



# Integrating Procedural Justice in Coastal Climate Adaptation: A Case Study of Køge Bay Strandpark

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## Abstract

In recent discussions about coastal climate adaptation, the lack of effective stakeholder engagement and climate justice in the planning and execution of these projects has been highlighted. This thesis explores the critical role of stakeholder engagement in ensuring procedural justice in these projects, with a specific focus on the re-modernization project at Køge Bay Strandpark. The primary research question investigates how stakeholder engagement can ensure procedural justice in such projects, using Nature-Based Solutions (NBS) as a framework. To address this, the study considers three sub-questions: the criteria necessary for optimal procedural justice, local residents' perceptions of procedural justice in the project, and the views of other stakeholders. The research employed a mixed-methods approach, combining qualitative and quantitative data collection methods, including surveys, semi-structured interviews, and document analysis. The findings underscore the gap between theoretical ideals of procedural justice and practical implementation challenges, such as limited resources, bureaucratic hurdles, and socio-cultural barriers. Bridging this gap requires a pragmatic and context-specific approach, including developing targeted outreach programs, providing resources and support for participation, and continuously monitoring and evaluating engagement practices. The Køge Bay Strandpark re-modernisation project illustrates the potential for aligning theoretical principles with practical strategies, thereby creating more resilient and equitable urban environments. This research contributes to the broader discourse on climate justice and sustainable urban planning, highlighting the importance of inclusive and transparent decision-making processes in achieving social equity and environmental sustainability.

## Resumé

I de seneste diskussioner om klimatilpasning er manglen på effektiv interessentinvolvering og klimaretfærdighed i planlægningen og gennemførelsen af kystklimatilpasningsprojekter blevet fremhævet. Denne afhandling udforsker den kritiske rolle af interessentinvolvering i at sikre proceduremæssig retfærdighed i disse projekter, med specifikt fokus på moderniseringsprojektet ved Køge Bugt Strandpark. Den primære forskningsspørgsmål undersøger, hvordan interessentinvolvering kan sikre proceduremæssig retfærdighed i sådanne projekter, ved brug af naturbaserede løsninger (NBS) som ramme. For at adressere dette overvejer undersøgelsen tre delspørgsmål: kriterierne, der er nødvendige for optimal proceduremæssig retfærdighed, de lokale beboeres opfattelse af proceduremæssig retfærdighed i projektet, og andre interessenters synspunkter. Undersøgelsen anvendte en blandet metode, der kombinerer kvalitative og kvantitative dataindsamlingsmetoder, herunder spørgeskemaer, semistrukturerede interviews og dokumentanalyse. Resultaterne understreger kløften mellem de teoretiske idealer for proceduremæssig retfærdighed og de praktiske implementeringsudfordringer, såsom begrænsede ressourcer, bureaukratiske hindringer og sociokulturelle barrierer. At bygge bro over denne kløft kræver en pragmatisk og kontekstspecifik tilgang, herunder udvikling af målrettede opsøgende programmer, levering af ressourcer og støtte til deltagelse, samt kontinuerlig overvågning og evaluering af involveringspraksis. Moderniseringsprojektet ved Køge Bugt Strandpark illustrerer potentialet for at tilpasse teoretiske principper med praktiske strategier og derved skabe mere modstandsdygtige og retfærdige bymiljøer. Denne forskning bidrager til den bredere diskurs om klimaretfærdighed og bæredygtig byplanlægning, og fremhæver vigtigheden af inkluderende og transparente beslutningsprocesser for at opnå social retfærdighed og miljømæssig bæredygtighed.

### Keywords

Procedureretfærdighed, Interessentinvolvering, Kystklimatilpasning, Naturbaserede Løsninger, Social Retfærdighed, Køge Bugt Strandpark, Byplanlægning, Klimaretfærdighed.

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# 1 Introduction

The 21st century's rapid urbanisation and the increasing effects of climate change have created unique challenges and possibilities for coastal regions globally. Traditionally, urban development has been dominated by grey infrastructure, emphasising concrete and steel solutions that often disregard the ecological and social aspects of cities (Hulme 2010).

Climate change is not only a global phenomenon but also a deeply personal experience, especially significant in coastal areas like Kjøge Bay Strandpark (KBS), where the local climate and community's way of life are at risk (Kjøge Bay Strandpark A/S et al. 2023). Communities, particularly those in coastal areas, often experience most immediate threats to their livelihoods, cultural heritage, and sovereignty (Rozance et al. 2019). This underscores the urgent need to integrate equity and justice into urban coastal adaptation planning (UCAP), which remains a challenge due to the lack of standardised methods for defining and evaluating these principles (Okamoto and Doyon 2024)

Coastal areas around the globe are facing an escalating threat from climate change, marked by rising sea levels, more frequent and severe storms, and increased erosion (Allan and Komar 2006). This has prompted a growing interest in coastal climate adaptation strategies, not only for their direct benefits in terms of protection but also for the additional advantages they bring, such as enhanced recreational spaces, health improvements, and the greening of urban landscapes (Sutton-Grier, Wowk, and Bamford 2015). However, these initiatives often come with a double-edged sword, as the improvements they bring can also lead to gentrification, potentially displacing the very communities they aim to protect (Anguelovski et al. 2019).

