation-state, and the characteristics of nation-states influence city-level policies. In this context, Bologna and Turku exercise at least to some degree a partial autonomy in climate governance and both work in climate policy field somewhat apart from the state. [32]

While cities can both develop and implement climate policies in their own right, much local action takes place in the context of broader national frameworks. These can either empower or slow down city-level movement. Acknowledging this multidimensional setting and background, the chapter of conclusions evaluates motivation on climate policy work in case cities and mirror each to the nation-state's objectives and findings of previous studies. [33]

4.1. Adapting into effects of climate change in Bologna and Italy

According to the UNFCCC, Adaptation refers to "adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts. It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change". The Mediterranean area is one of the leading climate change hotspots in Europe, where potential impacts may be particularly severe. Sea level data shows a rise of about 150 mm in the last two centuries, and a 20-year-long reanalysis (1985–2007) of marine temperature and salinity detected long term temperature variability and a positive salinity trend in the ocean layers. Regarding extreme climate and weather events, heat wave durations and frequencies have been observed to have increased more than six-fold since the 1960s. Between the period of 2021-2050, surface warming is projected to increase by 1,5°C in winter and 2°C in summer, compared to the period of 1961-1990.[34]

Italy locates in the Southern part of Europe and includes the Italian peninsula that from the Alps stretches into the Mediterranean Sea. Being that Italy surrounded is by sea, Italy's climate overall is the Mediterranean, divided into four sub-types. Year 2016 was the 6th warmest year in Italy since 1961. Synchronously, the average sea surface temperature was the 4th warmest after 2015, 2012 and 2014. While no statistically significant trend in national precipitation was registered, several

[32] Bulkeley 2010, 238-240.
[33] OECD 2014, 2-3.
[34] United Nations Climate Change.

extremes of rainfall occurred in 2016. Compared to other European countries, the primary energy consumption of Italy is characterized by significant use of oil and gas, structural electricity imports, a weak coal contribution and the absence of nuclear power. The share of renewable energy in Italy's energy supply mix is higher than the average of OECD countries, mostly due to hydropower. From the beginning of the 1990s, Italy has created several policies and instruments regarding emission reduction, energy policies, transportation and financial instruments, and waste management. In this work, implementation of the Kyoto Protocol and the National Strategy for Adaptation to Climate Change have played a crucial part in the development. [35]

The city of Bologna is the largest city of the Emilia-Romagna Region in Northern Italy with a population of 386 633. In Köppen Climate classification, the city lays on Humid Subtropical Climate. Green areas cover 9% of the town. As for effects of global warming, Bologna has been explicitly affected by heatwaves, droughts and flooding Among climate change researchers in Italy; Bologna is one of the cities, that is known for its systematic efforts in adapting to effects of climate change and building a resilient climate city. Bologna has received international recognition for its efforts in abundance, latest being winning the Bold Measure Award at the 2017 CIVITAS Awards and shortlisted for 2018 Transformative Action Award.[36]

4.1.1. Climate policies in Italy and Bologna

In 2002, the Environment Ministry of Italy released the government's strategy to cut GHG emissions by 6.5 per cent below 1990 levels between 2008 and 2012, as agreed under the Kyoto Protocol. The Italian parliament's environmental committee set out a comprehensive action plan aimed at helping Italy to comply with the GHG emission reduction targets under the Kyoto Protocol in 2007.

The Republic of Italy is a parliamentary democracy with a multi-party system. The legislative consists of a bicameral parliament with the Chamber of Deputies as the lower house and the Senate as the upper house. The Italian constitution lays responsibility in some matters to the regional level and thus requires the state to delegate respective powers to the regions for enforcement. On the state

[35] Ministry for the Environment, Land and Sea 2017, 8-12.
[36] Weather base. CIVITAS 2016.

level, protection of the environment, ecosystem and climate policies are under The Italian Ministry for the Environment Land and Sea of the central Government. [37]

As for climate policies, Italy operates in conjunction with the European Union and The Union for the Mediterranean, which consists of the 28 EU Member States and 15 other Mediterranean partner countries. The latter established a Climate Change Expert Group in 2014, and its activities support the UNEP Framework for Climate Change Adaptation in the Mediterranean and serve as a regional dialogue platform. "Regional Framework for Climate Change Adaptation in the Mediterranean" was endorsed at the 19th meeting of members of the Barcelona Convention. The vision of the framework is that, by 2025, the marine and coastal areas of the Mediterranean countries and their communities have increased their resilience to the adverse impacts of climate variability and change, in the context of sustainable development. [38]

In 2017, 6 out of 20 regions called on the government to declare a state of emergency due to water stress. The United Nations and World Health Organization describe climate profile of the country followingly: "Italy has a heterogeneous climate which leads to differences in the immediate risks throughout the country. Rising temperatures, coastal erosion, flooding and drought may lead to water scarcity. Water stress could also lead to a reduction in agricultural production, higher risk of forest fires, increased desertification and could threaten economic progress. Besides, climate change impacts air quality, particularly in urban settings, and may lead to changes in the spatial distribution of flora and fauna, which degrades biodiversity". Furthermore, more frequent hot days and nights, longer warm spells and more intense and recurrent heat waves are projected for the whole Mediterranean region. Italy's seventh communication report, submitted to UNFCCC, reveals that Italy locates in an area, which is identified as particularly vulnerable to climate change and considered to be a hotspot of climate change impacts. In Italy, total greenhouse gas emissions in CO2 equivalent, excluding emissions and removals from LULUCF, have decreased by 16.7% between 1990 and 2015. CO2 accounts for 82.5% of total emissions in CO2 equivalent, shows a decrease of 17.9% between 1990 and 2015. It should be noted that the economic recession has had a remarkable influence on the production levels affecting the energy and industrial process sectors, with a consequent notable reduction of total emissions, in the last six years.[39]

[37] Climate Observer.
[38] The United Nations Environment Programme 2016, 399.
[39] World Health Organization & United Nations 2018, 1-2. Ministry for the Environment Land and Sea 2017, 47 & 173.

Ministry for the Environment, Land and Sea drew the National Strategy for Adaptation to Climate Change in 2015. The strategy, Strategia Nazionale di Adattamento ai Cambiamenti Climatici, works as a framework for climate adaption and vision to address the issue. Scientific experts, stakeholders and decision-makers have participated in the process of building the strategy, and it has served as an example of collaboration among national and regional governance in climate policy setting. The Italian National Strategy on Adaptation to Climate Change is to be updated every five years. The strategy has integrated other climate adaptation policy documents, such as the National Plan for Water Use 2005, the National Strategic Plan for Rural Development 2007-2013 and the White Paper of the Ministry for Agriculture on challenges and opportunities of the rural development in adapting and mitigating climate change 2011.[40]

This strategy originates from the European Union, where in 2013 "Strategia europea per i cambiamenti climatici" was initiated, followed soon by 2013 "Una Strategia europea di Adattamento al Cambiamento Climatico". In 2010 il Ministero dell'Ambiente e della Tutela del Territorio e del Mare included adaptation in sectoral strategic documents such as National Strategy of Biodiversity (Strategia Nazionale per la Biodiversità) and Strategy of Marine Environment. (Strategia per l'ambiente marino). Resilience also crosses sections of sectoral ministries. The objective of the strategy is to recognize the vulnerabilities of different sectors and regions in Italy. It means to offer a widespread perception into building resilience in the country and at a local level, as well as provide scientific analysis background as well as map disaster risk reduction measurements attached to adaptation. According to the strategy, climatic risks that the country and its cities and regions need to prepare to face are risks of natural disasters, stress to the water system, food secure, threats to human health, exploitation of natural resources, inequality among inhabitants, social and economic marginalization and conflicts and migration. Above all, extreme weather events become more frequent, and according to the strategy's preface, cannot be prevented, only mitigated.[41] National adaptation strategy is broad and comprehensive, and it mentions relevant projects regarding vulnerability, resilience and adaptation in Italy. Among these is also Bologna's BLUE AP.

[40] Climate Observer.
[41] Ministero Dell'Ambiente 2014, 4-6.

"The main goal of BLUE AP project is to provide Bologna of a Local Adaptation Plan, including the launch of some measures and actions, to make the city more resilient and able to react to flooding, drought or other main consequences of the climate change." [42]

Bologna's climate work derives from the early 1990s when the municipality was amongst first Italian cities to establish an environmental administration. At the same time, the city established an office for European affairs. From that on, the municipality has increased and developed its environmental and climate policies as well as established strategic and meaningful cooperative projects with different actors. Accordingly, the City of Bologna is one of the founding members of ICLEI and furthermore, the Ambassador of its Green Climate Cities Europe program. Bologna joined Covenant of Mayors in 2008 and Mayors Adapt in 2014. It is a member to Compact of Mayors and a signatory of the Aalborg charter and the Aalborg commitments and Urban-LEDS cities. Through international emphasis and networks, the City of Bologna has been well informed of topical issues abroad. Throughout organizational choices, continuity has been guaranteed over changes in electoral periods and political representatives.

Bologna, at the beginning of this era, dealt extensively with energy issues. Soon, however, in response to the rising saliency of mitigation efforts, the focus shifted to emission reduction policies. In climate talks, environmental specialists in Bologna highlighted the growing importance of adaptation, especially for cities. In October 2012, Bologna launched its most significant project in terms of climate adaptation, BLUE AP, which aimed to create a local adaptation plan for the municipality of Bologna. This project, called the Local Adaptation Strategy, was to be a framework that would generate measures and actions to make the city more resilient, less vulnerable, and better equipped to react to consequences of climate change. The first concrete product of BLUE AP has been the city's Local Climate Profile (LCP). The LCP comprises of two main components: the analysis of future climate scenarios and the identification of possible vulnerabilities. The Adaptation Plan outlines strategies capable of combatting the critical conditions highlighted in the LCP. The Local Adaptation Strategy focused on implementing three main strategies linked to Local Climate profile: drought and water scarcity, extreme rainfall events, and heat waves. [43]

[42] Comune di Bologna 2013, 1-2.
[43] Comune di Bologna 2013, 4-5.

The target of the Adaptation Plan – Local Adaptation Strategy of Bologna has been to engage the city in a severe and systematic consideration on how to prevent the impacts of extreme events, and on how to adapt living environment to future climate. The plan recognizes drought and water scarcity, heat waves, intense rainfalls, and hydrogeological risks as such weather events as main focus points of adaptation. Besides the plan, BLUE AP was constructed upon four other phases, two being participatory preparations for the plan and definition of Local Climate Profile, and the other two being releasing ten pilot projects and monitoring impacts of the project. [44]

The city council of Bologna discusses and approves climate policies such as The Adaptation Plan. It consists of 36 councillors and a mayor, with term limits of 5 years. As often is, climate policies are not obligatory at the local level and are thus not always implemented. In Bologna's case, commitment to climate work has, from its beginning, been in a continuum: sinuous. The first climate policies in Bologna were related to energy issues, in which the municipality focused on plenty. As climate change held an increasing space in public opinion and media, Bologna evolved its energy policies into a broader range, attempting to mitigate greenhouse gas emissions within the city operations. Likewise, adaptation and resilience rose later into the limelight, and environmental authorities in Bologna felt investing in adaptation to be a necessity for the city. The Coordinator of Environmental Quality Projects of the city of Bologna, Giovanni Fini, explained the process that led the city to establish the BLUE AP project. According to Fini, projects, events, and climate plans of the European Union have served as a valuable framework for Bologna's climate planning. What the city officials found, in the early stage of establishing an adaptation plan, was that the policies of European cities dealt mainly with natural disasters that had occurred previously. Adaptation plans are often created in retrospect of catastrophe rather than preparation for future risks which climate change accelerate. Bologna had evidence and knowledge of various problems to be incurred in the future. These events occur due to climate change, but no specific, sudden event could be singled out. In Fini's opinion, this has likely been the reason why Bologna has drawn a comprehensive adaptation plan as such, which considers several aspects of city actions.

