



Norwegian University
of Life Sciences

Master's Thesis 2023 30 ECTS
Faculty of Landscape and Society

Climate Action Through Transnational City Networks: Lessons from Oslo

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Acknowledgements

First, I would like to express my sincere gratitude to all the informants who generously shared their time and insights, making this research possible and enriching.

Special thanks are extended to my supervisor, Einar Braathen, for your support, guidance, and patience throughout this period. Your encouragement and understanding have been invaluable, especially during challenging times.

Any errors are mine alone.

Abstract

Cities have emerged as imperative actors in the global effort to address climate change, independently and collectively in transnational city networks. This study examines Oslo's ambitious climate goals, analyzing its climate initiatives and collaborations with transnational city networks. Oslo's commitment to significantly reduce its greenhouse gas (GHG) emissions—with a goal a 95 % reduction by 2030—is supported by a polycentric multilevel governance approach, engaging actors from various sectors, including international entities. These collaborative dynamics have positioned Oslo as an international climate-leading city, particularly within networks like C40 and Eurocities. Political leadership, especially from the Red Green Coalition, has accelerated the city's climate strategy by pushing forward the original target from 2050 to 2030. Instrumental tools like the Climate Budget have been central to these efforts, ensuring that climate considerations are consistently integrated across sectors. Oslo's leadership in a pilot project with the C40 network on implementing climate budgets and its ambitions for a zero-emission zone underscores the city's active standpoint on climate issues. While some projects face challenges, notably from national regulations, Oslo continues to innovate, focusing on sectors like construction and public transportation. The study concludes that while Oslo offers valuable insights for global urban climate action, the transferability of its strategies requires an understanding of the specific institutional settings of other cities.

Keywords: *transnational city networks, climate leadership, collaboration, climate, environment, municipality*

Acronyms and abbreviations

C40	C40 Cities Climate Leadership Group
CNCA	Carbon Neutral Cities Alliance
CNCC	100 Climate Neutral Cities Commission
COP27	27 th Conference of the Parties
ICLE	Local Governments for Sustainability
EEA	European Economic Area
EU	European Union
GHG	Greenhouse gas
IPCC	Intergovernmental Panel on Climate Change
NAZCA	The Non-state Actor Zone
OME(S)	Original Equipment Manufacturer
NGO	Non-governmental organization
IR	International Relations (the study of)
UCLG	United Cities and Local Governments
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
ZEZ	Zero-Emission-Zone

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1 Introduction

The 2015 *Paris Agreement* highlights the instrumental role of local governments in the global response to climate change. The goal is to limit the increasing global temperature below 2C and pursue efforts to limit the temperature to 1.5C above the pre-industrial level to mitigate climate change (UNFCCC, 2015). According to the Intergovernmental Panel on Climate Change (IPCC), greenhouse gas (GHG) emissions must decline by 48 % by 2030 to limit global warming (IPCC, 2023, p. 21), as global climate change is one of the most significant political and scientific challenges because of the ineffectiveness of nation-states in addressing this challenge through international negotiations. Cities have demonstrated their capacity to address this challenge by establishing independent climate strategies (Betsill & Bulkeley, 2006, p. 141). Pioneer Cities have initiated transnational collaborations and city networks to exchange knowledge and practices regarding climate change mitigation and adaptation, security, migration, and economics. Transnational city networks such as the Climate Leadership Group (C40), Eurocities, the Covenant of Mayors, and Local Governments for Sustainability (ICLEI), among others, actively coordinate and assist their members in achieving effective climate action (Fuhr, Hickmann & Kern, 2018; Gordon & Johnson, 2017). Climate change has a direct effect on cities and metropolitan regions. While the effects can vary for ecosystems and social systems, it remains instrumental for all cities and regions to undertake measures in response to this evolving situation (Kern, 2010, p. 1). Consequently, cities and local and regional municipalities have increased their collaborations with transnational city networks, international institutions, and global organizations to address these challenges. As a result, cities are gaining increased recognition from international actors, including UN agencies, the EU, and the World Bank, and are regularly featuring in high-level discussions on sustainable development. With over half of the global population living in urban centers, the significance of city leaders' participation in crucial conversations addressing climate and health-related societal challenges becomes increasingly evident (Acuto, Morissette & Tsouros, 2017, p. 14).

Over the past decade, Oslo, the capital city of Norway, has gained international recognition within specific transnational city networks for its climate initiatives. Oslo collaborates with several transnational city networks focused on climate governance and sustainable development, including C40 and Eurocities. In 2019, Oslo was awarded the prestigious title of European Green Capital by the European Commission for its climate efforts (Oslo municipality,

2023a). Furthermore, Oslo has received the status of *Innovator City* within the transnational city network C40. In 2023, the city and C40 executed a two-year-long pilot project in Oslo. C40 operates on a performance-based model, meaning cities must demonstrate their commitment to climate action aligned with the Paris Agreement's goals in order to become a member (Oslo Municipality, 2023b; C40, 2023).

Due to Oslo's active international engagement and ambitious climate goals presented in its climate strategy (Oslo Municipality, 2020a, p. 2), the city has set a reduction goal of 95 % GHG emissions by 2023. This reduction goal is greater than those of other cities and nation-states. Oslo's commitment reflects both climate leadership and high ambitions. These details have inspired the formulation of the research questions that follow below.

1.1 Problem Formulation

On account of what has been mentioned above, the governing research question of this thesis is: *What climate action lessons can be drawn from a case study of Oslo, Norway, and its engagement with transnational city networks?* Additionally, the thesis explores three sub-research questions:

- *What is the environmental governance approach adopted by Oslo?*
- *To what degree is international collaboration instrumental for Oslo to achieve its climate goals?*
- *How transferable are these climate measures to other cities worldwide seeking to strengthen their climate action ambition?*

Considering the global nature of climate change, scholars have argued for cities' instrumental role in addressing this challenge as they organize and collaborate through transnational city networks to achieve their climate goals. Hence, this thesis seeks to explore Oslo's climate initiatives and strategy to extract insights that could benefit others. The primary focus of this research is to comprehend Oslo's climate leadership and strategic engagement in transnational city networks to accomplish its ambitious climate goals. In the pursuit of answering central research questions, a polycentric multilevel framework inspired by experts in the field (Vedeld et al., 2021; Pierre, 2019; Homsey & Waner, 2015; Kern, 2019; Morrison et al., 2019; Gordon

& Ljungkvist, 2021) will be applied to provide a comprehensive understanding of how cities organize themselves and influence decision-making processes. Additionally, the study examines selected municipality documents sourced from the Municipality of Oslo to provide insight into Oslo's climate ambition. Furthermore, in-depth interviews were conducted with experts closely associated with the Oslo Municipality and other governmental institutions. These interviews aimed to provide a more comprehensive insight into Oslo's environmental governance and engagement in transnational city networks.

1.2 Structure of Thesis

Following this introductory chapter, **chapter 2** outlines the theoretical framework of the thesis. The first part emphasizes literature on cities in International Relations and their significant role as global actors provided by various scholars. It delves into areas of climate governance and transnational city networks. The second part explains the analytical framework. **Chapter 3** discusses my research strategy for the thesis. **Chapter 4** presents Oslo's climate policy ambitions and experiences. **Chapter 5** discusses the findings in Chapter 4 in relation to my research questions. **Chapter 6** concludes the thesis, assesses its limitations, and suggests some issues for potential follow-up research.

2 Theoretical-Analytical Framework

This chapter draws from various literature about cities asserting their presence on the international stage. It demonstrates how cities and city networks interact with the global system and how they have gained international recognition for their efforts in climate change governance. While the study of urban development has offered valuable insights into contemporary social dynamics, International Relations (IR) scholarship often overlooks cities in their primary research agendas (Curtis, 2014, p. 1). The first section of the chapter aims to clarify the broader processes and mechanisms that drive cities to engage beyond national borders, as described by scholars and researchers. The second section provides an analytical framework for better comprehending how cities collaborate through a polycentric multilevel governance approach.

2.1 Cities, International Relations, Environmental Governance

2.1.1 Cities in International Relations

Saskia Sassen's (2010) Global City hypothesis posits that select cities have assumed pivotal roles in the global economy, propelled by processes of globalization and urbanization. These cities function as dynamic hubs for finance, commerce, and cultural exchange, wielding influence beyond national borders. They are distinguished as Global Cities and serve as magnets for worldwide capital and information flow. These cities are instrumental in generating and amassing wealth and operate as strategic nodes within the interconnected global arena. Consequently, Global Cities possess economic influence, allowing them to influence global economic policy decision-making processes.

Cities have an instrumental role within global environmental governance because of their dual status as significant sources of GHG emissions and susceptible to climate change impacts. Urban areas contribute nearly 70 % of anthropogenic GHG emissions while occupying a mere 2 % of the Earth's surface (World Bank, 2023). At the same time, city and regional governments implement climate change policies, outline GHG emission reduction goals, and rigorously monitor and disclose their performance to effectively mitigate climate change within their jurisdictions. Cities engage in collaborative networking that spans national boundaries (Lee,

2013, p. 108). Global climate change remains a significant political and scientific dilemma, as it has escaped effective resolution in international nation-state negotiations (Betsill & Bulkeley, 2006, p. 141).

Scholars have increasingly recognized the role assumed by cities in the international arena. This recognition of active participation in climate governance contributes to establishing a more sustainable form of urban climate governance. A substantial aspect of this lies in the collaborative efforts of cities within transnational city networks. These efforts encompassing establishing GHG emissions goals, developing strategies, and implementing concrete climate policies for their members. Moreover, there are indications that cities are embedding climate-oriented strategies as core elements of their urban governance frameworks (Gordon & Johnson, 2017, p. 5). As emphasized by Sassen (2010), cities hold a crucial position within international networks, fostering the growth of financial and technological progress. These solutions receive substantial support and priority from urban centers. This phenomenon highlights the instrumental function that cities and regional governments fulfill in shaping the worldwide advancement of sustainable initiatives. This illustration demonstrates their capacity to influence and drive positive changes on a broader spectrum.

Transnational city networks serve as organizations that facilitate communication and the exchange of ideas among their members. These networks frequently engage in localized experiments to test novel concepts and methodologies, intending to replicate these successful efforts in other urban contexts. These collective entities are dedicated to the cross-border transfer of innovations and concepts, fostering sustainable development and climate-oriented strategies. Exemplary and cognitive leadership is crucial within such networks, as it is instrumental in steering the path and emphasis of collective initiatives (Kern, 2019, p. 131). Jolene Lin (2018) argues in *Global Cities and Transnational Lawmaking*, about the limitations of national states in effectively addressing climate change in concert. As a result, networks of cities have emerged, facilitating global collaboration and the exchange of climate-related ideas and objectives. These cities function as active agents, driving climate-oriented initiatives forward. By participating in transnational city networks, cities can collectively influence and amplify their voice in international platforms like the UNFCCC (Lin, 2018, p. 4). Lin's research highlights the growing role of cities as actors that produce and implement norms transcending national boundaries to address climate change (Lin, 2018, p. 6). Certain municipalities and

regional authorities might be less inclined toward active involvement in partnerships with international institutions, transnational city networks, or international stakeholders. Lee (2013) and Lin (2018) could potentially overlook the extent to which the nation-state framework embedded in these cities or regional governments' function contributes to their actions.

As cities continue to gain increased acknowledgment within the discipline of international relations, scholars in the field of IR are beginning to shift their focus toward global cities and their roles. There is a growing effort to conceptualize the significance of global cities. Cities are now more actively engaged in various aspects of international affairs, encompassing political, economic, and jurisdictional. Earlier studies on global cities have mainly approached cities through an economic lens, positioning them as instrumental nodes in the global capitalist economy (Gordon & Ljungkvist, 2022, p. 61). Within international relations, cities have traditionally been viewed as sub-national entities, thus placing them within the confines of the 'non-state' and 'civil society' categories. Consequently, cities have largely been excluded from the conventional purview of IR, which is mainly state-centric and focused on international institutions and security (Curtis, 2014).

Cities hold an instrumental position within the global economy, attracting investments and addressing critical challenges such as urbanization, migration, and climate change through innovative solutions. The increasing number of networks and collaborative partnerships with fellow cities that transcend national boundaries illustrates their leadership. In the context of a world that experiences more interdependence, cities recognize their political and economic governance capacities. This recognition is accompanied by an observable trend of cities becoming more internationally organized. City and regional authorities are developing strategies for global governance and city diplomacy, mainly focusing on climate, health, and security concerns (Curtis & Acuto, 2018, p. 8).

Addressing climate change is a complex challenge requiring solutions at both local and regional tiers. As a result, climate governance has become highly internationalized. Urban and metropolitan areas bear direct consequences of climate change. A plausible explanation for this phenomenon may come from the decision-making process that diverge from the national decision-making level. Local entities have a more efficient decision-making processes,

enabling them to implement initiatives swiftly in contrast to the decision-making process at the national level.

Numerous scholars have argued that cities have an instrumental role in climate governance, both within and outside formal international diplomacy. Some suggest that this role could grow in importance, particularly because of geopolitically uncertainty that may hinder global climate action. However, it is imperative to avoid overly idealizing cities' influence, even as they demonstrate their capacity as potential global climate leaders. Cities still remain embedded within larger governance structures and political environments (van der Heijden et al., 2019, p. 366). This demonstrates cities' significance as valuable subjects/entities for exploration within the IR discipline, particularly concerning climate governance. City mayors and municipalities from various countries are organizing themselves within the international arena, further emphasizing their relevance. While international negotiations on climate change have often stalled with the dichotomy between industrialized and developing nations, cities have progressively demonstrated leadership in global climate governance (Lee, 2013, p. 108).

2.1.2 Cities and Global Environmental Governance

“While nations talk [...] cities act” (Acuto, 2013, p. 494).

During the 2000s, global climate negotiations within the international governmental arena were locked in a tug-of-war between influential industrialized and developing nations. This led to slow decision-making processes regarding climate concerns. In response to this, cities made efforts to address this vacuum by independently developing and implementing their own GHG emissions reduction goals within their respective jurisdictions before the establishment of an international framework. This dynamic suggests and assumes that cities take leadership roles within global environmental governance (Lee, 2013, p. 108; Fuhr, Hickmann & Kern, 2018, p. 2).

The conventional top-down approach to climate governance has been proven to lack the capacity to generate effective governance mechanisms aligned with the complex nature of climate challenges (Gordon & Johnson, 2017, p. 3). Consequently, scholars and researchers across various fields have directed their focus toward global environmental governance, which extends beyond the jurisdiction of nation-states. This sphere involves a spectrum of non-state

actors, including non-governmental organizations, transnational city networks, public and private entities, and institutions collectively engaged in global environmental governance. This collective involvement extends to influencing national and international institutions regarding questions and actions concerning climate change (Bulkeley & Schroeder, 2011, p. 745). An example of how international institutions have facilitated the legitimization of cities' involvement in addressing climate change is the establishment of The Non-state Actor Zone for Climate Action (NAZCA). Introduced by the UNFCCC in 2014, NAZCA is a digital platform designed to distribute knowledge about climate actions on a global scale. NAZCA encompasses climate governance activities for cities, legitimizing cities' global role in climate governance. Cities have demonstrated active participation within global climate governance, primarily through their engagement in transnational city networks such as ICLEI, Eurocities, and C40, where they collaboratively coordinate member efforts towards climate action (Gordon & Johnson, 2017, p. 6). Cities and regional governments engaged in governance have established themselves in transnational networks to share knowledge and cooperate with urban experiments on environmental governance. City governments worldwide are progressively participating in global politics concerning environmental governance to uphold the Paris Agreements and address other concerns (Van der Heijden et al., 2019, p. 367; Gordon & Ljungkvist, 2021, p. 59).

Urban experimentation has demonstrated its capacity to remodel extensive governance arrangements involving public and private actors by generating new possibilities for broader institutionalization (van der Heijden et al., 2019, p. 365). For example, Climate-leading cities, such as Amsterdam, Copenhagen, and Oslo, have adopted more ambitious climate goals than the EU and its member states. Even smaller municipalities, such as Växjö in Sweden and Güssing in Austria, have gained international recognition as models, primarily because of their voluntary leadership driven by concerns over climate change. These cities are taking decisive steps in sub-national climate governance, emerging as instrumental actors for EU climate governance (Kern, 2019, p. 126). This assumption is supported by a Brussels office dedicated to cities, established by transnational city networks like the Climate Alliance and Covenant of Mayors. The latter, an EU Commission effort, seeks to establish a direct connection between the Commission and cities (Kern, 2010, p. 1).

Research in this field indicates that cities and regional governments possess a type of 'soft power' that can shape decision-making at the state level by mobilizing citizens and organizational actors. Here, soft power refers to the ability to influence actors with authority for assertive decision-making (Partzsch, 2017, p. 195-197).

While the impacts of climate change can vary across ecological and social systems, all cities and regions must undergo adaptations to the evolving circumstances (Kern, 2010, p. 1). This can be tied to the previously established notion that cities are vulnerable to environmental implications and need to assert their influence to ensure the acknowledgment and resolution of these concerns. The consequences of climate change intersect with both security and health matters. Moreover, the expanding population requires urban development to reevaluate urban planning strategies to counter these challenges effectively. Cities must actively address environmental issues, recognizing their substantial role in tackling climate-related concerns and adapting urban planning approaches to accommodate the growing population. For example, in 2003, Europe experienced unusually high temperatures. France experienced approximately 15 000 heat-related deaths between August 4 and 18. Other European states' also experienced farming and forestry damages caused by wildfires (Poudmaère, Mays, Le Mer & Blong, 2005). Another example is Sierra Leone's capital city, Freetown, that underwent an urban project named *Environmental Assessment and Evaluation of Natural Disaster Risk and Mitigation* (2011-2014). The project was funded by the European Union and sought to battle rainforest deforestation in the area caused by human activities due to population pressure, urban development, and charcoal production. A collaborative effort involving governmental institutions, NGOs, and the local community sought to draft regulations for forest usage and implement policies to control development and penalize companies exploiting the forest. Strategies included conserving the remaining rainforest, establishing a clear land-use plan, improving forest-dependent communities' socio-economic conditions, and raising awareness among stakeholders (Freetown City Council, 2014, p. 31-32).

