Towards Environmental Justice: A Comparative Analysis of Climate Change Resilience Strategies in Cities of the Global South and Global North

Baronesse von Maydell, Louisa-Antonina Marie

"Towards Environmental Justice: A Comparative Analysis of Climate Change Resilience Strategies in Cities of the Global South and Global North"

BSc Political Science: International Relations & Organisations

Bachelor Thesis

International development

Name: Louisa-Antonina Baronesse von Maydell

Student number: s3182185

Supervisor: Dr. Cynthia Embido Bejeno

Date of submission: 24th May 2024

Word count: 7879

Reference: APA 6th edition

Publication statement: public

Abstract

In light of intensifying climate change, cities face the task of adapting to climate change impacts and mitigating climate change, as more than half of the world's population live in urban areas. Drafting climate resilience strategies, it is important to consider environmental justice to ensure that no one is left behind, and all citizens have the equal right and possibility to live in a just and sustainable way.

So far, research has barely considered the difference of how and whether cities in the Global North advance urban environmental justice, compared to the Global South. This global comparison is important as it enables mutual learning from cities that face the task of adapting to climate change impacts worldwide. This comparative research focuses on Jakarta in the Global South and Miami in the Global North, seeking to investigate how urban environmental justice is advanced in their climate resilience strategies.

Findings show that Miami's strategies pay significantly more attention to recognitional justice. On the other two justice dimensions - procedural and distributive justice - smaller differences were found. All in all, it can be said that Miami's strategies include more detailed and comprehensive accounts of environmental justice. These findings can be partly attributed to the unique characteristics of both cities, which is why it is difficult to generalize from these two cases to differences in regard to Global North/South.

Further research should look at more cases to be able to make a clearer statement about the differences of Global North/ Global South differentiation. Additionally, it could be investigated to what extent these climate resilience strategies are backed with action.

Table of contents

Introduction

According to the Intergovernmental Panel on Climate Change, greenhouse gas (GHG) emissions are likely to accumulate and "adverse impacts from human-caused climate change will continue to intensify" (IPCC, 2023, p. 7) in the following years. Projections show that by the years 2081-2100, average temperatures could increase by anywhere from 1.4°C to 4.4°C as compared to pre-industrial levels (IPCC, 2023). Different world regions will be affected differently, because climate resilience strategies (CRSs) in poorer countries often lack financing, marginalized groups are more prone to maladaptation, and there are increasing regional differences of climate change impacts (Dabaieh et al., 2021). Climate resilience encompasses the ability of communities to anticipate, respond to, and recover from climate change impacts and involves both adaptation and mitigation. Additionally, fast urbanization increases citizen's vulnerability to climate change effects, particularly in informal settlements prone to extreme weather events (Martinez et al., 2018). Despite these risks, people continue moving to and building in cities, which increases the urgency for developing just CRSs (Iacurci, 2024). Cities are among the largest emitters of GHG emissions, but also suffer from climate impacts, such as rising sea levels, decreasing precipitation and warming temperatures (Dabaieh et al., 2021; Kumar, 2021).

So far, the literature still lacks in comparing adaptation and mitigation strategies between urban areas in the Global South and North concerning environmental justice (EJ). Conducting a global comparison is important as it enables mutual learning regarding CRSs and the role of EJ. Throughout the research, Global South refers to countries that have little to no power in climate negotiations and are more often than not hit the hardest by climate change, while being less responsible for its causes than Global North countries. Further, the importance of analyzing CRSs stems from mitigation policies which also gain relevance in industrializing countries in the Global South, because of rising emissions and the imminent impact of climate change (Sharifi, 2021, p. 3).

In light of the current climate crisis and the insufficient preparedness of many cities for the consequences, it is important to ensure that CRSs are designed in a way which include and offer protection to all citizens. Hence, this research seeks to analyze how urban climate change adaptation and mitigation strategies in the Global South address urban EJ concerns, as compared

to in the Global North. Using qualitative content analysis (QCA), the study examines various CRSs through an urban EJ framework. This framework was developed combining the just transformations framework by Bennett et al (2019) with the energy justice index by Apergi et al. (2024). Focusing on Jakarta, Indonesia, and Miami, Florida, US, both being severely affected by climate change for different reasons, it aims at providing insights into the intersection of EJ and climate resilience by analyzing urban policy documents. Therefore, the following qualitative research question will be investigated: "To what extent do climate change resilience strategies in urban areas of the Global South advance urban EJ, as compared to those of the Global North?". After discussing theories of EJ, sustainable development and just sustainability and their relation to each other, the urban EJ framework will be developed. Then, the methodology will be presented, covering the process of case selection, operationalization, and data analysis, among others. Lastly, the empirical findings of QCA will be illustrated which is followed by a thorough analysis and answer to the research question.

Theoretical discussion and framework

To develop an urban EJ framework which can assess the extent to which climate resilience strategies advance EJ, it is necessary to contextualize and explain several concepts, including EJ, sustainable development, and just transitions, as well as to thoroughly explain what is meant by urban climate resilience. This will be done in the following, after which the urban EJ framework is illustrated.

Environmental justice

EJ is defined as "the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies." (Salem, 2019). It originates in the US, where the EJ movement in the 1980s highlighted unequal distributions of environmental goods and bads during that time, with racial and ethnic minorities being affected more severely than others by exposure to environmental bads (Mohai et al., 2009). It was also a response to environmental racism, which is defined as "race as the basis of decision to site hazardous facilities or to remediate environmental hazards" by Anguelovski and Martinez-Alier (2014, p. 169).

Through protests and social mobilization aimed at achieving more just outcomes, legal and policy changes were implemented (Heffron and McCauley, 2018). Since then, a large body of literature has emerged from this fight against inequality. Environmental injustice can be explained by socio-political exclusion, economic inequality, and racial discrimination. All these factors are further exacerbated by climate change and its impacts (Mohai et al., 2009, p. 425). Still, it is important to consider that the US was not the sole origin for EJ. Rather, "it stems from centuries of environmental degradation as a result of colonization and the oppression of communities of color worldwide" (Natarajan, 2021, p.42). In addition, the framework grew to include issues of gender, class, ethnicity and other intersectionalities (Natajaran, 2021). With the first accounts of EJ focusing on a movement at the local level, scholars were soon concerned with the global effects and causes of environmental (in)justice. With time, EJ has become a theory, as more and more scholars started researching topics concerning EJ from different perspectives, including geography, policymaking, and economics (Mohai et al., 2009). For example, the theory of ecologically unequal exchange, stems from global environmental injustice and states that the structure of today's international trade and other global political-economic factors "shape the unequal distribution of environmental harms and human development" (Givens et al., 2019, p. 1). Significant disparities stem from these structural relationships, in which the Global North has had greater access to natural resources and possibilities of development (p. 2). This inequality, combined with the disparity of climate resilience capabilities in the Global North as compared to the Global South, are the reasons this research focuses on a comparison about how and if strategies differ in regard to achieving EJ.

The prevalent subthemes in the literature are distributional justice, procedural fairness, and recognitional justice. Distributive justice refers to equity and fairness regarding access to natural resources and exposure to environmental harms (Natajaran, 2021). Procedural fairness calls for the equal participation in "political processes which create and manage environmental policy" (Schlosberg, 2004). It includes issues like the extent of local participation in decision-making, transparency of decision-making processes, and information disclosure to all affected parties and stakeholders. Lastly, recognitional justice refers to the recognition of the diversity of the participants and experiences in affected communities, and includes aspects like addressing the needs of the most vulnerable through policies, and recognizing underlying structural issues of injustice (Apergi et al., 2024, p. 4; Schlosberg, 2004).

Apergi et al. (2024, p. 3) define energy justice "as the fair distribution of the costs and benefits of the energy transition while ensuring equal participation in decision making and that the needs of marginalized groups are addressed". They apply an energy justice index, made of the above-mentioned forms of EJ (distributive, recognitional, and procedural), to four countries of the Global South, seeking to find out about the extent of integration of energy justice in these countries. The variables used in the index are further explained below. This is the first time energy justice has been quantified, as energy justice is a very young concept. But as a sub-category of EJ, energy justice is a concrete example of measuring the three main forms of justice. As urban areas take on the task of phasing out fossil fuels, new disparities based on energy access emerge and mitigation policies often focus on energy issues, which is why this energy justice index will be used for the development of an urban EJ framework (Heffron and McCauley, 2018).

Although other forms of justice, including restorative, social, or corrective justice exist, distributive, procedural, and recognitional justice are the main forms of justice found in the environmental and energy justice literature and will therefore be applied throughout this research (Natajaran, 2021; Schlosberg, 2004).

Sustainable development

It is furthermore important to mention sustainable development, because as Salem (2019) has argued, "no nation can achieve sustainable development if it lacks environmental justice" (Salem, 2019, p. 140), hence both concepts are intrinsically linked, and important for researching justice claims in CRS. Therefore, this review focuses on sustainable development and its evolution, as well as its connection to EJ, emphasizing just sustainability. First defined in the Brundtlandt commission in 1987 as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations, 2024), the concept has evolved to include various definitions of sustainable development. Bosschaert (2019), for example, criticized the Brundtlandt definition for describing a future scenario instead of a tangible concept of sustainability concerning the present. Therefore, his definition aims at contributing to a framework that is applicable to the present: "Sustainability is a state of a complex, dynamic system. In this state, a system can continue to flourish resiliently, in harmony, without requiring inputs

from outside its system boundaries." (Bosschaert, 2019, p. 49). But this definition can be criticized as too utopian, since "autonomous systems" can barely be found in today's interdependent world.

Agyeman et al. (2003) on the other hand focus on sustainability combining it with social justice and define just sustainability as "the need to ensure a better quality of life for all, now, and into the future, in a just and equitable manner, while living within the limits of the supporting ecosystems." (Agyeman et al., 2003, p. 7). This definition is the workable definition of sustainable development in this research paper, as it highlights the need to shed light on justice.