Besides BLUE AP, which is the main focus of this thesis, the municipality's path towards environmental policies is noteworthy for its emphasis on adaptation. Bologna approved its environmental budget, Ecobudget, in 2003 to provide funding for environmental sustainability

[44] Comune di Bologna 2014, 2.

projects. The city has also approved the Sustainable Energy Action Plan (SEAP) and the Local Adaptation Plan to climate change. Concerning mitigation, the Sustainable Energy Action Plan aims to reduce CO2 emissions by 20 per cent by 2020. As is somewhat common among urban climate responses, the municipality has developed the Bologna Carbon Market - The BoCaM project - which has put in place voluntary carbon credits on the market. Following BLUE AP guidelines, the municipality established The RAINBO Project, which the project describes like this: "Bologna aims to develop and improve methods and tools to predict severe rainfall events and their impacts, focusing on the hydrologic response of the small watercourses within the urban area of Bologna". [45]

4.1.2. Evaluation of climate motivation in Italy and Bologna

Climate policy performance of the state of Italy has raised somewhat controversial evaluation. Scanu and Cloutier have analysed climate change policy motivation of Italy with following statement: "Application of European directives is neither automatic nor without dispute, as demonstrated by the fierce opposition of Italy's recent Berlusconi administration regarding European climate-energy. As a result of this political opposition, Italy lacks a comprehensive, binding mitigation strategy, and it has recently met its reduction objectives mainly thanks to economic recession". The political system and election terms are volatile, which oppose challenges for continuity of policies. Essential climate change policies of the state of Italy have been 2007 Climate Change Action Plan to help Italy comply with GHG emission reduction targets under the Kyoto Protocol, and 2002 Strategy to Cut National Greenhouse Gas Emissions by 6,5% below 1990 levels between 2008 and 2012. In 2015, Scanu & Cloutier concluded research Why do cities get involved in climate governance? The researchers have described the issue through insights from Canada and Italy. [46]

This study also asks the question "why" and in Italy, the case municipality in a study is Genoa. This recent study aims to understand why Genoa became engaged in mitigation and therefore, serve well as additional material for this thesis. In 2017 Filomena Pietrapertosa reviewed urban climate planning in Italy. A large number of Italian cities have developed mitigation plans and carried out decarbonisation strategies. In 2017, 3000 cities and towns had submitted greenhouse gas emission

[45] European Climate Adaptation Platform.
[46] Scanu & Cloutier 2015, 8-9. Climate Policy Observer.

reduction pledges under Covenant of Mayors. Climate policy motivation has in the past been emphasised in mitigation actions, while adaptation has raised less attention. According to global analysis that Pietrapertosa writes about, only one Italian city besides Bologna had drawn adaptation plan until 2017. As mentioned by Mr Fini, several towns have drawn prevention plan from the perspective of civil protection, but these approach civil protection more from the standpoint of natural disaster risks – rather than introducing proactive actions, the focus is on post-event actions.[47]

When looking at documents, policy papers, plans and strategies regarding climate change adaptation and resilience, quite clearly Bologna has so far exceeded the national progress in its scale. Why has Bologna taken so much effort in urban climate adaptation and resilience? People in Bologna have evidenced several problems that have roots in changing the climate, but the city never suffered from specific sudden climatic hazards. Climate hazards evolved slowly and were difficult to trace. Bologna sustained for the first time in their region of a shortage of water and heat waves have become more intense. Mr Fini suggests that extensive and comprehensive nature of adaptation plan derives from this situation on more than one weather hazards, that develops gradually.

In climate strategy, plan and BLUE AP papers, the objectives for the work and expected benefits are mapped out and set as justifications for the actions. Mainly, the reasons for these efforts, according to documents, relate to ecological factors and liveability. As it is written in BLUE AP presentation, "to keep the city less vulnerable and to be able to operate in case floods, drought and other consequences of climate change". Few of the project's other objectives have been "to raise awareness and mobilisation in decision-makers, stakeholders and citizens, about climate change risks, and increase their willingness to commit themselves to protect the environment and make a more rational use of water resources; and to communicate the results of the project at a local, national and European level".[48] Through these objectives, it is possible to find factors of opportunity to be progressive and access to international cooperation from political and cultural factors.

The reason why I came across with Bologna rapidly while searching for European cities working with urban adaptation, is that Bologna and precisely BLUE AP has gained recognition within various international networks and the European Union. Bologna has won the 2011

[47] Pietrapertosa et al. 2017.
[48] BLUE AP.

EUROPEANMOBILITYWEEK Award, as well as the 7th edition of the Klimaenergy Award, and been finalist of the Mayors Challenge, run by Bloomberg Philanthropies. The city was mentioned by climate specialists whom I asked for climate ambitious cities in Italy and in June 2017 G7 meeting for environmental ministers was held in Bologna. Bologna has found international recognition an asset for the city and justification of climate work. National and international appreciation has reassured commitment over electoral periods in the municipality and "being famous" for climate work has been an asset as Bologna has approached new partners and stakeholders. Consequently, policies have become more critical, when they have been attached as part of the story of adaptation work.

City officials have taken part in climate meetings of the UN and EU, in which they have gained knowledge of raising the role of adaptation and possibilities for funding urban climate projects. City official of Bologna confirms that climate actions are not compulsory - no national or international legislation sets climate obligations for cities. When asked for the reason to work in climate issues, it is said that the city officials' awareness of the importance of climate change effects had increased. In times of launching the BLUE AP project, the cause had strong political support from the deputy mayor, who had a concern for the future from an environmental point of view.

City officials, in the preparatory phase, have not made a proportionate amount of progress when compared to its set climate target, and the motivating factors between the development and supposed goals appear quite varied. While city officials became more and more aware of the grave ecological threat of climate change, the decision-makers of the city had learned of global climate issues negotiated on levels upper than municipalities gave authority or leverage. It seems that when experts have been able to produce predictions and calculations of future local changes, decision-makers' motivation towards climate policies has grown. In long term projections until 2030 and 2050, scientists were able to draw scenarios, which allowed city officials to target issues that would be most severe to Bologna, and decision-makers were able to find justifications from local environmental risks – motivation to act and establish objectives and resources for climate work. For the success of climate work, political commitment has been necessary, but from election term to term, the level of engagement has varied substantially.

While national adaptation strategy has been led mostly top-down and presumed to contain a threat of failure in local implementation, experiences of Bologna verify that in adaptation work, ties and

cooperation between national and local actors are absent. Whether this is structural or outgrowth of Bologna's more early and rapid awakening in adaptation action, the municipality has worked more on adaptation with the European Union and international networks of cities, than with the state.

Environmental experts' desire to work for effective ecological results in the city drives urban adaptation work. For instance, the City of Bologna desires to naturalize a channel of dirty water, which flows through the city. The city has a vision of pleasant riverbanks, usable water and more green areas for citizens. Another answer to the question "why", is the forthcoming master plan, in which one objective is to implement adaptation in city planning thoroughly and for instance, enhance the resilience of urban transportation. For governing environmental restoration, the BLUE AP has been an occasion to assemble scattered material into a plan which can be both presented in public and implemented effectively.

Most of the response to Bologna's climate actions have been positive. Presumably, in Mr Fini's opinion, the reason for that is that the project had tremendous and unexpected success. Overall, there are not that many urban adaptation plans, and of these few, most have taken place in Northern Europe. For this reason, Bologna has been asked to showcase the city's experiences in many meaningful conferences.

4.2. Pursuing towards carbon neutrality in Turku and Finland

Global warming is most intensive in the vicinity of the Arctic area, and consequently, warming happens twice as fast in Finland than on average. According to the Finnish Meteorological Institute, the climate in Finland has transformed to 2,3°C warmer than in mid-1900-century.[49] Nevertheless, unlike in Italy, drastic climatic and therefore environmental changes are yet to take form in Finland.

In Köppen Classification, Finland has a Warm Summer Continental Climate.[50] In each climate scenarios of IPCC, in Finland, the average temperature is expected to rise, especially during winter, when precipitation is also projected to increase. Ice and snow coverage are growing thinner, and

[49] Laine, Vanhanen, Halonen & Sjöblom 5, 2018.
[50] Weatherbase.

magnitude of surface area decreases. [51] Hot weather periods become more frequent and lengthy, highest temperatures grow higher, farming seasons become longer, and winters become less sunny.

Actual climate change policies began to rise in political agenda of Finland in 1995 – little after the Rio Summit was held in 1992. Strategies to prevent global warming have throughout these decades so far been formulated under the responsibility of the Ministry of Economic Affairs and Employment, while the Ministry of Agriculture and Forestry and the Ministry of the Environment oversee adaptation and international climate negotiations. In 2011, the Ministry of Environment established The Finnish Climate Change Panel to provide scientific recommendations and knowledge for decision-making, as well as to prepare policies regarding emission reductions. In 2019, strategic climate policy planning of the country is based on EU climate targets, national Energy and Climate Roadmap 2050 and The Climate Act, which in 2015, was the first national statute, approved by each parliamentary party. The Climate Act defines general long-term guidelines for climate change policies. Besides these, since 2000, the strategy of energy and climate policy has been drawn for each electoral term. Most recently, The National Energy and Climate Strategy was renewed in 2017 to outline the actions that will enable Finland to attain the targets specified in the Government Programme and to systematically set the course for achieving an 80–95 per cent reduction in greenhouse gas emissions by 2050.[52]

The emission reduction target of Finland, under EU's effort sharing, is 16% from 2005 emission level to 2020, and 39% to 2030. Compared to the 1990 greenhouse gas emission level, Finland aims for 80-95% reduction until 2050. The National Strategy, main objectives in emission reduction scheme are to phase out the use of coal for energy production, increase the share of biofuels in transportation to 30%, set an obligation to blend light fuel oil used in machinery and heating with 10% of bioliquids and to increase the amount of electric and gas-powered vehicles on the roads. Other targets relate to renewable energy production, energy efficiency, usage of renewable energy in transportation, and halving domestic use of imported oil. In 2019, climate change was one of the significant topics in Parliamentary Elections. Global warming became such highlighted theme, that when the leading party began to form a new government after the election result, the first question to other parties was: "Are you committed to reducing global warming globally to 1,5 degrees?".[53]

[51] Jylhä 2017.
[52] Ympäristöministeriö. & Työ- ja elinkeinoministeriö. & Ympäristöministeriö 2013, 27.
[53] Koljonen et al. 2017, 95. & Ympäristöministeriö 2017. & Työ- ja elinkeinoministeriö 2018 & Kauppalehti 2018.

In the Finnish administrative structure, the state and municipalities yield most power, while regional administrative authorities – regional councils and governments have less authority. The local authorities' fields of activity have expanded over the past few years. In Finnish governance structure, municipalities practice local self-governance and collect taxes. Districts are obligated to organise several services for their citizens, and besides that, it is within local autonomy to take responsibility for additional services and policies – such as regarding climate change. [54]

In Jenssen and Sippel's study on urban responses to climate change, the researchers claimed that even though local mitigation activities had become more common over previous few decades, the number of cities' mitigation achievements were rather poor. Their findings supported other studies, which have concluded that municipalities usually take measures in particular areas, like the energy sector and land use planning, in which they have direct control of. According to reviews, typical to this approach is, that it generates only a small proportion of mitigation to the municipalities' total emissions. [55] However, throughout recent years, cities have both realised and utilised their potential in climate action, and especially, emissions reduction. This goes with Finland too and particularly the city of Turku.

After the Paris Climate Convention in 2015, the government of Finland set a target of carbon neutrality by 2045. Carbon neutrality was not an extraordinary definition among climate policies in Finland since some of its cities had set similar goals sometime earlier. One of these was the city of Turku, which in 2012 set a strategic target of carbon neutrality to be reached by 2040. Six years after, the city council decided to tighten the timeline into the target year of 2029.