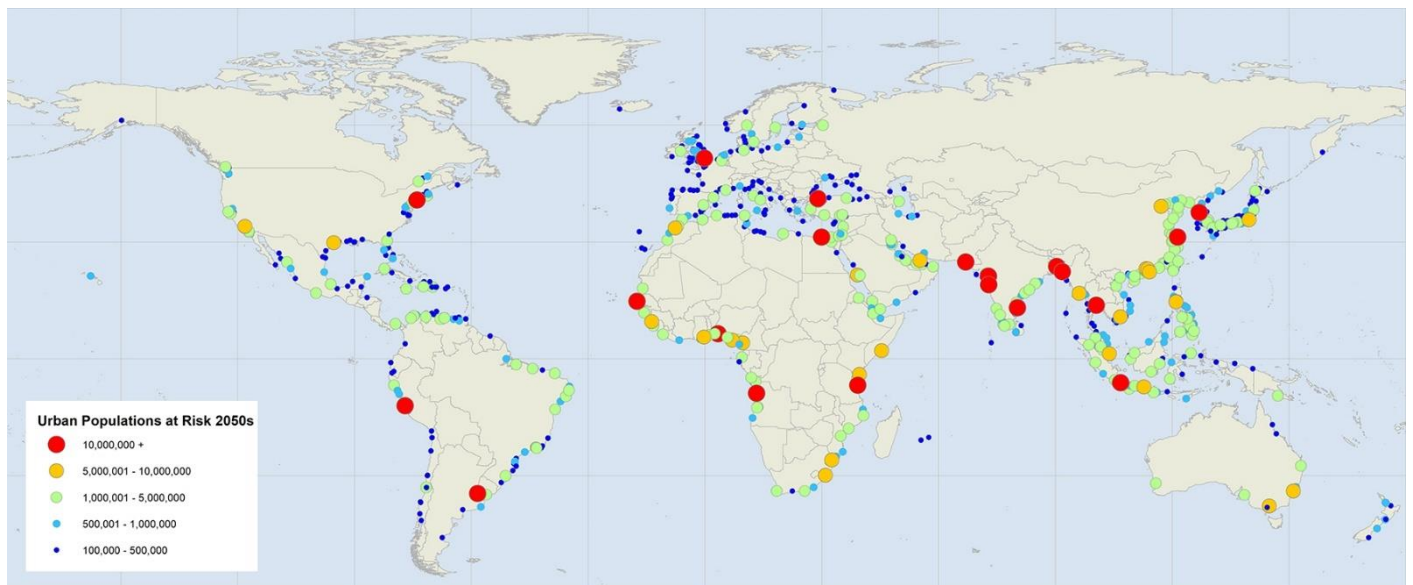


Figure 1 Cities at risk from sea level rise of 0.5 metres by 2050s [Cities projected to receive at least 0.5 metres of sea level rise by the 2050s under RCP8.5.] (Sea Level Rise and Coastal Flooding - C40 Cities, 2021)

The concept of climate justice is becoming increasingly central in the conversation around coastal adaptation. This concept advocates for a balanced approach to climate adaptation efforts, ensuring that these initiatives are designed and implemented in a way that is fair and equitable, without favouring certain groups over others. (Anguelovski et al. 2019). This is particularly crucial in KBS, where the re-modernisation project must consider the

impacts on all community segments, especially those voices that has been exclude in the past, the ones that need to learn to adapt or recover from climate impact.

Fundamental to this discussion is the concept of "*the right to the city*" (Lefebvre 2008) and "*the right to nature in the city*" (Henrique Baumgartner 2021) which underscores the importance of inclusive urban planning that acknowledges the fundamental rights of all inhabitants, especially those historically excluded from decision-making processes. Spatial justice becomes crucial in ensuring equitable access to basic rights, services, and infrastructure, particularly in projects involving nature within urban spaces, which should not be commodified but rather considered essential for collective emancipation (Soja 2019) (van Vulpen 2023).

In the context of Coastal Climate adaptation, the rapid expansion of green and blue infrastructures is imperative (Pinto, Inácio, and Pereira 2023). These infrastructures, including green spaces and water bodies, are essential for enhancing urban environmental quality and mitigating the direct impacts of climate change, such as flooding, heatwaves, biodiversity loss, and health issues (Kumar et al. 2024). However, alongside efforts to expand green areas and enhance urban permeability, it is crucial to critically examine the capitalist production of urban space (Lefebvre 2008). Without careful analysis, the interests of urban space producers may intersect with environmental actions, particularly in areas of real estate interest or lacking territorial regulation (Okamoto and Doyon 2024).

The overarching aim of this thesis is to contribute to the effective integration of spatial justice principles into nature-based solutions (NBS), re-naturalisation ideas, and the expansion of infrastructures aimed at providing environmental services and promoting urban sustainability in coastal adaptation planning (Cohen-Shacham et al. 2016). This research seeks to foster critical spatial thinking regarding the incorporation and access to nature within the city, ensuring that such projects are recognised not merely as a privilege for those who can afford access but as a fundamental right available to all.

Often, coastal climate adaptation projects that utilise NBS are celebrated for their benefits in biodiversity, landscape beauties, low cost compared to grey infrastructure and in many cases low maintenance; however, these benefits can inadvertently become exclusive, leading to the displacement of original communities, or becoming resources that only certain sectors of society utilise (Okamoto and Doyon 2024). This thesis asserts that the values and benefits derived from integrating NBS should be accessible and representative of the entire community, ensuring that such projects do not exacerbate existing inequalities but rather contribute to a more inclusive and equitable urban future.

## 1.1 Climate Coastal Adaptation in Denmark

Denmark, with its extensive coastline exceeding 7,300 kilometres, is particularly vulnerable to the effects of climate change, including rising sea levels and increased storm frequency. The Danish government has acknowledged these challenges, initiating comprehensive coastal adaptation strategies that integrate nature-based solutions (NBS) to enhance ecological resilience and promote sustainable urban development (Danish Ministry of the Environment 2005).

Despite Denmark's progressive policies, there are evident disparities in how coastal adaptation efforts are distributed, especially when comparing urban and rural areas. An analysis carried out by COWI (2017) investigated the areas at risk in Denmark, considering coastal cities with more than 10,000 inhabitants. According to

the analysis conducted by COWI (2017), if actions are not taken, the results identified that 33% of damages costs will occur in the capital region of Copenhagen. This corresponds to damage costs between 5 to 35 billion dkk (Faragò et al. 2018).