He further elaborates on just sustainability, highlighting the following three main arugments (Atapattu et al., 2021). First, countries characterized by greater income equality, more equal rights, and higher literacy rates tend to experience higher environmental quality (Atapattu et al., 2021, p. 9). Second, environmental bads tend to affect the poorest more severely, as they lack resources for adaptation, even though they are not among the main polluters. Finally, sustainability is not a mere environmental concern. Instead, wider questions of social welfare and economic opportunity need to be connected to environmental concerns to achieve a truly just community. These arguments illustrate how sustainable development, and EJ can be felt and experienced very differently between Global North and Global South. Especially the fact that the poorest are often hit the hardest (both globally and locally), underline the importance of researching how different cities advance urban EJ in their CRSs (Atapattu et al., 2021, p. 2).

Just transitions

To achieve a sustainable and just society, the term just transition (JT) arises. JTs are defined as "radical shifts in social–ecological system configurations through forced, emergent or deliberate processes that produce balanced and beneficial outcomes for both social justice and environmental sustainability." (Bennett et al., 2019, p. 5). As conceptualized by Bennett et al. (2019), JT includes the need to consider social justice in the transition process towards sustainability. More specifically, main EJ dimensions of distributive, recognitional and procedural justice are taken into account (see Fig. 1). The term JT originated in labor movements during the 1970s and 1980s in response to increasing liberal and capitalist turns unfolding in the US and brought together social and environmental concerns (Stevis et al., 2020, p. 9). Its contemporary meaning is shaped by a paradox. While the political discourse of JT is a narrow understanding, it exposes the gap between this narrow understanding and the complex reality of the most vulnerable "on the ground" (Stevis

et al., 2020, p.2). These vulnerable people are least responsible for climate change but are "made to pay the price for low-carbon transition or used/manipulated to justify climate inaction or low ambition" (Stevis et al., 2020, p.2). A transition that is just for all members of society does not leave anyone behind, and the importance of forwarding such a transition stems from the fact that particularly in the battle against climate change, it is crucial that no social group is falling behind.

Urban climate resilience

After having introduced the concepts and theories used for building the urban EJ framework, it is important to look at a more detailed picture of climate adaptation and mitigation and how they are included in urban strategies.

The term climate resilience encompasses two main themes. One concentrates on adapting to climate change, while the other one aims at mitigating climate change. More explicitly, climate change "adaptation means anticipating the adverse effects of climate change and taking appropriate action to prevent or minimize the damage they can cause" (European Environmental Agency, 2023). Examples include ecosystem restoration, climate resilient infrastructure (particularly in cities), or greening of urban landscapes (Rees, 2020). Climate change mitigation, on the other hand, "means making the impacts of climate change less severe by preventing or reducing the emission of greenhouse gasses (GHG) into the atmosphere." (European Environmental Agency, 2023). Examples for mitigation practices include efforts to decrease carbon emissions in sectors like housing, transportation, or waste management, as well as increasing the use of renewable energies and or enhancing energy efficiency. Often, adaptation and mitigation strategies go together and even reinforce each other (see Sharifi, 2021).

The study of cities and their capabilities to adapt to and mitigate climate change is important, as continuing urbanization has led to more than half of the world population living in cities (Martinez et al., 2018). Population growth and (climate-related) migration from rural to urban areas, especially in the Global South, are among the causes of continued urbanization (Climate diplomacy, n.d.). The population density felt in most global cities today makes them more prone to environmental externalities and climate change impacts (Sharifi, 2021). But impacts are felt unequally among populations, on a global as well as on a local scale, impacting the poorest the most (Mohai et al., 2009). Furthermore, cities are among the main carbon producers and

consumers in the world (Dabaieh et al., 2021). Hence, it is crucial to investigate if and how climate change mitigation and adaptation measures include EJ concerns and therefore reduce the above-mentioned effects, striving for a more equal and just community.

The importance of interaction between urban climate change mitigation and adaptation is highlighted by Sharifi (2021). He suggests that the interplay of mitigation and adaptation can lead to co-benefits and synergies. While co-benefits are described as "an additional positive adaptation (mitigation) effect that can be achieved from a planning and/or policy measure aimed at improving mitigation (adaptation)" (Sharifi, 2021, p. 3), synergies occur when the interaction of mitigation and adaptation together lead to greater benefits than either one would have provided separately. While there is still little knowledge about the interrelations of both mitigation and adaptation, the urgency to understand it is growing stronger, as mitigation policies are not only implemented in the Global North, but also gain higher relevance in industrializing countries in the Global South, due to rising emissions (p. 3). In a case study of Cairo, Egypt, conducted by Dabaieh et al. (2023), the focus was on the role of the state and private actors and their cooperation with each other in developing climate resilience strategies. Findings shed light on the lack of institutional structure and financial support, and cooperation among different actors, which in turn slowed down the process of developing climate resilience strategies (p. 96). Moreover, the lack of knowledge about climate change and its impacts and feeling of irresponsibility towards it make the city government of Cairo focus on economic development instead, without incorporating climate issues (p. 101). Therefore, the link between sustainable development, climate change risks, and the quality of life are often still ambiguous (p. 100). The authors suggest "selling" the problem of climate change through proposing concrete measures that let governmental institutions adopt climate change mitigation and adaptation measures (p. 101).

Urban environmental justice framework

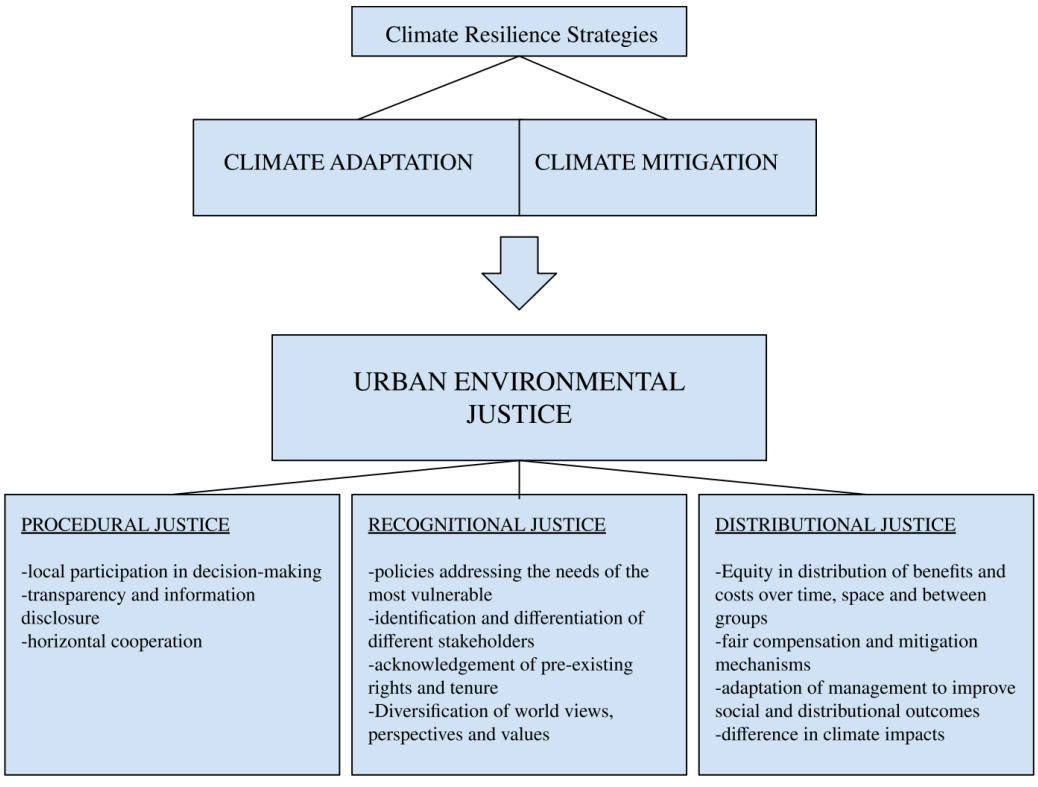
In the following, the theory of urban EJ will be introduced, which combines the JT concept by Bennett et al. (2019) with the energy justice index by Apergi et al. (2024). The importance of including energy justice lies in the fact that the energy factor is one of the largest ones affected by climate mitigation strategies and being central to strategies in the housing or the transport sector. Moreover, to achieve a more just future and make changes that are more accessible to all involved

actors, it is important to take a holistic approach of analysis, considering environmental and energy justice (Heffron and McCauley, 2018). As Heffron and McCauley (2018) have argued, “a just transition is a societal goal, and the three communities of EEC justice scholars need to think together and have as their common purpose a just transition.” (p. 76) They have further stressed that each justice dimension is relevant in a certain point of an analysis (p. 75). Traditionally, energy justice has become more important on a local level with decisions that have short-term effects, while EJ has been considered at national levels with medium-term effects. This is why this research combines theories from the energy and environmental justice field.

Inspired by the above-mentioned frameworks of JT by Bennett et al. (2019) and the energy justice index by Apergi et al. (2024), a theory of urban EJ has been developed. Combining aspects of both theories, the main forms of justice include procedural, recognitional and distributional justice. The theory is illustrated in a diagram below (Fig. 1).

Figure 1

Framework of urban environmental justice



Methodology

The following abstract introduces the methodology applied in this research. After presenting the research design and case selection, the collected data are illustrated and the urban EJ framework operationalized. Lastly, the methods of data analysis (QCA) are explained.

Research design

This comparative case study aims to compare CRSs and their effects on EJ in urban areas of the Global North to those in the Global South. It focuses on climate adaptation and climate mitigation strategies in Jakarta, Indonesia in the Global South and Miami, US, in the Global North. QCA will be used to analyze several documents to find out how and if these forms of justice are advanced.