As a result, this momentum has increased the engagement at the local level in climate change matters within the United Nations, fostering the development of new guidelines for sustainable urbanization through the New Urban Agenda and the 2030 Development Agenda. Notably, innovative cities have been paralleling these sustainable efforts at both national and regional scales (Fuhr, Hickmann & Kern, 2018, p. 1).

Transnational city networks

The practice of collaboration among cities is not new—transnational city networks like the Hanseatic League operated in Europe before the emergence of nation-states. More than 200 active city networks exist globally, with approximately half having an international orientation. These networks accommodate various scales, focusing on megacities or smaller towns and municipalities. Their aim is to empower cities to address challenges and pursue opportunities beyond their municipal boundaries or regional borders (Kern, 2019, p. 127; Klaus, 2020, p. 2). Cities remain within the national jurisdiction, with organizations based on national states being the dominant forces. Nevertheless, international and regional city networks such as Eurocities, C40, United Cities and Local Governments (UCLG), and ICLEI are receiving increased recognition, positioning cities and city networks as valuable subjects to be studied within the IR discipline (Acuto & Rayner, 2016, p. 1151).

Transnational city networks act as hubs of knowledge exchange, sharing ideas, technology, and experimental practices, and they foster a more sustainable urban development. These networks facilitate interaction between city administrators and other instrumental actors, encompassing both the public and private sectors (Davidson et al., 2019, p. 8). The expansive growth and complex geography of city networks illustrate that urban leaders engage in activities beyond mere interaction and discourse among their counterparts. Numerous international actors have advocated the involvement of local governments in global governance, a perspective reinforced by the IPCC (Acuto & Leffel, 2020, p. 2). The increasing prominence of city networks is being highlighted within research and influential platforms like WHO, G20, and Urban 20, as pivotal drivers in attaining UN Sustainable Development Goals (Acuto & Leffel, 2020, p. 2).

C40 was initiated in 2005 as the 'C20'. It was established by Mayor Ken Livingstone of London with the primary objective of fostering collaborative efforts among 18 megacities to reduce GHG emissions. Over time, the network has expanded significantly and currently encompasses 96 member cities globally (C40, 2023). Guided by an inclusive, science-driven, and cooperative methodology, C40 is committed to diminishing GHG emissions in alignment with the Paris Agreement's goals of limiting global warming to 1.5°C. To realize this goal, C40 has developed comprehensive climate-action frameworks, focusing on: *adaptation & water, air quality, building & energy, food systems, transportation, ports & shipping, urban planning, and waste*

management (C40, 2023). C40 has also established a dedicated framework to influence the global agenda through diplomacy by distributing knowledge outcomes from climate initiatives to international institutions and global leaders. For instance, in November 2022, during the COP27 gathering, C40 member cities advocated the significance of climate action to world leaders. Furthermore, National Development Banks initiated the Urban Climate Action Programme, where C40 will serve as a technical partner (C40, 2022). C40's role extends beyond being a mere platform for cities to share knowledge; it also takes active measures to influence nation-states and global institutions to prioritize climate action. The active engagement of C40 members on international platforms illustrates the network's attainment of international recognition and legitimacy in addressing the critical issue of climate change.

Eurocities was founded in 1986 by major cities and included over 200 member cities spanning over 38 countries. Eurocities operates as a dynamic platform for exchanging ideas and experiences among its members. This network directs its attention to various critical subjects: health, migration, climate change, energy, finance, and urban development. Local governments collaborate with citizens and residents to concretize European Union policies and aspirations. A significant development is that over a hundred cities have pledged to reduce GHG emissions, as stated by Eurocities in 2023 (Eurocities, 2023).

ICLEI, comprising over 2500 local and regional governments across over 125 countries, is a city network that is dedicated to advancing sustainable urban development. ICLEI's primary goal is to influence its members and encourage the development of sustainable policies. It drives local climate-oriented initiatives and advocates for a comprehensive global sustainable policy that reflects its members' interests at the subnational level. Through its activities, ICLEI plays a crucial role in connecting actors from international organizations, national governments, academic and financial institutions, civil society, and the private sector (ICLEI, 2023a; ICLEI, 23b)

The Covenant of Mayors was established in 2008 as an initiative by the European Commission aimed at uniting local governments striving to ensure a sustainable future for their communities. This initiative was grounded in EU legislation concerning climate and energy. Pioneering a groundbreaking framework, the Covenant of Mayors introduced a *bottom-up multilevel* approach to energy and climate action based on four core principles. Among these principles

are *consistency and transparency*, which are achieved through a shared reporting framework. The principles of *flexibility and adaptability* allow for customization to address specific needs and local contexts. The principle involves evaluating data by reporting to the European Commission's Joint Research Centre and actively promoting and exchanging experiences (Covenant of Mayors, 2023). The positive outcome of the Covenant of Mayors has led to the development of the Global Covenant of Mayors for Climate & Energy in 2015 (GCoM), which now includes over 10,000 cities and local governments globally (Covenant of Mayors, 2023; GCoM, 2023)

The increasing expansion of transnational city networks highlights a significant gap in international governance that these networks have evolved to fill. The current extent of this phenomenon would not have emerged if such a gap did not exist. An example is how city governments can engage with city networks without requiring a formal voting process, contrasting with the processes followed by nation-states that seek to join the UN or EU, institutions that possess direct authority to impact state-level policy-making. However, as Kern (2019) argued, historical city networks existed centuries ago, facilitating trade among merchants, although on a different scale.

To summarize, cities have received international acknowledgment for their efforts in tackling global climate change by leveraging transnational collaborations to enhance their political and economic governance. Local and metropolitan governing bodies systematically develop global governance and diplomacy strategies, prioritizing climate, health, and security concerns. With their substantial economic influence, global cities are positioned to influence international decision-making processes. The research illustrates the instrumental role cities play in global environmental governance, as for their status as significant contributors to GHG emissions and their vulnerability to the impacts of climate change.

Furthermore, this section provides relevance to answering the sub-research question: *To what degree is international collaboration instrumental for Oslo to achieve its climate goals?* Considering the necessity of Oslo's engagement in international collaborations to achieve its climate goals. By analyzing the operational dynamics of international institutions and transnational city networks can provide valuable insights into the collaborative strategies employed by the city to reach its climate goals.

2.2 Polycentric Multilevel Approach

Since the 1990s, sub-national entities have collaborated directly with supra-national units regarding environmental issues, such as the EU, the UN, NGOs, and other sub-national governments. This shift of responsibility from the public to the private sector has led to the development of new forms of governance, often regardless of formal hierarchies (Eckerberg & Joas, 2004, p. 405)

This observation holds academic significance, particularly because the conventional view in traditional IR theories that cities are sub-national entities operating within the international system. However, through closer examination, these actions and roles that cities assume in international affairs cannot be explained using the same theoretical framework applied to state-centric IR theory. This discrepancy arises from the fact that cities and municipalities have the capacity to bypass national governments and engage in collaborative efforts with other sub-national actors, including cities, NGOs, and supra-national organizations. This illustrates challenges in applying a state-centric theory originally designed for nation-states to sub-national actors, considering that these sub-national actors function in distinct ways. Conversely, within the context of a *polycentric multilevel governance* framework, state, local, and international actors collaborate within a network that respects local knowledge and diversity, establishes common goals and standards, and empowers relevant actors to enact them (Homsy & Waner, 2015, p. 52).

Regarding collaborative governance, it refers to the governing process within the public or private sectors. In the context of collective action, it considers establishing shared norms and rules that regulate the behavior of individuals and groups (Emerson, Nabatchi & Balogh, 2012, p. 1). Two key elements for effective collaborative governance are *integrative governance* and *interactive governance*. The integrative governance seeks to combine policies and methods across various horizontal and vertical sectors for shared goals. The idea is to ensure that all actors follow the same rules and collaborate effectively. Interactive governance involves the need for autonomy while remaining interdependent. At various levels, Private and public actors collaborate to share ideas and resources to address challenges collectively (Vedeld et al., 2021, p. 350). Combining integrative and interactive governance strategies leads to improved self-

governance and collaborative co-creation. Self-governance involves voluntary actions where actors align with a shared idea without explicit directives. Co-creation entails collaborative interactions among public and private partners, resulting in coordinated projects, platforms, networks, and partnerships for shared goals. Successful co-creation enhances public value and innovation through collective efforts (Vedeld et al., 2021, p. 350).

This definition of governance also encompasses all participants within the decision-making process, where governance is an understood set of decisions, actors, processes, institutional structures, and mechanisms with the underlying norm of action. Moreover, it signifies that governance constantly engages in a dialectic tension between structural influences and agents' actions (Moser, 2009, p. 315). For instance, regulatory structures can shape actors' operations and environmental impact. Nonetheless, these actors retain the agency to adopt sustainable practices or not. Placing decision-makers as active agents embedded in specific contexts. The quality of decisions reflects on the decision-makers values and goals, which are deeply embedded within the cultural, political, and economic aspects (Moser, 2009, p. 315).

The polycentric multilevel approach introduces additional dimensions to the theoretical framework absent in realism/neo-realism, liberalism/neoliberalism, and constructivism within IR theory. This renders these traditional theories inadequate for comprehending the complexity of cities in the realm of international relations. Urban governance operates closer to civil society than national governments, giving citizens more influence over local decision-making. Hence, this heightened power to influence further complicates and adds challenges to policy-making and decision-making.

Considering power, John Hull Mollenkopf's (2010) analysis of urban political power offers valuable insights into the complex landscape of decision-making within urban settings. He argues that power derives from various economic, social, and cultural dimensions. Economic power often resides with financial institutions and corporate entities involved in urban initiatives. Social power is harnessed through the collective actions of communities and networks. Cultural power refers to the influence of cultural institutions that shape identity and values. Mollenkopf highlights the significance of spatial power within societies. Acknowledging the complex nature of urban political power can foster more comprehensive decision-making processes, promoting sustainable urban development (Mollenkopf, 2010).

Mollenkopf's concept of power delves into the complexity of power dynamics and decision-making within urban environments, offering valuable perspectives on positioning cities and regional governments within the global framework. Appreciating the distinct political dynamics within local governments is imperative, considering their distinctive functioning compared to national governments. By acknowledging these differences, a deeper understanding of urban governance's complexities and the role of power in urban decision-making processes is gained. Illustrates the contrasting interpretations of power within two academic disciplines striving to explain the same phenomenon.

In a top-down approach, policy-making originates from higher international or national levels and moves down to the local level. Over recent decades, domestic institutions seem to have transformed into a complex polycentric multilevel governance system, fostering intergovernmental relations. This shift empowers cities and regions to become autonomous and reduce their dependency on national governmental support (Pierre, 2019, p. 104; Eckerberg & Joas, 2004, p. 405).

The polycentric approach to climate governance operates with multiple centers of decision-making. These decision-making units are often described as overlapping, as they operate across various jurisdictional levels, encompassing state, local, and international levels. The polycentric and multilevel nature of this approach embodies attributes that hold the potential to restore a balance between centralized and decentralized governance (Carlisle & Gruby, 2019, p. 928). The evolving institutional arrangement encourages cities and regions to engage and seek the international arena for collaborative opportunities actively. Multilevel governance introduces a more flexible vertical governance structure, fostering new forms of collective action among cities (Pierre, 2019, p. 104).

Richard C. Feiock's (2013, p. 412) Institutional Collective Action (ICA) framework suggests that collaborative efforts among independent actors can generate favorable outcomes through collective action. Pierre's research, similar to Feiock, demonstrates such actions, where municipalities collaborate to address various challenges and deliver governance where a higher level of authority is absent (Pierre, 2019, p. 104). The polycentric system offers an attractive approach to diverse groups, enabling policy innovation and distribution across various organizational entities. This can be achieved through hard or soft regulations, economic

incentives, voluntary pacts, self-regulation, and sustainability certification (Morrison et al., 2019, p. 1).

Pierre (2019) argues that cities and metropolitan regions are compelled to collaborate not solely because of their geographic location but because they encounter similar challenges. For instance, cities like Gothenburg, Amsterdam, and Copenhagen all confront the threat of rising sea levels. By sharing knowledge and technology, they can collectively address climate-related and economic challenges (Pierre, 2019, p. 105). International networks connecting cities establish the horizontal dimension in the polycentric multilevel approach. The polycentric multilevel governance seems to have widened the global stage for cities to establish hubs of expertise regarding sustainability and climate change. The framework depends on internal motivation fostered by engaged participation (Pierre, 2019, p. 105; Homsy & Waner, 2015, p. 28).

However, the polycentric multilevel governance approach has certain limitations. Systems driven by state coordination often restrict prospects for local innovation and fail to contextualize local concerns and encourage social learning. Critics argue that the overarching polycentrism theory falls short of comprehensively addressing power dynamics (Homsy & Waner, 2015, p. 50, 53 - 54). Nonetheless, the polycentric multilevel governance methodology provides more opportunities for diverse actor engagement than a monocentric governance system. Monocentric governance entails centralizing power and decision-making within a singular governing entity, limiting participation from peripheral regions and local communities from active involvement. This emphasizes the credibility of polycentric governance as a more validated framework. Furthermore, it introduces higher levels of flexibility and agility than conventional hierarchical governance structures. Additionally, it is deemed more resilient, as multiple components allow others to step in if a particular facet of the system encounters setbacks (Morrison et al., 2019, p. 2). Hence, the polycentric multilevel governance approach demonstrates a valid framework for comprehending climate governance across local, regional, national, and international levels.

This section highlights the transition from conventional top-down governance to a polycentric multilevel governance framework encompassing supra-national and sub-national entities. As advocated by supra-national entities as the EU and UN, resolving climate-related issues

necessitates attention at the sub-national level. The polycentric multilevel governance approach offers insights into the complex configuration of decision-making among diverse actors across various levels within a complex system, particularly in addressing environmental concerns. Within polycentric multilevel governance, decision-making entails collaboration among multiple actors operating across different jurisdictional tiers, fostering balance in the policy-making process. Mollenkopf (2010) argues that power in urban decision-making has a spatial dimension encompassing social, economic, and cultural elements, highlighting the importance of acknowledging this diverse power complexity for achieving sustainable urban governance.

In this regard, trust and cooperation between actors emerge as instrumental for attaining shared goals and standards within a polycentric multilevel governance framework. It offers a more holistic governance framework compared to monocentric governance. It offers a holistic and comprehensive framework to analyze cities' climate governance at various levels.

In order to answer the research questions, the concepts mentioned above can be connected with examining Oslo's climate governance. By applying the polycentric multilevel governance framework enables an exploration of how Oslo's climate governance is structured and how the city engages internationally. Oslo is involved in various transnational city networks and in collaboration with actors across various levels to achieve their climate goals, encompassing sub-national entities, supra-national bodies, and other relevant actors. The application of the polycentric multilevel governance framework provides a set of analytical tools needed to address the question: *What is the environmental governance approach adopted by Oslo?*

3 Methodological Approach and Data

The following section of the thesis will outline and justify the choice of a qualitative approach, coupled with a document analysis of policy documents selected from various departments within the Oslo Municipality, for this case study of Oslo. Subsequently, the chapter delves into the employed sampling techniques, in-dept interview methodologies, data collection strategies, and ethical considerations.

3.1 The Qualitative Approach

This thesis seeks to explore an in-depth analysis of Oslo's approach to climate governance and its positioning within the international arena. Moreover, the thesis aims to extract exceptionally valuable insights and lessons from Oslo's climate initiatives, which hold the potential to offer instructive guidance for other cities. The decision to employ a qualitative methodology was made early in the research. This choice was driven by the realization that a combination of document analysis and a select number of in-depth interviews would serve as the primary sources of information. The application of the qualitative approach is instrumental in this case study to comprehend subjects' nuanced experiences, interpretations, and viewpoints on specific matters through in-depth interviews (Lesther & Tellmann, 2018, p. 12; Bryman et al, 2021, p. 354).

The documents selected for analysis in this study are policy documents from the Oslo municipality and other organizations. These policy documents revolve around climate and environmental governance, international collaboration strategies, zero-emission experimentation, and environmental governance instruments. The chosen participants in this research possess extensive experience spanning several years in domains encompassing environmental governance, political science, economics, urban and regional development, and transnational city networks, operating within governmental and municipal levels (See Appendix 1 & 2).

The governing research question of this study is to investigate and extract valuable insights and experiences from Oslo's climate initiatives. These insights have the potential to serve as instructive guidance for other cities, as outlined in Chapter 1.1. The inclusion of "how" and

"why" in the research framework aligns well with the study's purpose of comprehending the mechanics of Oslo's climate actions and its engagement with transnational networks, not only in achieving its goals but also in evaluating the transferability of these climate initiatives to other cities.

The foundation of this thesis lies in a constructionist ontological viewpoint. The interpretive constructionism approach is chosen because it asserts that social actors consistently shape social phenomena and their associated meanings. This perspective suggests that social phenomena and categories are not solely formed through social interaction but are consistently in change (Bryman et al., 2021, p. 28). This implies that studying social phenomena cannot be done objectively and requires a subjective interpretation.

As the case study involves informants and policy document, the constructionist approach will provide instrumental tools in the interpretation process. These tools are beneficial for a comprehensive exploration of Oslo's climate policies, its collaborative efforts, and its engagement with international actors. This approach will assist in understanding how Oslo's involvement in transnational city networks is influenced by its perception of climate change and its interactions with other cities and institutions based on shared ideas and norms. Aligned with the constructivist ontological standpoint, this study is guided by an exploratory and inductive approach to generate meaning from the collected data, seeking to identify patterns that supports existing theory. The findings in this study are expected to offer empirical evidence for Oslo's climate ambitions and international engagement.

3.2 Strategy for Sampling, Interviews, and Data Collection

In order to identify suitable informants, a purposive selection approach was adopted, targeting individuals with expertise in environmental governance, political science, and urban- and regional planning. Internet search and the utilization of the *snowballing* strategy facilitated the identification of qualified informants. As mentioned above, all informants engaged in this thesis hold positions as experts at the governmental and municipal levels, resulting in six informants. While the number of informants may appear limited, it is essential to emphasize that the expertise and insights possessed by these informants are of high quality.