4.2.1. Climate policies in Finland and Turku

In the first commitment period of the Kyoto Protocol in 2008-2012, Finland's objective was to reduce greenhouse gas emissions corresponsive to the 1990 emission level. This objective was reached, with support by the Climate and Energy Strategy but also by the economic downturn. The strategy was later revised and supplemented with purposes of reduction of peat and coal in energy production, as well as the increase of wind power. The most recent government added the emphasis on biofuels and renewable energy solutions into the strategy. Alongside, governments have decided

[54] Ministry of Finance.
[55] Sippel and Jenssen, 2009.

upon building new nuclear power plants. In 2013, the prime minister appointed parliamentary energy- and climate committee to prepare memorandum, which would serve as a guideline towards carbon neutral Finland – a roadmap 2050. Neither have adaptation policies been neglected. The first national Adaptation Plan was approved in 2005, after which the adaptation perspective has been integrated into sectoral planning.[56]

Independent fund established by the Parliament of Finland, Sitra, published in 2018 an assessment of climate policies and targets of 50 biggest cities of Finland. These cities are responsible for one-third of the total emission of Finland, and interestingly, most of these municipalities have set tighter climate targets than those of the state. According to Sitra, more than a quarter of the people reside in a municipality, that aims to become carbon neutral by 2030.[57]

"Carbon neutrality" is a widely used target setting in Finnish climate policy. It can be understood and defined in a couple of different ways, and it is not always clear, what is meant when the target of carbon neutrality is established. According to CarbonNeutral®, a global standard awarded to businesses which have reduced their greenhouse gas emissions to net zero, carbon neutrality "is a condition in which the net GHG emissions associated with an entity, product or activity is zero for a defined duration". The Finnish Climate Change Panel defines carbon neutrality in its simplest form as a period, in which entity of functions produces only the amount of greenhouse gas emission, which can be bound. In the broad definition of carbon neutrality, all emitted greenhouse gas emissions have zero net effect at a certain period of time, usually one year. [58]

Most of the Finnish municipalities which have set climate neutrality target, are reaching for 80% reduction in carbon dioxide emissions compared to 1990 emissions and compensating the rest 20%. Among cities, the range of variation between emission reduction and compensation is from 80-20 to 60-40. The city of Turku has set the objective for carbon neutrality in 2029 with 80-95% reduction and compensation of residual percentage, making it one of the most ambitious among cities that reach for carbon neutrality. [59]

Turku has also been one of the first cities in Finland to establish climate targets in carbon neutrality. Consequently, the city has received a general appraisal for its efforts. For this reason, the city of

[56] Ilmastopaneeli 2016, 7-8.
[57] Sitra 2018, 3-4.
[58] Carbon Neutral. Seppälä et al. 2015.
[59] Sitra 2018.

Turku serves as an exciting counterpart for the city of Bologna – also a notable climate policy leader in its country.

Turku is the sixth largest city in Finland by the number of citizens, around 189 000. The city situates on the west coast of Finland, on a flat region called Finland Proper. As for the effects of global warming, mean climatic averages have changed in a way that can be traced to global warming. However, cities like Turku have not yet experienced drastic changes. Mean average temperature has risen and most drastically so, during winter. From 1960 on, snow coverage has become thinner, days of snow coverage have diminished, and the length of enduring snow period has become briefer. Climate risks and vulnerability that are prone to be caused by climate change in Turku, have been mapped in a more detailed way in the Climate Programme of Turku. In the analysis, the highest and most pressing risks recognised are extreme precipitation, flooding, storms, invasive species, alterations in ecosystem and cycles in freezing and melting. [60]

According to Climate, Environment Policy and Sustainable Development Development Manager of Turku Risto Veivo, climate policy work derive from the 1990s, when term "sustainable development" appeared first time into policy papers of the city. Real climate change policy work was launched more extensively in 2009 when the city council approved the Climate and Environment Programme, which was one of ten strategic plans of the municipality. From that on, climate policies have gained more foothold in strategic planning and sectoral policies. In 2014, Turku set a target year for carbon neutrality: 2040. After positive results in the reduction of the city's emissions since a few years later, the target year was moved to 2029.

Climate plan of Turku is based on model (EU SECAP - Sustainable Energy and Climate Action Plan), which has been launched by the European Union to be a uniform model for climate work of member countries. The Climate Plan consists of six main sections that are:

1. Goal setting, strategy and vision, adoption and observation
2. Baseline emission scenarios, objectives and emission counting
3. Mitigation actions for main emission sectors
4. Scenarios and accessibility denotation of the objective
5. Analysis on climate risks and vulnerabilities

[60] Turun kaupunki 22-24, 2018.

6. Adaptation readiness and actions

As the plan indicates, besides emission reduction, the city has in recent years put more effort in adaptation planning and resilience of urban infrastructure. Besides carbon neutrality target, intermediate goals have been set in the programme. By 2021, the emission reduction target is 59% from the 1990 emission level, and by 2025, the goal in comparison to a similar baseline is 65-70%. Alongside intermediate targets, the Climate Programme contains means to reach the targets: the pathway to 2029. Compared to the 2040 target, the 2029 Programme is based on more concrete actions in greenhouse gas emission reductions. Information on the sectoral breakdown of urban emissions steers the emission reduction planning of the programme.

From 2029 on, the city intends to become climate positive, which requires negative emissions so that the compensation exceeds than the amount of emissions. [61] These goals and the previous 2040 target make the city of Turku the most climate ambitious of the largest cities in Finland by target year and is, therefore, a favourable case example of a town that sets more ambitious climate targets than the state.

4.2.2. Evaluation of climate motivation in Finland and Turku

“Nordic countries have to seize climate leadership in Europe”, declared the Minister of the Environment, Energy and Housing Kimmo Tiilikainen in the Nordic Ministers of the Environment Assembly in October 2018. The assembly was held for preparations to COP25 in Katowice and to discuss over additional emission reduction pledges. By the end of 2018, the Government of Finland set a timeline for achieving carbon neutrality in 2045, even though some considerable institutions, such as Finnish Environment Institute, suggested that target year could be as soon as 2030. So far, several municipalities in Finland have set tighter climate targets, than the state has. In general, it has been estimated that a third of all municipalities in Finland practice systematic climate work and especially in the 2010s, several municipalities have set target year for carbon neutrality.[62] Among the six largest cities, the target year of Turku is most nigh.

[61] Turku 2018.
[62] Ympäristöministeriö & Sitra 2018. & Ilmastopaneeli 2016, 8. Savolainen 2018.

It seems that Turku has ended up in the present situation deliberately, after a decade of environmental policy planning, observation, and measuring greenhouse gas emissions. With the help of constant systematic observation, the city has been able to estimate and predict its possibilities to reach lower emission levels. Alongside the increase in climate policies, the citizen's awareness and expectations have expanded. Demand for climate action has been canalised through local politicians and implemented by advisors in the city administration. Expertise in administration has been build up since the 1990s, when environmental conservation work, pollution control, green spatial planning, and actions on sustainable development was initially organised in the municipality. According to Mr Veivo, Turku has ended up choosing to strive for carbon neutrality for the very fact of having scientifically measurable goal and data regarding emissions of the city.

The city of Turku has been motivated into climate work by various reasons, of which some presumably have varied from time to time and individual to individual. However, one of the main reasons besides beforementioned, according to Mr Veivo is, that cities overall know that they possess the capacity to drive for societal changes. The urgency of global warming and the role of urban action in mitigation has also widened the perspectives on governing a global challenge: without cities, some climate policies would not take place.

In recent years, climate work has also become seen as a matter of competitiveness – a factor to enhance the attraction of the city. The Climate Group and Carbon Disclosure Project published in 2015 a report "Unlocking Ambition: Top Corporate and Sub-national Climate Commitments", according to which together with Stockholm and Santa Fe, Turku had set sixth most ambitious emission reduction target in the world: 100 per cent until 2040. The announcement was made in the General Assembly of the United Nations and also noted in the Finnish media. In its press release, the city of Turku writes: "Cities that have set climate objectives, are on the lookout for also significant economic benefits, of forerunner role and reputation. For example, Copenhagen and Stockholm are often highlighted as world-leading development areas of environmental solutions". [63]

Through its climate policy work, the city has had possibilities for meaningful cooperation in a network of the cities globally, but climate policy work has enabled to outset cooperation with stakeholders like Siemens, Sitra, Urban Research Programme, and networks in Baltic Sea Region.

[63] The Climate Group 2015, 13-14. & Turku 2016.

Turku has also been able to generate international cooperation, knowledge, and finance for its climate solutions.

If motivation could be measured, one way to do it might be a display of unanimity and acceptableness behind the strategic target of carbon neutrality. In this case, Turku would score well, for both in 2014 and 2018 the city council approved the target year for carbon neutrality unanimously. Nevertheless, in practice, the amount and the effectiveness of climate policies vary amongst administerial sectors and when it comes to approving plans regarding reducing emissions in transportation or energy sector, moving forward with changes become more contested. Despite occasional contradictions, from the early stages of the city's climate work, climate change policies have taken foothold from marginalised fraction to mainstreaming issue in communal politics. According to Mr Veivo, continuity has strengthened as changes in attitude has taken place drastically during the last decade. The city of Turku has seen individuals in administration, elected bodies and in city management, who have been committed to the cause and taken it forward.

In environmental administrative work and climate area, multiple factors have been identified as driving forces. These motivational factors are distinguished as benefits for the city or citizens. Attraction, competitiveness, being a relevant actor in the world, working on something that is merely necessary, doing one's part on a global problem. One of the key motivators behind climate policies of Turku is the long-term vision of a safe and pleasant living environment for the citizens. Perhaps characteristically to urban actors, climate policies are in Turku a means to enable a sustainable way of life and to think ahead of the future generations' living environment. From the individual side, city officials are motivated when climate policies go forward and are implemented in practice. Social context, climate orientated community and networking with new stakeholders who find the same issues relevant, feed the motivation. Main motivational factor on the individual level, however, seems to be the fact that one estimates the importance of global warming being so essential threat, that one needs to take part. Furthermore, the strategy of Turku states that "Turku is a forerunner in climate policies worldwide and wants to be part of the international network of cities, who solve challenges regarding global warming and prepare for its phenomena". [64]

When it comes to climate policy related points in common with the state, the main instrument is the MAL agreement. In this agreement, urban area and state agree on the common intention on

[64] Turun kaupunki 2018, 8.

how to coordinate land use, housing and transportation in the region and how municipalities develop urban infrastructure and environment to the more sustainable direction. Nevertheless, the state and city also share some points in common with their carbon neutrality targets. Turku takes part in forums and projects that the Ministry of Environment finances or governs. Additionally, city directorate, politicians and experts from administration discuss regularly climate policies amongst each other and distinct representatives of the state. It is worth mentioning that cooperation has increased in some cases such as in energy policies and the planning on abandoning coal as energy production.[65]

Finland has often been in the limelight for progressive climate policies and efficiency in bending its carbon curve. The country has drawn up climate strategies and policy papers from the early stage of climate talks. Many proposals have long time perspectives, and remarkably, each government has committed to take emission reduction forward. Scale, emphasis and means have varied, but the overall course in emission reduction and increase in renewable energy remain. However, from time to time it has been asked if climate ambition of Finland is ambitious enough. One of most recent discussions took place when The Finnish Climate Change Panel published in June 2018 a report, where the chair Markku Ollikainen commended critically upon the state's emission reduction target of 80 % until 2050. Ollikainen asserted that this objective was inadequate, for several European countries had tightened their national reduction objectives, and Finland should set a target to at least 85 per cent to fulfil its commitment in Paris Agreement. According to The Finnish Climate Change Panel, national emission reduction targets should be tightened for already to target the year 2030 and reach carbon neutrality soon after. At the same time with the release of the memo, the city of Turku revised its carbon neutrality target from 2040 to 2029.[66]

Six months later at the outburst of COP24 in 2018, the European Commission called for a climate-neutral Europe by 2050, adopting a strategic long-term vision for climate neutral economy 2050, with net zero emissions.[67] With Finland's target in 2050 or 2045, the EC's objective means that each member countries would need to follow a somewhat similar path, as the climate policy forerunner Finland. Criticism towards Finland's climate target has aroused from this target as well. If Finland

[65] Mäkelä & Laanti 2016.
[66] Aamulehti 2018. The Finnish Climate Change Panel 2018, 2-13.
[67] European Commission 2018.

sees itself as climate forerunner, it should well exceed the EC's objective, which after all is of all the EU countries – both forerunners and laggards.

5. How does climate motivation appear in the light of climate work in Bologna and Turku

Each of the urban climate drivers that are defined for this research can be found behind climate policy in both Bologna and Turku. As discussed in the chapter of methodology, I have analysed motivational factors from both expertise interviews and official policy papers and strategic scripts of the municipality. These pieces display coherent objectives and vision for climate targets, yet the parity of drivers stands out among these materials. Some of these drivers, which motivate urban climate action in case cities, can be found in the table below.