In this research, MDSD will be used to investigate how EJ is advanced in different settings, comparing CRSs of Jakarta in the Global South to Miami in the Global North. MDSD is a research strategy in which units of research are as different as possible. The researcher's task is to try to test and validate a particular variable or finding among different system settings (Anckar, 2008, p. 390). Here, this will be done through a deductive approach, using theories of urban EJ (described above) to examine urban climate policies in two different cities.

The strength of a comparative case study is that it is more generalizable than a case study, while also allowing for a detailed in-depth analysis of both cases (Halperin & Heath, 2020, p. 238). While a case study might have unique elements which decrease the validity of generalizations to other contexts, comparisons between cases help to clarify these ambiguities, therefore increasing external validity (Knight, 2001).

Case selection

This comparative case study aims to investigate CRSs of Jakarta, Indonesia to Miami, US, under the theoretical lens of EJ. These cases fit MDSD as they are very different cities in terms of size and number of inhabitants, climate, and other economic characteristics. Both cities are highly vulnerable to climate change impacts though, which are expected to worsen in the following years, and face significant challenges in terms of climate adaptation and mitigation. Both cities are built

with large amounts of land below sea level, which means that they will be affected by rising sea levels (Owen-Burge, 2022; Irfan, 2023).

Jakarta is a city with about 10.8 million inhabitants living in an area of 6590 square kilometers, while Miami has about 443 683 inhabitants in an area of about 143 square kilometers, as of 2023 (C40 Cities, 2024a; C40 Cities, 2024b). Jakarta's GDP per capita is $18 761.86, while Miami has a GDP per capita of $49 293, as of 2022 (Open data network, n.d.; Statista.com, 2024a). Jakarta's unemployment rate is 7.57% as of February 2023, as compared to Miami with an unemployment rate of 1.9%, as of 2024 (Statista, 2024b; YCharts, 2024).

While both cities are in different climate zones, they are both in coastal areas, and therefore frequently affected by floods and storms, which are likely to intensify in the following years. Jakarta is located in a river delta and has been affected by floods and storms for more than a decade. In 2010, it was already clear that climate change poses a significant risk to Jakarta and that those risks "will continue to grow into the next century, even if a dramatic reduction in greenhouse gas emissions is achieved" (Fuchs, 2010, p. 2). The continued illegal extraction of groundwater in Jakarta has caused subsidence, with parts of the city sinking four meters over the last 20 years (Owen-Burge, 2022). Miami is also very prone to floods, which is exacerbated by rising sea levels. As scientists at the University of Miami have warned, by 2060, almost 60% of Miami-Dade County will be flooded (Dyer, 2022). This does not stop people from moving and building there, though, and the continued growth of the city makes climate resilience strategies crucial (Iacurci, 2024).

Hence, the fact that these two cities differ in various characteristics, but are both prone to climate change impacts, especially regarding rising sea levels, make them suitable cases for a comparative case study using MDSD.

Data collection and operationalization

Coded data will include official documents such as NGO and government reports, policy briefs, and event briefs. Moreover, the analysis will be supported by academic literature. This type of data collection ensures the analysis of a broad variety of sources increasing legitimacy, allowing the researcher to thoroughly understand the role of EJ in climate change adaptation and mitigation strategies in Jakarta and Miami. The population of texts have been chosen in regard to relevance,

with all documents including strategies regarding either climate change adaptation or mitigation. Some of the chosen texts have been fully coded, while others have only partially been analyzed, focusing on the parts of the documents that mention CRSs (see Appendix C).

The theory of urban EJ introduced above will be used and operationalized to analyze the documents. Categories include procedural justice, recognitional justice, and distributive justice, while variables used to create a coding frame are illustrated in Figure 1. Table 1 below shows a sample of operationalizing the urban EJ framework and its application to analyzed documents. A more extensive codebook with additional variables is provided in Appendix A.

Table 1

Operationalization of the urban environmental justice framework

Category	Operationalization	Description	Example
Procedural justice	Transparency and information disclosure	Are strategies transparent and understandable to citizens?	"The recordings of the meetings were sent to all who registered so people could watch at a later date if they were not able to attend or wanted to review the discussion" (Miami-Dade County, 2021).
	Local participation in decision-making	To what degree are local citizens involved in the decision-making process regarding climate resilience strategies?	"In response to frequent flooding and its cascading impacts on the area's informal dwellers, public agencies and civil society organizations have come together with local residents to identify solutions" (UNRISD, 2019).
Recognitional justice	Policies addressing the needs of the most vulnerable	Do strategies particularly mention how they are going to handle those citizens that are most affected by climate change?	"Our investments need to protect residents from future climate conditions, prioritize critical and highly vulnerable areas and people, and help reduce greenhouse gas emissions" (The city of Miami, 2020).
	Identification and differentiation of different stakeholders	How are different actors and their influence on the strategies considered?	"major challenge identified is the lack of mechanisms to generate synergies and collaboration among the variety of different stakeholders" (Asvita et al., 2019).
Distributional justice	Equity in the distribution of benefits and costs of policies	Who is more likely to be affected by the costs and benefits of climate policies, respectively?	"Large-scale elevating on fill can have cumulative effect of exacerbating flooding elsewhere if not done correctly" (Miami Dade County, 2024).

Methods of data analysis

QCA is an unobtrusive form of data collection, which allows for thick description and the systematic analysis of a set of data (Halperin & Heath, 2020). As compared to other qualitative methods (i.e. interviews and participant observation), its main advantage is that it reduces bias, and allows for the study of a larger set of sources in a certain amount of time (p. 274). Moreover, it is a useful method for the analysis of latent content, such as meanings, motives and purposes in a text and allows for the investigation of hidden meanings and is therefore particularly suitable for the analysis of EJ (p. 376). Still, it is important to keep in mind that QCA is subject to human error, and therefore there is always a chance of imprecise findings or subjective interpretation.

The research takes a combination approach of deductive and inductive research, using a sentence or small paragraph as the recording unit. This allows for detailed contextualization and comprehensive analysis. All results of the coding process can be found in Appendix B. While the coding process started off using the urban EJ theory illustrated above, two new codes have arisen using data-driven research. This combination ensures that no important data is being lost. Throughout the process of coding, two new codes have occurred. Under distributional justice, "difference in climate impacts" was added, focusing on the acknowledgement and description of how climate impacts differ within a city. For procedural justice, "horizontal cooperation" was added. While horizontal cooperation overlaps with local participation to some extent, it focuses more on the actual cooperation between local and communal actors, as opposed to the participation of local individuals.

Quality assurance

It is further important to consider aspects of reliability, validity, and credibility. The study's reliability will be addressed through the consistent use of a coding frame. The coding of a variety of documents from different sources ensures credibility. External validity is guaranteed as a comparative case study allows for wider generalizability, as compared to a single case study (Knight, 2001). Because growing impacts of climate change affect all parts of the world, especially cities, inferences can be drawn from this research to other cities that are already, or likely to be affected by climate change in the future.

The chosen documents cover a timeframe from the years 2019 to 2024. This timeframe was chosen because of the urgent and fast-paced nature of climate change and ways to adapt to and mitigate it. It covers the most up to date developments in both Jakarta and Miami in regard to climate resilience strategies and the role of EJ.

Empirical Findings

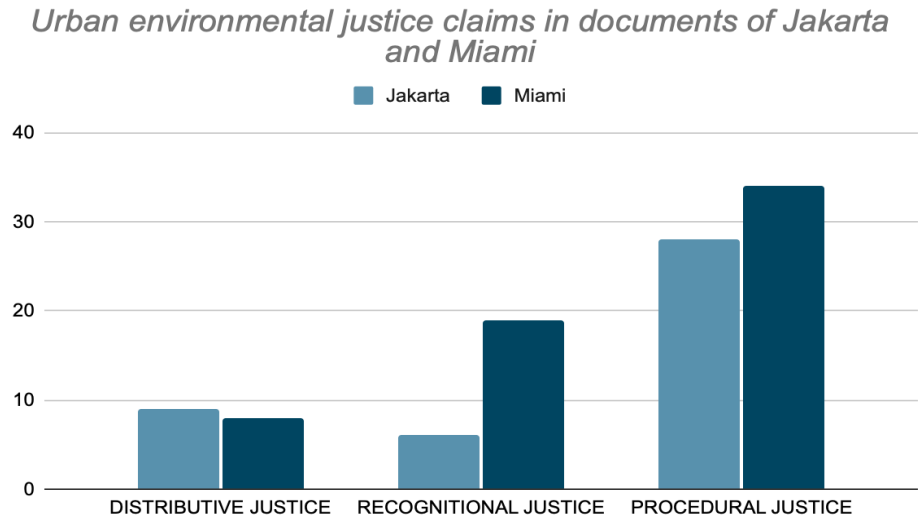
In the following, findings of this research presented. After covering the findings for distributive, procedural and recognitional justice for both Jakarta and Miami, both cases will be discussed and compared to each other.

In general, it can be said that findings about EJ, as illustrated above, were rather scarce. For distributive justice, 9 codes were found for Jakarta and 8 for Miami (see Fig. 2). Regarding recognitional justice, 6 codes were found for Jakarta, while 19 were found for Miami, which shows the biggest difference between both cases. Procedural justice claims were found more extensively, with 28 codes for Jakarta, and 34 for Miami.

The presentation of findings is structured according to the three forms of EJ. For each variable (see Table 1 and Appendix 1), findings for both cities are illustrated.

Figure 2

Urban environmental justice claims in documents of Jakarta and Miami



Distributive justice

The documents briefly discussed Jakarta's equity in the distribution of benefits and costs of policies. In a policy brief which focused on infrastructural solutions for the issue of increasing floods, an example was the building of sea walls. As a disadvantage, it mentioned how socio-economic impacts might affect those living in coastal areas and depending on "coastal resources, for example, fishing industries" (Kusumanto et al., 2022, p. 33). Another example shows how in the transportation sector, the development of transportation hubs and updating the payment system has made it more accessible to many users, mainly because of affordability reasons (+Jakarta, 2021, p. 13).