Before conducting the interviews, the research project was registered with the Norwegian Centre for Research Data (NSD), aligned with the NSD guidelines. This registration included establishing a consent agreement between the researcher and the participants and an interview guide (see Appendix 3 & 4). The research project was also registered on Nettskjema.no, facilitating the use of a Dictaphone application designed for research by the University of Oslo. As the data collected was not classified under the 'red list,' registration with the Transparent Data Sharing (TSD) platform was not required. The semi-structured interview guide was tailored to suit the unique context of each informant to foster organic and insightful discussions. Central themes about Oslo's environmental governance and its engagement in transnational city networks were consistently explored across all interviews. Acknowledged by their expertise, participants were encouraged to freely express their insights on the topic. The interviews spanned approximately 60 minutes, with four interviews conducted face-to-face and two via Zoom due to logistical considerations. The interview recordings took place between March and June 2023. To ensure confidentiality, all informants were anonymized during the transcription process. It is notable that the interviews were conducted and transcribed in Norwegian/Swedish and were afterwards translated to English.

Regarding documents, an analysis was conducted on documents sourced from various departments of the Oslo Municipality's websites. Additionally, documents from the Norwegian Government and relevant organizations were also collected. These documents collectively provide valuable insights into Oslo's environmental governance, encompassing the municipal and national levels. Furthermore, research papers and articles authored by Norwegian scholars were collected, contributing to acquiring an academic perspective on the subject.

3.3 Ethical Considerations

The ethical guidelines for research ethics are grounded in fundamental norms established by the global research community. These norms encompass the truth norm, which aims to ensure the credibility and excellence of the research. The methodological norm is the second principle, guaranteeing responsible and accountable research methods that maintain objectivity and verifiability. The third principle underscores research transparency, collectiveness, independence, and critical analysis. The fourth principle encompasses fundamental values,

including human dignity, equality, risk mitigation, and fairness (De nasjonale forskningsetiske komiteene, 2021, p. 6).

To ensure the study follows ethical guidelines, the principles set by the Norwegian Committee of Research Ethics (De nasjonale forskningsetiske komiteene) throughout the research. A researcher needs to comprehend the origin and intent of the collected data and the backgrounds and perspectives of the authors and researchers involved. All the documents in this study are accessible to the public to ensure transparency. It is essential to recognize that policy documents are not 'neutral objects' as they were formulated for a purpose.

Regarding the interviews, Brymans et al., (2021, p. 113) four ethical principles for social research were adhered in the process. Principle: *whether deception is involved* and *lack of informed consent* were ensured by providing informants with an information letter detailing the research project with before the meetings to ensure their familiarity with the topic, along with a consent agreement (see Appendix 3). Although the thesis topic may seem harmless, the principles of *invasion of privacy* and *harm to participants* were ensured by anonymizing the informants' identities by giving fictional names and a transcription method to hide their identities (see Appendix 1).

4 The Case of Oslo

In this chapter, an in-depth analysis of Oslo will be undertaken. The exploration commences with examining the institutional framework, followed by exploring climate policy and the role of political leadership. Various instances of Oslo's climate efforts will be showcased to illustrate its multifaceted efforts. Lastly, an assessment of international collaboration and the accumulation of Oslo's experiences with the international.

4.1 Institutional Settings and Climate Policy Instruments

4.1.1 Institutional Settings

Metropolitan governance operates within a broader institutional framework of a country. In Norway, there are three layers of government. The municipal level has substantial autonomy, with locally elected councils responsible for administering welfare services such as education, healthcare, and elderly care. The municipality also oversees local infrastructure such as roads, parking, and land-use policy. The regional level has comparatively less authority, having lost several welfare responsibilities. However, it has directly elected councils and is entrusted with regional development strategies, regional plans, roads, and public transportation. The national level of authority is solid and primary in various areas, including in the funding of infrastructure investments (Hanssen & Tønnesen, 2021, p. 6). Over the past two decades, there has been continuous population growth in Norway's more significant city regions. The metropolitan area of Oslo extends beyond the municipal border. It encompasses a functional living and working region with approximately 1,350,000 inhabitants, including the capital city with 700,000 residents. The region encompasses 22 municipalities in the county municipality of Akershus (Hanssen & Tønnesen, 2021, p. 6).

The Urban growth agreements (UGAs) are essential mechanisms for the Norwegian government to achieve a 'zero-growth goal' to mitigate personal transport by car, which is not allowed in the larger metropolitan area. The zero-growth goal is significant in fulfilling the Paris Agreement goals and mitigating the negative impact of GHG emissions associated with transportation and other sectors. UGAs entail commitments from both national and regional transport investments with public transport services. Municipalities are also committed to stringent parking policies, promoting densification, implementing toll roads, and utilizing compact land-use policies (Hanssen & Tønnesen, 2021, p. 6 – 8). The National Transport Plan

2022-2033 sets forth a target of reducing GHG emissions by 50 % by 2030. To achieve these goals, the Climate Action Plan for 2021-2030 outlines strategic measures for how Norway can accomplish these ambitious goals. However, these policy instruments will require further intensification to reach these goals. Overall, emission cuts in the Climate Action Plan demonstrate Norway is on the course to reduce the GHG emissions in the transport sectors by 50 % in 2030 compared to 2005 (Ministry of Transport, 2021).

As previously mentioned, Oslo exhibits even higher ambitions than the national government, with a GHG emissions target of 95 %. The current climate initiatives have positioned Oslo toward a 62 % reduction in emissions by 2030 (Oslo Municipality, 2022). Confirming the research on how cities demonstrate climate leadership by Bestill and Bukeley (2006), it appears evident that cities, including Oslo, exhibit greater engagement in embracing the challenge of mitigating climate change than nation-states.

4.1.2 Climate Policy Instruments

One significant governing instrument is the development and implementation of *Emission Accounting*, which involves collecting and reporting GHG emissions data from all sectors by the Norwegian Environment Directorate. Norway's Climate-law and international agreements, such as the Paris Agreement, drive this practice. Emission Accounting serves as a tool to guide the Norwegian government on what sectors require more reduction effort. Additionally, it provides a framework for involving three focal points: *scope 1*, *scope 2*, and *scope 3* (Oslo Municipality, 2023c). *Scope 1* focuses on *direct* GHG emissions from sources within a geographic area. For example, implementing policies to regulate the use of fossil fuel-powered vehicles in this area contributes to GHG emissions. *Scope 2* focuses on reducing *indirect* GHG emissions such as the use of electricity or purchased district heating or cooling. *Scope 3* regards all upstream and downstream GHG emissions being developed due to goods and services inside the geographic area (KS, 2021). *Scope 3* includes transportat of service & OEM(S), construction, metals & mining, electric utilites, food & tobacco, paper & forestry, financial services, to name a few (Schmidt, Vlasenko & Farbstein, 2023).

Nevertheless, a climate strategy has been implemented in Oslo that involves distinct strategies for each scope. Initially, it mainly focused on reducing direct GHG emissions across various

sectors. However, the strategy has evolved, shifting its focus towards including both direct and indirect GHG emissions within Scope 2 and Scope 3. The adaption of Emission Accounting has been integrated across governmental tiers, serving as a vital tool for monitoring and evaluating GHG emissions and performance across all sectors. Additionally, the introduction of a climate budget has served as a governing tool to address reported GHG emissions.

Informant 1 comments on the differences of Oslo's climate budget and the Norwegian government, as both the municipality and Norwegian government shares an interest in achieving climate objectives. Oslo demonstrates a more advanced stance compared to the national government in terms of both goal establishment and execution. Oslo's strong political will and internal motivation drive toward ambitious climate targets. The government's 'green book' in the state budget attempts climate action but lacks governing power and accountability for climate action (Informant 1, 2023). Informant 5's comment explained why scope 3 is one of the most difficult to address, but where the most realistic GHG emissions are being produced. Most of the Norway's imports travels through Gothenburg (Sweden):

“... Gothenburg serves as Norway's largest harbor, facilitating the transit of goods via trailers to Oslo. More than 1000 trailers daily embark on the journey from Gothenburg to Oslo. This situation necessitates our proactive efforts to address and find solutions...”

4.1.3 Climate Budget as an Instrumental Governing Tool

In order to achieve the UN sustainability goal 13, which is focused on urgent action to combat climate change and its impacts (UN, 2023), the climate budget is a governing instrument for achieving established climate goals, particularly reducing GHG emissions. It also encompasses national and regional measures that directly contribute to GHG emissions reductions within Oslo. Notably, Oslo has set an ambitious goal to reduce GHG emissions by 95 % by 2030 in comparison to 2009 levels. The climate budget presents a comprehensive framework for reduction targets and mitigation measures aligned with the Paris Agreement and the municipality goals. It also describes crucial initiatives to achieve the targets outlined in the climate strategy. Implementing measures is delegated between municipal entities and entails similar reporting requirements to the existing financial reporting arrangements (Oslo Municipality, 2022, p. 3). The climate budget attempts to address these challenges by

integrating climate goals and measure within the municipality's financial budget. It ensures that measures are implemented and financed to reduce GHG emissions. Clear responsibilities for implementing measures are established and defined, and regular reporting on progress is conducted. By merging the financial budget with climate goals, the climate budget fosters accountability and transparency in a systematic pursuit to reduce GHG emissions (KS, 2021).

Two informants explained the climate budget's role in Oslo's environmental governance. According to Informant 1, a crucial aspect of the climate budget is its seamless integration into every municipal budget. This integration follows the same procedural pathway as other budgets and is subject to approval by politicians. Such integration ensures that climate measures are inherently considered in the decision-making process. The reporting frequency is set at three times annually, providing consistent updates and project statuses. This real-time insight enables a comprehensive view of the progress toward the 2030 climate goals, actively contributing to tangible outcomes (Informant 1, 2023). Informant 1 also highlights the significant contribution of Oslo's road toll system in supporting climate initiatives. This system directly allocates funds to climate projects, specifically for public transportation and bicycle infrastructure. Oslo's strategic decisions have aligned the climate budget with its overall economic framework, ensuring funding for key climate projects. Despite the common perception that Norway's wealth and oil resources support climate efforts, this perspective does not fully align with Oslo's situation. Unlike the national context, Oslo depends heavily on revenue from road tolls to financially sustain its climate efforts (Informant 1, 2023). Informant 6 comment on the climate budget:

“... This is precisely what the climate budget does. It goes beyond mere declarations of virtue and emphasizes the importance of tangible actions. The climate budget provides a comprehensive overview of all climate initiatives within the Oslo municipality, including projected emission reductions and associated costs. Functioning within the financial budget framework, it highlights the notion that true action speaks louder than words...”

The climate budget identifies ongoing efforts, achievements, and areas that require further attention. Consequently, cities engage in tangible actions alongside other local public efforts, fostering proximity to residents. This inclination for cities to bear significant climate responsibilities stems from their role in emission generation, driven by substantial consumption of goods, services, and energy. Furthermore, cities serve as hubs of innovation and expertise,

with a variety of well-funded options, making them fertile grounds for identifying and implementing solutions (Informant 6, 2023).

The climate budget seems to be an instrumental governing tool with a fundamental role in holding stakeholders accountable for their actions. Its primary function is to motivate climate-oriented initiatives. By imposing clear guidelines and targets, the climate budget creates a framework to adopt climate-friendly practices, actively contributing to mitigating environmental impacts and applying responsibility to all parties involved to embrace climate-oriented and sustainable practices. As part of Scope 3, indirect GHG emissions play a significant role in meeting these measures. Thus, the climate budget is a powerful governing tool to address this issue. By integrating environmental concerns into the financial budget and holding all partners accountable through economic penalties, the climate budget motivates the incorporation of environmental considerations into the decision-making processes.

4.2 Political Leadership and Environmental Governance

4.2.1 Political Leadership

Based on empirical observation and qualitative research, it is suggested that Oslo employs a polycentric urban climate governance approach. Vedeld et al. (2021) claims that Oslo employs a hybrid combination of instruments providing a basis for synergistic, predictable, and dynamic forms of self-governance and co-created linkages between private and public entities. Both transnational city networks and trans-local networks have a crucial role in the 'scaling up' process of Oslo's urban climate governance. Vedeld et al. (2021) also found the importance of long-term political support to facilitate ambitious climate objectives, leverage regulatory authority, and create innovative combinations of *integrative* and *interactive* governing instruments.

According to Hanssen & Tønnesen's (2021, p. 17) research on *core-city and climate leadership* revealed that in Oslo, co-creational leadership is vital in addressing and coordinating challenges across government tiers. The interaction between local political and administrative leadership has played a crucial role in developing a more effective negotiation strategy with national authorities for sharing and promoting their climate agenda.

As previously mentioned, the city of Oslo demonstrates a leadership role by strategically engaging with transnational networks and the private and public sectors to effectively pursue its ambitious climate goals (Lee, 2013; Fuhr, Hickmann & Kern, 2018). The findings in Hanssen and Tønnesen's (2021) research are in alignment with the findings of Bulkeley and Schroeder's (2011) research, which emphasizes how cities influences national authorities to promote the city's climate agenda.

During the interviews, the informants explained the crucial function of political leadership in steering climate governance and formulating climate goals within Oslo and in neighboring municipalities. For example, Informant 3 said:

“The Red Green Coalition's impact lies in its commitment to both setting and executing climate goals. Leading to an active approach, ensuring goals are not left unattended, reflected on individuals within Oslo's municipal departments, closely connected with the City Council and Climate Agency, possessing extensive experience in environmental issues”.

Informant 5 provided a deeper insight into how the current Red Green Coalition adopted the existing climate objectives while also intensifying its pursuit for accelerated attainment. Initially, the climate goals aimed to reduce GHG emissions by 2050 completely. The first climate strategy plan was established in 2016 and entailed a recalibration of these goals, now striving for a 95 % GHG emissions reduction goal by 2030. The introduction of the climate budget marked a significant milestone. As it is closely intertwined with Oslo's climate initiatives and its involvement in city networks such as C40 and Eurocities. Nevertheless, the emphasis on environmental and climate concerns has been elevated to a higher priority after the installment of the sitting city council (Informant 5, 2023).

According to the 2019 policy document, Oslo, like other Norwegian municipalities and regional governments, must address the UN sustainability goals, encompassing crucial issues such as poverty, social and gender equality, and climate change. An evaluation of Oslo municipality's performance demonstrated that it operates as a sustainable municipality. The content of the UN sustainability goals is integrated into the development plans, with the municipality actively working towards addressing them (Oslo Municipality, 2019a).

Informant 4 explained the importance of leadership in implementing UN sustainability goals into the municipality strategy plan. An example noted the neighboring municipality Bærum's

engagement in a significant EU climate program, the central emphasis related to 'citizen participation'. It prompted the municipality to adopt a citizen participation strategy influenced by the principles of an EU initiative program. Another example was about the nearby Asker municipality, which is recognized as a noteworthy exemplar in Norway for its effective integration of the UN's sustainability goals, this achievement is closely tied to Asker's mayor extensive engagement with UN-Habitat (Informant 4, 2023).

Informant 3 highlights the interrelationship between the emphasis on UN sustainability goals within the agenda and the EU, suggesting that the demand to implement these measures could happen soon. City leaders are motivating the business sector to embrace a more sustainable and environmental mindset. As said by Informant 3:

“.....sustainability is of requisite consideration by cities and the business sector. Gradually, the EU will demand stronger, transformative action which will further stimulate development of new policies locally”.

Demonstrating the significant role that leadership plays in driving efforts to reduce GHG emissions, the importance of political leadership in shaping and fostering climate governance and setting ambitious climate goals is evident in the case of Oslo. The change in political leadership within the city council reaffirmed the pre-existing climate goals and accelerated the timeline for achieving them. The introduction of the climate budget as a governing tool, along with the integration of climate considerations throughout the municipality, marked notable milestones. The exploration to comprehend how leadership and urban environmental governance are practically implemented continues.

4.2.2 Environmental Governance

Urban environmental governance research argues for cities' significant role as key actors in public environmental governance, with particular attention to the integrative dimension. How different forms of governing contribute to internal policy, both horizontally and vertically, in a multilevel approach. Focus on states' environmental policy integration in non-environmental sectors and how urban experimentation creates innovative pathways to urban climate governance. Collaborative governance provides a perspective that centers on institutions and actors, focusing on urban governance and highlighting the need for interactive governance and

collaborative efforts between the public and private sectors for climate governance (Vedeld et al., 2021, p. 349-350). For instance, in 2018, the Oslo municipality adopted the *Oslo Climate and Energy Strategy*, a strategy plan aligning with the Paris Agreement. The first test pilot for a zero-emissions construction site was launched at Olav Vs Street, next to the National Theater in the city's center. The municipality collaborated with private sector actors to get hold of electronic power machines and equipment, as the market had its limitations. As all energy generated in Norway is from hydroelectric sources, electricity is considered emissions-free (Oslo Municipality, 2019b, p. 6). The actors involved in the pilot project were a municipal housing company (Omsorgsbygg Oslo KF), The Confederation of Norwegian Enterprise (NHO), The Norwegian Association of Local and Regional Authorities (KS), Agency for Public Management and eGovernment (Difi), Innovation Norway (Innovasjon Norge), and The Research Council of Norway (Forskningsrådet). With the role as 'innovative purchaser,' the involvement of NGOs like ZERO and Bellona was apparent. However, the report does not explicitly mention their roles (Oslo Municipality, 2019b, p. 13-14).