Denmark's approach to coastal climate adaptation involves a range of strategies, including a catalogue of technologies and methods across three main areas: normal rainfall and cloudburst, sea level rises, and preparedness. These technologies combine grey infrastructure with nature-based solutions (NBS). For example, on the Danish Island of Funen, a reclaimed land area and coastal lagoon have been developed to safeguard against floods. This not only protects communities but also increases biodiversity, as the inlet system creates an attractive habitat for geese, ducks, and wading birds (Ministry of Environment of Denmark and Environmental Protection Agency 2014).

Similarly, in the capital region, the government plans to enhance sand dunes and wetland areas, which act as natural buffers against sea surges and provide habitats for local wildlife in KBS (OECD 2020). However, the implementation of NBS strategies must be carefully managed to avoid social issues such as restricted access to natural resources for different demographic groups or increased property values that could lead to gentrification (Anguelovski et al. 2016).

The primary challenge in deploying NBS effectively is ensuring their inclusivity and accessibility. Research indicates that green spaces and restored habitats often become exclusive domains for affluent communities, with gated access and high maintenance costs that exclude lower-income residents (Haase et al. 2014). In order to address these issues, Denmark is experimenting with community-led NBS projects where local stakeholders, including marginalised groups, are actively involved in planning and implementation, ensuring that all community members benefit from improved climate resilience (Few, Brown, and Tompkins 2007).

Denmark has focused on community engagement and education to raise awareness about the importance of climate coastal adaptation. By involving local residents in the planning and implementation of adaptation strategies, Denmark is able to build resilience within its communities and ensure that they are prepared for future climate challenges (Ministry of Environment of Denmark and Environmental Protection Agency 2014). Additionally, educational campaigns help to inform the public about the risks of climate change and the steps that can be taken to mitigate its impacts (United Nations 2022)

Overall, Denmark's approach to coastal climate adaptation is holistic, combining nature-based solutions, infrastructure projects, and community engagement. By taking a proactive stance on climate change, Denmark effectively protects its coastal areas and ensures the sustainability of its coastline for future generations. As other countries confront similar challenges, Denmark's example serves as a model for effective adaptation strategies. These strategies can help mitigate the impacts of a changing climate, provided they incorporate the voices of those most affected, maintain transparency in the process, and adapt to diverse social and economic contexts.

## 1.2 The Human dimension of Climate Change

Public spaces are the lifeblood of urban areas, offering venues for social interaction, cultural expression, and environmental integration. However, the rapid pace of urbanisation and the pressing challenges of climate change have placed unprecedented pressure on these spaces (Pinto, Inácio, and Pereira 2023). These areas play a pivotal role in shaping urban dynamics, serving as essential hubs for community interaction and collective experiences.

Parks, waterfronts, plazas, and other communal areas provide residents with opportunities for recreation and leisure while also hosting social gatherings, cultural events, and civic engagement. When successfully designed, these spaces foster a sense of belonging and identity within communities, contributing significantly to social cohesion and the well-being of urban dwellers (Healthbridge et al. 2009).

Rapid urbanisation presents several challenges that significantly impact the integration of natural elements into urban landscapes and complicate climate change mitigation efforts, especially in coastal areas where land is limited, and climate change impacts are more severe. One of the primary challenges is the escalating demand for infrastructure to accommodate the growing urban population. This demand often leads to the conversion of green spaces into built environments, reducing the availability of land for parks, wetlands, and other natural habitats(Reckien et al. 2023).

Moreover, urbanisation exacerbates land use conflicts as competing interests vie for limited space, resulting in the fragmentation and degradation of ecosystems(Orsetti et al. 2022). These conflicts hinder the implementation of nature-based solutions (NBS) by making it difficult to secure land for conservation and restoration projects. Additionally, environmental degradation, such as air and water pollution, further strains urban ecosystems, undermining their capacity to provide essential ecosystem services and adapt to climate change impacts(Bona et al. 2023).

Urban areas are increasingly vulnerable to the impacts of climate change, including rising temperatures, extreme weather events, and sea-level rise. In response, cities are recognising the imperative to adopt resilient adaptation strategies to safeguard infrastructure, protect communities, and preserve natural ecosystems. Nature-based solutions (NBS) have emerged as effective approaches for enhancing urban resilience by leveraging the inherent resilience of natural systems(IUCN 2016a). Moreover, NBS enhance biodiversity and provide recreational opportunities, contributing to the overall well-being of urban residents. As such, there is a growing recognition among policymakers and urban planners of the value of integrating NBS into climate change adaptation strategies to build more resilient and sustainable cities(Reckien et al. 2023)(Orsetti et al. 2022).

In the European context, initiatives such as green roofs, rain gardens, and urban forests have been implemented and are getting more popular in urban planning to enhance the quality of public spaces and address environmental concerns(Bona et al. 2023). However, the concept has not yet been intrinsically integrated into urban governance and municipal agendas despite its potential. The "inconvenient truth" is that NBS are still far from being mainstreamed in urban development. They are often peripheral to many stakeholders' working routines, and consequently, to planning and governing cultures with knowledge segregated "in silos" among departments, disciplines, sectors, and jurisdictions, and often facing conflicting agendas(Tsatsou et al. 2023).

This lack of integration poses a significant barrier to the widespread adoption of NBS in urban areas, hindering their potential to address pressing environmental and social challenges. Efforts are needed to break down these barriers and promote cross-sectoral collaboration in order to fully leverage the benefits of nature-based solutions in urban governance(Orsetti et al. 2022).

The challenge here lies in balancing the multifunctional demands placed on urban public spaces. These spaces must cater to diverse needs and preferences, from recreational and social to ecological and aesthetic. Incorporating NBS

into public spaces introduces complexities related to spatial allocation, design considerations, and the maintenance of ecological integrity within highly urbanised contexts. The risk of green gentrification, where the introduction of green spaces leads to increased property values and the displacement of lower-income residents, adds a layer of social equity concerns to the urban transformation challenge(Dushkova and Haase 2020).