Similarly, in Miami's strategic plans, there is a lack of evidence indicating equal distributions of costs and benefits of policies. However, one example does acknowledge the potential costs that could be arising from the proposed policy. An adaptation strategy introduced by Miami-Dade County, which focuses on adapting to rising sea levels, includes building new infrastructure and buildings on fill (elevated landscapes), raising existing roads and buildings over time, and building seawalls. While this strategy protects the city from storm surges and floods, if not done correctly, there might be "cumulative effects of exacerbating flooding elsewhere" (Miami Dade County, 2024, p. 30). Moreover, nearby areas might be affected by "construction disruption" (p. 32) which decreases the quality of life in some areas, as money and time need to be invested in building artificial fill. It may also require the removal of trees or other plants (p. 32). While this is not exemplary for all of Miami's climate resilience strategies, it nevertheless shows that there is a degree of acknowledgement about the unequal costs of the proposed planning efforts.

For adaptation of management to improve social and distributional outcomes, there were no findings about adaptations in Miami's documents, but several examples were found in Jakarta's climate strategies. The "Marunda Urban Resilience Consortium" (United Nations Research Institute for Social Development [UNRISD], 2019, p. 2) is a platform, where different local actors collaborate and try to identify solutions for the exposure of flooding and its impacts for their community. This form of adaptation of management has resulted in "sustainable improvements in the livelihood and resilience of this highly exposed community" (p.2).

Lastly, differences in climate impacts are represented in documents of both Jakarta and Miami. In documents of Jakarta, acknowledgments about the bad influence of traffic congestion,

accordingly high exposure levels to air pollution, and their particularly bad effect on children and older people were found (C40 Cities, 2020, p. 2). Documents of Miami also mention differences, e.g. impacts of natural phenomena and the connected risks for Miami's citizens. Moreover, "extreme heat and humidity are particularly dangerous for infants and young children, elderly adults, low-income individuals, and outdoor workers" (The city of Miami, 2020, p. 3). Miami's Climate action strategy articulates the need to integrate considerations of heat exposures into urban land planning and transportation policies (Miami-Dade County, 2021).

Recognitional justice

The acknowledgement of pre-existing rights, as part of recognitional justice, was found significantly more in strategies of Miami, as compared to Jakarta. While there have not been any findings about acknowledging pre-existing rights in Jakarta, it has been referenced in numerous documents from Miami. Issues like structural racism and other inequalities, like the affordability of solar energy, were addressed. "The impacts that historic and structural racism have had" (Miami-Dade County, 2021, p. 8) were acknowledged and commitments to achieving more just outcomes were made. Acting upon this, plans to "examine power dynamics and biases in ourselves and the government systems" (p. 8) and steps to address them were introduced, without mentioning any specific plans. Further, it was shown that 46% of survey respondents are restricted to install solar panels because of prices (p. 7). The high costs for energy and other utilities are mainly a burden for persons with lower incomes, elderly or disabled people, or other nationalities (p. 21). Miami's Climate Action Strategy also includes promises of providing the community with information and "addressing cost barriers to adopting new technologies" (p. 8).

Further, there have been no mentions of diversification of world views, perspectives, and values in documents of Jakarta. For Miami, the Climate Action Strategy of Miami-Dade County (2021) has shed light on including non-Western perspectives in looking for climate solutions. One of the articulated goals includes the elevation of "the voices and stories from the diverse range of communities" (p. 8) within the county, especially focusing on those that have historically experienced discrimination, mainly Black, Hispanic, and Indigenous communities. At the same time, a survey conducted by the government did not reflect the full range of diversity among

Miami's citizens. Instead, respondents "tended to be wealthier and older, with Black and Hispanic communities under-represented in the poll results" (p. 9).

Regarding policies addressing the needs of the most vulnerable, there are differences in the documents of Miami, as compared to Jakarta. In Miami's documents, one policy addressing the most vulnerable was found, but in Jakarta no mentions of specifically addressing the most vulnerable were seen. Instead, in a document introducing best practices of climate resilience from Jakarta, one example was the development of mass transportation for Jakarta's citizens, to move away from private vehicle usage and overcome the problem of air pollution. But while "the use of public transportation is campaigned as an urban lifestyle" (+Jakarta, 2021, p. 9), there were no mentions of pricing and affordability for households with lower income.

Looking at Miami's documents, one can see an example of a concrete policy addressing the most vulnerable. The "weatherization assistance program" (Miami-Dade County, 2021, p. 26) aims at assisting low-income homeowners with making their houses more energy-efficient, and hence lowering the prices. Poorer households tend to live in less energy-efficient houses, which leads to an "energy burden" (p. 26), where they have to spend more on energy than is the norm in wealthier households. In another document, focusing on building resilient infrastructure, it was acknowledged that investment must "protect residents" and "prioritize critical and highly vulnerable areas and people" (The city of Miami, 2020, p. 21).

Lastly, concerning the identification and differentiation of different stakeholders, documents from Jakarta and Miami contained similar findings. Regarding Jakarta, there are findings about collaboration among different stakeholders in some documents, and accounts of "lack of collaboration between and among stakeholders in government, businesses and community" (Asvita et al., 2019, p. 2) in others. Miami's strategies also suggest a collaboration among different stakeholders to identify climate challenges and come up with suitable responses, as well as acknowledgements that partnering with all kinds of stakeholders brings benefits for decision-making (The city of Miami, 2020; Miami-Dade County, 2021).

Procedural justice

In terms of local participation in decision-making, there have been extensive findings from both Jakarta and Miami. The documentation from Jakarta suggests that the local government, DKI Jakarta, has a lot of decision-making power regarding planning and implementation of climate strategies, while the role of citizens and local businesses remains limited. While in some documents, recommendations for strengthened local collaboration were evident, others included accounts of local collaboration and participation in decision-making. After floods that have heavily impacted an area with informal housing, public agencies, together with civil society organizations, "have come together with local residents to identify solutions" (UNRISD, 2019, p. 2). Other projects that incorporated local participation include community-based waste management, a competition for designing bicycle lanes, a public participation of park design, and a website that "solicits pledges and commitments from Jakarta's citizens" (+Jakarta, 2021 p. 7) in achieving climate targets.

Miami's strategies also highlight the involvement of non-profit partners and residents. Moreover, action by municipalities and the need to "secure and accelerate ambitious public and private investment" are noted. Examples of further local participation include the "Community Emergency Response Team's" (The city of Miami, 2020, p. 14) education of volunteers about disaster responsiveness, community workshops aiming at gathering insides from residents, as well as initiatives that have been recommended by local residents.

Regarding transparency and information disclosure, which partly overlaps with local participation, there were generally more findings from Miami documents, although findings from Jakarta's documents also give valuable insights. While considerable data limitations to produce efficient policies were criticized, there were also some positive accounts of information sharing. These include information sharing examples such as increasing the awareness of citizens about waste management, introducing a "safe cycling guidebook" (+Jakarta, 2021 p. 10), or expanding monitoring and evaluation of climate impacts in Jakarta. Moreover, as indicated above, other initiatives include local residents, e.g. the "energy ambassador training for students" (p. 7).

Miami's documents indicate a large amount of information-sharing, either already happening or set as a goal. Still, in a survey residents responded that the biggest barriers to reducing water and waste were the lack of information. Hence, there are several initiatives aiming at

information sharing. Programs help residents with learning about "energy monitoring" (Miami-Dade County, 2021, p. 25), provide city staff with information about climate impacts, and ensure "easy access to accurate and up-to-date information" (The city of Miami, 2020, p. 15). To exemplify, "resilience hubs" (p. 16) are facilities aiming at supporting residents, facilitating communication and distributing resources, particularly before and after disaster events. Lastly, Miami seeks to utilize community feedback and integrate their knowledge into programming and development of climate strategies (p. 13).

Horizontal cooperation combines local participation with transparency and information sharing, as it specifically includes different stakeholders at the same policy level working together. The documentation from Jakarta suggests that missing cooperation and consultation across agencies and sectors has led to misarrangements between stakeholders, "causing political tension" (UNRISD, 2019, p. 2). Still, there are examples of horizontal cooperation between organizations and government agencies, focusing on risk management and sustainable development. Further, there are recommendations of strengthening collaboration between "academics, businesses, community [...], government [...], and mass media" (Kusumanto et al., 2022, p. 31).

Analyzing Miami's strategies, one can see that there are many instances of horizontal cooperation. The advancement of resilience strategies is supported by collaboration among different actors, such as Miami's neighboring municipalities and governments, businesses, (academic) institutions, community members, utility providers and non-profit organizations, among others. While there were notions of collaboration already in place, some recommended a stronger collaboration among various stakeholders.

In addition, it has been found that Jakarta lacks social protection as well as "institutional and technical capacity [which have] hindered transformative adaptation" (UNRISD, 2019, p. 2), meaning that the progress of developing climate adaptation strategies has been impacted by the lack of institutional capacity. Miami's strategies seemed to not have suffered from this problem of institutional capacity, as there were no accounts of such in Miami's documents.

Analysis

All in all, while justice issues are prevalent in both cities, Miami's CRSs are more comprehensive and detailed in acknowledging different forms of justice, especially recognitional justice.

Regarding distributive justice, although the findings were scarce, Jakarta lacks concrete mentions about equal distributions of costs and benefits of policies but shows examples of management adaptation which has led to sustainable improvements. Miami's documents acknowledge the possibilities of unequal costs and benefits of certain policies, address problems of affordability, and suggest policies that reduce disparities, but findings there is room for improvement in terms of taking into account the equity of cost and benefit distributions of various policies.

In terms of recognitional justice, it became clear that Miami's documents have demonstrated higher acknowledgement of pre-existing rights, and diversification of world views and values, and works to address structural inequalities, while Jakarta has not addressed these issues.

With regard to procedural justice, local participation is a valuable part of decision-making in both cities. In Jakarta, collaboration between different stakeholders and transparency can be improved, while Miami's documents highlight a higher extent of transparency and information sharing, as well as collaboration among various actors.