When asking one of my informants about the project, Informant 4 surprisingly explained: *“It started with Omsorgsbygg in Oslo, led by the brother of Raymond Johansen, the Mayor of Oslo. The brother collaborated with Bellona, an environmental organization, in exploring methods to achieve GHG emission-free construction sites. NGOs like ZERO have extended this approach to encompass cultural buildings and kindergartens, now forming the basis of a national framework.”*

Illustrating collaboration among leaders as a vital component to taking climate actions. Supporting Richard C. Feiock's (2013, p. 412) argument of how collaboration between autonomous actors can generate positive outcomes through collective action, in this case, the willingness to test experiments. Oslo has also demonstrated its role as an 'institutional designer' as a core-city by offering administrative knowledge and resources to initiate actions and foster collaboration. This was achieved by inviting urban planners from nearby municipalities, a crucial step in establishing trust among partners, for later UGA-negotiations (Hanssen & Tønnesen, 2021, p. 13). This engagement is significant for addressing the reduction of indirect GHG emissions outside of the Oslo region, involving neighboring municipalities, cities, and regions.

The urban environmental governance framework by Vedeld et al. illustrates how governance evolves through the balance of experimental urban leadership to find new pathways for decarbonization with a combination of integrative and interactive instruments. Leadership is to be understood as the authority to mobilize actors for a shared purpose to facilitate action. It shows how these processes enable self-governance and engagement in co-creation between private and public organizations. Leadership is crucial for filling goal settings and producing outcomes that will reshape institutions based on the experiment's outcome (Vedeld et al., 2021, p. 349-350). An important finding by Hanssen and Tønnesen was that the core-city leaders must have a strong sense of *distributional balance sensitivity* covering burdens and gain from investments in the entire metropolitan. Even if Oslo focuses on ensuring projects such as road tunnels and metro stations, urban leaders must distribute projects and investments to a wider geographical area to create a broader acceptance of the agreements (Hanssen & Tønnesen, 2021, p. 17). As mentioned earlier by Homsy and Waner (2015), the most significant part of a polycentric multilevel governance system is collaboration in establishing common goals and standards while respecting and valuing local knowledge and diversity. Moser (2009) conceptualizes governance as an ever-evolving dialectic tension between stakeholders. Building on this idea, Hanssen and Tønnesen (2021) highlight Oslo's leadership role, illustrating how they strategically employ inclusive governance to receive broader acceptance among all partners involved. In Oslo's case, the blend of integrative and interactive governance allows for self-governance and collaboration, shaped by leadership and institutional choices. Self-governance involves voluntary climate-conscious actions from actors sharing decarbonization and climate adaptation goals, using their institutions without explicit directives. At the same time, collaborative governance between public and private partners involves experiments, international and local platforms, city networks, and partnerships. When co-creation is effectively implemented, it produces quicker and better results than isolated efforts. It nurtures ongoing learning and innovation for superior outcomes (Vedeld et al., 2021, p. 350). However, strong climate leadership must include a form of sensitivity and intelligence to navigate its domain. The extent a city can govern climate action depends on the regional and national context it is embedded. Cities in Norway have a high level of autonomy and power over their land use and urban development.

4.2.3 Climate Strategy and Zero-Emission Vision

The Climate Strategy

In 2020, Oslo adopted its current climate strategy, aimed at a substantial 95 % reduction in GHG emissions. This strategy comprises five overarching climate goals and sixteen focus areas. The city confronts escalating heatwaves, intense rainfall, and flooding due to climate change. The climate strategy is designed to adapt to and mitigate these challenges (Oslo Municipality, 2020b, p. 3). The overarching goals encompass several aspects. *Areal planning*, Oslo aims to preserve its natural spaces, such as parks, rivers, and the fjord, to counter deforestation and enhance climate resilience. *Transportation* accounts for nearly 50 % of direct GHG emissions in the city. Oslo is committed to having only fossil-fuel-free vehicles on its roads by 2030, including company cars. This goal focuses on enhancing the convenience of using public transport, cycling, and walking instead of private cars (Oslo Municipality, 2020b, p. 5-7).

When asking my informants what the most difficult challenge for the transport sector is, Informant 1 explains that it lies in addressing heavy transportation. Because of the growing numbers of zero-emissions cars in Oslo and across Norway. The focal point is mainly due to the observed underutilization of cargo capacity within incoming trailers and carbon-emission vehicles. Most of those who arrive in Oslo are partially loaded. To address this, a proposition has been suggested for establishing central terminals to transfer cargo from larger, carbon-emission vehicles onto smaller electric vehicles. To reduce GHG emissions associated with heavy transportation (Informant 1, 2023).

Construction, this sector alone, stands for approximately 20 % of GHG emissions. Oslo strives to establish zero-emission construction sites. The city's strategy involves investments in electric-powered vehicles, machinery, and environmentally-conscious building practices. *Addressing waste management*, efforts are directed toward enhancing material recycling and minimizing incineration. Oslo has devised a guide to curtail plastic waste and is currently implementing the carbon capture system (CCS) is currently underway at Klemetrud's recycling station (Oslo Municipality, 2020b, p. 8-9).

Informant 1 explains the important role the CCS have for Oslo to reach its goals: “By 2026, a carbon capture system for waste incineration will be operational—a venture set in motion during 2016/2017 and has since garnered approval as a substantial measure. The

requisite funding has been secured, and its implementation plays a crucial role for us in achieving the 65 % GHG emissions reduction goal”.

Energy, the city should build energy-sustainable buildings powered by climate-friendly energy—investments in solar energy on rooftops and district heating from local energy plants. *Consumption*, Oslo municipality shall facilitate reductions and climate-friendly consumption between citizens and businesses. The municipality shall actively seek goods and services with low GHG emissions and limit material emissions associated with construction (Oslo Municipality, 2020b, p. 10-11).

In the context of consumption, Informant 2 explained that Oslo's pursuit of diminishing indirect emissions has led to a pronounced prioritization of the construction sector. Capitalizing on its considerable procurement influence, Oslo exercises its authority to dictate material and machinery preferences. This strategic stance has prompted companies engaged with the municipality to advocate for their manufacturers and suppliers to furnish zero-emission equipment. In this manner, Oslo is pioneering a path that establishes a precedent for the broader construction sector (Informant 2, 2023).

Zero-Emission Vision

In 2020, the city council actively endorsed the vision articulated in the climate strategy, committing to transforming Oslo into a climate-conscious city. The transition towards achieving a zero-emission society aims to enhance health, air quality, water quality, and the overall urban experience. This transition envisions Oslo as a hub for innovation, experimentation, and the commercialization of climate solutions. The integration of climate policy with economic strategy assumes a pivotal role in propelling environmental and climate progress at national and global scales (Oslo Municipality, 2023c, p. 14).

Subsequently, I will exemplify select climate initiatives undertaken by Oslo in pursuit of its climate goals. These encompass the Zero-Emission Zone, Zero-Emission Construction, Bicycling Strategy, Zero-Emission Port, and Zero-Emission Public Transport

The Zero-Emission-Zone (ZEZ)

For Oslo to reach its goal of reducing 95 % GHG emissions by 2030, the city seeks to implement a ZEZ in the city's center, inside Ring 2. Zero-emission vehicles, such as electric, hydrogen, and biogas-powered vehicles, will only be permitted in this area. It is important to note that the ZEZ will only apply to municipality roads, not state roads or tunnels that pass through the capital city (Oslo municipality, 2023c). To maintain the national zero-growth goal in reducing GHG emissions, traffic queues, air pollution, and noise, Oslo municipality signed a new UGAs with the neighboring municipalities and the Norwegian Government in 2020. The UGA included required measures promoting an increase in the usage of public transportation and the establishment of bicycle infrastructure. A financial plan for further investment in the new metro line Fornebu-banen (Oslo Municipality, 2023c, p. 52).

Informant 4 sheds some light during the interview on the ZEZ project and its limitations: *“...The concept of a fossil-free zone is not new; it was previously attempted by Gothenburg around three decades ago, although within limited areas... Oslo faces constraints in implementing a similar approach due to directives from national authorities...zero-emission is not directly linked with the existing climate law regulations, and national authorities have lacked the willingness to modify these regulations to accommodate this aspect”*.

As acknowledged in the policy document, no established national legal foundation exists for implementing this concept. However, potential paths for addressing this limitation have been identified, mainly through amending traffic law 7. This particular law is instrumental in enabling the establishment of the ZEZ. Furthermore, an alteration to traffic law 13 could serve as the legal underpinning for the creation of a 'low-emission zone' (LEZ). A LEZ is delineated as a localized geographic area where vehicle-generated GHG emissions are of concern. Within this context, the municipality has an agreement with national authorities to institute a driving fee as a measure to reduce the use of fossil-fueled vehicles (Oslo Municipality, 2023c, p. 4). The ZEZ project holds significant importance in Oslo's pursuit of its climate goals. Informant 2 sheds light on the operational approach adopted by the city while awaiting approval from the national government. Oslo operates within the regulations outlined by the Agency of Urban Environment. While the parameters of national law restrict the city's actions, it remains

committed to maximizing opportunities within the bounds of authorized action. Oslo firmly believes in its ambitious climate goals and actively explores various alternatives encompassing legal parameters, financial resources, potential frameworks, and possibilities. This active stance distinguishes Oslo from its peers and positions it ahead of the curve. Oslo's thorough approach to planning highlights its dedication to becoming a pioneering city, striving to set an example and map a course for such initiatives (Informant 2, 2023).

As van der Heijden et al. (2019) highlighted, it is crucial not to overly romanticize the power of cities, as they remain closely embedded within the nation-state. Nevertheless, Informant 2 pointed out that the city is actively exploring different paths for regulation while waiting for the national government's response. The climate budget outlines measures that provide the municipality with the opportunity to align with national regulations. Notably, these measures include implementing parking regulations to discourage car usage, increasing tolls for fossil fuel-powered vehicles, and encouraging the use of public transport. One suggestion is to offer businesses financial support for employees who use public transportation over cars (Oslo Municipality, 2022, p. 5-6).

These actions align with Kern's (2019) perspective on how cities effectively demonstrate climate action and leadership. Instead of waiting for the national decision-making process, Oslo actively seeks to implement solutions to address climate challenges in the absence of national authority. Considering the urgency of this matter, the Norwegian government has initiated discussions regarding the introduction of ZEZ pilot programs in specifically designated cities. However, until the Norwegian transport department amends the national regulations, Oslo remains unable to implement this measure (Oslo Municipality, 2023c, p. 4)

When asking informants about specific instances where Oslo has influenced national policy to benefit its climate goals. Informant 6 gave an example:

“For Oslo, biofuel takes precedence over fossil fuels. We have been diligently engaged in addressing this matter, with a specific emphasis on establishing a mandatory biofuel usage criterion. For instance, Oslo imposes more stringent requirements for exclusive biofuel utilization at construction sites. This nuanced approach holds profound significance in the broader framework of fuel selection strategies”.

Zero-Emission Construction

After the successful experiment of an emission-free construction project in Olavs V gate, the Oslo municipality has intensified its commitment to realizing an emission-free construction sector. Notably, in 2018, several projects undertaken by municipal agencies, namely Omsorgsbygg, Undervisningsbygg, Kultur- og idrettsbygg, and Agency of Urban Environment, exhibited varying degrees of emission reduction. Omsorgsbygg achieved an impressive 100 % emission-free status, while Undervisningsbygg, Kultur- og idrettsbygg, and Agency of Urban Environment achieved 62 %, 78 %, and 64 % emission-free, respectively. Since construction sites significantly contribute to GHG emissions, the city must be pioneering in attaining zero-emission standards within this sector (Oslo Municipality, 2020a, p. 43). However, it is essential to acknowledge that the market for emission-free machinery remains currently constrained. The municipality has adopted a strategic approach to inspire private entities to invest in emission-free equipment by actively engaging them in municipal projects. This approach serves a twofold purpose, and it showcases the practicality and safety of such advanced technologies while simultaneously fostering a conducive environment for the further development and refinement of emission-free solutions. Oslo seeks to communicate to the private sector the benefits of investing in sustainable machinery by engaging companies equipped with emission-free equipment for municipal projects. This tactical approach seeks not only to foster a heightened demand for emission-free technology but also to stimulate the expansion and advancement of this emergent industry. In essence, Oslo's strategic action is underpinned by its environmental commitments and acknowledgment of its role as a transformative agent within the market (Oslo Municipality, 2020a, p. 43).

Informant 1 explains how the transition is moving at a fast pace:

“...This highlights multi-stakeholder collaboration's significance in achieving market visibility... Oslo uses its authority strategically to leverage its procurement influence by stipulating manufacturers' obligations. This approach had notable gains in the construction and infrastructure sector, marked by Oslo's pioneering establishment of GHG emissions-free worksites. The landscape has evolved considerably, evidenced by the growing number of manufacturers providing emissions-free machinery”.

According to Informant 6, the private sector finds investment in zero-emission technologies financially demanding, necessitating the municipality to take the lead to ensure safety:

“Replacing all excavators would entail a significant investment. However, the municipality is assuming a leadership role in establishing market predictability and security, fostering a conducive environment for investing in electric machines. Over time, the prices of such machines are becoming more reasonable due to wider availability, and they also offer more economical operational and maintenance costs compared to their fossil-fuel-based alternatives.”

Bicycling Strategy

In 2015, Oslo formulated an extensive bicycling strategy to diminish reliance on private cars—the imperative lies in enhancing alternative modes of mobility. Oslo's ambitious objective is to attain a 25 % share of daily travel via cycling or walking by 2025, acknowledging its minimal climate impact. Deployment of 'bicycle-count-meters' has indicated a notable 30 % increase in bicycle usage from 2014 to 2019. The municipality has initiated a subsidy initiative to promote this campaign, encouraging businesses within the municipal area to invest in electric bicycles (Oslo Municipality, 2020a, p. 28; Oslo Municipality, 2023d). Consequently, Oslo has undertaken considerable investments in bicycle infrastructure, accompanied by strict parking-policy regulations. In concordance with this strategy, road parking spaces have been converted into bicycle lanes (Oslo Municipality, 2020a, p. 28)

Zero-Emission Port

The City Council approved the plan for an emission-free port in 2018, marking an instrumental step towards transforming Oslo Port into an environmentally sustainable facility. The realization of this ambitious objective necessitates close collaboration between public and private entities. The port assumes a critical role in facilitating the transition to emission-free modes of goods and cargo transportation. Infrastructure development for shore power installation is vital, enabling vessels to recharge their batteries during port stays. Moreover, efforts encompass the conversion of machinery and equipment to emission-free alternatives,

coupled with the initiation of charging station installations (Oslo Havn, 2021). However, relying solely on shore power infrastructure falls short of attaining the targeted 95 % emission reduction. The overarching goal involves enabling ships to depart the port area without relying on fossil fuels. This aspiration has led to investments in locally-operated emission-free ferries by Ruter, the local public transport provider. These ferries operate exclusively on electricity and biogas. To accelerate these efforts, Oslo Port and Oslo Climate Agency actively engage in the 'Green Shipping Program' partnership. This cooperative initiative unites public and private stakeholders to actualize concrete pilot projects aligning with the national government's maritime strategy. The urgency is underscored by the UN International Maritime Organization's (IMO) mandate for complete emission-free shipping by 2050 (Oslo Havn, 2021)

Zero-Emission Public Transport

Ruter, the municipal public transport organization, has set forth a target of achieving emission-free operations by 2028. Substantial investments in public transportation, notably focusing on electric buses and boats, underpin this objective. The funding for these investments predominantly stems from road toll revenues (Oslo Municipality, 2023c, p. 67). The journey towards electric transportation in Oslo commenced with a two-year pilot involving six electric buses in 2017. This initiative gradually expanded, demonstrated in the introduction of 70 electric buses on 13 bus routes in Oslo by the spring of 2019. Currently, plans are underway to integrate 265 electric buses into Oslo's operational fleet, constituting nearly 40 % of the city's bus contingent and around 22 % of Ruter's electric bus fleet.

Furthermore, the Follo region embarked on a sustainable path by integrating 100 fully electric minibusses and cars into its transport network, initiated in August 2022. The escalating transport demand in Oslo East commands an emissions-free approach, emphasizing the city's commitment to embracing environmentally friendly transportation alternatives. Despite this remarkable progress, approximately 800 buses in the Viken region regional lines still rely on conventional technology. A comprehensive plan is outlined to transition these regional routes to emissions-free operation by 2028. This transition will be facilitated through new contracts emphasizing sustainability and reducing carbon-emissions within the region (Ruter, 2021).

The necessity to transform the mobility sector remains instrumental. In the context of Oslo, notable advancements have been achieved in the pursuit of emission-free mobility. However, a persistent challenge revolves around issues generated from traffic. The municipal administration is rigorously engaged in efforts to mitigate the effects of traffic congestion and the ensuing environmental implications.

In one of the interviews, Informant 5 highlighted a dedicated focus on the 'last mile first mile' concept, alongside comprehensive logistics optimization efforts to mitigate a range of concerns. They acknowledged that significant progress has been achieved in the electric mobility transition. However, it was emphasized that this transition alone falls short of providing a holistic solution. Informant 5 pointed out that not all electric delivery vehicles effectively tackle the complex challenges linked to traffic congestion and the release of fine particles from tires, adversely affecting air quality and respiratory health (PM_{2.5} and PM₁). Furthermore, Informant 5 highlighted the importance of addressing safety considerations and the ongoing complexity surrounding prioritizing vehicular traffic versus pedestrians and green spaces. Oslo is actively searching to address these challenges locally and in collaboration with other cities (Informant 5, 2023).

Before moving on, it is crucial to acknowledge that Oslo has actively recognized the significance of reducing direct and indirect GHG emissions across different sectors. The city has strategically developed plans and frameworks. Suggesting Oslo have adopted a more polycentric multilevel approach allowing Oslo to navigate within the national regulations while simultaneously striving to amend them. This approach highlights the importance of collaborating with public and private stakeholders to attain their GHG emissions reduction goals successfully. By imposing requirements for low-emission goods and services from suppliers and manufacturers, Oslo fosters the development of emission-free machinery and equipment, thereby stimulating the market and encouraging private sector investment in emission-reducing technologies. This strategic maneuver promotes environmental sustainability and assures the private sector of the viability and potential profitability of investing in emission-free solutions. Having established Oslo's commitment and efforts towards sustainability, it is essential to explore how the city engages internationally to achieve its aspiration of becoming an internationally recognized environmental city. International collaboration and cooperation play a pivotal role in addressing global environmental challenges

effectively. Oslo acknowledges that no city can single-handedly address climate change and achieve sustainability targets. Hence, the city actively seeks partnerships and knowledge exchange opportunities, which will be analyzed below, and how it contributes to Oslo achieving its climate goals.