BOLOGNA	**TURKU**
Ecological and liveability	Framing and reputation
Framing	Ecological and liveability
Political and cultural	Economic
Economic	Political and cultural
Social	Social

Before plunging into a closer examination of these drivers, I want to open a discussion of individual and institutional drivers. In this thesis, I examine urban climate action, yet quite obviously, many scholars have explained the emergence of urban climate governance on the importance of individual politicians or officials. These policy entrepreneurs champion the issue and set agenda, acting as catalysts for institutional climate responses at the local level. The role of individual climate champions has been tracked in several examples of urban climate action, which is increasingly becoming a global phenomenon. [68]

[68] Bulkeley et al. 2013, 14.

And yet, even studies that highlight the importance of such action have also identified that individual endeavours are not sufficient if they lack comprehensive institutional support. As Harriet Bulkeley writes: "while policy entrepreneurs are critical at the start of a policy process, to overcome the constraints of administrative structures, party politics and political timetables, and to survive the loss of particular individuals, a broader institutional capacity for climate protection is necessary".[69]

As much as the interpretation of the significance of singular policy entrepreneurs varies among studies of urban climate response, so does reasoning of motives for climate action of individuals. As discussed earlier in introduction, assuming drivers of individual motivation is disputable but has been done in a research community. Research literacy has highlighted government revenue, opportunities for career promotion and reputation as motives for individual politicians or officers to campaign climate policies. In their article, Translating a Global Issue into Local Priority, Qi et al. recognized the reputation with the public as a historical factor that has reflected the behaviour of top officials in matters they govern. In more recent times, economic growth and revenue of their government, along with policies regarding taxation, fees, and dividend, has yet become a more important factor for climate action. According to researchers, economic growth has also boosted citizens' income. Opportunities for career promotion is linked to the performance of local government to the requirements of upper-level government. [70] Although these findings pose a somewhat egocentric impression of these individuals, there exist more altruistic perspectives as we proceed to the following drivers. However, the following drivers have been examined from only an institutional point of view, or rather, describing the municipal response. Therefore, we can presume that whether drivers for urban climate response derive from the research of the individual or research of general behaviour, the findings can be dealt with and distributed plausibly under same grid in this thesis.

5.1 Framing

"Projections on how mean temperature will rise approximately two degrees by the end of this century, cannot have escaped anyone's attention. This news is not shocking anymore, because

[69] Bulkeley 2010, 234.
[70] Qi et al. 280, 390-391.

change is seen as something inevitable. But if you explain how this increases local impacts like heat waves in our city, that makes a difference". This description encapsulates the second one on the main drivers in Bologna: framing. Understanding local effects have played a leading role in Bologna's climate work and explaining a global phenomenon in a regional scale has arranged disposition, where climate change is no longer an issue of global governance. As mentioned, Bologna already faces severe effects of global warming. Consequently, climate action is also framed through urgency and necessity for impact on the city. As adaptation plan underlines: these events cannot be escaped or put aside as "natural disasters" or "anticipated and unavoidable", but in fact, it is necessary to launch systematic consideration on how to prevent impacts of these events.

In their article Why do cities get involved in climate governance? Emiliano Scanu and Geneviève Cloutier explain framing drivers being related to how the climate issue is presented in and adapted to a particular context. In other words, this could be explained on how climate change is problematized in the urban setting. Municipal actors may define framing climate change either in terms of opportunity or threat, even both, depending on perspective. The global phenomenon can also be framed both local and global issue. [71] In case of Turku and Bologna, the issue is framed foremost local challenge, since neither has exerted much cooperation with state government and besides that, urban climate work is not determined by obligations from the national government. Climate change is framed both an opportunity and threat, opportunity being a more decisive driver in Turku and risk in Bologna.

For Turku, framing is primary for urban climate action. This driver appears in material three times as much as the third most significant driver. This motive is especially dominant in the strategy of Turku, whereas in the climate programme, the disparity is lesser. Active attribute for Turku in perspective of framing is reputation and recognition. In Turku, this often relates to status and possibilities in building a reputation. Turku has received international recognition for its strategic goal of carbon neutrality, and the city has taken advantage of this reputation on a large scale in its communication. Climate policies are framed in Turku as a possibility to gain positive recognition among towns. Attention in case of Turku is in conjunction with economic drivers, which are explained separately later in this chapter. It seems that framing and reputation are to some point drivers, that, to some extent, been chosen for justification for climate policies. As said in material:

[71] Scanu & Cloutier 2015, 4.

“It has absolutely effects on decision making and communication, if Turku is a forerunner in urban climate action”.

Much like Turku, Bologna has gained international recognition for its adaptation plan. The city has won prizes and been singled out for its progressive climate policies and regular work. BLUE AP has been used as an example to urban adaptation projects to coma and Bologna has for some time carried the title of civic climate policy leader in Italy. A closer look to Bolognas adaptation policy work reveals something that each city shares in their climate efforts: to succeed, cities need continuity in administration but also individuals, who drive the cause forward. The perspective of capacity should not be mixed to motivational drivers, but this capacity is involved in the driver of framing. Success and recognition that has attached the title of example city of adaptation policy work to Bologna, has ensured that in times of lower political commitment to take adaptation plan forward and provide resources for battle against climate change, a threshold of interfering and risking this reputation has been too high to cross. Framing of climate adaptation work as a question of national appreciation for the city of Bologna has motivated the work to continue. Adaptation work has reformed into a story, that is recognized among stakeholders and one that brings within the city’s reach specific opportunities, which would otherwise be out of reach.

Framing is also a matter of how climate change is problematized. If reputation is the main driver for Turku under framing, for Bologna, it is urgency and severity of impacts of global warming. For Bologna characterization of seriousness and urgency of climatic effects. Concurrently, environmental administrative personnel of Bologna reflected that climate change is growing in importance as an issue of environmental preservation, as a matter of sustainability among international cooperation and networks of the cities. How this global phenomenon affects regions everywhere and the province of Bologna became a pressing issue to unravel and understand.

Besides, awards, recognition and positive publicity in front of large international crowd are essential elements of networks endeavours. [72] Expansion of authority is the outcome of urban exploitation of the sense of urgency. Cities and urban influencers have from time to time claimed that cities could combat global warming more efficiently, quickly and comprehensively than their nation states. Many scholars have studied the overall phenomenon of cities’ efforts to expand their authority in contrast to the nation-state. Being a complex global issue that is perhaps as challenging

[72] Bulkeley et al. 2013, 14.

from the perspective of governability for cities and nation-states, cities have realized that climate change provides a possible opportunity to claim more decisive power. As the sense of urgency has overall been present in the discussion of climate change, this urgency is for cities, ground on which to hasten the overall objective of power shift from nation states to cities. To proceed from this finding to another that hovers on the same terrain between nation states and cities is criticizing the national government's inaction. This implication factor is described in Scanu and Coultier's study of Quebec and Genoa. The researchers found out, that one reason for climate action in both these cities was, that they felt that the national government was not performing effectively enough in climate issues. [73]

Framing perspective that Turku and Bologna shares alike derive of meaning, performance and ability to take action. "Without cities, nothing will happen", is thought, that combines public participation in solving a global challenge and the fact, that climate responsibility is something that municipalities have individually chosen to work on, with a notion on capacities of cities to act, make strategic goals, implement policies and make a difference. These cities have means to cut carbon dioxide emissions and draw large-scale adaptation plans and are therefore relevant, if not necessary among players who can solve global warming. Awareness has become more profound in recent years, and 2015 composed Paris Agreement is recognized as one of the chief architects in framing the issue into an enormous challenge, that can, however, be repelled – giving a sense of having a possibility.

Findings from case cities' framing drivers are somewhat similar, but with distinct emphasis. The material gives standpoints to two theoretical perspectives, that were presented in chapter 2.

Firstly, the tragedy of commons, which often describes the complex nature of the joint owner and the stewardship of natural resources. Climate change is a terrific example of a problematic phenomenon in terms of governability – without governability, feasible governance is futile. Turku and Bologna, in their way, have both succeeded to escape the tragedy of commons and tangibly grasp a global phenomenon. Perhaps governability has been on key to success in these cities' accomplishment in creating a platform for climate policies. These cities have managed to turn global warming into wholeness, from which impacts to an urban environment and governable reduction measures can be separated. Concurrently, findings of Bologna and Turku support the evolutionary dynamics approach that has been introduced by Francisco C. Santosa and Jorge M. Pachecob. Risk

[73] Bulkeley 2010, 234. Scanu & Cloutier 2015; 8, 10.

of collective failure provides an escape from the tragedy of the commons, and instead of involving a large number of population, local agreements raise the probability of success. [74]

The second theory that overlaps with drivers of framing is the concept of devolution revolution. In chapter 2.4, I displayed a discussion of reconfiguration of political authority between cities and nation states and paradigm in power shift. As climate researchers have suggested, urban governance of climate change may be an important site, where nation-state authority reduces, and new opportunities appear for a grasp of urban climate governance. World Economic Forum has suggested that cities, not nation states, will determine our future survival. After all, nation-states have lost their ability to resolve significant global challenges of this era and cities no longer need to wait and ask for permission to exert their urban sovereignty. [75]

The beforementioned applies to Turku and Bologna, of whom both exert authority on climate policy field, whether it be in a municipality, region, cities networks within the state or international policy arena. As has been noted, reconfiguration of political authority exists as a driver in framing climate action. Both cities have been able to expand their authority, reputation and influence over borders of their nation-state with their extraordinary climate work, that exceeds more modest strategic climate targets of the state. All abovementioned might well also be means of brand building in modern time. The article of World Economic Forum hints of this development by describing that: "Cities are open, plural and cosmopolitan while nation-states are closed, nativist and parochial." [76]

Framing, how climate change is problematized	Reputation and recognition Leadership in responsibility Urgency Expansion in authority Exceeding climate performance of the state Being progressive

[74] Santosa & Pachecob 2011, 10421–10425.
[75] World Economic Forum 2017.
[76] World Economic Forum 2017.

5.2. Ecological drivers and liveability

"The growing frequency and intensity of these phenomena have convinced us that it is necessary to consider serious and systematic reflection on preventive measures to adapt our habitat and our behaviour to a changing climate, which is destined to evolve further in the coming years". An argument in opening words in Bologna città resiliente illustrates the indisputable main driver for climate policy work of Bologna. Drivers and expected changes of ecology and liveability motivate for urban adaptation and resilience work the most in Bologna. Objectives or more likely threats to urban liveability have been elaborated, mapped and analysed in such a detailed way in the city, that the environmental administration of Bologna is rather comprehensively aware of future projections on microclimate and ecological changes. Besides future transformation, the city of Bologna has already faced severe climate-related environmental deterioration, mostly in water scarcity, the occurrence of heat waves, intensification of rainfalls, recurrence of landslides and damages to infrastructure. Local effects of global warming have already begun to mould the living environment in the region. In their review, Sippel and Jensen charted motivational drivers of urban climate response, that can be transformed into concrete results in the vitality and environment: air quality, cleaner traffic, social aspects and other liveability aspects. Even though social drivers are separated in this thesis as its category, liveability is in profound interconnection with health. Actions to improve air quality generate upgrade in public health and reductions in traffic congestion also generate greater urban liveability. These drivers include climate actions, which also create other positive results. For example, investments in renewable energy or electrification of traffic vehicles reduce both greenhouse gas emissions and local air pollutants. Therefore, they relate also to positive side-effects or co-benefits. On the other hand, some environmental drivers may well be particular, such as aesthetics that tree planting programs and green surface provide. [77]

In ecological driver, vulnerability and avoiding drastic impacts of hazardous weather events are a significant driver. This driver does not take form without linkage to a specific issue, local geography or condition of the environment. An interesting interpretation is that since urbanization has been accelerated, the proportion of city dwellers increased worldwide. Therefore climatic vulnerability of cities has become visible for more people. Vulnerability to climate change thus drives urban climate policies. Other metropolitan areas may suffer from a shortage of potable water because of melting

[77] Sippel & Jenssen 2010, 41-43.

of glaciers; other repeatedly suffer due to effects of the urban heat island. Therefore, it has become more pressing for city governments to govern climate change related to risk assessments and decision-making. [78]

In adaptation plan of Bologna, the nature of adaptation and resilience are highlighted in a way, which does not only pursue to avoid extreme weather events but also safeguard characteristics of Bologna by preserving its local attributes such as climatic conditions and hydrological resources. In their way, Bologna has been able to combine drivers of ecological and liveability perspectives not only into preserving surroundings of the municipality but also to creating new desired changes through adaptation – a better liveability. In centre of this approach is objective of naturalizing a polluted canal Torrente Savena which flows through the city, into channel of usable water with green riverbanks for use of public as well as increasing green areas and parks not only for their cooling effects or saturating rainwater to soil, but to create pleasant urban area for citizens. In conclusion, chief drivers for urban climate action in Bologna relate to ecological factors and even more, to liveability in changing environmental surroundings. Measures that Bologna has displayed in its adaptation programme, have clear objectives which have been validated based on projections of future climatic conditions. This goes with taking resilience in account in urban planning by creating enough corridors for airflow, so that citizens avoid suffering urban heat waves and by naturalizing the city's important canal, to strengthen urban biodiversity.