The case of Køge Bay Strandpark offers an opportunity to explore the multifaceted approach to implementing coastal adaptation projects in Denmark. It also highlights the challenges these projects present and the policy frameworks that can either contribute to or hinder their success(Sutton-Grier, Wowk, and Bamford 2015). It is crucial to bridge the gap between the communities that use these areas and those who are most impacted by such projects(Few, Brown, and Tompkins 2007b). While these initiatives can bring significant benefits, they also carry potential negative aspects like gentrification and displacement of lower income communities, these aspects need thorough examination in how can be ovoid and where are the possibilities to promote better practices for urban planner.

Engaging stakeholders, especially local communities, is crucial for the success of NBS. The KBS re-modernisation project must address the concerns and interests of all affected parties to ensure broad support and long-term sustainability. However, facilitating meaningful participation is often challenging. More vocal and powerful stakeholders can dominate public meetings and consultations, marginalising the voices of less influential groups(Few, Brown, and Tompkins 2007b). Since its development, KBS has been a landmark. As its modernisation is consider, it is essential to adopt a new perspective that integrates climate procedural justice. This means ensuring the voices of previously overlooked individuals are heard and promoting inclusive decision-making processes. By doing so, the project can foster greater societal integration and equitable outcomes.

## 2 Køge bay Strandpark

Køge Bay Beach Park, or Køge Bugt Strandpark, is a pioneering example of landscape-based coastal adaptation in Denmark. Situated about ten kilometres south of Copenhagen's city centre, this park stands out not only for its size but also for its innovative approach to integrating recreational and environmental functions (Køge Bay Strandpark A/S et al. 2023). At the time of its construction, it was one of the largest coastal embankment projects in northern Europe, showcasing Denmark's commitment to sustainable development and environmental protection.

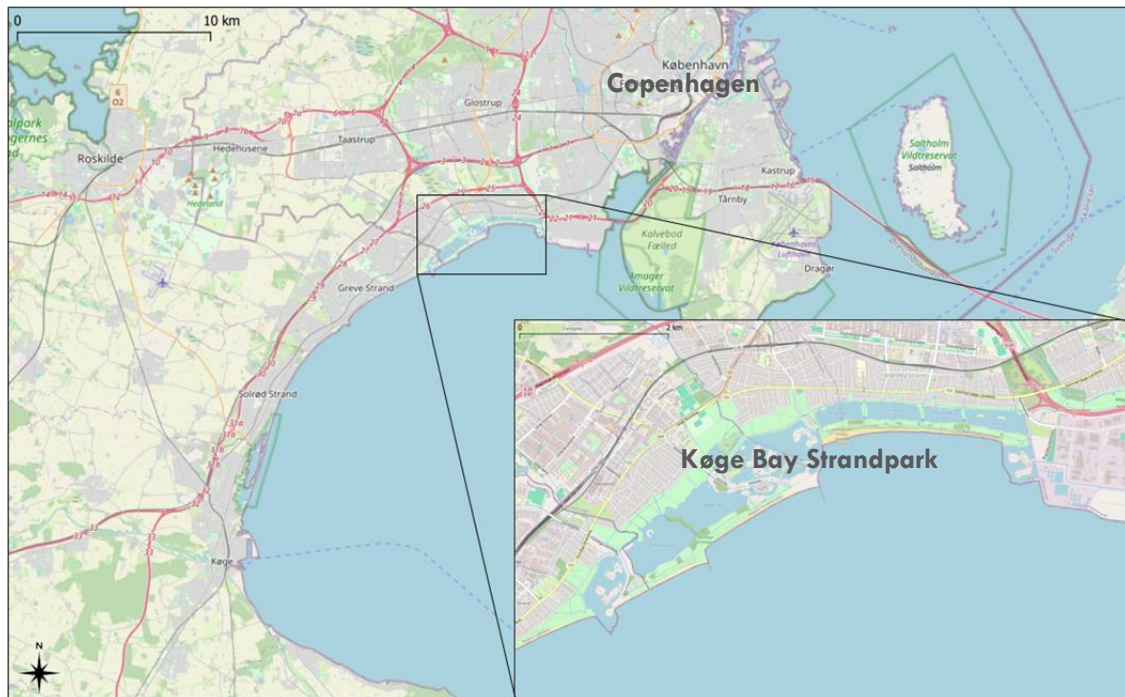


Figure 2 Køge Bay Strandpark Location.

This artificial beach and recreational area is situated along the northern part of Køge Bay in Denmark. Spanning from Avedøre in the north to Greve in the south, this extensive coastal project was designed to offer both flood protection and recreational space for the local community. Its development showcases Denmark's innovative approach to coastal management and urban planning, addressing environmental and social needs simultaneously (I/S Køge Bugt Strandpark 1986).

The concept of creating a recreational beach park along Køge Bay dates back to the interwar period. However, it wasn't until the 1960s that concrete plans began to materialise. The project was driven by the dual need to protect low-lying residential areas from flooding and to provide accessible recreational facilities for the growing suburban populations around Copenhagen (Forstads Museet 2024).

In 1961, the Køge Bay Plan, Denmark's largest urban planning initiative, was adopted. This comprehensive plan aimed to develop ten new towns along the bay, including the creation of an artificial beach park. By the early 1970s, detailed proposals for Køge Bay Strandpark were developed, envisioning a multifunctional coastal area that combined flood defence with recreational amenities (Historisk Atlas 2010). Through its innovative design and forward-thinking approach, Køge Bay Strandpark reflects Denmark's commitment to integrating environmental protection with community well-being, making it a model for sustainable coastal development.