4.3 International Intentions and Experiences

4.3.1 International Intentions

In 2009, the Oslo municipality formulated an international strategic plan to garner greater international recognition for the Oslo region while emphasizing the significance of two government reports, namely St.meld. nr. 15 2008-2009 and St.meld. nr. 23 2005-2006. These reports underscore the importance of international engagement across governmental tiers, urging political leaders to participate in international affairs actively (Oslo municipality, 2009, p. 2-3). St.meld. nr. 15 2008-2009, issued by the State Department, illustrates the growing interconnection between national and international domain due to globalization. This interconnectedness implies that national governance requires an international perspective and involvement to effectively address certain challenges (Oslo municipality, 2009, p. 2). Furthermore, the escalating market competition reinforces local governments' need to engage internationally. This is particularly relevant since Norway has signed the European Economic Area (EEA) agreements and is aligned with the European Free Trade Association (EFTA) states. The EEA agreements are directly regulated by the European Union (EU). The insights are drawn from St.meld. nr. 23 2005-2006 and a research study conducted by the Norwegian Institute for Urban and Regional Research (NIBR) in 2008 accentuate the considerable influence of EU policymaking on the public sector, facilitated through EEA agreements endorsed by the Norwegian government. Consequently, the EEA agreements have imposed substantial demands on local municipalities (Oslo municipality, 2009, p. 3). Alongside challenges, opportunities also emerge that prompt strategic action. Regarding this, the International Strategy acts as a governing instrument designed to position and guide Oslo in the international arena. It should span between 2008-2025, aiming to *reprofile* the Oslo region to attract foreign investors, promote tourism, and increase migration to the municipality (Oslo Municipality, 2009, p. 1).

As mentioned in Chapter 2.2, Pierre (2019, p. 104) argues that the configuration of multilevel governance embodies a vertically flexible governance structure that empowers municipalities to exert effective governance in the absence of higher tiers of authority. This institutional arrangement impels city and regional governments to engage in city-to-city and international collaborative efforts because of the current institutional framework. Recognizing the increasingly intertwined relationship between the international and national spheres informs Oslo's strategic cognizance. Considering the constraints within the scope of national governance authorities to address issues relevant to the Oslo municipality, an active approach becomes instrumental. Hence, it involves utilizing the municipality's autonomy to formulate a strategic action plan to mitigate challenges and ensure readiness for forthcoming future events. Moreover, it encompasses efforts to attract investment to the Oslo region and encourage migration to the metropolitan area. The strategic framework also encompasses the implementation of sustainable development strategies. A noteworthy objective has been the transformation of Oslo into a leading international innovative city capable of competing with other major European cities. Oslo must actively participate in transnational networks, engage in EU programs, cultivate partnerships with like-minded cities, and enhance existing collaborations with transnational partners to achieve this goal (Oslo Municipality, 2009, p.7).

As a result, the Oslo municipality is engaged in various international networks, substantiated by establishing its dedicated International Office within the city's center. Notably, these efforts encompass collaborative partnerships with esteemed networks such as Eurocities, ICLEI, The Covenant of Mayors, C40, Aalborg commitments, CatchMR, Climate Neutral Cities Alliance (CNCA), to name a few (Oslo municipality, 2023b). Each transnational network is characterized by its specific objectives, spanning domains encompassing environmental concerns, economic efforts, social and ethical advancements, and transportation initiatives. The municipality further extends its collaborative initiatives to other cities, particularly emphasizing climate action and sustainable development. Notable examples include partnerships with cities such as Vilnius in Lithuania, Gothenburg in Sweden, Warszawa in Poland, and Shanghai in China (Oslo municipality, 2023).

Informant 3 explained that interactions between local and international tiers manifest as the international context lends legitimacy to local initiatives, concurrently affording a broader framework for policy formulation. These dual dynamics benefit not only local constituents but

also the nation-state. This practice is not exclusive to Oslo but is shared among other cities. Ambitious urban centers, including Oslo, demonstrate a resolute commitment to problem-solving, persistently seeking solutions, and actively contributing to their resolution. Oslo consistently operates across diverse levels, emphasizing problem-centric approaches rather than delineating matters as international or domestic. This approach allows for the construction of solutions in alignment with prevailing challenges (Informant 3, 2023).

To fulfill its role as an innovative city, Oslo is compelled to participate in collaborative initiatives alongside other cities and regional governments facing similar challenges or sharing common visions. As explained by Informant 3, international networks have the potential to justify and legitimize local courses of action through an international perspective. This validation is crucial in realizing the municipality's goals and ambitions.

Another example, in 2015, the Oslo Region Alliance presented an international branding strategy in collaboration with VisitOslo and Oslo Business Region, aiming to attract foreign investors and students and increase tourism in the region. Recognizing Oslo's developmental course, the branding strategy encompasses the entire metropolitan region as an essential focal point. The comprehensive goal was to collectively co-create a regional 'identity' within a unified framework to gain international recognition. Compared with other Nordic cities, such as Copenhagen (Denmark) and Stockholm (Sweden), Oslo is not as familiar to the international. Hence, a unified branding strategy is essential for Oslo to become visible as an attractive international region (Osloregionen, 2015). The Oslo Region Alliance is an inter-municipal political network consisting of 64 municipalities, pursuing sustainable achievements and preserving the international competitiveness of the Oslo metropolitan region relative to other cities and metropolitans (Osloregionen, 2023).

As articulated within the Oslo municipality's climate strategy (2020a, p. 65), the city aspires to be an innovative leading city. This strategic alignment is a testament to the municipality's resolute dedication to collectively addressing contemporary urban challenges in collaboration with other cities and transnational city networks. An innovative city can be characterized as a municipality that actively fosters technological developments, nurtures the growth of startup enterprises to accelerate new ideas, and facilitates multinational corporations in achieving substantial breakthroughs. Considering the multifaceted nature of urban centers' social,

environmental, and economic issues daily, an innovative city aims to address these challenges comprehensively. Empirical investigations have consistently highlighted that the sources of innovation frequently comes from within businesses and entrepreneurial efforts. The accumulation of knowledge and expertise evolves and is often repurposed by entrepreneurs when establishing new ventures. To enrich their reservoir of knowledge, businesses and entrepreneurs must complement their internal expertise with specialized insights from external actors, notably clients, and suppliers (Isaksen & Wiig, 2001, p. 883).

Hence, to attain these goals, Oslo must collaborate with other cities, both public and private actors, and international institutions to realize its climate objectives. In 2018, an evaluation of the municipality's advancement toward its strategic plan emphasized Oslo's status as a sustainable city. However, this achievement is compounded by the region's escalating population and urban density. Consequently, forging partnerships and active participation in transnational city networks becomes imperative to sustain the urban sustainability goals within the metropolitan area (Oslo Municipality, 2019a).

To effectively accomplish this, the Oslo municipality must prioritize the UN Sustainable Development Goal 17, which advocates for strengthening the means of implementation and revitalizing the Global Partnership for sustainable development. Relevant transnational city networks and international institutions to intensify engagement with include the EU, Eurocities, CNCA, C40, and ICLEI (Oslo Municipality, 2019a, p. 10). The transition to a *carbon-neutral city* accompanies risks and challenges. The municipality faces the imperative to adeptly respond to shifting dynamics within the international market while viewing itself as a relatively more established city than many other cities and regional governments. The transition is expected to generate employment opportunities and foster economic growth, aligning with the goals outlined in the UN's sustainability agenda. To advance this transition, the municipality is actively engaged in collaborative efforts with various transnational city networks. These cooperative initiatives aim to facilitate the development of innovative technologies which contribute to reducing GHG emissions (Oslo Municipality, 2020, p. 58).

4.3.2 International Collaboration Experiences

As mentioned in Chapter 2 by Kern (2018) and Lin (2018), city networks are collaborative communities facilitating communication and idea-sharing among their members. These networks often engage in local experiments to test new approaches and strategies, intending to replicate successful initiatives in other cities. They seek to promote sustainable development and climate strategies by transferring knowledge and practices across borders. Crucial to these communities' effectiveness is exemplary and cognitive leadership, guiding their efforts in the right direction. Cities worldwide participate in these networks as entrepreneurial actors to drive climate adaptation and mitigation processes forward. By fostering collective action and influencing cities, these networks have also gained a voice in international platforms and institutions, such as EU and UN. The Oslo municipality actively engages in various international networks; the C40 and Eurocities are the most convenient at the moment. Other networks mentioned above are CNCA, ICLEI, The Covenant of Mayors, and CathMR. The municipality collaborates in a city-to-city dialog with national and international cities, participating in international programs such as the European Horizon program and European Commissions Big Buyers Initiative (BBI) network.

The municipal document of 2019 emphasized that to achieve its climate goals, Oslo must increase its engagement in transnational city networks (Oslo Municipality, 2019a, p. 10). The municipality has significantly increased its engagement and actively participates in diverse networks. Informant 1 explained that due to Oslo's considerable advancements in climate initiatives, many cities seek advice from the city, a role that Oslo appreciates. Nonetheless, Oslo recognizes the value of participation, as it fosters knowledge sharing among the actors involved. There is an ongoing dialogue on effective strategies and challenges. The collective nature of such networks also simplifies the process of establishing unified demands, for example on manufactures (Informant 1, 2023).

Informant 5 provided insights into Oslo's roles within various networks. In the C40 network, Oslo has the status of an innovator city, signifying its commitment to finding environmentally friendly solutions through experimental initiatives that can be shared among other C40 member cities. Within Eurocities, Oslo demonstrates active engagement across diverse platforms, notably the Eurocities mobility forum, a space attended by approximately 50 European cities. Oslo also participates in ICLEI, this city network is not utilized because of various reasons.

Oslo's specific political interest prioritizes its involvement in C40 and Eurocities. Additionally, the municipality participates in the European Horizon program, a platform for research and innovation (Informant 5, 2023).

When asking Informants, why it is necessary for international participation, Informant 5 explained:

“For instance, an increasing wave of regulations is coming from the EU, which will also influence our city. A significant transformation within the EU framework is underway, characterized by new regulations and packages regarding climate, environment, and energy. Many of these regulatory changes are applied to us [Norway]... because our involvement in the EEA agreement aligns us with certain EU directives and policies”.

Oslo's participation in transnational city networks has significantly increased, as the benefits are too valuable to ignore. Vital aspects of this involvement are the exchange of knowledge and collaboration. As explained by Informant 5 even if Norway is not an EU member, it remains bound by its signed EEA agreements. As Informant 5 points out, regulations from the EU are expected to become stricter, which means both Norway and Oslo must be prepared for this regulatory shift. Highlights the need to accelerate climate action and develop new ideas and technologies. As researchers (Vedeld et al., 2021; Pierre, 2019; Kern, 2019; Davidson et al., 2019; Gordon & Johnson, 2017; Fuhr, Hickmann & Kern, 2018; Bestill & Schroeder, 2011; Betsill & Bulkeley, 2006; Curtis & Acuto, 2018) acknowledge that cities can cultivate climate orientated innovation at a higher pace by engaging in collaborative efforts. It makes it natural for also Oslo to engage in transnational city networks.

Informant 6 explained the primary purpose of transnational city networks is to serve as platforms for inspiration and knowledge-sharing. As cities operates in various nation-states the regulations are different. For instance, the planning and construction regulations in the Netherlands diverge from those in Norway. Therefore, if Oslo seeks to establish emission-free construction site, direct guidance from these networks are unavailable. However, transnational city networks offer a platform for inspiration and provide insight into the strategies undertaken in similar contexts. Allowing Oslo to see valuable processes initiated elsewhere and consider if they are applicable (Informant 6, 2023).

As mentioned earlier, each nation-state functions within its unique governance structure, posing a challenge in formulating a universally adaptable climate action framework. What proves effective in one city might not be suitable for another due to disparities in national regulations. As emphasized above, Oslo's ZEZ project awaits amendments in national regulations before it can be implemented.

While considering the potential influence of transnational city networks to enforce policy guidelines for member participation, it is notable that networks like C40 require prospective members to prove their worthiness before being granted membership. Informant 4 said:

“In my understanding, it appears that C40 prioritizes shaping the global agenda and fostering collaboration among cities on a global scale, with potentially less specific emphasis on the impacts on smaller cities such as Oslo. This assertion is rooted in my hypothesis. I hold the view that C40 may not enforce highly prescriptive policy guidelines on Oslo. In contrast, Eurocities, being closely associated with the broader European Union context, could potentially have more immediate and direct implications for our city”.

Before continuing the analysis. It is noteworthy that Oslo actively engages in several transnational city networks. Each of these networks serves a distinct purpose for the city. To gain a more comprehensive understanding of how these networks operate, Oslo's roles and involvement within them. The section below will present an insight provided by the informants.

Oslo and C40

Oslo has gained significant international recognition for its climate initiatives. For example, in 2018, the Executive Director of C40, Mark Watts, expressed his deep admiration for Oslo's ambitious environmental governance, aiming to achieve a remarkable 95 % reduction in GHG emissions by 2030. Watts was inspired by Oslo's Climate and Energy Strategy 2016 and the pioneering introduction of the climate budget, a governing tool driving its sustainability efforts forward (Watts, 2018). As mentioned in the introduction, the C40 network conducted a climate budget pilot with Oslo from 2021 to 2023. This pilot initiative invited 11 megacities to participate and provide insights from Oslo's experience in utilizing the climate budget as an effective governing tool (UiO, 2021). As mentioned in Chapter 1, Oslo has gained the status as

an innovator city in the C40 for demonstrating environmental and climate leadership (Oslo Municipality, 2023b).

When asking about the climate budget pilot Informant 1 explained Oslo's participation stemmed from being the first in the world to implement a climate budget and achieve substantial progress. The Oslo-C40 pilot program focused on integrating the climate budget into the governance structures of these cities. The participating cities were diverse, spanning the globe—hailing from India, several European cities, South America, Canada, and the USA. The shared enthusiasm highlights the attractiveness of a climate budget as an instrumental governance tool, going beyond mere aspirations, involving concrete actions, and formulating plans that require thorough follow-up. Oslo's successful experience has provided evidence for the effectiveness of using a climate budget (Informant 1, 2023).

Regarding limitations, some cities do not have the political will to implement these measures. Informant 1 gave an example, in Rio de Janeiro, there appears to be limited political commitment to implementing climate-related measures. These measures must seek alternative justifications for their implementation. It is observed that numerous climate initiatives lead to enhanced equity among the population, having various positive outcomes. However, their primary linkage is often centered around improving air and water quality, with considerations for CO₂ emissions coming subsequently. In contrast to Oslo's approach, air and water quality improvements result from reducing GHG emissions (Informant 1, 2023).

In other words, demonstrating the contrasting approaches cities take towards climate measures, Rio de Janeiro faces different challenges than Oslo. They prioritize health-oriented measures over GHG emissions-oriented ones, although they recognize that the two aspects are interconnected. It illustrates the financial dimension of implementing climate action. In this context, if a city prioritizes addressing social inequality through health, its emphasis may not be on initiating climate action with delayed visible outcomes, even if the implementation will help to solve this challenge later. However, by offering visible solutions, political leaders enhance the likelihood of being reelected.

An additional instance of collaboration between Oslo and C40 occurred in a workshop titled Cities & Ports as Market-Makers in Oslo in 2021. The workshop featured speakers from organizations such as the Environmental Defense Fund, HeidelbergCement, DFDS Seaways,

Yara Clean Ammonia, Port of Copenhagen/Malmö, Ports of Auckland, Zero-Emission Shipping Mission, and Greensight AS. This event provided a platform for deliberations on how procurement strategies could stimulate transformative shifts within the market to advance zero-emission technologies (Oslo Havn, 2021). Cities and ports play an instrumental role in tackling climate change when they come together to advance the adoption of zero-emission technologies and solutions. Oslo's efforts serve as a notable example, demonstrating successful decarbonization strategies encompassing its complete value chain and encouraging engagement from the private sector through strategic procurement and financial initiatives. Collaborative procurement approaches possess the potential to harness collective purchasing influence, hence, indicating the market's demand for zero-emission solutions and overcoming financial obstacles. Establishing zero-emission port infrastructure is strategically significant in demonstrating sustainable growth without increasing GHG emissions. Through collaborative action, cities and ports can propagate their positive influence beyond port precincts, ushering in a more ecological pathway to sustainable global trade and innovation (Oslo Havn, 2021).

In 2023, Oslo's Governing Mayor, Raymond Johansen, was elected to the C40 Steering Committee due to the city's commitment to ambitious climate goals and climate action. Oslo has implemented comprehensive strategies to reduce emissions across diverse sectors, encompassing construction and transportation. At the same time, the city encourages citizens to use bicycles and public transportation—Oslo's dedication is demonstrated in the integration of the climate budget into its regular financial budget (C40, 2023b). As a member of the C40 Steering Committee, Governing Mayor Johansen dedicates his attention to three pivotal aspects. Firstly, he emphasizes the significance of procuring climate-friendly goods and services to stimulate the transformative shifts within the market. Secondly, he advocates for accelerating the transition towards electric-powered transportation systems. Lastly, he supports the development of 'green jobs', recognizing they are key components in realizing the overarching goal for the green shift. Moreover, the Governing Mayor remains at the forefront of global initiatives, providing guidance to C40 cities in successfully implementing climate budgets and advocating for adopting cleaner construction practices. The committee members are responsible for upholding and advancing C40's climate agenda. Among the sitting members of the C40 steering committee are the mayors of London, Tokyo, Paris, and Seoul (C40, 2023b; C40, 2023c).

As mentioned above as an innovator city for C40 Oslo has a responsibility to develop and experiment to find new pathways to decarbonization.