To explain these findings, one must take into account some contextual factors. Recent history of climate change impacts in Jakarta shows that the city had to fight the consequences of climate change earlier than Miami, especially rising sea levels and higher frequencies of floods and storms (Padawangi, 2012; Fuchs, 2010). It has been a member of C40, which is a "global network of mayors of the world's leading cities that are united in action to confront the climate crisis" (C40 Cities, 2024c), since 2006, while Miami only joined in 2020. This earlier realization of needing to adapt to climate change impacts in Jakarta might explain its findings regarding EJ. While it was expected that EJ issues are scarcely represented in Jakarta's documents as compared to Miami, strategies have, as illustrated above, paid enhanced attention to different forms of EJ.

It is further important to regard spatial (in)equalities within cities. None of the documents have included a differentiation among physical spaces which are differently affected by climate

change, and findings about policies addressing the most vulnerable were scarce (one policy in Miami, none in Jakarta). But as Padawangi (2012) has argued, it is particularly important to take into consideration spatial inequalities in Jakarta. Northern Jakarta is more severely affected by rising sea levels because of its proximity to the coastline and the fact that Jakarta is located at a river delta, and the average of Northern Jakarta is much poorer than the rest of Jakarta (p. 323). Therefore, it is crucial that climate policy planning prevents top-down approaches which tend to "produce, reproduce, or reaffirm unjust urban geographies in the name of climate change adaptation." (Padawangi, 2012, p. 321). The lack of differentiation among neighborhoods can be criticized in both cities' strategies and shows room for improvement.

At the same time, the biggest difference between the cities was that Miami has paid a lot of attention to recognitional justice, mainly regarding the recognition of underlying structures of inequality, as well as the inclusion of non-mainstream voices and policies addressing the most vulnerable. The "weatherization assistance program" (Miami-Dade County, 2021, p. 26) of Miami, described above, focuses on helping homeowners financially. Hence, if you rent a house, you are not eligible, and you also have to hold US citizenship (Miamidade.gov, 2024). This might particularly form an issue for the large number of immigrants in Miami, who tend to be more affected by climate change impacts.

Moreover, Miami is a highly ethnically diverse city, with a rate of 58% of citizens being immigrants, who tend to have lower household incomes (Asante-Muhammad, n.d., p. 5). These foreign-born citizens tend to have lower incomes than those that are native-born. Due to these circumstances, the findings illustrate that Miami pays more attention to underlying structural inequalities than Jakarta. The increased acknowledgement of recognitional justice in Miami's documents can be connected to the city's greater diversity and the need to address problems experienced by minorities, especially regarding EJ.

This is particularly evident when looking at the effects of floods and storms on citizens. Scholars have shown that "neighborhoods with greater percentages of non-Hispanic Blacks, Hispanics, and Hispanic subgroups of Colombians and Puerto Ricans are exposed to inland flood risks in areas without water-related amenities, while Mexicans are inequitably exposed to coastal flood risks." (Montgomery & Chakraborty, 2015). The flood risks are not only near the coast, but also inland. This risk is exacerbated by building landfills as forms of flood prevention or adaptation to rising sea levels, as well as the continued building of roads and buildings increase the likelihood

of flooding in inland areas, which are prone to affect ethnic minorities, who are often also less wealthy (Asante-Muhammad, n.d.).

Another factor, although only mentioned briefly in Jakarta's documents, is the lack of institutional capacity which was criticized in Jakarta. This issue was not seen in Miami's strategies. But as mentioned in the theoretical discussion, in a case study about Cairo, it was also found that there was a lack of institutional capacity, combined with a general lack of knowledge and understanding of climate issues and the need to adapt and mitigate (Dabaieh et al., 2021). This contributes to the findings of Dabaieh et al. (2021) that institutional capacity as well as thorough understanding and knowledge about climate resilience are weaker in cities of the Global South than the Global North.

When looking at the findings, the first impression shows that Miami is ahead in terms of EJ matters. Looking more closely, Miami has much to improve though, and Jakarta has more EJ considerations than expected. Therefore, one must look deeper than the mere Global South/ Global North differentiation to understand climate resilience policies by different cities and the problems they have to tackle. Having said this, this research has tried to analyze different documents from a theoretical angle that is quite broad and encompasses very different issues. Therefore, the conclusion for this research is complex and must regard different factors in order to increase validity.

Although it was expected that EJ issues are less advanced in Jakarta's documents, as a city of the Global South, findings show that recognitional justice was much more prevalent in Miami's documents, but regarding procedural and distributive justice, documents from both cities have considered EJ more or less equally. This means that Jakarta promotes more various forms of EJ than expected, if not as much as Miami. Therefore, it can be said that the expectation that Jakarta as a city of the Global South advances EJ less than Miami, has not fully been met.

Conclusion

To conclude, this research highlights that although Miami seems to be advancing EJ more thoroughly in its climate resilience strategies, Jakarta also establishes significant, if less comprehensive applications of EJ. Findings demonstrate that Miami puts stronger emphasis on

recognitional justice, addressing structural inequalities and paying attention to a diverse range of voices in policy-making. This can partly be attributed to Miami's greater ethnic diversity and the need to address minority issues in policy-making. Jakarta, albeit being a city in the Global South, shows a worthy level of attention to procedural justice through successful collaboration among various stakeholders and local participation in decision-making. However, it misses out on recognitional justice compared to Miami. In both cities, the scarcity of addressing distributive justice advocates room for improvement to ensure equitable outcomes of CRSs and their costs and benefits. Finally, this research finds that although Miami's strategies are more detailed and include various recognitional justice aspects, Jakarta's efforts of advancing EJ are more substantial than expected, challenging the simplistic Global North/South divide and according assumptions. Both Miami and Jakarta have unique contexts shaping the ways in which they work on their climate resilience strategies. This underlines the importance of tailoring CRSs to include specific needs of citizens, as well as local inequalities and other circumstances. This nuanced understanding is essential for generating just CRSs worldwide. Therefore, it is impossible to generalize from these two cases to the Global North/South. Further research is needed with a larger number of cases to make clear differentiations of the advancement of EJ in the Global North vs Global South

The comparative case study design applied in this research allows for in-depth analysis in Jakarta and Miami, and at the same time increases external validity. Hence, the findings can be applied to cities in the Global North, as well as the Global South, which are tasked with developing just climate resilience strategies considering intensifying climate change impacts. Still, one must consider the following limitations to this research. Regarding data collection, several documents have been analyzed for both cases (see Appendix C). But while documents of Miami were all taken from the government, Jakarta's sources were taken from NGOs and the government. Non-government actors tend to be more critical, which is why one must take this fact into account when looking at the findings. Further, the scope of this thesis only allowed for the analysis of a representative sample of documents from both cities. Hence, it was difficult to conduct research

that is completely representative for all of Jakarta's and Miami's climate strategies, but further research can try to tackle this issue by using a larger number of documents. Finally, the broad range of different climate resilience strategies, such as adaptation to rising sea levels and building more secure infrastructure, or promoting renewable energy for citizens, makes it a very complex research field. While it could be argued that further research should investigate one of these strategies and their relation to EJ more specifically, here, the active choice was made to investigate various climate resilience strategies. Because, EJ needs to be incorporated in all aspects of climate resilience to prevent parts of society from being left behind. This task is complex, but nevertheless doable, and this research has shed light on how different cities have advanced various forms of EJ. Further research could also tap into the action that follows the climate strategies proposed. Because, while it is remarkable that strategies include all kinds of EJ, as shown in the findings, it is important to see whether these plans are also backed up with action.

REFERENCE LIST

Agyeman, J., Bullard, R. D., & Evans, B. (2003). *Just Sustainabilities: Development in an Unequal World.* Boston, MA: MIT Press

Anckar, C. (2008). On the applicability of he most similar system design and the most different system design in comparative research. *International Journal of Social Research Methodology 11* (5), 389-401. Doi: 10.1080/13645570701401552

Anguelovski, I., Martínez Alier, J. (2014). The "Environmentalism of the Poor" revisited: territory and place in disconnected glocal struggles. *Ecological Economics 102* (2014), 167-176. Doi: http://dx.doi.org/10.1016/j.ecolecon.2014.04.005

Apergi, M., Eicke, L., Goldthau, A., Hashem, M., Huneeus, S., Lima de Oliveira, R., Otieno, M., Schuch, E., & Veit, K. (2024). An energy justice index for the energy transition in the Global South. *Renewable and sustainable energy reviews, 192* (2024), 1-14. Doi: https://doi.org/10.1016/j.rser.2023.114238

Asante-Muhammad, D. (n.d.). *The racial wealth divide in Miami: Optimized for screen readers.* Retrieved from https://prosperitynow.org/files/resources/Racial_Wealth_Divide_in_Miami_OptimizedforScreenReaders.pdf

Asvita, H. T., Daryoni, S., Karina, G., & Dedicatoria, R. M. (2019, January). *Jakarta: Assessment of existing climate policies.* Retrieved from https://acp.iclei.org/wp-content/uploads/2022/02/Indonesia-policy-brief.pdf

Atapattu, S.A., Gonzalez, C.G., Seck, S.L. (2021). Intersections of environmental justice and sustainable development: framing the issue. In Atapattu, S.A., Gonzalez, C.G., Seck, S.L. (Eds.), *The Cambridge handbook of environmental justice and sustainable development.* (pp. 1-19). Cambridge, UK: Cambridge University Press.