The construction of Køge Bay Strandpark began in August 1977 and involved significant engineering efforts. Sand was dredged from the central bay area to create a foundation for the artificial beach. This sand was transported via long pipes to the construction site, where it was spread out to form the beach and dunes. Despite challenges such as heavy rainfall and harsh winter conditions, the construction progressed efficiently, averaging 50 meters of beach development per day. By the summer of 1979, the park was sufficiently developed to open to the public, with the official inauguration taking place on June 8, 1980 (Historisk Atlas 2010) (I/S Køge Bugt Strandpark 1986).



Figure 3 Køge Bay Stranpark before and after the project implementation. (Forstadmuseet, 2024).

In total, approximately 4.5 million cubic meters of sand and other materials were used for the project. To stabilise the new sand formations, hardy plant species like marram grass were planted, sourced from regions like Thy. These plants were crucial in securing the sand and establishing the dunes, contributing to the park's long-term stability and ecological health (Forstadmuseet 2024).

Køge Bay Strandpark stretches over seven kilometres and features a variety of elements designed to enhance both its protective and recreational functions. The park includes four marinas, numerous lagoons, and interconnected lakes managed by sluice systems. The park's design reflects a blend of natural and artificial elements, carefully crafted to appear seamless (Forstadmuseet 2024). These water management systems help regulate water levels, preventing flooding in nearby residential areas by releasing excess water into Køge Bay when necessary. Additionally, emergency pumps are in place to handle extreme weather events, further boosting the park's flood protection capabilities (Køge Bay Strandpark A/S et al. 2023).

The park's design also incorporates extensive pathways and green spaces, making it both accessible and inviting for visitors. Public amenities such as picnic areas, playgrounds, and sports facilities are integrated into the landscape, ensuring the park serves as a vital recreational resource for the surrounding communities (Køge Bay Strandpark A/S et al. 2023).

Køge Bay Strandpark has had a significant positive impact on both the environment and local communities. Environmentally, the park has enhanced coastal resilience by stabilising the shoreline and providing natural habitats for various species. The introduction of dunes and wetlands has increased biodiversity and improved the ecological health of the area (Historisk Atlas 2010).

Socially, the park has become a popular destination for residents of Greater Copenhagen, offering a wide range of recreational opportunities. Its proximity to the capital city has made it a favoured spot for beachgoers, hikers, and nature enthusiasts. The park's development has also spurred local economic growth by attracting tourism and supporting local businesses (Køge Bay Strandpark A/S et al. 2023). Additionally, the park has become a hub for cultural events and outdoor concerts, further enhancing its appeal to visitors.

## 2.1 Re-modernisation Plans

The re-modernisation of Køge Bay Strandpark is guided by a vision plan developed in collaboration with five municipalities: Brøndby, Greve, Hvidovre, Ishøj, and Vallensbæk. The planning process began with a visioning phase in 2019, culminating in an identity and development plan finalised in 2020 (Køge Bay Strandpark A/S et al. 2023). The vision plan emphasises sustainable development and aims to enhance the natural landscape while providing modern recreational facilities (See Figure 4). The plan also aligns with Denmark's broader climate adaptation strategies and the government's initiative "Tættere på – Grønne byer og en hovedstad i udvikling," which focuses on developing greener urban areas (Digitaliserings- og Ligestillingsministeriet 2022).



Figure 4 Vision Plan 2022.(Køge Bay Strandpark A/S et al. 2023)

Key aspects of the plan include improving flood defences, expanding green spaces, and creating more inclusive and accessible recreational areas:



Table 1 Key Elements of the Modernization Plan (Digitaliserings- og Ligestillingsministeriet 2022)(Køge Bay Strandpark A/S et al. 2023).

Key Elements of the Modernization Plan	Description
<b>Climate Resilience and Flood Protection</b>	This includes upgrading existing flood defences and implementing Nature-Based Solutions (NBS) such as wetland restoration and dune stabilisation. These measures are designed to provide natural buffers against storm surges and rising sea levels, reducing the risk of flooding for the surrounding areas.
<b>Enhancing Recreational Facilities</b>	Upgrades to the park's recreational facilities. New pathways and trails will be constructed to improve accessibility, allowing more visitors to enjoy the park's natural beauty. Additional amenities such as picnic areas, playgrounds, sports facilities, and viewing platforms will be added to enhance the visitor experience. The goal is to create a multifunctional space that caters to a wide range of activities and interests.
<b>Biodiversity and Natural Habitats</b>	Expansion of the existing green spaces and creating new habitats to support a diverse range of plant and animal species. Efforts will be made to restore native vegetation and manage invasive species, contributing to the ecological health of the park.
<b>Accessibility and Inclusivity</b>	Ensuring that Køge Bay Strandpark is accessible to all is a key priority. The modernisation plan includes measures to improve access for people with disabilities, such as constructing wheelchair-friendly pathways and providing accessible facilities.
<b>Sustainable Infrastructure</b>	The use environmentally friendly materials and construction methods, as well as incorporating energy-efficient technologies. Solar panels, rainwater harvesting systems, and sustainable drainage solutions will be implemented to minimise the park's environmental footprint and promote sustainable practices.

The re-modernisation of KBS represents a significant investment in the future of Denmark's coastal infrastructure and recreational spaces. By enhancing flood protection, improving accessibility, and promoting biodiversity, the project aims to create a resilient and inclusive space that meets the needs of contemporary society while safeguarding the environment. The collaborative approach involving multiple municipalities, stakeholders, and the public underscores the importance of procedural justice and democratic participation in large-scale urban planning initiatives (Køge Bay Strandpark A/S et al. 2023).

## 3 Problem Statement

Despite the growing recognition of climate change's disproportionate effects on marginalised communities, the pathway to embedding equity and justice within practical adaptation measures remains unclear. Køge Bay Strandpark's modernisation presents a unique opportunity to explore these dynamics, offering insights that are not only relevant to the local context, but also to national and potentially global adaptation strategies.