When asking informants on specific project in the municipality Informant 6 shade some lights on this question:

“Oslo strategically emphasizes the C40 network, mainly focusing on the climate budget and construction sectors. Regarding the climate budget, we are the leading city... The climate budget represents an instrumental governance instrument in our climate work, recognized as indispensable for effectively achieving ambitious climate goals shared among all C40 member cities.”

Moreover, Informant 6 continue to explain the role of an innovative city. Oslo is responsible for pioneering novel solutions. This obligation resonates with a shared global responsibility to disseminate successful approaches and assist other municipalities encountering similar challenges. This commitment extends to the construction sector as well. Considering Oslo Municipality's significant role in construction, our procurement practices are vital in driving the market transformation towards zero-emission equipment usage on construction sites. Procurement has emerged as a common language among cities, and Oslo's efforts in this realm serve as an inspiring model for others (Informant 6, 2023).

Informant 2 shed light on C40's approach to utilizing key 'concepts'. C40 has been actively engaged in refining the utilization of concepts, such as the 'Street Declaration', by exploring diverse perspectives and interpretations. This strategic focus is instrumental in the efforts to establish a climate-conscious city. Frequently, discussions around these concepts tend to adopt a language that emphasizes restrictions, subsequently generating a negative discourse, which can result in implementation challenges—indicating the significance of framing climate action in a positive light through language use (Informant 2, 2023).

C40 serves as a knowledge hub where cities can exchange ideas and receive support for implementing climate measures. For Oslo, being part of this network provides legitimate recognition for its climate actions in the international arena, as it aligns with C40's efforts to advocate for global institutions. As an international innovator city within C40, Oslo has inspired other cities globally how to implement climate measures successfully.

Oslo and Eurocities

In the ongoing exploration of how the Oslo municipality utilizes transnational city networks, Informant 6 revealed an inspiring approach of how Oslo uses the platforms in Eurocities to exert pressure for ambitious climate action within the EU:

“We collaborate with Eurocities primarily because the EU has more ambitions than nation-states. As such, we advocate for more stringent mandates for trucks and stricter regulations governing construction materials. The impact will fall downward if we successfully persuade the EU to enact modifications. In the realm of EU affairs, C40 assumes a less instrumental role compared to Eurocities. Eurocities emerge as the most instrumental network when seeking to influence European policies”.

In accordance with the Informant 6 comment, this observation aligns with previous research by Bulkeley & Schroeder (2011) and Partzsch (2017), as mentioned in Chapter 2, how cities collaborate using their 'soft power' to influence decision-makers in international institutions to promote climate action. For instance, Oslo advocates for adopting zero/low-emission building materials. If the EU mandates more strict regulations for suppliers and producers, compliance becomes imperative for them.

An example of a top-down governing approach is the *Oslo-Eurocities Plastic Declaration*. This declaration binds cities to formulate strategies to reduce plastic pollution within their city. Plastic waste does not respect national borders and is a global issue, requiring an international solution across various sectors and actors (Godson, 2019). Informant 4 explained that the declaration initially came from a grassroots initiative lobbied by cities within the Eurocities network:

“Years ago, global attention turned to ocean plastic pollution, prompting local initiatives within the Oslo municipality. An anti-plastic lobby was established within Eurocities, resulting in an international plastic declaration signed by Norway... Illustrating a bottom-up to top-down influence cycle, where local efforts impact national decisions, ultimately returning to shape local actions”.

This example of collaborative efforts aligns with the argument in Kern's research (2019, p. 126), that cities prioritize environmental concerns. Cities' voluntary leadership plays an instrumental role in the climate governance of the EU.

Continuing the analysis, Vedeld et al. (2021) provide an example in their research where municipal authorities engage in the EU Commission's Big Buyers Initiative (BBI). Oslo leads a BBI working group centered on sustainable construction, joined by Copenhagen, Stockholm, and Helsinki. BBI facilitates the cooperation of public procurers in implementing strategic public procurement efforts. The BBI initiative allows Oslo to collaborate with actors from various European cities, fostering the development of inventive procurement strategies and adopting zero-emission construction practices (Vedeld et al., 2021, p. 355; Barnard, 2022). When asking the informants regarding Oslo's involvement and the benefits of it, Informant 1 provide some detailed information about the network. Big Buyers Initiative is a European network encompassing major cities. The focal challenge revolves around the absence of emission-free technology. Although Oslo Municipality is a comparatively modest purchaser on a global scale, it seeks to address the deficiency in emission-free machinery technology. The goal is to stimulate the market toward the production and supply of electric equipment. The significance of engaging in collaborative efforts with various stakeholders becomes evident, enabling the attainment of a more substantial collective influence (Informant 1, 2023).

Informant 6 explained the significance of participating in the BBI for promoting clean construction practices and the current limited membership within the working group. The engagement in BBI holds significance in driving manufacturers and suppliers toward advancing this effort:

“The current participation is limited due to the challenging nature of meeting the stringent requirements. However, this aligns with the initiative's purpose, as only a few entities are ready for zero-emission investments. As experience accumulates, the potential for upscaling these efforts will likely increase”.

While acknowledging the crucial significance of environmental governance leadership, Informant 3 provides a detailed explanation of the substantive utility of the BBI in facilitating Oslo's pursuit of its climate goal. The BBI expands the institutional scope of action, working more collaboratively internally and externally. It aims to influence authorities to change regulations. This leadership for transitioning the energy, transport, and construction sectors is heavily demanding. It operates within a polycentric multilevel governance framework, dealing with heavy structures, while pushing for societal development. The focus is on engaging willing

participants but also working to transform these substantial structures. Cities act as one of the many actors in a hierarchical chain. Collaborating and networking with those who are willing to achieve this transition (Informant 3, 2023).

Furthermore, Informant 4 offered a personal perspective on how city networks have instructed Oslo in effectively harnessing its procurement authority as Oslo has been actively engaged in advocating efforts, particularly in an upward path, while leveraging national networks. Municipalities possess climate and environmental networks that connect with planning mechanisms to influence shifts in procurement directives. This phenomenon is notable in Norway, where city-initiated actions have influenced and impelled modifications within the national procurement landscape. Oslo's engagement in networks illustrates the instrumental role of cities, not only as entities responsible for enacting planning norms and infrastructure frameworks but also as influential agents equipped with considerable procurement capabilities (Informant 4, 2023).

Informant 6 can confirm the assertion made by Informant 4, emphasizing that Oslo has obtained this knowledge of leveraging procurement power to steer environmental governance from the CNCA network (Informant 6, 2023). Informant 4's viewpoint on leadership aligns with the leadership argument presented by Vedeld et al. (2021), leadership argument. This active engagement process illustrates leadership's critical role in achieving goal setting and producing transformative outcomes that reshape institutions. By engaging in transnational city networks, Oslo exemplifies self-governance and collaboration, demonstrating its commitment to co-creation to pursue sustainable and impactful solutions.

Oslo and CNCA, Horizon program, ICLE

The CNCA operates as a coalition of global cities striving to attain carbon neutrality, aiming to facilitate the exchange of ideas and practices among urban centers (CNCA, 2023). When exploring Oslo's connection with CNCA, Informant 1 briefly outlined the network. Within the CNCA network, multiple groups collaborate on diverse thematic areas, fostering the exchange of insights and experiences among member cities. This collaborative approach is instrumental in preventing the redundancy of efforts and the need to "reinvent the wheel" (Informant 1,

2023). Informant 6 provided a comprehensive overview of Oslo's engagement with CNCA, offering concrete examples and outcomes. CNCA operates as a responsive network, aligning its efforts with the distinctive needs and challenges cities encounter. Its central mission revolves around addressing these urban challenges. In the past, CNCA managed an innovation fund that has now evolved into a different funding mechanism. This innovation fund historically allocated financial resources for piloting innovative solutions. Within this context, Oslo, Copenhagen, and Stockholm collaborated substantially on emissions-free 'Non-road mobile machinery'. This collaboration laid most of the foundation for 'clean construction'. Although Oslo had initially conceived the idea, it was instrumental for further development and exploration of the potential to leverage purchasing power (Informant 6, 2023).

The inception of the Non-Road Mobile Machinery (NRMM) initiative was launched with the intention to investigate the potential of municipal public procurement authority in stimulating suppliers to provide emission-free machinery, with a specific emphasis on construction site equipment. Financial support for the NRMM effort was provided by the CNCA (CNCA, 2019). Within the *Climate Strategy for Oslo 2030*, the support for active participation in transnational city networks is exemplified by C40 and CNCA. These networks are viewed as strategic instruments to accelerate the ambitious climate goals of attaining a zero-emission construction sector. Because of Oslo's relatively modest stature, cognizance of the need for a collaborative effort with fellow megacities is recognized. Engaging in collaboration can facilitate the creation of a formidable 'Buyers Club', to influence the market through their substantial procurement power collectively (Oslo Municipality, 2020b, p. 45).

Concerning additional transnational city networks, the informants shed light on Oslo's engagement with the EU Horizon program and ICLEI. Informant 5 said:

“We are actively participating in the '100 Climate Neutral Cities Commission' (CNCC) within The Horizon Program, which is instrumental. Much of our efforts revolve around climate and environmental imperatives. As the City Councilor emphasized, this aligns closely with our municipal agenda, as we shall both learn from and contribute to other cities”.

Members of the CNCC are required to function as innovative and experimental urban centers to accelerate the climate and digital transformation within the EU. These cities will receive financial support from the EU to facilitate testing and experimentation with new sustainable

technologies (European Commission, 2023). Regarding ICLE, Informant 6 provided insights into Oslo's association with the network. Oslo's participation in ICLE is more characterized by solidarity rather than utilizing it. ICLE holds greater significance for smaller cities with fewer resources, whereas, in COP27, ICLE has an instrumental role in global planning. COP27 serves as a vital platform for investigating the role of cities in global environmental governance. However, for Oslo, tangible outcomes from COP27 hold relatively less significance (Informant 6, 2023).

While ICLE may hold lesser significance for Oslo than other city networks like C40, Eurocities, and CNCA, its participation in ICLE remains imperative. This is because C40 engages in the same international arena, aiming not only to exert influence on international institutions and national leaders but also to highlight the vital role of cities as key actors in climate governance. Informant 6 continue and explained:

“...Differentiating from C40's diplomatic role on the international stage, which constitutes one pillar, another pillar involves showcasing the actions of cities. This aspect holds great significance for the Mayors within the C40, and it is crucial for Raymond Johansen to acquire international recognition for the climate initiatives Oslo does”.

When asking Informant 1 about noteworthy instances of Oslo's climate actions, they mentioned an illustrative case involving a TED Talk (a platform for spreading ideas) presentation in London. During this presentation, Oslo presented its achievements, successful strategies, and the path to its current position. The discourse included instrumental insights from Oslo's climate efforts to guide other ambitious cities to replicate Oslo's achievements. A focal point of the discussion was Oslo's distinctive approach to construction and infrastructure, as well as its engagement in international networks to advocate for market demands (Informant 1, 2023).

To summarize, this section of the thesis aims to shed light on the institutional framework within which Oslo operates. It emphasizes the importance of instrumental governance mechanisms, such as climate accounting and the climate budget, which the municipality employs to achieve its climate goals. Within the context of climate initiatives, the role of political leadership cannot be underestimated. The rapid advancement of climate goals owes much to the active stance of the Red Green Coalition, exemplifying the influence of dynamic political leadership in

accelerating climate-centric actions. Oslo's dedication to climate governance is evident through its efforts, encompassing the formulation of a comprehensive climate strategy, experimentation with emission-free machinery in construction, the implementation of strict parking regulations and toll schemes, and the creation of dedicated cycling infrastructure. Additionally, Oslo has taken substantial strides towards achieving zero-emission status in its port and public transportation sector, embracing innovative solutions.

Furthermore, Oslo's strategic pursuit of internationalization since 2009 has led to robust engagement in transnational city networks and global institutions, thus enhancing the city's global standing. The strategic deployment of these networks has evolved into an indispensable component of Oslo's climate strategy, especially in addressing scope 3 GHG emissions that extend beyond the city's boundaries. This demonstrates the indispensable role of international collaboration. In the realm of transnational city networks, Oslo undertakes diverse roles, leveraging political networks to showcase achievements and secure international recognition for its climate-centric efforts. The utilization of transnational city networks is also instrumental in attaining Oslo's ambitious climate goals.

5 Findings and Discussion

In this section of the thesis, a reflective and analytical examination of the findings in Chapter 4 will be undertaken to assess their alignment with the research questions posed in Chapter 1.1. The discussion commences with an exploration of the sub-research questions and final point in addressing the overarching research question: *What climate action lessons can be drawn from a case study of Oslo, Norway, and its engagement with transnational city networks.*

As acknowledged by various scholars and researchers, polycentric multilevel governance represents an effective approach for understanding how cities function internationally while remaining intertwined with the nation-state context. In the case of Oslo, it operates within a polycentric multilevel governing system, with the Norwegian institutional framework divided into national, regional, and municipal levels, as identified by Hanssen & Tønnesen (2021).

Oslo's pursuit of more ambitious climate goals compared to those of the Norwegian government has compelled the city to seek cooperation beyond national borders, collaborating with like-minded actors such as cities and transnational city networks, as mentioned by other researchers. Engaging with these sub-national entities has empowered Oslo to gain greater authority, as its climate actions are legitimized by international actors. However, national regulations still exert some influence over Oslo's ability to implement these changes, considering the country's own climate goals aligned with the Paris Agreement. To achieve its ambitious goal of 95 % GHG emission reduction, Oslo must accelerate technological advancements and urban development. The long-term political leadership in Oslo, as observed by Vedeld et al. (2021), has been instrumental in driving this progress through integrative and interactive governing instruments. Additionally, Oslo plays a significant leadership role in negotiating on behalf of other municipalities and coordinating administrative staff for better collaboration. Despite recognizing its relatively small role in the global context, Oslo has gained a strong international reputation for its climate efforts by collaborating with various stakeholders, both national and international, hence advancing its climate agenda. The polycentric multilevel governance approach emphasizes a bottom-up perspective, evident in Oslo's heavy engagement with international actors.

While the climate budget and strategic climate regulations have been vital governing instruments, their successful implementation hinges on technology and leadership. Consequently, Oslo has actively sought stakeholders and partners willing to invest in and participate in climate projects, with transnational city networks and international institutions playing a vital role in supporting the city's efforts. City and regional governments work hand-in-hand within a polycentric multilevel governance system to achieve these changes, and effective leadership is an instrumental component in driving the progress. Oslo's climate goals initially aligned with the Paris Agreement but were later adjusted by the Red Green Coalition to achieve an even more ambitious goal by 2025. The zero-emission project is an example of Oslo's ability to demonstrate the possibility of zero-emission construction sites through collaboration with international as national public and private actors. Notably, the involvement of the leader for Omsorgsbygg, who was also active in the climate-oriented NGO Bellona, seeking to experimenting with zero-emission technology.

The application of the polycentric multilevel governance approach proves to be a valuable theoretical framework for gaining a deeper comprehension of how cities operate in the international arena. It emphasizes the necessity for cities to acknowledge their intertwined relationship with both the nation-state and international institutions. While it may seem challenging for a city within a state to exert authority over state regulations, this perspective sheds light on how a bottom-up approach can still influence changes in national regulations.

A compelling example of this influence is evident in the European Commission's Plastic Initiative, where cities united and advocated for the idea through Eurocities, ultimately leading to a EU declaration signed by Norway and several other nations to combat ocean pollution. Nevertheless, it is essential to recognize that nation-states wield the most authority in the international system. Despite this, cities play a crucial role in aligning with their nation-states or stepping up when necessary, particularly when addressing climate change. Recognizing their vulnerability to climate change, cities actively seek to mitigate its impacts through collaborative efforts with other actors.

Regarding the sub-research question: *What is the environmental governance approach adopted by Oslo?* It can be argued that Oslo has adopted a polycentric multilevel governance approach, which proves highly effective in understanding the intricacies of the city's environmental governance. Through collaborative efforts at both national and international levels, cities like

Oslo actively promote their individual agendas. International collaborations have played a pivotal role in acquiring access to zero-emission technology and facilitating crucial idea sharing. Addressing not only direct GHG emissions but also indirect emissions is instrumental for cities seeking a holistic approach to environmental governance. To achieve this, cities must forge partnerships with other entities to collectively tackle environmental challenges. For instance, amending regulations in the transport and shipping sectors can yield positive outcomes. The transformation of Oslo Port into a green port, along with preparations for zero-emission vehicles, holds immense potential for improving air and water quality in the city. However, such endeavors cannot be accomplished in isolation; networking with public and private stakeholders is indispensable to garner commitment and resources for these goals.

Participation in transnational city networks, such as the Horizon Program and Eurocities, has been instrumental in enabling Oslo to continue its climate work. These networks provide essential funding for testing experiments and pursuing innovative initiatives. Without this financial support, it is uncertain whether Oslo would currently have sufficient resources to invest in these endeavors. Since most climate-related funding is derived from toll-roads, certain projects may take precedence over others based on available resources. Oslo's adoption of a polycentric multilevel governance approach, along with active international collaborations and participation in city networks, underscores the city's commitment to environmental governance and sustainability. By working with diverse stakeholders and securing crucial funding, Oslo is better positioned to make substantial strides in its climate goals and contribute to a greener, more sustainable future.

When analyzing Oslo's engagement with transnational city networks on an international level, it becomes evident that such participation has proven beneficial in the city's pursuit of achieving its climate goals. For instance, through collaboration with other cities within the CNCA network, Oslo has learned valuable strategies for leveraging its procurement power to influence manufacturers and suppliers towards adopting environmentally friendly practices. This collaboration has been essential for Oslo to create a conducive market environment that encourages private sector investments in zero-emission technology. By doing so, the city acknowledges its responsibility to provide opportunities for these investors to thrive. Despite

being under national authority, Oslo recognizes the potential impact of regulations from the EU and the UN. Thus, actively participating in transnational city networks that orient themselves within these international institutions is seen as advantageous. Preparing and cooperating with upcoming regulations is crucial, as Norway's trading relationship with the EU, governed by EEA-agreements, will inevitably be affected.