Bennett, N.J., Blythe, J., Cisneros-Montemayor, A.M., Singh, G.G., & Sumaila, U.R. (2019). Just transformations to sustainability. *Sustainability 2019* (11), 1-18. Doi: 10.3390/su11143881

Bosschaert, T. (2019). *Symbiosis in development, making new futures possible.* pp. 5-77

Climate diplomacy. (n.d.). *Migration and cities.* Retrieved from https://climate-diplomacy.org/migration-and-cities

C40 Cities. (2020). *Benefits of urban climate action: C40 Technical assistance report 2020:*

Jakarta -Electric buses. Retrieved from https://www.c40.org/wp-content/uploads/2022/02/Jakarta

C40 Cities (2024a) *Jakarta, Indonesia.* Retrieved from https://www.c40.org/cities/jakarta/

C40 Cities (2024b). *Miami, United States*. Retrieved from https://www.c40.org/cities/miami/

C40 Cities (2024c). *Homepage*. Retrieved from https://www.c40.org

Dabaieh, M., Maguid, D., Abodeeb, R., & El Mahdy, D. (2021). The practice and politics of urban climate change mitigation and adaptation efforts: the case of Cairo. *Urban Forum 33* (83), 83-106. Doi: https://doi.org/10.1007/s12132-021-09444-6

Dyer, A. (2022). Scientists warn South Florida coastal cities will be affected by sea level rise. *CBS News Miami.* Retrieved from https://www.cbsnews.com/miami/news/scientists-warn-south-florida-coastal-cities-will-be-affected-by-sea-level-rise/

Encyclopaedia Britannica. (2024). *What type of climate does Jakarta have?* Retrieved from https://www.britannica.com/question/

European Environment Agency. (2023, October). *What is the difference between adaptation and mitigation?* Retrieved from https://www.eea.europa.eu/en/about/contact-us/faqs/what-is-the-difference-between-adaptation-and-mitigation

Fuchs, R. J. (2010). Cities at risk: Asia's coastal cities in an age of climate change. *Asia Pacific Issues 96,* 1-12. Retrieved from https://scholarspace.manoa.hawaii.edu/server/api/core/bitstreams/6991a3d5-adcb-4ad3-9347-12970bc54f62/content

Givens, J.E., Huang, X., & Jorgenson, A.K. (2009). Ecologically unequal exchange: a theory of global environmental injustice. *Sociology compass 2019* (13), 1-15. Doi: 10.1111/soc4.12693

Halperin, S., & Heath, O. (2020). *Political research: Methods and practical skills*. Oxford University Press.

Heffron, R. J. & McCauley, D. (2018). What is the "just transition"?. *Geoforum 88* (2018). 74-77. Doi: https://doi.org/10.1016/j.geoforum.2017.11.016

Iacurci, G. (2024). Miami is 'ground zero' for climate risk. People are moving to the area and building there anyway. *CNBC.* Retrieved from https://www.cnbc.com/2024/04/26/miami-is-ground-zero-for-climate-risk-people-move-there-build-there-anyway.html

Irfan, U. (2023, September). The ocean is rising - and so is Miami's skyline: The city wants to build its way out of climate change. Is that smart? *Vox.* Retrieved from https://www.vox.com/climate/23872640/coastal-climate-ocean-rising-miami-florida-building

IPCC. (2023). *Climate change 2023 Synthesis report: Summary for policymakers.* Retrieved from https://www.ipcc.ch/report/ar6/syr/

Knight, C. G. (2001). Human-environment relationship: comparative case studies. *International encyclopedia of the social and behavioral sciences*, 7039-7045. Doi: 10.1016/B0-08-043076-7/04195-4

Kumar, P. (2021). Climate change and cities: challenges ahead. *Frontiers in sustainable cities, 3*(645613), 1-8. Doi: 10.3389/frsc.2021.645613

Kusumanto, T.Y., Triyanti, A., & Tjiook, W. (2022, October). *Dealing with greater Jakarta floods in times of climate change.* Retrieved from https://www.uu.nl/sites/default/files/Dealing%20with%20Greater%20Jakarta%20floods%20in%20times%20of%20climate%20change.pdf

Mafira, T., Larasati, L., Mecca, B., Haesra, A., & Meatlle, C. (2021, November). *Assessing Jakarta's climate investments.* Retrieved from https://www.climatepolicyinitiative.org/p*f*blication/assessing-jakartas-climate-investments/

Martinez, C. I., Pina, W. H., & Moreno, S. F. (2018). Prevention, mitigation and adaptation to climate change from perspectives of urban population in an emerging economy. *Journal of Cleaner Production, 178* (2018), 314–324. Doi: https://doi.org/10.1016/j.jclepro.2017.12.246

Miami Dade County (2024). *Sea level rise strategy.* Retrieved from https://miami-dade-county-sea-level-rise-strategy-draft-mdc.hub.arcgis.com/

Miamidade.gov (2024). *Weatherization assistance program.* Retrieved from https://www.miamidade.gov/global/service.page?Mduid_service=ser1541190292258414#:~:text=The%20Weatherization%20Assistance%20Program%20(WAP,Water%20heater%20jackets

Mohai, P., Pellow, D., & Timmons Roberts, J. (2009). Environmental justice. *Annual Review of*

Environment and Resources 34 (405), 406-430. Doi: 10.1146/annurev-environ-082508-094348

Montgomery, M.C., & Chakraborty, J. (2015). Assessing the environmental justice consequences of flood risk: a case study in Miami, Florida. *Environmental research letters, 10* (2015), 1-11. Doi: 10.1088/1748-9326/10/9/095010

Natarajan, U. (2021). Environmentalism in the Global South. In Atapattu, S.A., Gonzalez, C.G., Seck, S.L. (Eds.), *The Cambridge handbook of environmental justice and sustainable development.* (pp. 1-19). Cambridge, UK: Cambridge University Press.

Open data network (n.d.). *GDP.* Retrieved from https://www.opendatanetwork.com/entity/310M200US33100-310M200US31080/Miami_Metro_Area_FL-Los_Angeles_Metro_Area_CA/economy.gdp.per_capita_gdp?

Owen-Burge, C. (2022). *Jakarta: The sinking city.* Retrieved from: https://climatechampions.unfccc.int/jakarta-the-sinking-city/

Padawangi, R. (2012). Climate Change and the North Coast of Jakarta: Environmental Justice and the Social Construction of Space in Urban Poor Communities. In W.G. Holt (Ed.) *Urban Areas and Global Climate Change* (*Research in Urban Sociology, Vol. 12*) (pp. 321-339). Leeds, UK: Emerald Group Publishing Limited. Doi: https://doi.org/10.1108/S1047-0042(2012)0000012016

Rees, M. (2020. July). *Cities find smart ways to adapt to climate change.* Retrieved from https://www.eib.org/en/stories/urban-climate-adaptation

Salem, H.S. (2019). No sustainable development in the lack of environmental justice. *Environmental justice 12* (3), 140-157. Doi: 10.1089/env.2018.0040

Schlosberg, D. (2004). Reconceiving Environmental Justice: Global Movements And Political Theories. *Environmental politics 13* (3), 517-540. Doi: https://doi.org/10.1080/0964401042000229025

Sharifi, A. (2021). Co-benefits and synergies between urban climate change mitigation and adaptation measures: A literature review. *Science of total environment 750* (2021), 1-17. Doi: https://doi.org/10.1016/j.scitotenv.2020.141642

Statista.com (2024a). *Gross Domestic Product (GDP) per capita in Indonesia in 2022, by province.* Retrieved from

https://www.statista.com/statistics/1423411/indonesia-per-capita-gdp-at-current-prices-of-provinces/

Statista.com (2024b). *Unemployment rate in Jakarta in Indonesia from 2021 to 2023.* Retrieved from https://www.statista.com/statistics/1423523/indonesia-jakarta-unemployment-rate/

Stevis, D., Morena, E. & Krause, D. (2020). Introduction: The genealogy and contemporary politics of just transitions. In E. Morena, D. Krause, & D. Stevid (Eds.), *Just transitions: social justice in the shift towards a low-carbon world.* (pp. 1-9). London, UK: Pluto Press.

The city of Miami (2020). *Miami forever climate ready strategy.* Retrieved from https://www.miami.gov/My-Government/Climate-Change-in-the-City-of-Miami/Climate-Change-Action/MiamiForeverClimateReady

United Nations. (2024). *Sustainability*. Retrieved from https://www.un.org/en/academic-impact/sustainability

United Nations Research Institute for Social Development [UNRISD]. (2019, August). *Transforming adaptation to climate change in coastal cities: Ho Chi Minh and Jakarta.* Retrieved from https://reliefweb.int/report/indonesia/transforming-adaptation-climate-change-coastal-cities-ho-chi-minh-city-and-jakarta

US Climate Data (2024). *Climate Miami - Florida.* Retrieved from https://www.usclimatedata.com/climate/miami/florida/united-states/usfl0316

YCharts (2024, March). Miami, FL Unemployment rate. Retrieved from https://ycharts.com/indicators/miami_fl_unemployment_rate#

+Jakarta (2021). *Jakarta climate resilient city: best practices compilation 2021.* Retrieved from https://global-cities-climate-action-jakarta.virtual-engage.com/content/jakarta/Additional