The identification and involvement of key stakeholders are fundamental to the success of the KBS re-modernisation project. Local government bodies, including the municipalities of Brøndby, Greve, Hvidovre, Ishøj, and Vallensbæk, play a pivotal role in policy-making and funding. Their involvement ensures that the project not only addresses flood protection but also enhances the ecological health of the area.

Specifically, understanding the perceptions of local residents and different stakeholders regarding procedural justice is crucial for assessing the project's effectiveness (Sutton-Grier, Wowk, and Bamford 2015). Addressing concerns about coastal climate adaptation, requires continuous engagement and a commitment to improving transparency and inclusivity. Evaluation of public perceptions can help identify areas for improvement and ensure that the planning process remains responsive to stakeholder needs and that align to the Principles of Climate Justice.

### 3.1 Research Questions

*How can stakeholder engagement ensure procedural justice in the planning and execution of coastal climate adaptation projects that utilise Nature-Based Solutions, using the re-modernisation project at Køge Bay Strandpark as a case study?*

- *What criteria should be considered to ensure optimal procedural justice in the planning and execution of coastal climate adaptation projects?*
- *How do local residents perceive the level of procedural justice in the planning and execution of the re-modernisation project at Køge Bay Strandpark?*
- *How do other stakeholders perceive the level of procedural justice in the planning and execution of the re-modernisation project at Køge Bay Strandpark?*

This research will contribute to the field by bridging the critical gap between coastal climate adaptation strategies and the principles of climate justice, specifically Procedural Justice using the public engagement as a tool to ensure procedural justice. By focusing on equitable resilience, the study will provide valuable insights into how adaptation projects can be designed and implemented to serve not only as protection against the physical impacts of climate change, but also to promote social equity and community empowerment.

The coastal climate adaptation project at Køge Bay Strandpark is a critical initiative aimed at enhancing the resilience of the coastline against climate change impacts. This research focuses on investigate the knowledge regards on Procedural Justice and if there was a community engagement using the framework of procedural justice, and exploring the perceptions of local residents and other stakeholders.

Incorporating principles of procedural justice, such as transparency, inclusivity, and community engagement, is vital for fostering trust and legitimacy in urban planning processes (Arnstein 1969). Procedural justice ensures that all stakeholders, especially marginalised communities, have a voice in the planning and execution of projects that affect their lives (Young 1990). This research examines how the development of Køge Bay Strandpark integrates these

principles, evaluating the mechanisms of participation of the residents and the transparency of decision-making processes. By highlighting best practices and identifying areas for improvement, the study aims to contribute to more equitable and just urban planning practices.

The perceptions of local residents and stakeholders regarding procedural justice are crucial indicators of a project's social acceptance and legitimacy (Badru et al. 2023). This research examines these perceptions through surveys and interviews, providing valuable insights into the community's engagement and satisfaction with the project.

Understanding these perceptions helps to identify gaps in communication and participation, offering a basis for enhancing stakeholder engagement strategies. This aspect of the research is particularly relevant for policymakers and practitioners seeking to improve the inclusivity and responsiveness of urban planning initiatives.

Overall, the findings of this research have broader implications for sustainable urban planning and coastal management. As cities around the world face increasing climate risks, the integration of NBS and procedural justice in urban planning becomes ever more critical (Few, Brown, and Tompkins 2007b). Køge Bay Strandpark serves as a model for other coastal regions, demonstrating the potential of inclusive and sustainable adaptation strategies. This research contributes to the academic discourse on sustainable cities and urban planning, offering insights that can inform future projects and policy developments.

## 3.2 Research Design & Scientific Approach

This section delineates the analytical approach employed in this thesis to explore the integration of procedural justice into coastal climate adaptation projects, specifically through the case study of the re-modernization of Køge Bay Strandpark. The research design adopts a multidimensional framework, leveraging both quantitative and qualitative methodologies to provide a comprehensive understanding of the challenges and strategies involved in achieving climate justice in urban coastal areas.

The research design is structured around a mixed-methods approach, integrating both quantitative and qualitative data to capture a holistic perspective on climate justice. This approach is particularly effective for investigating collective perspectives and realizing a unified understanding of climate justice in the context of Køge Bay Strandpark. The overarching research question is dissected into three sub-questions, each analysed through specific theoretical lenses and methodological approaches to construct a coherent and comprehensive understanding.

The following table outlines the research design:

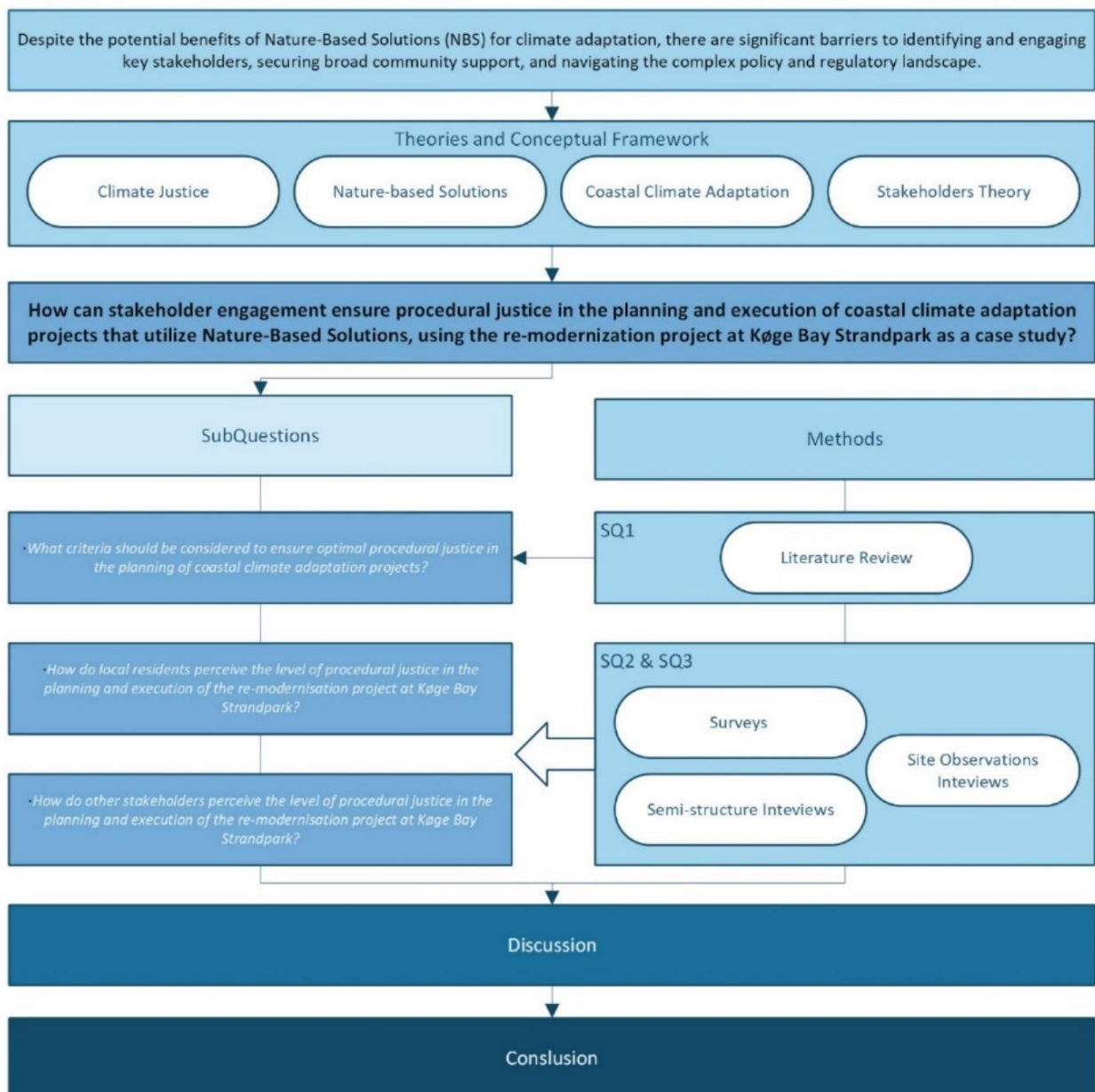


Table 2 Research Design (Own Creation).

As for the first sub-question, a systematic literature review was carried out. Drawing on peer-reviewed academic bibliography, policy documents, and stakeholder engagement case studies regarding what stakeholder engagement really means and the importance of procedural justice in development, literature concerning coastal adaptation projects was deeply reviewed. The purpose of the systematic literature review was to determine and characterize the criteria for good practice (optimal procedural justice) and identify state-of-the-art and best practices in the literature.

The provided literature review forms a theoretical and practical base for realizing fair and inclusive stakeholder participation processes in the project Køge Bay Strandpark. The research answers the main question by identifying these criteria, opening up where in this realm procedural justice can be relevant.

For the second section of the analysis, the investigation of the perception of the level of procedural justice in the implementation of the project by the local residents or other stakeholders (sub-question 2 and 3). The study designs

a multi-method approach responding to these research questions, involving surveys, semi-structured interviews, and site observations.

- **Questionnaire Surveys:** Intended to collect quantitative information on stakeholders' perception, participation, and level of information regarding the transparency and fairness of the project. This wide and non-elitist share of respondents was accomplished by sending out short questionnaires to a few dozen facilities when in the field and following up to ask superintendents or park managers to answer the same set of questions online.
- **Semi-structured Interviews:** This method allowed for a highly consensual dive into each piece of feedback, revealing little details that probably would not otherwise come up from a survey perspective.
- **Site Observations:** In situ observations provided a first-hand understanding of the stakeholder dynamic and engagement process and complemented the survey and interview responses.

By doing so, these methods complement each other and provide a detailed view of the stakeholder engagement process through multiple lenses. The research identifies opportunities and gaps for improving the effectiveness of stakeholder engagement by measuring the level of engagement felt by those directly affected by the project. It also ensures that the engagement processes encapsulate the principles of procedural justice found in the literature review.

Moreover, capturing the perceptions of local residents and other stakeholders in the second and third question, this research can assess the effectiveness of stakeholder engagement from the perspective of those directly affected by the project. This analysis is crucial for identifying gaps and areas for improvement, ensuring that the engagement processes align with the principles of procedural justice outlined in sub-question 1. This contributes to answering the main research question by highlighting how procedural justice can be realised through effective stakeholder engagement.

# 4 Theoretical & Conceptual Framework

## 4.1 Climate Justice

Issues of justice, equity, and legitimacy have long been central to academic and policy discussions surrounding climate change (Giddens 2009)(Marino and Ribot 2012). The concept of climate change has evolved from being perceived as a politically neutral issue to one intricately linked to human responsibilities and the exercise of democratic citizenship (Innerarity and Kingery 2013). While climate change remains an environmental phenomenon, it is also deeply rooted in social, economic, political, and cultural dimensions (Reckien et al. 2018).

Acknowledging the human role in exacerbating its impacts, many argue that labelling climate events as "natural disasters" is a form of semantic negligence because human interventions decisively influence both causes and effects (Nature Human Behaviour 2022).Consequently, climate-related disasters should be viewed as social catastrophes requiring political management (Carlson-Ostroff and Ostrander 2024)

Within these frameworks, the concept of climate justice has emerged. Schlosberg and Collins (2014) explain, the term has its roots in the environmental justice movement of the early 21st century, borrowing many of its principles and ideals. Environmental justice itself is concerned with the unequal distribution of environmental risks and the lack of procedural rights for marginalised communities to influence decisions that affect them (Taylor 2000).