Moreover, Oslo's involvement in prominent city networks like C40, even though it is not a megacity, has been possible due to its dedicated climate actions. The city's climate budget and strategy have led to Oslo being acknowledged as an 'innovator city' within C40 and the Horizon program, enhancing the city's authority in justifying its climate initiatives to the national government. This recognition and international reputation have played a significant role in supporting Oslo's endeavors to amend national regulations and align with its climate goals. City-to-city and international engagement plays a crucial role in addressing climate issues, particularly concerning indirect GHG emissions developed outside the metropolitan area. This involvement is essential not only for securing funding for various projects but also for collaboratively devising effective solutions to tackle the complexities posed by such emissions. It also enables the city to access diverse perspectives and solutions for various environmental issues. Nonetheless, to identify effective solutions tailored to Oslo's unique challenges, the city recognizes the importance of collaborating with other urban centers facing similar issues, as emphasized by an informant. Consequently, Oslo primarily engages with other Scandinavian cities and some European counterparts within EU programs. Notably, Eurocities has proven instrumental in facilitating the purchase of zero-emission vehicles for the zero-emission construction project in Oslo. Furthermore, Oslo's involvement in the C40 network enables the city to assist other cities in incorporating a climate budget into their governing systems. This aligns with Oslo's climate strategy, which emphasizes both learning from others' experiences and sharing its own expertise to effectively implement climate measures. Such collaborative efforts foster mutual learning and knowledge exchange, contributing to a more comprehensive and successful approach to addressing climate challenges.

Regarding the sub-research question: *To what degree is international collaboration essential for Oslo to achieve its climate goals?* International collaboration is interpreted as imperative for Oslo to effectively achieve its climate goals, particularly as the city and metropolitan area experience urban expansion, leading to an increase in climate-related challenges. The ambitious

target of reducing GHG emissions by 95 % cannot be accomplished in isolation due to the significant impact of goods and services transportation into the city. Addressing these challenges necessitates collaboration with various stakeholders. For example, trailers coming to Oslo from Gothenburg exemplifies an issue that cannot be solved solely by the city itself. Through active engagement in transnational city networks and other international institutions, Oslo can serve as an inspiration for others to follow suit, thereby facilitating the attainment of its own ambitious climate objectives. By sharing knowledge and best practices on implementing climate measures, Oslo not only empowers others but also collaborates with them to advocate for amendments in both international and national regulations. As the transportation sector is one of the primary contributors to GHG emissions, Oslo's engagement is crucial in propelling the development and adoption of electric vehicles such as trucks, buses, NMRR, and boats. Moreover, it plays a significant role in urging nation-states to promote the usage of such sustainable alternatives, thus contributing to overall GHG emission reduction efforts.

So yes, international collaboration is indispensable for Oslo to effectively address its climate challenges and make substantial progress towards its ambitious GHG emissions reduction targets till 2030. By partnering with others, educating, and advocating for change, and collective use their procurement power to influence the market to promote zero-emission machinery and vehicles. Oslo has demonstrated their commitment and political determination to address climate change through the adoption of a strategic climate strategy featuring well-defined objectives. Notably, the city has implemented a climate budget as a governing instrument, effectively managing resources for climate-related initiatives. Additionally, Oslo has established climate accounting measures to meticulously monitor and assess its GHG emissions production. Furthermore, the city has proactively introduced a range of measures aimed at expediting the reduction of GHG emissions, showcasing its resolute dedication to environmental sustainability.

It still raises the question: *How transferable are these climate measures to other cities worldwide seeking to strengthen their climate action ambition?*

Concerning climate measures, it is vital to acknowledge the institutional setting within which cities operate, as they remain embedded within the framework of their respective nation-states.

While the climate strategy adopted by Oslo may be effective for the city, it may not be directly applicable to other cities that differ significantly from Oslo in terms of their circumstances and challenges. For instance, cities in Asia or Africa may face unique obstacles, such as the absence of a port or have alternative mitigation solutions already in place. Nonetheless, having a climate strategy is indispensable for setting GHG emissions reduction goals. Climate accounting tables are valuable for tracking emissions but do not inherently provide solutions for addressing them, just like the climate strategy. This is where the climate budget assumes a pivotal role. As previously mentioned, the climate budget is integrated into the city's overall budget, thereby compelling a consideration of climate action while making financial decisions. Oslo's pilot project facilitated by C40 offers an educational platform for Mayors from different countries to learn about effective implementation methods. However, it is essential to recognize that each city must tailor its climate budget to suit its unique circumstances. For example, in the case of Rio de Janeiro, the city prioritizes improving public health over emissions cuts, requiring adjustments to the budget to achieve health objectives while also generating co-benefits in emission reduction. Recognizing the diversity of cities and their institutional contexts is vital when designing and implementing climate measures. While climate accounting and strategies are essential for setting goals, the climate budget plays a crucial role in aligning financial measures with climate action. Tailoring these measures to suit each city's specific needs and challenges is integral to ensuring successful and impactful climate action globally.

As previously mentioned, international engagement is indispensable to transform climate measures into tangible reality. Joining transnational city networks and participating in international working groups serve as essential avenues for gaining valuable knowledge and inspiration regarding potential future developments. Such collaborative efforts can attract investors to start businesses or boost tourism. It is crucial to recognize that climate measures extend beyond mere environmental impact, they also stimulate investment in the development of new technologies and advocacy for research. As research investment increases, the city stands to reap numerous benefits. However, it is important to acknowledge that every city faces distinct challenges. Oslo is actively promoting and sharing the benefits of the climate budget worldwide. Their success with the climate budget as a governing tool, have inspired other cities to implement this climate action to mitigate climate change.

Answering this sub-research question, of how transferable these climate measures are, it can be argued for that the transferability of climate strategies, climate budgets, and climate accounting depends on whether the city operates in a comparable context with similar opportunities as Oslo. If not, the ideas can be adapted and customized to suit the specific needs and circumstances of the city who choose to implement this climate action. However, it is essential to recognize that these approaches must be customized to effectively operate within the unique context of each city. There is not a unified framework to solve the complexity of climate change.

All these sub-research question have answered the main research question: *What climate actions lessons can be drawn from a case study of Oslo, and its engagement in transnational city networks?*

In the case of Oslo, political leadership has proven to be a pivotal factor in driving climate action. The Red Green Coalition proactive approach accelerated Oslo's climate goals, advancing the target from 2050 to 2030. Key to this progress has been the development and implementation of the climate budget, climate strategy, and international collaboration. The climate budget has been integrated into all municipal sectors and are embedded within the financial budget to ensure that climate measures are systematically taken into account during decision-making processes. In addition to promoting zero-emission vehicles, implementing stricter parking policies and investing in public transport are essential measures to encourage citizens to use public transport over private vehicles. Even electric cars generate particles from roads and tires, impacting the pollution levels in the air. Therefore, minimizing personal reliance on private cars for daily commuting remains crucial for achieving sustainable and cleaner urban mobility. Essential climate measures include the implementation of strict parking policies and higher toll roads. These initiatives are complemented by the establishment of comprehensive bicycle infrastructure throughout the city. Additionally, offering subsidies to businesses interested in providing electronic bicycles to their employees supporting sustainable transportation, and the reduction of emissions.

Oslo's ambitious climate strategy emphasizes Oslo's active engagement in international collaborations through transnational city networks and other global institutions, fostering valuable knowledge exchange and education. The transnational city networks have a crucial

role in the global agenda for climate change, but also for local climate initiative. By utilizing collective procurement power with these networks, Oslo and others can influence the market to accelerate the develop zero-emission vehicles and low-emission building materials. However, the success of such initiatives relies on cities and regional governments ensuring a safe and conducive environment for private stakeholders to invest in this technology. Hence, cities and regional leaders must lead the way to a carbon-free future.

6 Concluding Remarks

This section will conclude the study by summarizing the key research findings in relation to the governing research question and the sub-research questions. It will also review the limitations of the study and propose opportunities for future research.

6.1 Summary of Key Findings

This thesis seeks to explore the city of Oslo's ambitious climate aspirations by examining the city's climate initiatives and its collaborative efforts with transnational city networks. Additionally, it assesses the transferability of these climate initiatives in other cities that wish to draw inspiration from Oslo's experiences. Oslo has set a remarkable climate goal of reducing GHG emissions by 95 % by 2030. The findings suggest that Oslo has embraced a polycentric multilevel governance framework to achieve this goal. This framework involves engaging diverse actors from the public and private sectors and international actors, all working in concert to achieve a shared goal.

Oslo has actively sought international partnerships and knowledge exchange through collaboration with transnational city networks and global institutions to achieve this climate goal. Within these networks, Oslo strategically collaborates with other cities to utilize their collective procurement power to influence manufacturers to produce zero-emission machinery and equipment for the construction sector. Oslo's active participation and noteworthy achievements have earned Oslo the status of an innovator city within the C40 city network, and it has also taken the lead in steering working groups within Eurocities.

The findings emphasize the vital role of political leadership in achieving the set climate goals. The current Red Green Coalition administration has significantly accelerated the progress of the climate strategy, originally aiming for a 95% reduction in GHG emissions by 2050 but now targeting 2030. This heightened leadership has ushered in the development of a new climate strategy that explicitly outlines the areas requiring intervention across diverse sectors. To facilitate this process, the introduction of a climate budget has proven instrumental, ensuring that climate considerations remain central to decision-making processes in all sectors. The climate strategy also mentions the positive outcomes of international collaborations and encourages Oslo to engage in transnational city networks actively, fostering a dynamic exchange of knowledge and experiences with other cities. The international collaboration has

led to a pilot project with the C40 city network that ended earlier this year. In this project, Oslo educated other city mayors on how to implement a climate budget. The city also has aspirations to implement a zero-emission-zone, as a measure to reduce GHG emissions from fossil-fuel vehicles. The project is stalled due to conflicts with national regulations. In the interim, Oslo is concentrating its efforts on collaborating with other cities and networks to reduce GHG emissions in the construction sector while also investing in alternative climate initiatives such as bicycle infrastructure, a zero-emission port, and public transportation.

Furthermore, the findings suggest that Oslo's climate efforts could be adaptable or transferable to other cities. Nevertheless, the institutional framework within which these cities operate must be acknowledged as cities remain embedded within their nation-states.

6.2 Limitations

Considering the limitations of this thesis, the research employs a qualitative research methodology that cannot generalize the findings beyond the scope of this study. It is important to note that while Oslo's capabilities may not be replicable to other cities, the study suggests the potential adaptability of certain climate actions by cities, depending on the institutional settings in which the cities are embedded. The data utilized in this research is sourced from renowned scholars such as Bulkeley, Acuto, Kern, Pierre, Bestill, and Curtis in environmental urban governance. It is acknowledged that this selection might introduce a bias, as these researchers might naturally present their research as authoritative. Efforts were made to collect data that maintains a balanced perspective on cities' climate initiatives while also considering the possibility of some information being slightly outdated.

Nevertheless, cities have demonstrated their significance as valuable subjects for investigation within the IR field, particularly in environmental governance. As mentioned earlier, the polycentric multilevel approach is recognized for its perception of governance dynamics, which might possess a certain level of naivety regarding decision-making. However, in this case study of Oslo, the approach has proven to be instrumental in providing a comprehensive understanding of how cities establish their international presence and how this presence can influence decision-making at higher levels.

In this research, specific municipality documents were selectively chosen to align with the research questions and the thesis objectives. Although some documents, like the international strategy, might be slightly outdated due to the upcoming release of a new strategy later this year, their inclusion remains essential for a comprehensive understanding of Oslo environmental governance.

Regarding informants, while a more extensive pool of informants could have been possible, the snowball sampling method led to the recommendation of the same informants by multiple sources. Time limitations and scheduling issues also limited some chosen candidates to participate. Nevertheless, conducting in-depth interviews with these knowledgeable informants provided valuable insights into Oslo's operations.

Considering the time limitation, there is potential for further expansion. If the time had permitted, a comparative analysis involving another city could reveal differences and uncover variables not considered in this study, enriching the research findings.

6.3 Recommendations for Future Research

In light of recommendations for further research, one notable observation from the analysis related to Oslo's ambition to be recognized as an international city for innovation. Despite its status as an innovator city, a relevant research investigation would be, "To what extent is Oslo truly innovative?" as argued by Isaksen and Wiig (2001), as the knowledge is not inherently tied to Oslo but instead relies on the entrepreneurs operating within it. Furthermore, in the context of the Oslo-C40 collaboration, where Oslo undertook the task of educating other city mayors in implementing a climate budget, an evaluative question arises: "What was the efficacy of this effort for its participants?". A final area deserving deeper exploration is "How does Oslo's policy and stance influence national decision-making processes?".

References

- Acuto, M. (2013). City Leadership in Global Governance. *Global Governance*, 19(3), 481-498.
- Acuto, M. & Leffel, B. (2020). Understanding the global ecosystem of city networks. *Urban Studies*, 1-17. DOI: 10.1177/004209802092929261
- Acuto, M., Morissette, M. & Tsouros, A. (2017). City Diplomacy: Towards More Strategic Networking? Learning with WHO Healthy Cities. *Global Policy*, 8(1), 14-22. DOI: 10.1111/1758-5899.12382
- Acuto, M. & Rayner, S. (2016). Citynetworks: breaking gridlocks or forging (new) lock-ins?. *International Affairs*, 92(5), 1147-1166. DOI: 10.1111/1468-2346.12700.
- Barnard, L. (2022, feb. 11). Major cities make push on electric construction equipment. *Construction Europe*. Retrieved from: <https://www.construction-europe.com/news/major-cities-make-push-on-electric-construction-equipment/8017791.article>
- Betsill, M. M. & Bulkeley, H. (2006). Cities and the Multilevel Governance of Global Climate Change. *Global Governance*, 12, 141-159.
- Bryman, A., Clark, T., Foster, L. & Sloan, L. (2021). *Bryman's Social Research Methods*. 6th. Oxford University Press: Oxford
- Bulkeley, H. & Schroeder, S. (2011). Beyond state/non-state divides: Global cities and the governing of climate change. *European Journal of International Relations*, 18(4), 743-766. DOI: 10.1177/1354066111413308
- CNCA. (2019). Cooperation Agreement. Retrieved from: <http://carbonneutralcities.org/wp-content/uploads/2019/06/5.SGPPA-Cooperation-Agreement-Example.pdf>
- C40. (2022, nov). C40's key take aways from the 27th United Nations Climate Change Conference (COP27). *C40*. Retrieved: <https://www.c40.org/events/cop27/>
- C40. (2023a). About C40. *C40*. Retrieved from: <https://www.c40.org/about-c40/>
- C40. (2023b). Secretary for Environment and Ecology of Hong Kong, China and Governing Mayor of Oslo join C40 Steering Committee. Retrieved from: <https://www.c40.org/news/steering-committee-hong-kong-oslo/>
- C40. (2023c). Steering Committee. Retrieved from: <https://www.c40.org/steering-committee/>

Carlisle, K. & Gruby, R. L. (2019). Polycentric System of Governance: A Theoretical Model for the Commons. *Policy Studies Journal*, 47(4), 927-952. DOI:10.1111/psj.12212

Covenant of Mayors. (2023). Why a Covenant of Mayors. Retrieved from: <https://eu-mayors.ec.europa.eu/en/about>

Curtis, S. & Acuto, M. (2018). The Foreign Policy of Cities. *RUSI Journal*, 163(6), 1-10. Retrieved from: <https://www.ditchley.com/sites/default/files/2019-01/The%20Foreign%20Policy%20of%20Cities%20-%20RUSI%20Journal.pdf>

Davidson, K., Coenen, L., Acuto, M. & Gleeson, B. (2019). Reconfiguring urban governance in an age of rising city networks: A research agenda. *Urban Studies*, 1-16. DOI: 10.1177/0042098018816010

De nasjonale forskningsetiske komiteene. (2021). *Forskningsetiske retningslinjer for samfunnsvitenskap og humaniora* (5th ed.).