When it comes to vulnerability, climate action, and in most case actions of building up resilience or adaptation, the action is triggered after usually sudden hazardous climate events, such as fiercely floods and extreme precipitation. [79] During the last decades Bologna, and in recent years, Turku has become more aware of the effects of global warming. Hence the recognition of urban vulnerability has increased. As for adaptation policies of Turku, the city has mapped out environmental risks and local climate impacts by interviewing regional experts. As a result, two specific threats have been defined to be in the centre of adaptation measures: controlling urban water flows and risks that come to the fore because of changes in the ecosystem. Besides these main risks, climate programme of Turku outlines a wide range of measures that need to be taken to prevent these risks from taking place. As for the driver of liveability, climate work of Turku is motivated by being able to avoid

[78] McCarney et al. 2011, 252.

[79] Bulkeley et al. 2013, 74.

runoffs of nutrients, eutrophication, dredging, riverbed erosion, landslides, drought and increase of stormwater. Another main ecological driver is the goal of preserving the urban ecosystem and biodiversity. Turku seeks to avoid severe outcomes that would take place if forest and agricultural species change and new alien species and plant diseases spread.

Lastly, altruistic motives have been found behind ecological driver by research literacy and the case cities. For some, it seems, acceleration of climate efforts is a way of being responsible. As information and research of climatic effect at a local level are growing, local politicians and officials see climate policies as a necessary action. Additionally, climate action is also generated through voters' worry. In response to climate issues, that voters prefer and require, is visible among local policy platform, local leaders want to reflect the wish. [80] In Turku, equally crucial to urban liveability of current citizens are future generations. Within climate policy work, the city seeks to find today solutions, that ensure liveability in decades to come. "How our decisions affect generations ahead from here", is one of the drivers of urban liveability.

Ecological & liveability	Environmental vulnerability Avoiding casualties Mitigation of both local and global effects Air quality Greater urban liveability Preservation of natural resources Quality of life Aesthetics

5.3. Economic drivers

Ecological drivers connect to the preservation of natural resources, but there is also an essential role from an economic perspective. Natural resources are part of the state's economy, and if climate change threats this integrity, local leaders are more prone to see threats that climate change pose. All this often applies for example to coastal states, that are threatened by rising sea level of

[80] Sippel & Jenssen 2010, 41-43.

hazardous weather events. [81] However, fundamental economic drivers of case cities were tracked elsewhere, and they apply both at the individual level and more generally.

Economic drivers consist of monetary benefits that climate policies may generate – in both adaptation and mitigation measures. A motive to cost savings and lower costs drive, for example, energy efficient solutions or flood preparedness in city planning. The other fiscal side is surplus, that may be generated through climate policies. These are such as revenues from low-carbon legislation or smart growth plans, that attract renewable energy business, investments and create jobs into the city. According to Sippel and Jenssen's review, this has been seen among municipalities as bias in climate measures, which require little investments or save costs. Scanu and Cloutier tracked in their article Why do cities get involved in climate governance? other economic drivers through experiences from Canada and Italy. In this case, the city was able to generate funding from the government for climate policies. In Canada and Italy, better management of energy supply and demand was also a motivational factor to make climate response, but besides this, they recognized financial aspects in selling adaptation policy expertise and new opportunities for green economic growth. Other exciting finding covered disaster risk preparedness: in this study, the case cities had begun to calculate economic benefits from taking safeguard against hazardous climate events and other climate risks. [82]

Kirsten Engel described the economic approach to motivation from the point of view of regulation in her article State and Local Climate Change Initiatives: What is Motivating State and Local Governments to Address a Global Problem and What Does this Say about Federalism and Environmental Law? She indicated, that indeed for many states and local governments, "initiatives of greenhouse gas reduction are being pursued the local economic benefits they bring in their wake climate change regulation can be the source of local economic benefits". In her claim, local governments had made a conscious choice of generating economic benefits by investing in renewable energy. One of the drivers that this choice had come from was the understanding that renewable energy is generally more job-intensive than conventional energy sources.[83]

In summary, drivers that relate to economy derive from benefits in saving costs or generating more revenue. Even so, as we gain more prediction in costs, that global warming cause in future, the shift

[81] Engel 2006, 1025.
[82] Sippel & Jenssen 2010, 40-41, 52. Scanu & Cloutier 2015, 12-13.
[83] Engel 2006, 1023-1024.

to emphasize savings in future expenses. Johnson and Breil write in their article Conceptualizing Urban Adaptation to Climate Change in 2012: “potential costs of climate change impacts and adaptations are particularly important to cities, as The World Bank estimates that urban areas will bear more than 80% of the overall annual global costs of adaptation to climate change”. Considering Sippel and Jenssen’s review in 2003, this shift may well be in progress. [84]

In Turku, economic drivers are third popular motives as in Bologna; economic drivers have a smaller role. In light of previous research findings, Turku perceives economic effects of climate change being opportunities and benefits for the local economy. Unlike in Turku, Climate policy work of Bologna is not driven by financial interests or new growth opportunities. Nevertheless, economic drivers are some elements inside adaptation projects of the city. More precisely, Bologna has launched its cap and trade system as well as carbon marketing, which both generate resources to adaptation measures. These operations models combine public and private sectors in a way, that is corporate responsibility or compensating emissions to companies and funds to planting green surface and creating parks. Having launched these efforts only in recent years, projects are hardly main drivers for local climate action but are nevertheless drivers for adaptation measures. Another monetary benefit that in Bologna has not been recognized directly as motive is gaining funding for climate projects. However, Bologna has been able to generate the financing of its adaptation project from the European Commission. For that reason, we can assume that adaptation work would have been less ambitious or at least divergent without external funding.

Economic motives for climate work of Turku follow the notions of previous research findings. The perspective of business opportunities and smart growth is well presented in strategies and programmes of the city. This angle has had a role in the formation of climate policy work at its early stages. Reports on negative impacts of global warming on the economy and finance have set agenda for emission reduction in favour of business. Connection of climate change and economics had become more tangible in Turku when large-scale enterprises began to take a role in the climate discussion.

Resource efficiency means an improvement in prosperity, and yet, most of the benefits are external of the municipality on core areas. The interest of the business sector has been a significant driver for the administration and management of the city to act in climate issues. Climate alert was no

[84] Johnson & Breil 2012, 20-22.

longer just a message from environmental organizations but also relevant business influencers. The city of Turku has the goal of being an attractive area from a business perspective when climate changes. City wants to know what kind of effects climate policies have for innovations and livelihood and how climate actions realize sustainable business and trade. This driver is built on objectives of creating platforms for innovations, business, growth and trade

Drivers of: Economy	Cost savings Revenues from low carbon policies Smart growth: investments, business Creation of jobs Funding from government Savings through better efficiency and management Sell of policy expertise New opportunities for green growth Savings in disaster risk reduction

5.4. Political and cultural drivers

After framing, ecologic and economic, political drivers have been recognized next relevant to the city of Turku. Besides beforementioned ones, in Bologna political drivers are fourth relevant after institutional drivers.

According to research literature, a great share of motivation findings is political and cultural. To begin with Sippel & Jenssen's literature review, external and internal pressures often drive for climate action, because they set an objective for efforts of city government actors. Fulfilling the expectations of voters, central government or others, lead to political rewards to oneself or the party or enhance the city's reputation as trend-setter. Often external pressures derive from a sheer motivation of implementing to some extent compulsory legislation or policy targets that national or transnational networks lay. [85]

[85] Sippel & Jenssen 2010, 41-42.

One critical political driver is the action of political parties, climate policy entrepreneurs and political will in municipal administration. When illustrating the meaning of individuals in local climate action, climate action in municipalities are often set in motion by influential politicians. Drivers that I explain in this chapter also apply to some extent to this action on individual climate champions. When it comes to the political environment, decisive motivation also derives from the pressure of local actors and voters.

In Turku, political motivation has traditionally risen from citizens to elected politicians. It has been suggested, that overall citizens in Turku are somewhat aware when it comes to environmental issues. This awareness has channelled into policies. All in all, it has been said that several political parties have supported climate policy work for some time now. Each decade has met individual politicians in highest positions, who have been exceptionally committed to taking action forward. In Bologna, it has been recognized, that political endeavours and individual politicians, who have been committed to climate policy work, have used their authority to bring the case forward. Real political motivation has been crucial to continuity and enlargement of the work. In times of less individual engagement of influential politicians, climate policy work has gone always forward but less rapidly.

Among the cadre of environmental professionals in municipalities, there are green activists, who are eager to push sustainable development forward. The Green Party has often held a balance of power in many districts, which has enabled the majority's support for policies of sustainability. Climate change is an attractive issue as it offers an opportunity for politicians to align themselves with a more progressive agenda against conventional and fossil-intensive energy industry. According to Engels's article, climate initiatives at the local level have brought media coverage on the issue, partly due to controversiality in comparison to federal policies. [86] Climate change is in some cases, seen as an opportunity among local authorities. Experience from Bologna and Turku support this theory only partially. Neither of the cities recognized the role of one party or ideology behind political drivers. Instead, political support to climate policies has been more or less shared among parties and differences in commitment has varied more between individual politicians.

International networks also display further incentives to establish climate policies from the perspective of political drivers. Transnational municipal networks, such as ICLEI, often provide resources, access to knowledge and information, platform or political space to operate in and

[86] Engel 2006, 1024.

opportunities to collaborate in multilateral processes. Opportunity to access international cooperation has a decisive role in municipal climate target setting. Besides ICLEI, several networks have offered meaningful and high-profile platforms, which are not at municipalities' reach in other political segments. One interpretation is that these networks provide expansion of authority, which is recognized as a driving motive of framing in this thesis. Opportunity to perform leadership with respect to either peer communities or national government provides the chance to be an example, a leader or the very first one to complete a particular policy or project. Besides, climate change efforts may give a positive image of the city as a leader in environmental work and place of "smart growth". [87] [88] In Bologna, political drivers can be behind the motivation to international cooperation and applying projects of the European Union, but in light of material from Bologna, this does not seem to be the case.

As mentioned before, Bologna has taken substantially part in international cooperation within its environmental projects. Benefits of international collaboration for Bologna has been possibility for mutual projects with cities alike in Europe and acquiring knowledge on the latest climate research. For Turku, being relevant actor among international networks is essential, and this role the city has explicitly received in climate issues by participating in work of ICLEI and UNFCCC's within cities' delegation. These opportunities have both given a platform for city management and political leaders and valuable commitment, broader understanding of the issue and knowledge of climate policy work. For Turku, urban efforts in climate policies are becoming more and more an issue of competitiveness.

In the political frame of Turku, a significant change of attitude has taken place during the last ten years, when climate change as a political topic has surged from margins to the mainstream in Turku. Lastly, an interesting discovery, cultural driver entirely deriving from characteristic features of Bologna, is attention to the preservation of cultural heritage in the light of climate change. According to climate profile of Bologna, Italian cultural heritage, which is most lavish and most versatile in the world, is under various threats of modern time. Climate change is a grave future threat of modern time, which requires a new strategic approach for conservation. This notion does not exist in climate

[87] Bulkeley 2010, 234.
[88] Elander & Gustavsson 2012, 770.

strategies of programmes of Turku, even though the city is oldest among towns in Finland and is abundant on archaeological remainings.