APPENDIX A: CODEBOOK

Table 2

Codebook

Theme	Code	Description	Example
Distributional justice	Equity in the distribution of benefits and costs of policies	Who is more likely to be affected by the costs and benefits of climate policies, respectively?	"Large-scale elevating on fill can have cumulative effect of exacerbating flooding elsewhere if not done correctly" (Miami Dade County, 2024).
	Adaptation of management to improve social and distributional outcomes	What is being changed in management of the city to improve justice?	"These actions, carried out through the Marunda Urban Resilience in Action Consortium, have resulted in sustainable improvements in the livelihood and resilience of this highly exposed community" (UNRISD, 2019).
			"In addition to infrastructural and ecological measures, flood risk management in Jakarta needs to involve institutional engineering" (Kusumanto et al., 2022).
	Difference in climate impacts	How are people impacted by climate change? Are there differences?	"careful consideration of heat exposure needs to be integrated into land use and transportation policies and plans and streetscape designs." (Miami-Dade County, 2021).
Recognititonal justice	Identification and differentiation of different	How are different actors and their influence on the	"We must partner with stakeholders of all kinds, from other public agencies to academic institutions to individual constituents, to ensure our decisions are data-driven and take future

stakeholders	strategies considered?	conditions into account" (The city of Miami, 2020).
		"major challenge identified is the lack of mechanisms to generate synergies and collaboration among the variety of different stakeholders" (Asvita et al., 2019).
Policies addressing the needs of the most vulnerable	Do strategies particularly mention how they are going to handle those citizens that are most affected by climate change?	"Gather data on heat variability throughout the City to identify urban heat islands. This information will inform future tree plantings, shading initiatives, and other heat mitigation projects" (The city of Miami, 2020).
		"The BE305 program promotes improvements in building performance through a suite of strategies that increase energy and water efficiency in large, existing private and public buildings. The target audience is building owners and managers of buildings 20,000 square feet or larger, which represent about 12,200 buildings or approximately 43% of floor space in the entire County" (Miami-Dade County, 2021).
Acknowledgement of pre-existing rights and tenure	How are existing structural inequalities acknowledged?	"Miami-Dade acknowledges the impacts that historic and current structural racism and inequality have had on our community and commits to creating more just outcomes" (Miami-Dade County, 2021).
Diversification of world views, perspectives and values	Are solutions characterized by Western world views, or are different views and perspectives included?	"Listen to and elevate the voices and stories from the diverse range of communities within Miami-Dade County, with an increasing focus on those who have historically experienced discrimination, including Black, Hispanic, and Indigenous communities" (Miami-Dade County, 2021).

Procedural justice	Local participation	To what degree are local citizens involved in the decision-making process regarding climate resilience strategies?	"Role of citizens, however, is even more limited than the one of businesses" (Asvita et al., 2019). "The community engagement and interest in this Strategy would not have been possible without the help of many local non-profit partners in the Miami-Dade Community" (Miami-Dade County, 2021).
	Transparency and information disclosure	Are strategies transparent and understandable to citizens?	"there are considerable limitations in data availability, and through better data availability and visibility policymakers would be able to produce more efficient policies and plans, as well as to allocate budgets more clearly according to the identified priorities." (Mafira et al., 2021).
	Horizontal cooperation	How do local communities and actors cooperate?	"To identify solutions to close the emissions gap, Mayor Daniella Levine Cava will convene meetings with multiple South Florida governments, utility providers, schools, businesses, and institutions that have set aggressive greenhouse gas reduction goals" (Miami-Dade County, 2021).

APPENDIX B: ADDITIONAL INFORMATION

The following table presents supplementary data about EJ in climate resilience strategies of both Jakarta and Miami to further support the arguments made in this thesis.

Table 3

Additional quotes for Jakarta

Code	Quote
Equity in the distribution of benefits and costs of policies	"Up to now, the program has been implemented in four housing areas with total of 1.300 houses. These four housing areas are Bukit Mas and Ozone, Bintaro; Taman Alfa Indah; and Bumi Pesanggrahan Mas. All of these located in South Jakarta." (+Jakarta, 2021).
	"Socio-economic impacts, especially for people who depend on coastal resources, for example, fishing industries" (Kusumanto et al., 2022).
Adaptation of management to improve social and distributional outcomes	"In addition to infrastructural and ecological measures, flood risk management in Jakarta needs to involve institutional engineering." (Kusumanto et al., 2022).
	"It also allows the users to have access to affordable mobility." (+Jakarta, 2021).
	"In addition to infrastructural and ecological measures, flood risk management in Jakarta needs to involve institutional engineering" (Kusumanto et al., 2022).
Difference in climate impacts	"Traffic congestion has serious consequences, such as air pollution, decreasing of productivity, and psychological impacts." (+Jakarta, 2021).
	"with 80% of the 256 million Indonesians exposed to pollution levels that exceed World Health Organisation (WHO) guidelines" (C40 Cities, 2020).
	"Pollutants such as PM2.5 represent a major risk to people's health,

	particularly affecting children and older" (C40 Cities, 2020).
Identification and differentiation of different stakeholders	"involving stakeholder groups which consist of citizens, businesses, cross-sectoral departments in local and national governments" (Asvita et al., 2019).
	"lack of collaboration between and among stakeholders in government, business and community" (Asvita et al., 2019).
	"the citizen participation has also empowered through diversified stakeholders collaboration" (+Jakarta, 2021).
Policies addressing the most vulnerable	"Jakarta Government overcomes this situation by developing mass transportation to encourage inhabitants to shift from private vehicle to public transportation usages. The use of public transportation is campaigned as an urban lifestyle." (+Jakarta, 2021).
Local participation in decision-making	"Most of the large-scale climate infrastructure projects in the city are initiated and funded by the central government." (Mafira et al., 2021).
	"Local Action Plan for Greenhouse Gas Emission Reduction (RAD-GRK)" (Asvita et al., 2019).
	"the local government, DKI Jakarta, takes up the leading role in the planning and implementation process while the business sector only has a small part to play in financing and implementing some of the actions" (Asvita et al., 2019).
	"Local governments have to strengthen the collaboration with citizens and businesses; as well as the coordination among the local government agencies in the implementation of the climate change action plan" (Asvita et al., 2019).

	"citizen engagement platform is needed to ensure that citizens can participate in the development and implementation of the climate action plan" (Asvita et al., 2019).
	"lack of public engagement in decision-making processes" (UNRISD, 2019).
	"In response to frequent flooding and its cascading impacts on the area's informal dwellers, public agencies and civil society organizations have come together with local residents to identify solutions" (UNRISD, 2019).
	"Ikhtiar Jakarta's website was established to solicit pledges and commitments from Jakarta's citizens in achieving the ambitious climate targets of DKI Jakarta. Up to mid-2021, 45 commitments were pledged by stakeholders." (+Jakarta, 2021).
	"three pilot projects have been implemented to support the implementation of Ikhtiar Jakarta, namely community-based waste management" (+Jakarta, 2021).
	"In order to realize community collaboration in designing bicycle lane barriers a competition was conducted" (+Jakarta, 2021).
	"Based on the Grand Design Green Building, in 2030 Jakarta is targeted to reduce energy consumption, water consumption and reduce greenhouse gas emissions by 30 percent respectively" (+Jakarta, 2021).
	"Over the past few years the city have also opened up a broader public participation of park design through Taman Maju Bersama program (TMB). The principle of participatory design are applied to foster the social and environmental sustainability" (+Jakarta, 2021).
Transparency and information disclosure	"expanding the monitoring and evaluation of climate investment impacts from Jakarta to its satellite cities could be supported through a specific assistance arrangement" (Mafira et al., 2021).
	"energy ambassador training for students, and climate diplomacy through religious leaders by developing Interfaith guidebooks to tackle climate

	change" (+Jakarta, 2021).
	"A safe cycling guidebook was also made in collaboration between DKI Jakarta Transportation Agency, FDTJ, ITDP and Jakarta Cycling Community" (+Jakarta, 2021).
	"Through this program, waste management activities do not merely focus on the improvement of waste management facilities but also increasing the awareness of the communities to waste management so the actions are more sustainable" (+Jakarta, 2021).
Horizontal cooperation	"lack of consultation and cooperation across sectors and agencies led to misalignment between municipal adaptation strategies and community-level coping mechanisms, causing strong political tensions." (UNRISD, 2019).
	"a consortium of non-profit organizations and government agencies is working with communities to adapt and transform, via the participatory, multistakeholder design of a risk management and sustainable development plan." (UNRISD, 2019).
	"the infrastructure approach needs to be accompanied by an integrated ecological and socio-institutional approach through a so-called penta helix synergy between the ABCGM stakeholder types: Academics, Businesses, Community (individuals and groups), Government (both central and regional) and Mass Media (both print, electronic and social media)" (Kusumanto et al., 2022).
	"Instead of moving on our own, collaboration is the answer. Through collaboration, we will be more connected, smarter and more resource - rich" (+Jakarta, 2021).
	"This is Called Jakarta Sadar Sampah or Jakarta Waste Awareness program. This is an integrated program and branding that is used to introduce the new paradigm of waste management in Jakarta but also to collaborate to reduce waste from the sources with the motto: Reduce, Separate and Recycle" (+Jakarta, 2021).

Table 4
Additional quotes for Miami

Equity in the distribution of benefits and costs of policies	"Building on fill will likely involve demolishing older structures, clearing the land, and bringing in new fill material to build at a higher elevation" (Miami Dade County, 2024).
	"Causes construction disruption to nearby area which can decrease quality of life in the short-term" (Miami Dade County, 2024).
	"Presents cost-burden for lower-income residents who want or need to raise a private seawall" (Miami Dade County, 2024).
Difference in climate impacts	"Nearly half of Miami-Dade households have limited or no access to a private car. The Covid-19 crisis added new uncertainty to residents' transportation options, especially for public transportation" (Miami-Dade County, 2021).
	"However, climate change, population growth, and urbanization have exacerbated the impacts of these natural phenomena, leading to increased risks for people and property related to flooding, storm surge, and extended periods of high heat" (The city of Miami, 2020).
	"Extreme heat and humidity are particularly dangerous for infants and young children, elderly adults, low-income individuals, and outdoor workers" (The city of Miami, 2020).
Identification and differentiation of different stakeholders	"Residents, business owners, non-profits, universities, City of Miami committees and staff, and other key stakeholders helped us identify our greatest climate change challenges, and proposed and prioritized actions to respond" (The city of Miami, 2020).

Policies addressing the needs of the most vulnerable

"Our investments need to protect residents from future climate conditions, prioritize critical and highly vulnerable areas and people, and help reduce greenhouse gas emissions" (The city of Miami, 2020).