Eckerberg, K. & Joas, M. (2004). Multilevel Environmental Governance: a concept under stress?. *Local Environmental*, 9(5), 405-412. DOI: 10.1080/1354983042000255315

Emerson, K., Nabatchi, T. & Balogh, S. (2021). An Integrative Framework for Collaborative Governance. *Journal of Public Administration Research and Theory*, 22(1), 1-29. DOI: 10.1093/jopart/mur011

Eurocities. (2023). About us. *Eurocities*. Retrieved from: <https://eurocities.eu/about-us/>

European Commission. (2023). EU Mission: Climate-Neutral and Smart Cities. *European Union*. Retrieved from: https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/climate-neutral-and-smart-cities_en

Feiock, R. C. (2013). The Institutional Collective Action Framework. *The Policy Studies Journal*, 41(3), 397-425. DOI: 10.1111/psj.12023

Freetown City Council. (2014). Environmental Assessment and Evaluation of Natural

Disaster Risk and Mitigation in Freetown. *SLURC*. Retrieved from http://www.slurc.org/uploads/1/0/9/7/109761391/environmental_assessment_and_evaluation_of_natural_disaster_risk_and_mitigation_in_freetown.pdf

Fuhr, H., Hickmann, T. & Kern, K. (2018). The role of cities in multilevel climate governance: local climate policies and the 1.5 C target, *Current Opinion in Environmental Sustainability*, 30, 1-6. DOI:10.1016/j.cosust.2017.10.006

GCoM. (2023). Who we are. Retrieved from: <https://www.globalcovenantofmayors.org/who-we-are/>

Godson, A. (2019, Oct, 24). 21 major European cities pledge to prevent and reduce plastic pollution. *Eurocities*. Retrieved from: <https://eurocities.eu/latest/21-major-european-cities-pledge-to-prevent-and-reduce-plastic-pollution/>

Gordon, D. J & Ljungkvist, K. (2022). Theorizing the globally engaged city in world politics. *European Journal of International Relations*, 28(1), 58-82. DOI: 10.1177/13540661211064449

Gordon, D. J. & Johnson, C. A. (2017). The orchestration of global urban climate governance: conducting power in the post-Paris Climate regime. *Environmental Politics*, 1-21. DOI: 10.1080/08/09644016.2017.13208029

Hanssen, G. S. & Tønnesen, A. (2021). Core-city climate leadership in metropolitan contractual management agreements. *European Planning Studies*, 1-23. DOI: 10.1080/09654313.2021.1947988

Homsy, G. C. & Waner, M. E. (2015). Cities and Sustainability: Polycentric Action and Multilevel Governance. *Urban Affairs Review*, 51(1), 46-73. DOI: 10.1177/1078087414530545

ICLEI. (2023a). About ICLEI. Retrieved from: https://iclei.org/about_iclei_2/

ICLEI. (2023b). What we do. Retrieved from: https://iclei.org/what_we_do/

IPCC, 2023: Summary for Policymakers. In: *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, H. Lee and J. Romero (eds.)]. IPCC, Geneva, Switzerland, pp. 1-34, doi: 10.59327/IPCC/AR6-9789291691647.001

Isaksen, A. & Wiig, H.A. (2001). Oslo: In What Way an Innovative City?. *European Planning Studies*, 9(7), 871-887. DOI: 10.1080/09654310120079814

Kern, K. (2010. June 23-26). *Climate Governance in the EU Multi-level System: The Role of Cities*. Fifth Pan-European Conference on EU Politics, Porto University, Portugal. Retrieved from: https://www.researchgate.net/profile/Kristine-Kern/publication/228713460_Climate_Governance_in_the_EU_Multi-level_System_The_Role_of_Cities/links/00b7d523810595dffa000000/Climate-Governance-in-the-EU-Multi-level-system-The-Role-of-Cities.pdf

Kern, K. (2019). Cities as leaders in EU multilevel climate governance: embedded upscaling of local experiments in Europe. *Environmental Politics*, 28(1), 125-145. DOI: 10.1080/09644016.2019.1521979

Klaus, I. (2020). The State of City Diplomacy. *Urbanisation*, 1-6. DOI: 10.1177/2455747120913186

KS. (2021, 20. januar). Avgrense klimabudsjettet. Retrived from: <https://www.ks.no/fagomrader/samfunnsutvikling/klima/veileder-for-klimabudsjett/avgrense-klimabudsjettet/>

Lee, T. (2013). Global Cities and Transnational Climate Change Networks. *Global Environmental Politics*, 13(1), 108-127. DOI: https://doi.org/10.1162/GLEP_a_00156

Leseth, A. B. & Tellmann, S. M. (2018). *Hvordan lese kvalitativ forskning?* (2. utg). Oslo: Cappelen Damm akademisk

Lin, J. (2018). *Govering Climate Change, Global Cities and Transnational Lawmaking*. Cambridge: Cambridge University press

Ministry of Transport [Samferdselsdepartementet]. (2021). *Nasjonal transportplan 2022-2033*(Meld. St. 20 (2020-2021)). Retrieved from: <https://www.regjeringen.no/contentassets/fab417af0b8e4b5694591450f7dc6969/no/pdfs/stm202020210020000dddpdfs.pdf>

Moser, S. C. (2009). Whether our levers are long enough and the fulcrum strong? Exploring the soft underbelly of adaptation decisions and actions. In W. N. Agder, I. Lorenzoni & K. L. O'Brien (eds.), *Adapting to Climate Change: Thresholds, Values, Governance* (p. 311-334). Cambridge university press.

Morrison, T. H., Adger, W. N., Brown, K., Lemos, M. C., Huitema, D., Phelps, J., Quinn, T. & Hughes, T. P. (2019). The black box of power in polycentric environmental governance. *Global Environmental Change*, 57(), 1-8. DOI: 10.1016/j.gloenvcha.2019.101934

Mollenkopf, J. H. (2010). How To Study Urban Political Power. In G. Bridge & S. Watson (Eds). *The Blackwell City Reader* (2th. ed., p. 382-390). Willy-Blackwell.

Oslo Havn. (2021). Oslo & C40 Cities, City-Industry Dialogues "Cities & Ports as Market-

Makers”. Retrieved from: <https://www.oslohavn.no/globalassets/oslo-havn/dokumenter/dokumenter-2021/program-oslo--c40-green-ports---oiw--agenda-final.pdf>

Oslo Havn. (2023). Oslo som nullutslippshavn. Retrieved from: <https://www.oslohavn.no/no/meny/klima-og-miljo-i-oslo-by-og-havn/nullutslippshavna/>

Oslo Municipality. (2009). Strategi for Oslo Kommunes internasjonale arbeid. Retrieved from: <https://tjenester.oslo.kommune.no/ekstern/einnsyn-fillager/filtjeneste/fil?virksomhet=976819837&filnavn=byr/2009/br1/2009016877-688747.pdf>

Oslo Municipality. (2019a). Oslo kommunens oppfølging av FNs bærekraftsmål. Retrieved from: <https://tjenester.oslo.kommune.no/ekstern/einnsyn-fillager/filtjeneste/fil?virksomhet=976819837&filnavn=byr%2F2019%2Fbr1%2F2019064961-2192367.pdf>

Oslo Municipality. (2019b). Utslippsfri anleggsplass Bymiljøetatens erfaring med elektriske anleggsmaskiner i Olav Vs gate. Retrieved from: https://www.klimaoslo.no/wp-content/uploads/sites/88/2020/12/BYM_Utslippsfri-anleggsplass.pdf

Oslo Municipality. (2020a). Klimastrategi for Oslo mot 2030. Retrieved from: https://www.klimaoslo.no/wp-content/uploads/sites/88/2020/09/Klimastrategi2030_langversjon_web_enkeltside.pdf

Oslo Municipality. (2020b). Klimastrategi for Oslo mot 2030. Retrieved from: https://www.klimaoslo.no/wp-content/uploads/sites/88/2020/09/Klimastrategi2030_kortversjon_web_enkeltside.pdf

Oslo Municipality. (2022). Climate Budget 2022 Chapter 2, Oslo City Government’s budget proposal 2022 with appendix. Retrieved from: <https://www.klimaoslo.no/wp-content/uploads/sites/88/2022/03/Climate-Budget-2022-with-appendix.pdf>

Oslo Municipality. (2023a). Oslo European Green Capital 2019. Retrieved from: <https://www.oslo.kommune.no/oslo-european-green-capital-2019/#gref>

Oslo Municipality. (2023b). Internasjonal samarbeid på miljø. Retrieved from: <https://www.oslo.kommune.no/miljo-og-klima/internasjonalt-samarbeid-pa-miljo/>

Oslo Municipality. (2023c). Null utslippssone: Utredning og faglige anbefalinger til innføring av nullutslippssone i Oslo. Retrieved from: https://www.oslo.kommune.no/getfile.php/13471646-1674571111/Tjenester%20og%20tilbud/Politikk%20og%20administrasjon/Slik%20bygger%20vi%20Oslo/Bymiljøetaten/Nullutslippssone/20230118_Nullutslippssone_Bymiljøetatens%20utredning%20og%20faglige%20anbefalinger%20til%20innføring%20av%20nullutslippssone%20i%20Oslo.pdf

- Oslo Municipality. (2023d). Elektrisk lastesykkel for bedrifter. Retrived from: <https://klimatilskudd.no/elektrisk-lastesykkel-for-bedrifter>
- Osloregionen. (2015). The Oslo Brand Management Strategy. Retrieved from: http://www.osloregionen.no/wp-content/uploads/Profileringsstrategi_del12_Engelsk.pdf
- Osloregionen. (2023). Kort om oss. Retrived from: <https://www.osloregionen.no/om-oss/kort-om-oss/>
- Partzsch, L. (2017). ‘Power With’ and ‘Power to’ in environmental politics and transition to sustainability, *Environ Politics*, 26(2), 193-211. DOI: 10.1080/09644016.2016.1256961
- Pierre, J. (2019). Multilevel governance as a strategy to build capacity in cities: Evidence from Sweden. *Journal Of Urban Affairs*, 41(1), 103-116. DOI: 10.1080/07352166.2017.1310532
- Poumadère, M., Mays, C., Le Mer, S. & Blong, R. (2005). The 2003 Heat Wave in France: Dangerous Climate Change Here and Now, *Risk Analysis*, 25(6), 1483-1494. DOI: 10.1111/j.1539-6924.2005.00694.x
- Ruter. (2021). Arbeid med bærekraftsmålene. Retrieved from: <https://aarsrapport2021.ruter.no/no/ruters-malbilde/arbeid-med-baerekraftsmalene>
- Sassen, S. (2010). The Global City: Introducing a Concept. In G. Bridge & S. Watson (Eds). *The Blackwell City Reader* (2th. ed., p. 126-132). Willy-Blackwell.
- Schmidt, A., Vlasenko, L. & Farbstein, E. (2023, 13. Jun). Scope 3 emissions, explained. *Normative*. Retrieved from: <https://normative.io/insight/scope-3-emissions/>
- UiO. (2021). C40 Cities. Retrieved from: <https://www.uio.no/om/samarbeid/samfunn-og-naringsliv/studentsamarbeid/vitenskapsbutikken/prosjekter/c40cities/>
- Van der Heijden, J., Patterson, J., Juhola, S. & Wolfram, M. (2019). Special section: advancing the role of cities in climate governance -promise, limits, politics. *Journal of Environmental Planning and Management*, 365-373. DOI: 10.1080/09640568.2018.1513832
- Vedeld, T., Hofstad, H., Solli, H. & Hanssen, G. S. (2021). Polycentric urban climate governance: Creating synergies between integrative and interactive governance in Oslo. *Environmental Policy and Governance*, 31(4), 347-360. DOI: 10.1002/eet.1935

UN. (2023, 15. July). 13 Climate Action. Retrieved from:
<https://www.un.org/sustainabledevelopment/climate-change/>

UNFCCC. (2015). Paris Agreement. Retrieved from:
https://unfccc.int/sites/default/files/english_paris_agreement.pdf

Watts, M. (2018, 21. March). From outstanding Oslo to the Norwegian normal. How Oslo's climate and energy strategy can inspire the boldest possible climate action worldwide. *C40*. Retrieved from: <https://www.c40.org/news/from-outstanding-oslo-to-the-norwegian-normal-mark-watts-c40/>

World Bank. (2023, 3. Apr). Urban Development. Retrieved from:
<https://www.worldbank.org/en/topic/urbandevelopment/overview>

Appendix

Appendix 1. List of key informants

	Organization	Date of interview
Informant 1	Oslo Municipality: Climate Agency [Klimaetaten]	08.03.2023
Informant 2	Oslo Municipality: Climate Agency [Klimaetaten]	29.03.2023
Informant 3	NIBR- Norwegian Institute for Urban and Regional Research.	11.04.2023
Informant 4	NIBR - Norwegian Institute for Urban and Regional Research.	13.04.2023
Informant 5	Oslo Municipality: International Office [Internasjonale Kontor]	05.06.2023
Informant 6	Oslo Municipality: International Office [Internasjonale Kontor]	12.06.2023

Appendix 2. List of documents for analysis

	By:	Title:
1	Oslo Municipality, 2009	Strategi for Oslo Kommunes internasjonale arbeid
2	Oslo Municipality, 2019a	Oslo kommunens oppfølging av FNs bærekraftsmål
3	Oslo Municipality, 2019b	Utslippsfri anleggsplass Bymiljøetatens erfaring med elektriske anleggsmaskiner i Olav Vs gate
4	Oslo Municipality, 2020a	Klimastrategi for Oslo mot 2030 [long version]
5	Oslo Municipality, 2022	Climate Budget 2022 Chapter 2, Oslo City Government's budget proposal 2022 with appendix
6	OsloRegionen, 2015	The Oslo Brand Management Strategy
7	Oslo Havn, 2023	Oslo som nullutslippshavn
8	Oslo Municipality, 2023c	Null utslippssone: Utredning og faglige anbefalinger til innføring av nullutslippssone i Oslo

Appendix 3. Information and consent form

Detta är en fråga till dig om att delta i ett forskningsprojekt vars ändamål är att undersöka om transnationella stadsnätverk påverkar stadsutvecklingen i Oslo. I detta avtal ger vi dig information om målen för projektet och vad deltagande innebär för dig.

Ändamål

Syftet med den här undersökningen är att undersöka om Oslos stadsutveckling och klimatstrategier påverkas av Oslos deltagande i transnationella stadsnätverk, som till exempel C40. Detta är en masteruppsats som skrivs under vårterminen 2023.

Vem är ansvarig för forskningsprojektet?

Fakultet för Landskap og samfunn vid Norges miljø- og biovitenskaplige Universitet (NMBU) är ansvariga för projektet.

Uppsatsen skrivs av Konrad Björk. Vägledare är Einar Braathen.

Varför får du frågan om att delta?

Du inviteras till att delta i denna undersökning då du har erfarenhet med det som ska undersökas, nämligen om transnationella stadsnätverk påverkar Oslos stadsutveckling och klimatstrategier. Det betyder att du är anställd/arbetar med Oslo stadsutveckling i någon grad och är rik på information som är relevant för ändamålet med undersökningen.

För att komma i kontakt med relevanta informanter som är intressanta för undersökningen har jag kontaktat Oslo kommune eller samarbetspartners, antingen att jag fick dina kontaktuppgifter direkt genom er hemsida, eller genom ett mellanled som er HR-avdelning, växel, kundservice eller genom kontakter till min vägledare.

Vad innebär det för dig att delta?

Om du väljer att delta i projektet, innebär det att du deltar i en strukturerad intervju. Den tar mellan 30 minuter och en timma att genomföra. Intervjun innehåller frågor om Oslos stadsutveckling, Oslos roll i transnationella stadsnätverk, samt Oslos stadsutveckling och klimatstrategier. Dina svar blir inspelade som ljudinspelning och anteckningar kommer också att tas under intervjun.

Det är frivilligt att delta

Det är frivilligt att delta i projektet. Om du väljer att delta, kan du när som helst dra tillbaka ditt samtycke utan att uppge någon grund. Alla dina personuppgifter vill då bli raderade. Det vill inte få några negativa konsekvenser för dig om du inte vill delta eller senare väljer att inte delta.

Ditt personvårn-Hur vi upp bevarar och använder dina uppgifter

Vi vill bara använda uppgifterna om dig för ändamålen vi har beskrivet om i detta avtal. Vi behandlar uppgifterna konfidentiellt och i beaktning med personvårnregelverket.

Den som vill ha tillgång till uppgifterna om dig är:

- Student: Konrad Björk

För att säkra att inga obehörig får tillgång till personuppgifterna vill jag lagra datamaterialet i en lösenordskyddad mapp på våra personliga datamaskiner, i följe med NMBUs riktlinjer för hantering av forskningsdata.

Deltagare i projektet vill inte bli igenkända i en publikation, då namnet vill bli anonymiserat, och det blir endast kategoriserat efter ansvaret eller positionen du har. Bara om du själv vill gå ut med namn och titel, så kan det avtalas under intervjun

Vad händer med dina uppgifter när vi avslutar forskningsprojektet?

Uppgifterna anonymiseras fortlöpandes under projektets, uppsatsen beräknas vara klar senast 27. Juni 2023. När projektet är avslutat/Uppsatserna är godkända vill alla personuppgifter, ljudupptagningar och anteckningar raderas. Enligt NMBUs datahanterings riktlinjer om forskningsdata är värdefull för forskningsmiljön och vidare forskning, vill information bli lagrad i minimum 10 år.

Dina rättigheter

Så länge du kan identifieras i datamaterialet, har du rätt till:

- Insyn i vilka personuppgifter som er registrerat om dig, och att få utleverat en kopia av uppgifterna.
- Rätt till att få rättat personuppgifter om dig.
- Rätt till att få raderat personuppgifter om dig,
- Rätt till att sända klaga till Datatilsynet om behandlingen av dina personuppgifter.

Vad ger oss rätt till att behandla dina personuppgifter?

Vi behandlar uppgifter om dig baserat på ditt samtykke.

På oppdrag av Landskap og samfunn vid Norges miljø- og biovitenskapelige universitet har NSD – (Norsk senter for forskningsdata AS) har tagits i beaktning att behandlingen av personuppgifter i det här projektet är samstämmigt med personvernregelverket.

Var kan du få reda på mer?

Om du har frågor till studien, eller ønsker att be nyttja dig av dina rettigheter, ta kontakt med:

- Landskap og samfunn - NMBU, studenten, Konrad Björk, +47 46 35 26 45, konrad.bjork@nmbu.no
- By og regionforskningsinstituttet NIBR - OsloMET, vägledare, Einar Braathen, +47 926 56 96, einar.braathen@oslomet.no
- Forskningsavdelning - NMBU, Jan Olav Aarflot, jan.olav.aarflot@nmbu.no

Om du har frågor angående NSD beaktning av projektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS på epost (personverntjenester@nsd.no) eller på telefon: +47 55 58 21 17.

Vänliga Hälsningar

Konrad Björk

Einar Braathen

(Student)

(Vägledare)

Samtyckeskontrakt

Jag har mottagit och förstått informationen om projektet ”*What effects do transnational city networks have on the urban development of Oslo, such as C40?*”, jag har fått anledning till att få ställa frågor.

Jag samtycker till:

- att delta i intervju

Jag samtycker till att mina upplysningar behandlas fram till projektet är avslutat.

(Signerat av projektdeltagare, datum)

Appendix 4. Interview guide

Introduction questions:

- Tell me about your background...
- How has your role evolved since you began here?
- What experiences have you had with inter-city collaborations?

International collaboration questions:

- Can you describe a situation where international engagement significantly impacted Oslo's climate initiatives?
- How do you see city networks shaping Oslo's climate policies and strategies?
- Share a story or example where Oslo's involvement in an international city network led to a breakthrough in its climate governance?
- How does Oslo's international profile influence its climate policies?
- In what ways does Oslo contribute to these international city networks in terms of knowledge and practices?
- How crucial is Oslo's participation in transnational city networks for its climate and governance objectives?

Climate leadership questions:

- How does Oslo balance immediate climate action needs with long-term sustainability goals in its leadership approach?
- Can you share an instance where Oslo's climate leadership influenced or inspired other cities to take decisive climate action?



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