Political & Cultural	Access to international cooperation Expansion of authority External and internal pressure Recognition and positive publicity Leadership Government inaction Government's support to implement national climate targets Sustainability activists among city officials Balance of parties and existence of environmental / green party Opportunity to be progressive

5.5. Social aspects

How climate change is understood and explained, is not formulated with scientific information but in the frame of social constructionism. Chapter 1 demonstrated that an individual's relation to the environment is culturally patterned and cultural factors shape beliefs of how nature functions and how individuals understand and act to solve environmental problems. The complex relationship between language, interaction and action shape climate discussions and policy work and is continuously changing in social interaction. The social construction of climate change moulds the climate change discourse. This discourse comprises of various culturally and socially patterned term, such as climate policy leader, global responsibility and climate justice. [89]

Another approach to the social aspect and more decisively, social drivers, are climate change or climate policy related effects to society. Climate adaptation and resilience policies often aim to disaster risk reduction, and the question is of economic losses, environmental changes and human casualties. In this thesis, motives to prevent these impacts are partially incorporated ecological

[89] Cass & Pettenger 2007, 239

drivers, and this choice is made based both on earlier research and case cities' experiences on extreme weather events. That being said, adaptation measures are also often practised foremost for the protection of vulnerable people. For instance, social drivers lead to adaptation measures, which aim to reduce the vulnerability of groups that are disadvantaged because of physical or psychological characteristics or living in areas that are at risk.

Even if Bologna is much more focused on adaptation policies, both case cities share social drivers somewhat equally. In Turku, social perspective is associated the most on preventive measures and adapting to environmental changes. Preparing for ecological changes, reinforced by climate change, is means for the municipality to affect the wellbeing of citizens. Seniors and citizens, whose physical state is declined, are recognized as especially vulnerable.

According to an analysis of Bologna, the main climate change threats are water scarcity, floods and landslides and extreme heat. Each is a hazardous risk for health and daily life of the citizens. Directly, social impacts that municipality wants to avoid, are in connection to groups of vulnerable people because of their age, the status of living alone, existing problems with health or because of the particular social or economic situation. Bologna is especially worried because of the occurrence of urban heat island phenomenon and heat waves and therefore creating an alert system to prevent casualties taking place.

Some social drivers are also more tangible. Decisions regarding energy efficient housing or costs of public transport associate to quality of life, because they produce lower energy costs and make transportation more accessible for citizens. Actions to improve air quality generate upgrade in public health and reductions in traffic congestion. These measures may increase the comfort level of the public. Among my research material, one social driver is found mainly in Turku. This is an objective of enforcing the propensity of citizens to self-motivation and community spirit. The desired outcome in this original driver is fortified the resilience of the public to environmental changes in states of emergency.

Despite latest notion, in case of both Turku and Bologna, socially related outcomes that municipalities drive for, are nevertheless mostly hazardous weather events and programmes recognize little opportunities to raise social wellbeing or to alleviate effects of environmental hazards that are not sudden, but more gradually propagating changes. Similarly, previous studies

have found out that social factors such as intra and intergenerational equity and community development or reducing the risk for vulnerable urban social groups seem to be less influential.[90]

In the end, urban climate action of case cities is also driven because of global responsibility and global social threats. This applies primarily to Turku. Refugees, who will have to flee because of an environmental disaster of less sudden changes in the environment, such as drought, are mentioned in climate programme. The bigger picture is that global risks and changes also affect city of Turku, and if the city receives a growing number of refugees in years to come, they have to take into account social issues, such as segregation.

Lastly, when asked why to set climate strategies and exert mitigation policies, climate expert of Turku assures, that none should conceive themselves exempted from responsibility or justify inaction in Turku with the inaction of some others. The final perspective of how climate policy work is responsibility as a driver. This means understanding, of how the severity of global warming is tangible in each corner of the world and more than it city of Turku, in places elsewhere.

Risks of climate change are unevenly distributed across geography, social classes, and demography, which reflects into urban climate response. This also indicates a share of urban climate response between cities in distinct continents. Although Turku and Bologna situates in very diverse climatic zones, the discrepancy is more drastic to cities in global South, where poverty, inequality or vulnerability is more considerable. Social drivers are in a lesser role to economic, environmental, political and framing, and the most likely explanation is that social risks are not the primary concern in European cities of strong societal capacity and living standards.

Social aspects	Public health Global responsibility Preventing casualties and impacts of hazardous weather events Protection of vulnerable people Wellbeing of citizens Climate refugees Lower costs of living Alleviating poverty

[90] Kousky and Schneider, 2003 ; Sippel and Jenssen, 2009.

	Stronger motivation and community spirit Social resilience in times of emergency

6. Conclusions

What motivates cities' climate action? To answer the research question of this thesis, I have sought to unwrap the theme of urban climate governance and environmental motivation with the assistance of perceptions of two case cities and drivers behind their climate policies and targets. In this chapter, I present my study's findings on urban climate drivers in case cities, a relation of the motivation behind adaptation and mitigation policies and lastly, how these findings illustrate pathway to future of urban climate action. In this chapter, with the help of Bologna and Turku, I answer to the question "why."

These two cities have stood in the front row of urban climate action for some time. Both cities have, like any other pioneering climate municipalities, found their feet and cooperation in various global networks. Bologna has launched projects with close collaboration to other European cities and European Commission, while Turku has taken part international network more loosely in terms of gaining knowledge and developing the city's image as an internationally active partner. Based on case material, it cannot be said that the expansion of authority through international networks would be a clear driver for urban climate policies. However, especially international recognition has been a valuable achievement that both cities have used in their marketing and brand building as well as justification for continuity of climate policies. International cooperation and recognition have motivated climate action of both cities in a few ways. Firstly, through a network of experts, individual policy pioneers have been empowered and motivated to pursue new climate policies in the municipality. Having the capacity to specialize in international cooperation is an asset and an opportunity to stand out in the home country. In a question of if access to international cooperation has been a driver of climate policy, two explanations stand out. It seems that to neither city, global networks have not been the reason to launch climate programs but having colleagues and latest information through networks have accelerated motivation. Besides practical benefits, when both cities have become relevant in international climate networks, politics have committed more extensively to push climate policies forward in the municipality.

While I have learned about these cities and familiarized myself with their climate programs, I have discovered that cities have very dissimilar outlooks on urban climate action. When I was drawing my research plan, I was aware that Turku is known precisely for its ambitious emission reduction target and Bologna for its outstanding adaptation program. Less apparent was, reversed status: how Bologna plans to reduce emission and what kind of preparations in adaption and resilience are in process Turku. As research material grew in number, it became apparent that indeed these cities have next to dedicated to the one chosen purpose. Bologna is focused precisely on adaptation, and the city lacks scheme and objectives of how they position themselves regarding reducing greenhouse gas emission in the region. If Bologna is a leader in urban adaptation, it lacks evidence of reducing its greenhouse gas emissions. Turku instead, is mainly focused on mitigation, but measures regarding adaptation are taken account as well, as a consequence of the latest climate program 2018.

6.1 Decisive choice between adaptation and mitigation

Both case city has chosen to narrow urban climate response with a frame of adaptative measures and mitigation action. It is feasible to ask, whether city administration could work immensely in both areas – adaptation and mitigation? It is not worthwhile to claim that these alignments of climate policy work would differ decisively. Question is thought-provoking: if a city has an impressive record on adaptation or mitigation policies, why has the other side not developed alike? Why cities implement ambitious climate targets but just in one sector?

These questions separate the significant item for this study: Why has Turku chosen to become the most ambitious city in mitigation and why Bologna has put all its effort on adaptation?

Intensity, scale, and repetition of climate impacts differ in case of cities substantially. In Köppen classification, Bologna situates in Humid Subtropical Climate and Turku in Warm Summer Continental Climate. Even without global warming, the severity of climate risks is more tangible in Bologna. This city has already suffered some years from the intensification of extreme weather events, and Italy has a long history with disastrous, yet not weather-related environmental hazards. For Turku, ecological features and the climatic condition is drastically disparate, which illuminates, why cities have shown dissimilar attitudes towards adaptation measures and why ecological drivers are on a higher priority in Bologna. Evidently, Bologna has more reasons to work on adaptation

measures, because climatic impacts in its region are more severe, the threat to everyday life and urban infrastructure is concrete, and the city already has experience on how climatic hazards affect.

Geographical and geological reality plays crucial part in the reasoning of how cities perceive the urgency of resilience and adaptation. Italy is continuously fluctuating circumstances. Italians have for centuries suffered losses and encountered rapid changes because of volcanic activity and other tectonic and lithospheric incidents. In perspective of Bologna, building resilience towards environmental changes and planning adaptation policies has in Italy been so occupied in environmental hazards altogether, that few have been able to separate climate change induced environmental hazards from those of the other, as Bologna has. One assumption for climate adaptation leadership of Bologna in Italy is that making this separation has been done thoroughly purely in Bologna.

Another reason for differences in the scale of adaptation policies is, that when it comes to knowledge and scenarios of environmental changes in urban surrounding, Bologna is better equipped. Even though Turku has exceptionally comprehensive measuring results of its carbon dioxide emissions, so far, Turku has identified future changes in the urban environment by interviewing experts of climate science in a rather qualitative and general way. Meanwhile, Bologna has mapped specifically scale of impacts, occurrence, and recognized vulnerable areas within the borders of the city. Climate adaptation plan in Bologna is based on future scenario and rich scientific data whereas, in Turku, rich data and scenarios relate specifically to the amount of emissions.

Adaptation has in only recent years gained more foothold and taken more detailed form in Turku. One can assume, that as the global mean temperature rises and global warming proceeds, also the cities that have not experienced changes yet, will begin to put more emphasis on adjustment policies. Evidently, cities perceive changes in environment adversely in an essential way, which cast expectancy of how one can perform in climate action. Bologna's criticism towards Italian policies elsewhere could not apply to Turku as well, no matter how extensively Turku would practice adaptation measures. Finland and Turku are threatened by little of any environmental hazards. In Finland, tradition to enforce urban infrastructure against environmental changes and extreme weather event is weak, therefore as there has artlessly not been the need for precaution. In this way, cities like Turku might be even more vulnerable to future changes as their sister cities, who have hundreds of years of experience in adapting to environmental changes and natural hazards.

The driver of liveability is not as strong in Turku as in Bologna, because Bologna has a more evolved understanding of what it has at stake and probably more reasons to assume that threats are considerable. As climate program of Bologna explain: In recent years we have faced old problems that have broken into our attention in a new way. Adaptation has a more significant role in cities of more considerable risks.

It seems that drivers for adaptation and mitigation policies are similar, but the importance is in intercourse with the choice. Mitigation policies are less justified with environmental and liveability than adaptation, and more often, drivers of economy and framing have a decisive role. This discrepancy could be summarized with claim, that adaptation policies are driven by tangible objectives regarding diminishing vulnerabilities, preventing most severe impacts of climatic hazards and pursuing additional benefits at specific operational environment of urban area, whereas additional benefits in economy drive mitigation policies, business opportunities and reputation of urban actor as well as general objectives regarding doing one's global part in combatting global warming.

Mitigation policies have from the early start of climate policies been enacted so, that there would not be need to adapt to environmental changes caused by global warming. Mitigation is always preventive measure, for whom is governability is complex and next to impossible because it is challenging to measure changes the policies have created, even when results in amount of emissions are calculable. Turku has been pioneer city in setting ambitious emission reduction target, and one year ago, the municipality decided to tighten the already challenging goal.

Alike Turku, so many municipalities in Finland have been keen to elaborate climate action with carbon neutrality target year and carbon neutrality seems to be mainstreaming in Finnish urban climate response. Additionally, in Nordic tradition, nation states have overall been often ambitious in a global scale, when it comes to pledges to reduce carbon dioxide emissions. The interface of a municipal and national trace is therefore lucid, and national narrative has likely influenced development of Finnish urban climate response. What is striking in municipality's way of elaborate to carbon neutrality, is that measures to cut carbon curve are versatile, wide-ranging, and tangible. Pathway to carbon neutrality is not laid without ambition. This example contradicts Sippel and Jenssen's conclusion of cities seeking to realize through mitigation frame potential, that has no risks

and regrets. To Turku claim of municipalities concentrating to focus on measures which require little investments and save costs, does not apply.