"To address this issue, the County's Community Action and Human Services Department (CAHSD) offers the Weatherization Assistance Program (WAP) and Home Rehabilitation Program. The Weatherization Assistance Program is federally funded to assist low-income homeowners with making their homes energy efficient through the installation of cost-saving measures, such as insulation, and repair or replacement of lighting and air conditioning equipment. At the current federal funding level available in 2021, CAHSD retrofits about 48 homes per year, addressing energy, health, and safety concerns. The Home Rehabilitation Program offers a forgivable loan to help low-income qualified single-family homeowners make repairs and improvements that are prioritized to eliminate health and safety issues, correct code violations, and ensure greater energy-efficiency." (Miami-Dade County, 2021).

"and laying additional groundwork for adaptive neighborhoods" (The city of Miami, 2020).

"Utilize vulnerability and asset mapping to improve pre-storm evacuation prioritization and resource allocation. Data should be cross referenced to include special needs patients in affected areas and those who require shelter allowing pets" (The city of Miami, 2020).

"Provide information to low income renters and property owners about no and low cost measures to reduce utility costs, through energy and water conservation and efficiency, and protect their homes from wind, flood, and electrical disruptions and, where applicable, how to access low cost financing" (The city of Miami, 2020).

"Prioritize projects that protect the most critical and vulnerable assets and areas" (The city of Miami, 2020).

Acknowledgement of pre-existing rights and tenure	"When asked what the largest barrier to adoption/expansion of solar energy was, 46% of respondents said cost was the main consideration holding them back from going solar. When asked the same question about the adoption/ expansion of electric vehicles, 47% responded they are too expensive" (Miami-Dade County, 2021). "It is imperative for the County provide the community with readily available, accessible, and engaging information about these topics, while also addressing cost barriers to adopting new technologies" (Miami-Dade County, 2021). "Examine power dynamics and biases in ourselves and our government systems and actively work to address them" (Miami-Dade County, 2021). "In the Miami metropolitan area, 57% of low-income households face energy or utility burdens that are two or three times higher than that of other households. [...] This is especially true for low-income households with older adults or people with disabilities, and low-income households living in multifamily housing. A national study notes that "for African American, Latino, and renting households, 42%, 68%, and 97% of their excess energy burdens, respectively, could be eliminated by raising household efficiency to the median levels" (Miami-Dade County, 2021).
Diversification of world views, perspectives and values	"the attendees and respondents to the survey did not fully reflect the diversity of Miami-Dade County. Overall, those who participated in the survey tended to be wealthier and older, with Black and Hispanic minorities under-represented in the poll results, compared to the average for Miami-Dade County" (Miami-Dade County, 2021).
Local participation in decision-making	"Achieving the goals set forth in the Climate Action Strategy will require building on our extensive framework of collaboration to include everyone in our community, while also working diligently to secure and accelerate ambitious public and private investments" (Miami-Dade County, 2021). "confronting climate challenges head on, many of the 34 municipalities throughout the County already leading the way, setting targets and taking action but there remains work to be done" (Miami-Dade County, 2021). "The County will work with municipalities to identify opportunities to collaborate on projects and funding while also helping build capacity and knowledge sharing across the network to avoid duplicative efforts" (Miami-Dade County, 2021).

	"Eight community workshops across the City to gather input from over 160 residents and businesses on their concerns for Miami's future, and their ideas for initiatives to respond to climate change-related challenges" (The city of Miami, 2020).
	"An online survey on climate risks, priorities and initiatives, which reached approximately 500 Miami residents, business owners and others" (The city of Miami, 2020).
	"Community Emergency Response Team (CERT) program educates volunteers about disaster preparedness for the hazards that may impact their area and trains them in basic disaster response skills" (The city of Miami, 2020).
	"Residents noted the multiple benefits that natural elements can provide and encouraged the City to provide incentives and implement requirements to incorporate more green infrastructure. Some initiatives that were highly recommended by residents include:" (The city of Miami, 2020).
Transparency and information disclosure	"City communications need to meet residents where they are and ensure messages are accessible by interacting in residents' native languages and using plain language" (The city of Miami, 2020).
	"Develop unified, plain language talking points about Miami's vulnerabilities to climate change and the City's MFCR strategy in multiple languages (Spanish, English, and Creole)" (The city of Miami, 2020).
	"we seek to create channels and mechanisms to utilize community feedback and integrate their priorities and knowledge into all stages of programming and development" (The city of Miami, 2020).
	"The recordings of the meetings were sent to all who registered so people could watch at a later date if they were not able to attend or wanted to review

the discussion" (Miami-Dade County, 2021).

"When asked what the biggest barriers to reducing water use and waste were, the majority of respondents said that lack of information was holding them back" (Miami-Dade County, 2021).

"Create a more transparent government." & "Ensure accessibility of resources and information to everyone in our community" (Miami-Dade County, 2021).

"Miami-Dade County programs also help building and home owners learn more about energy monitoring and retrofits…" (Miami-Dade County, 2021).

"outreach and information sharing with community members" (The city of Miami, 2020).

"The City needs to access and understand the best available local and global information" (The city of Miami, 2020).

"Create a resilience data repository and GIS platform accessible to all City departments. This will include information such as Citywide flood and heat vulnerability maps as well as data related to current building stock, land use codes, design requirements, affordable housing stock, transit routes, emergency management facilities, and other critical infrastructure" (The city of Miami, 2020).

"Develop and implement a plan for sharing City data related to flood, heat, and storm risks and monitoring impacts of installed green and grey solutions. Incorporate crowdsourced data in planning via crowdsourcing and participatory planning" (The city of Miami, 2020).

"Inform City staff, using in-person and online webinars, how climate change affects Miami and impacts their work. Train City staff how to discuss climate change threats with the public and media" (The city of Miami, 2020).

"Conduct a Citywide communications and gap analysis to better understand key messengers, effective communication channels, and language needs in each City neighborhood for more effective and efficient messaging" (The city of Miami, 2020).

"Ensure residents have easy access to accurate and up-to-date information on the City's resilience actions by maintaining the Miami Forever Climate Ready subsite and growing the audience for the twice monthly Resilience Update newsletter" (The city of Miami, 2020).

"Resilience Hubs are community-serving facilities augmented to support residents, coordinate communication, and distribute resources, while enhancing quality of life. Hub sites will serve as central points of information and resource distribution (PODs) for City constituents before and after a disaster event but also provide our constituents with year-round programming, social services, and amenities that can connect them to economic opportunity and enhance public health and safety" (The city of Miami, 2020).

"Develop and implement a public property vulnerability assessment and audit tool that can generate recommended flood and storm risk mitigation improvements for existing city-owned buildings" (The city of Miami, 2020).

"Information shared should be multilingual, developed with partner agencies such as the National Weather Service, and coordinated with municipalities that border the City of Miami" (The city of Miami, 2020).

Horizontal cooperation

"The Office of Resilience also worked with the following organizations to spread the word about the meetings and survey:" (Miami-Dade County, 2021).

"Advancing action on climate is difficult both politically and financially, but, similar to storm recovery, multijurisdictional collaboration will help make the journey a little less burdensome in our Miami-Dade County community"

(Miami-Dade County, 2021).

“Many private companies, non-profit organizations, specialized networks, and other entities work in the home improvement market and energy management services” (Miami-Dade County, 2021).

“create a community-wide food rescue plan in collaboration with community-based organizations, businesses, and farmers” (Miami-Dade County, 2021).

“Coordinate with the State, County, neighboring municipalities, community members, and university groups on enhancing the collection, monitoring, and analysis of Biscayne Bay water quality data to better understand sources of pollution” (The city of Miami, 2020).

“29 of those miles are City-owned and the remaining 59 miles are privately-owned, underscoring the necessity for government and property owners to work together to develop and install uniform solutions” (The city of Miami, 2020).

APPENDIX C: LIST OF DOCUMENTS

Table 5

List of analyzed documents

No.	Title of Document	Pages used
1	Asvita, H. T., Daryoni, S., Karina, G., & Dedicatoria, R. M. (2019, January). *Jakarta: Assessment of existing climate policies.* Retrieved from https://acp.iclei.org/wp-content/uploads/2022/02/Indonesia-policy-brief.pdf	pp. 1-6
2	C40 Cities. (2020). *Benefits of urban climate action: C40 Technical assistance report 2020: Jakarta -Electric buses.* Retrieved from https://www.c40.org/wp-content/uploads/2022/02/Jakarta	pp. 1-6
3	Kusumanto, T.Y., Triyanti, A., & Tjiook, W. (2022, October). *Dealing with greater Jakarta floods in times of climate change.* Retrieved from https://www.uu.nl/sites/default/files/	pp. 20-35
4	Mafira, T., Larasati, L., Mecca, B., Haesra, A., & Meatlle, C. (2021, November). *Assessing Jakarta's climate investments.* Retrieved from https://www.climatepolicyinitiative.org/p*f*blication/assessing-jakartas-climate-investments/	pp. 1-5; 11-26
5	United Nations Research Institute for Social Development (UNRISD). (2019, August). *Transforming adaptation to climate change in coastal cities: Ho Chi Minh and Jakarta.* Retrieved from https://reliefweb.int/report/indonesia/transforming-adaptation-climate-change-coastal-cities-ho-chi-minh-city-and-jakarta	pp. 1-2

6	+Jakarta (2021). *Jakarta climate resilient city: best practices compilation 2021.* Retrieved from https://global-cities-climate-action-jakarta.virtual-engage.com/content/jakarta/Additional	pp. 1-15
7	Miami-Dade County (2021). *Climate action strategy.* Retrieved from https://www.miamidade.gov/green/library/climate-action-strategy-final-draft.pdf	pp. 1-10; 16-26; 35-41; 44-57
8	The city of Miami (2020). *Miami forever climate ready strategy.* Retrieved from https://www.miami.gov/My-Government/Climate-Change-in-the-City-of-Miami/Climate-Change-Action/MiamiForeverClimateReady	pp. 1-30
9	Miami Dade County (2024). *Sea level rise strategy.* Retrieved from https://miami-dade-county-sea-level-rise-strategy-draft-mdc.hub.arcgis.com/	pp. 24-50; 50-78