Among two orientation of urban climate response, altruistic efforts, such as global responsibility and climate justice, are linked to mitigation policies. Based on case study reduction of greenhouse gas emissions is more often linked to motives, in which aspirations of positive impacts do not relate specifically to inhabitants of the city, but more generally to global viability. From this finding, we can draw a conclusion to the theory of how post-materialist values affiliate with climate action. The assumption that was presented in chapter 1. asserts that overall increases in wealth encourage the spread of post-materialist values, which inspires greater public support for environmental protection. Support being channeled through a political process translates into a higher propensity of states to sign and ratify international environmental treaties. In the case of Finland, but yet among global cities, in case of Turku, progression seems to be the same. Critique towards this assumption is, that how come does spread of post-materialist values not lead to emission reductions in Italy or Bologna? The justified question, to which the answer winds up back to the beginning of this chapter. As a society, Italy and its cities combat with difficulties that threaten their basic needs, such as liveability and access to water resources. It would be without basis of reality to claim that Italy struggles with ensuring living standards to its citizens, but what seems to be accurate is, that vulnerability of living environment is in at stake to an extent, that call extensive attention.

Neither mitigation nor adaptation measures have been bound together in case cities. In Bologna, mitigation measures are absent and even increasing green surface in the city area is justified mostly with positive effects on liveability with increased shadowing and evaporation. On the contrary, in Turku, the increasing green surface is meant to create carbon sinks. Furthermore, in Turku, where economic drivers are essential, monetary benefits do not have a role in adaptation. Even though climate program foresees losses in biodiversity, increase in alien species and plant diseases and problems with stormwater, estimations on economic effect of losses or benefits have not been integrated into adaptation.

Bologna chose on early stages of the creation of adaptation plan, three focus points – most evident threats. By doing so, the city has been able to communicate concrete goals, it means to achieve. It was understood in the very beginning, that in order to motivate climate action, the municipality needs clear vision. In the case of adaptation, this choice is more applicable. In emission reduction,

positive outcomes are too general and global to see at a specific corner of the world. Governance over an issue that is not governable for urban authority is tricky. Previous studies have illustrated, how several urban actors have been able to avoid this dilemma by grasping "win-win" measures to justify mitigation policies. As previous studies have found out, several municipalities have began emission reductions choosing means they prefer, not the ones that are difficult or contradicted by some.

6.2 Why cities combat global warming

The primary tool for generating findings in this thesis has been the categorization of climate motivation drivers. Chapter 3 focuses on the qualitative contents of five drivers and in which role have these drivers been in creating meaningful climate solution plans in case cities.

Bologna intends to mitigate environmental damages, and this is the primary argument for enacting climate policies in the city. Emphases are on ecological impacts and those that specifically take place in the city, such as threats to the ecological state of river Reno. Climate policy work and adaptation measures in Turku are less focused on clear and measurable benefits in the living environment – much because adaptation has a smaller part in climate policy work and Turku has not obtained data of changes

The first discrepancy became apparent right away as we ask, which driver has been the decisive one in climate policy work of the municipality. For Turku, framing has been primary motivation driver, as for Bologna it has been ecology and environment. In second place of how typical the driver is, positions reverse. In Turku, economy is the third most common driver and for Bologna, fourth. Above economic reasons, political and cultural drivers urge Bologna's motivation. For Turku, political and cultural reasons have been found equally with social in fourth place, and in Bologna, social drivers have among five drivers, smallest position.

Striking distinction between cities is, how some of the drivers carry fluctuating perceptions. This applies to each of five drivers and mostly so to economic, framing and ecology.

In ecologic drivers, Bologna seeks to enhance resilience and adaptation capacity with objectives of urban liveability and environmental risks. The city administration has produced scenarios, which has spread awareness of environmental changes in the urban environment and made climate-induced hazardous occurrences comprehensible – hence slightly more governable. For Bologna, climate

change poses explicitly threat to urban environment and infrastructure and threats are estimated in a more sinister way than in Turku. Equally important, expectations of creating new desirable outcomes as secondary products of adaptation is a driver for Bologna's work. Climate projects dispense opportunities to reconstruct urban habitat greener and pleasant and this is a theme, which Turku has not seized in Turku. As for environmental threats, the main objective of Turku is to prevent changes from taking place or adapting to changes. Solely Bologna has been able to integrate projects that produce additional benefits of ecology and liveability. Interestingly, the ecological perspective of Turku is more linked to global responsibility. Overall in Turku, a global perspective is a more relevant environment related reason for climate policy action, whereas, in Bologna, local view is dominant.

On the contrary to environmental drivers, in case of the economy, from the two cities, Turku is the one that both sees and pursues after secondary products in climate policy work. Turku has strong confidence that relevance, importance, and attraction are attributes that are in the future attached to the city increasingly due to its ambitious climate efforts. Turku has also embraced drivers of economy from the perspective of secondary products: business opportunities, smart growth, and new jobs are relevant drivers behind climate efforts of the city. This is also probably the reason, why economic drivers are surprisingly slightly reasons for climate action in Bologna. For Bologna, economic drivers are more or less prevention of losses and the generation of funding for international climate projects.

In both cities, framing is an essential driver, yet climate change is problematized and mainly framed in a different way in each case city. Bologna has succeeded to frame global warming into a question of local sustainability and resilience. In other words, adaptation project is assembled in a way, which allows inhabitants of the city to see what kind of changes take place and what type of action needs to be done for the desired outcome. If this perspective of problematization is dominant in Bologna, in Turku framing is founded on drivers of reputation. Both cities have considerable motives related to framing, but reputation does not seem to have a role in Bologna, except for the fact that since BLUE AP project has succeeded, a threshold to decelerate has been rather high.

Surprisingly, social aspects are least visible in case cities. Considering that in large parts of Italy, losses of life during extreme weather events, have in recent years been tracked to climate change. In Italy, threats to the wellbeing of population are essentially more tangible compared to countries

in northern Europe. However, Bologna generally uses in its material language, that paints threats and describes grave effects more knowingly than Turku. “Threats” and “hazards” in this case, are manifested in a multisectoral way, which steers this section under driver of framing.

Perhaps the most significant disparity between Turku and Bologna is the intensity in which local impacts presumably take place. Knowing this, drivers of ecology and liveability grow in importance while in less vulnerable Turku, other drivers form comparatively more decisive. Additionally, social drivers are in a relatively smaller role in both cities, if they would be compared to cities in developing countries, where climate change impacts are drastic and societal capacity to adapt is weaker. When evaluating motivation drivers, the disparity in occurrence to other drivers is smaller in previous studies, where the global representation of sample cities has been broader. In those studies, social driver is also more versatile than in this case study. Among all five drivers, social drivers relate to losses and threats, while the other four also represent additional profits. In developing countries, social drivers also emphasize the possibility to increase equality and well-being as well as disassemble undesired phenomena such as poverty and homelessness.

Despite different goals, distinct drivers often coexist in harmony, and numerous policies aim to positive impacts in more than one theme. In the case of both cities, it seems that a variety of measures in climate program has made it possible that people with diverse individual motives have been able to relate to a mutual project. Scanu & Cloutier claimed in their comparative study that cities get involved in climate governance when they frame climate action with win-win opportunities. In two case studies, the win-win element is recognizable in practically every driver. However, this does not seem to be the key answer to why cities are active in the climate policy field. Reasons for urban climate action in municipalities of Bologna and Turku are multifaceted and plenty. Objectives are in prevention and creating new possibilities. Justifications vary between benefits for the local community to doing one’s share in global responsibility. Within the last ten years, cities like Turku and Bologna have developed as urban climate actors, and therefore, the reason for urban climate response have become more abundant in diversity.

6.3 Discussion with theoretical framework

Theoretical framework of this thesis links urban climate action to the reconfiguration of authority and paradigm of a power shift between cities and nation states. In this paradigm, cities seek to take hold on ownership of complicated global challenges, in which municipal authorities consider that

nation-states have failed to resolve. The result may derive from a continuum of cities gaining strength and capacity and having earnest pursue to share the burden and solve common global challenges. Traces of this development are in motivation drivers of climate policy work of case cities. Both cities have concluded nation state being either too bureaucratic of lacking sufficient ambition in climate measures. Cities of Bologna and Turku know that they are way ahead of their nation states when it comes to goals of adaptation and mitigation. Whether the paradigm of power shift has been a conscious choice or not, we can only remain to ponder over. In my opinion, gaining power over nation-state has not been meaningful for either city, seeing this development taking place along the way of climate action, reconfiguration of authority over climate change issues has increased acceptability to set the ambitious climate goals. Both cities have gained international recognition for their efforts and sought platform in international networks. Reasons for this have different, but both cities experience that ability to attain international cooperation and meaningfulness, is decisive.

Do cities seek to question nation states' authority and ability to take action? Considering that Bologna and Turku do not receive notice on climate policies of nation-state and do not expect top-down outlines on urban climate action, the presumption is feasible. In light of studies regarding the reconfiguration of authority, our two cities may be part of this more decisive phase. All in all, climate change provides the right occasion by being a complex global challenge, yet being governable for municipal authorities. I am inclined to presume, that this is the very reasoning and one particle of the answer to why cities set ambitious urban agendas. Two case cities have pushed forward ambitious climate programs due to inaction or the slow pace of the state and to harness the opportunity to be a significant wielder of power. In the case of Turku, self-esteem and faith in the success of carbon neutrality target is robust, and as for Bologna, the state has been able to elaborate adaptation plan long after Bologna began to implement theirs.

Neither city has really seized an opportunity to work with the state on climate policies. The primary rationale for this seems to be, that both know, that their strategic goal is more demanding and wide-ranging than objective of the state. In neither countries, mitigation or adaptation policies aren't obligatory to cities, and climate action is not, at least directly, funded by the state government. This thesis has been written out in time when Italy has been in final stages of preparing its national adaptation plan, and in Finland, pledges of tightening national goal for greenhouse gas reduction

has become louder. These cities, instead, have already set ambitious climate targets. Bologna and Turku are still well ahead of their states.

Another perception to cities' climate ambition is to frame the issue with the tragedy of commons. As presented in a chapter 2.4, revising global challenge into local, governable issues, have been offered as escape from the tragedy of commons by an evolutionary dynamics approach of researchers Francisco Santosa and Jorge Pachecob. It seems, indeed, that in the case of global warming, this theory of lack of interest in stewardship of mutual resources does not apply anymore, not at least to climate ambitious cities. As prevention of environmental degradation has in terms of ownership and governability, always been difficult to attain, tragedy of commons leads to collective failure. However, this risk has precisely also been a factor to spur action. Another means to escape failure is to separate tangible fractions of the vast challenge. If climate change needs to be governed, it needs to become governable, which is a key to dissolve tragedy of commons. This precisely is, what cities of successful climate policy setting have been able to do. In Bologna, this is performed by adaptation plan, which has established concrete measures and objectives. Similarly, to Bologna, Turku has drawn climate plan that consist of precise responsibilities, targets and intermediate goals. Climate ambitious cities have been able to remodel global warming into governable challenge.

Another perception regarding evolutionary dynamics approach is the risk of collective failure becoming escape rather than an obstacle. If we look at the history of urban climate response, which I have explained in chapter two, we see escape at an increasing pace. I asked at the beginning of this thesis: "When urban authorities face the troublesome tragedy of commons, which sort of drivers urge them to work for the common good?" One significant driver for urban climate motivation has from primary and secondary material been proven to be the willingness to solve a global challenge. As one of my respondents put it: "It does not matter, who is most ambitious. We are all in the same boat". At this end of this thesis, I want to argue that as much as the tragedy of commons has defined environmental studies and policies, that when the risk becomes enormously hazardous and threatening, agents of collective stewardship begin to perceive the issue similarly to my respondent. Each is in the same boat, which provides, escape from the tragedy of commons and risk of collective failure. Can cities have governability over global warming, when the issue itself is so complicated in terms of governability? Answer to this question from the theoretical framework is: if they choose it, yes.

The third notion on the theoretical framework derive from a claim that overall increases in wealth encourage the spread of post-materialist values. Following this notion of R. Daniel Kelemen, public support for environmental protection is characteristic to societies of high living standard, where environmental support channels through the political process and translates into a higher propensity of states to sign and ratify international environmental treaties. [91] Based on primary sources, I would argue that this estimation may represent in general, but not thoroughly without exceptions. Increase in wealth may lead to increase in post-materialist values, but environmental and climate support is not necessarily described in this category consistently. If this would be the case, we should not see stark differences among cities of the same nation state, where presumably living standards do not vary much. In my thesis study, I have found out that while Turku is ambitious with its carbon neutrality goal in Finland, the number of cities do not fall far behind. Even more, several Finnish cities practice ambitious climate action while this is not the case in Italy. Bologna has for long stood in solitude for practising climate change policies and only during recent years, other cities have begun to catch up. A linkage cannot explain climate motivation of cities between the increase in wealth and the spread of post-materialist values.

6.4 Future of urban climate response

In the very beginning of this thesis, we recapped, how a growing number of people reside in cities and how cities produce a considerable amount of greenhouse gases. Urban environmental footprint is immense in global scale, and in case of unexpected hazardous weather events, dense urban areas often face severe risks. Urban climate action matters, for their residents and surroundings but also the global development of global warming. To give perspective, if all municipalities in Finland which have set emission reduction targets, achieve their goals, Finland can reduce its total emission of one-sixth until 2035.

We can say, that urban climate action matters. We have learned that the main driver for climate adaption work of Bologna is the preservation of liveability and enhancing the resilience of the city. Reaching carbon neutrality target in Turku is motivated by manly economic drivers and narrative of climate leadership alongside with global responsibility and climate justice. Mitigation and adaptation policies in the urban environment are driven by similar themes but with distinct emphasis. Policies that aim to reduce emissions or create adaptivity do not need to be dissimilar.

[91] Kelemen 2010, 6-7.

Rather many actions connect to both topics, but case cities have a tendency to divide policies into two compartments. Even though this division follows the traditional way of managing climate policies, the division is an opportunity to practice urban climate governance. Without governability, feasible management is futile. Governability has been key to success in creating a platform for climate policies. These cities have managed to turn global warming into wholeness, from which impacts to the urban environment and governable reduction measures can be separated.

Given that history of urban climate action is young, Bologna and Tuku have set their foot in this field rather early. Both recognized that in the very beginning of their work of international cooperation enhanced understanding amongst city officials of the urgency of climate change. In light of these experiences, it is easy to draw a conclusion that urban climate action eventually takes place, if the city has employed committed environmental specialists to initiate the work. This has not been enough to carry Turku of Bologna to present day of climate leadership, but in many phases, motivation has out sprout in new places and taken different forms.

Besides beforementioned, keys to successful urban climate action in light of case cities are producing intermediate targets or calculable indicators and take the trouble to create a tangible connection of global warming and urban impacts for citizens and policymakers. Tracing effectiveness of chosen measures is possible solely with solid preparations and groundwork. Other necessary building blocks are data and information, which enables monitoring and follow-up of development and strong institutional capacity to ensure continuity and constant progress of climate policies. Institutional dedication to climate adaptation work is both prerequisite and driver for climate action and immune to political whims. These efforts have spurred motivation and continuity in climate policy history of case cities and are essential for successful urban climate action.

History of urban climate policies is brief, and at the beginning of the 1990s, international climate policy networks were established. Nation states have been responsible for sustainable development and environmental protection long before that, and it seems, that disparity of early history is in change. Cities like Turku and Bologna shape hierarchy of political authority and create a power shift in governance from nation states to urban authorities. Bologna and Turku witness that local governments do have governance of global issues in their own right. Whereas nation states have elaborated climate policies in urgent expectations, politized pressures, and conflicts on the exercise of power, cities globally have been free of predefined expectations. Perhaps the opportunity to

define climate action entirely from the city's attributes and strengths without predefined requisitions has enabled cities to rise in the vanguard of solvers of climate change.

From the beginning of the creation of urban climate action networks in the early '90s, cities participation in combatting global warming has been accelerating. Sippel & Jenssen's estimation in 2010 of municipalities being able to realize marginal emission reductions because of limited financial resources and absence of a supportive national legal framework, describes well, how rapid the positive progress has been. In the coming years, it will be interesting to see how things have evolved. As Harriet Bulkeley has pointed out, there has been a gap between the rhetoric and reality of urban climate responses. While this discussion dates back to the same time of Jenssen & Sippel's publication, somewhat ten years later, we ought to be able to tell, if rhetoric has met reality. In light of climate ambitious case cities Turku and Bologna, target years are in coming decades, but both cites have achieved noteworthy changes in reducing emissions and enhancing resilience and creating sustainable urban attributes.

Will urban climate governance take leaps forward, and how long will cities be able to choose individually, how they practice urban climate governance? As global warming becomes more critical, is it possible that nation-states create top-down policies and demand specific actions from municipalities? Or will networks of ambitious urban climate leaders, such as ICLEI, C40 or Global Covenant of Mayors take higher or official or set binding pledges in United Nations' climate conventions? Will future show us a new significant era of urban climate action in the form of urban emission trading system of climate change agreement between cities? And finally, which factors drive urban climate action in such a future?

We might see the next phases or urban climate action in no time. While I was in good process and writing chapter of the case study, I heard that Turku and Bologna are about to launch cooperation in the climate policy field. Again, this was to be yet one utterly new opening in urban climate action for both cities, since they have not had relations before. On May 19th, cities published the new cooperation project formally under the Twinning programme of the Covenant of Mayors.

In the programme, partners give each other feedback and advice as well as critical notions on developing climate action. Participating cities and regions are committed to developing Sustainable Energy and Climate Action Plans (SECAP), which Turku has adopted and which Bologna has started the preparatory work utilizing the experience of Turku. Turku instead, expects to receive valuable

feedback on how to engage different actors and activate residents to climate action. “Tapping into partner experiences helps to respond more quickly and effectively to the challenges of climate action. Concrete areas of cooperation have already been found. For example, how to make better use of carbon sinks, how to involve companies in the assessment of nature and biodiversity, how to implement the blue-green coefficient in construction regulations, how funding models are used in climate plans and how sustainable mobility can be better promoted”, says Claire Baffert, facilitator of first meeting of the cities.[92]

It seems, in fact, that from each other, Turku and Bologna have found partners who spur each other to higher achievements. When future thesis writers want to examine climate motivation of ambitious European cities, they may well find Bologna and Turku – two cities who have worked ambitiously, consistently and victoriously to achieve both carbon neutrality and resilient city surroundings.

APPENDIXES

INTERVIEW QUESTIONS

Background

- What has been your role in the city governance? What about regarding climate policies?
- How is the municipality’s climate work organised?
    - Strategies, employees, projects?
- What are the main climate issues from the municipality´s perspective?
- What and when did work regarding climate policies start?
- What were the reasons to take these actions?
- What do you think is the reason, why in a global phenomenon, your municipality perceived that there is a need for local action?

Cooperation and international stakeholders

- In which networks is Bologna active in the field? Which are some key stakeholders?

[92] Turku,” Turku and Bologna learn from each other’s climate actions” 2018.

- What is the cooperation like?

Bologna adaptation

- What role does adaptation have in the municipality?
- What in your opinion is adaptation to climate change?
- How were and are the risks defined?
- What policies have been made?
- How was the BluApp (or other) initiated?
- How does the municipality resource this work?
- Which administrative sectors of the municipality are involved?
- Are citizens involved?
- Has there been someone, who has been initiative or pushed policies forward?
- How was it decided that how adaptation policies and strategies will be done?

Relationship to state and sub-national actors

- Are there some strategies or programmes that had some influence on your adaptation work? (Such as regional, national, international?)
    - What has the influence been?
- How would you describe what is the relation of the state's adaptation plan and Emilia-Romagna's to Bologna?
- Emilia-Romagna has had climate plan from 2011 onwards (about mitigation). The state adaptation plan has been done 2014. Would you say that Bologna has done its adaptation plans separately from these?

Motivation

- Who are the main actors in the municipality's work for CC policies?
    - What about in adaptation?
- How was the work launched? Where did the spark come from?
- Where is the ownership or who leads the work?
- How would you assess the continuation of the work?
- What about in terms of how adaptation is integrated in the municipality's other activities by organization or if it is more dependent on the individuals?

- What reasons do you recognise in why Bologna is active in implementing and plan adaptation policies?
- Has there been any obstacles? Is adaptation work being criticized among the community? Or is there something that has raised negative receptions? What have been the main obstacles?
- What encourages the cities to act?
- Besides the work that the municipality does currently, is there some future plans or discussions of next steps?
- How would you assess the relevance for cities to make climate policies?

Ilmastonmuutos Turussa

- Miten kaupungin ilmastotyö on organisoitu ja mikä on ollut roolisi tässä työssä?
    - strategiat, toimenpideohjelmat, työntekijät, projektit?
- Mitkä ilmastonmuutokseen liityvät asiat ovat kaupungin näkökulmasta tärkeimpiä?
- Miten kaupungin ilmastotyö on alkanut?
    - Mitä syitä aloittaessa työlle oli? Miksi kaupunki halusi tehdä toimenpiteitä asioissa, joka nähdään globaalina ilmiönä ja vastuuna?
- Onko Turku mukana joissain merkityksellisissä kv-verkostoissa ilmastopolitiikan vuoksi? Mitkä ovat tärkeimpiä?
- Tähän mennessä tehdyn lisäksi, keskustellaanko kunnassa seuraavista askelista?

Hiilineutraaliustavoite

- Kuinka hiilineutraaliustavoite on syntynyt?
- Mitkä tahot olivat aktiivisia tavoitteen asetannan eteen?
- Miksi kaupungissa on haluttu asettaa päästövähennystavoite?
- Miten kuvailisit hiilineutraaliustavoitteen asemaa kunnassa?
    - Entä päästövähennysten?
- Miten tavoitetta on jalkautettu tai jaettu toimenpiteiksi?
- Mitkä kunnan sektorit osallistuvat hiilineutraaliustyöhön? Entä muut sidosryhmät ja tahot?
- Kuinka työtä on resursoitu Turussa?
- Tavoitetta kiristettiin vuonna 2018. Minkä syiden uskot johtaneen tähän?
- Miten päätetään tarkemmista toimenpiteistä päästövähennyksissä?

Suhde valtion ilmastopolitiikkaan

- Millaiset kaupungin ulkopuoliset strategiat tai ohjelmat ovat vaikuttaneet Turun hiilineutraaliustyöhön?
    - Maakunta, Valtio, kansainvälinen?
    - Millaisena näet tämän vaikuttavuuden olleen?
- Miten kuvailisit valtion ilmastopolitiikan suhdetta Turun ilmastopolitiikkaan.
    - Tavoitteissa
    - Yhteistyössä
- Millainen merkitys valtion päästövähennystavoitteiden asetannalla tai maakunnan hiilineutraaliustavoitteilla on ollut Turun omiin päätöksiin päästövähennystavoitteista?

Motivaatio

- Kuka keksi Turussa tavoitteen hiilineutraaliudesta? (jos ei vielä tullut ilmi)
- Kenen voi sanoa olleen tai olevan päävaikuttajia kunnan ilmastotyön edistämisessä?
    - Entä erityisesti päästövähennysten edistämisessä?
- Missä/kenellä Turussa sijaitsee/on omistajuus ilmastotyön edistämisessä?
- Miten arvioisit päästöjen vähentämisen työn jatkuvuutta menneessä ajassa tähän päivään? Onko mukana ollut ripeämpiä jaksoja ja suvantovaiheita, vai tasaista kiihtyvyyttä kohti 2029 tavoitetta?
- Onko työn jatkuvuus ollut organisaation jaettu tavoite vai näetkö, että mukana on ollut yksilöitä, joiden varassa eteneminen on ollut?
- Millaisia haasteta tai esteitä työssä on ollut?
    - Onko päästövähennystyön tarpeellisuutta kritisoitu?
- Mitä syitä olet tunnistanut ilmastotyön tekemiselle Turussa?
- Entä mitä motivaatiotekijöitä?
- Miten Turku hyötyy päästöjen vähentämisestä?
- Mitä pidät rohkaisevana siinä ilmastotyössä, jota itse teet kaupungissa?

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