Climate justice focuses on historically asymmetric international responsibilities, the countries that have developed their economies most extensively are also the ones most responsible for greenhouse gas emissions and, consequently, the global climate crisis(Roberts 2009). Conversely, the countries least responsible for emissions are set to bear the brunt of climate change impacts. This asymmetry is further compounded by structural inequalities. The multifaceted levels of geographic, social, cultural, and economic impacts are inherently discriminatory, giving climate change a distinct dimension of injustice (World Economic Forum 2023).

The discourse around climate justice incorporates various criteria, is described as a "complex justice" due to its multifaceted nature(Innerarity and Kingery 2013). The dimension of climate justice built upon three main pillars (see Figure 5): distributive justice, restorative justice, and procedural justice. While all three are crucial, procedural justice plays a pivotal role in ensuring that climate policies are fair, inclusive, and democratic.

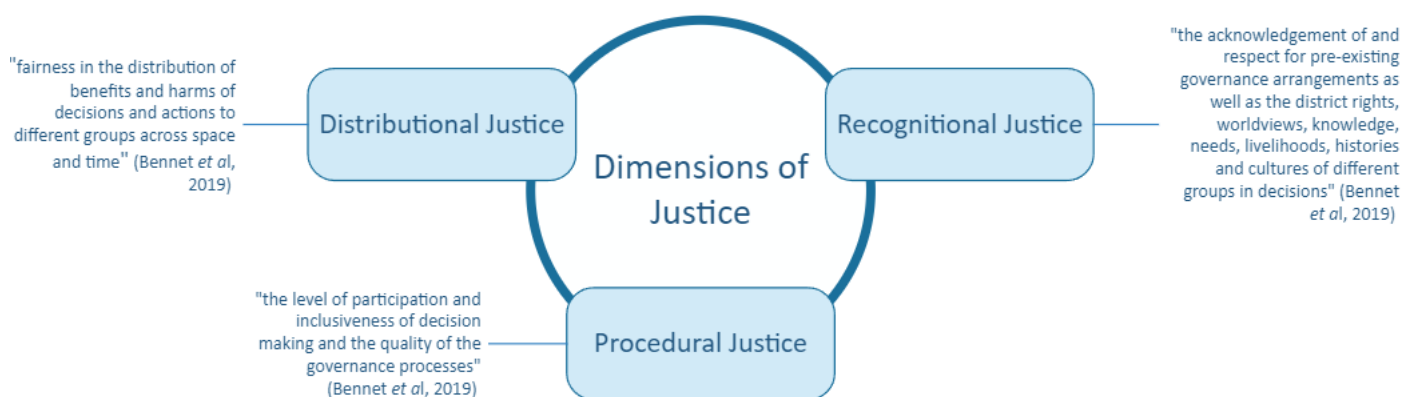


Figure 5 Definitions of three types of environmental justice (Gruby et al. 2021).

Procedural justice refers to the processes and practices that ensure all stakeholders, particularly those from vulnerable and marginalised groups, have a voice in decision-making. It is concerned with the fairness and transparency of these processes, aiming to guarantee that everyone affected by climate policies can participate meaningfully (Fraser 2009) (Bennett et al. 2019). This aspect of climate justice is essential because it addresses the power dynamics and structural barriers that often exclude disadvantaged communities from influencing the policies that impact them most directly.

The principles laid out in international frameworks underscore the importance of procedural justice in climate policy such as the Paris Agreement, which emphasises the need for inclusive, transparent, and participatory processes in climate governance (UNFCCC 2015). National and local policies must reflect these principles to ensure that climate actions do not exacerbate existing inequalities but rather contribute to social equity and justice.

In practice, achieving procedural justice in climate governance involves a range of strategies. These include conducting comprehensive stakeholder analyses to identify all affected groups, implementing inclusive consultation processes, ensuring decision-making bodies are representative of the populations they serve, and establishing mechanisms for ongoing dialogue and feedback (Few, Brown, and Tompkins 2007b). Additionally, procedural justice requires continuous monitoring and evaluation to ensure that the processes remain fair and inclusive over time.

Procedural justice is a fundamental aspect of climate justice that ensures the processes of climate governance are fair, inclusive, and transparent. It empowers marginalised communities to participate meaningfully in decision-making, holds authorities accountable, and builds trust in climate policies. By prioritising procedural justice, policymakers can create more equitable and effective climate solutions that address the needs of all stakeholders, particularly those most vulnerable to climate change (Few, Brown, and Tompkins 2007b).

In summary, climate justice is an developing and multifaceted concept that seeks to address the deep-seated inequities exacerbated by climate change. It incorporates elements of distributive, restorative, and procedural justice to ensure a holistic approach to climate policy. By focusing on the rights and needs of the most vulnerable, climate justice frameworks aim to create more equitable and sustainable solutions to the climate crisis. As such, integrating climate justice into policymaking and implementation is essential for achieving long-term, inclusive, and effective climate resilience (Schlosberg 2012).

## 4.2 Stakeholders Theory

The stakeholder theory is central to modern organizational management and business ethics for the relationships between organizations and their stakeholders. The idea was first articulated by R. Edward Freeman in his monumental 1984 book *Strategic Management: A Stakeholder Approach*, suggesting that organizations should focus not only on their shareholders but on all their stakeholders as well. These stakeholders may include employees, customers, suppliers, community members, and others who have direct or indirect relationships with the organization. Freeman reasons that a *stakeholder* is anyone who can "affect or is affected by the organization's objectives" (Freeman 1984).

This big picture view incentivizes businesses to become more ethical and responsible corporations, rather than businesses solely focused on profits. There have been different interpretations and offshoots of the development of stakeholder theory. A notable classification of stakeholder theory into three distinct aspects by Donaldson and Preston (1995) shown below : Descriptive; Instrumental and; Normative.



- **Descriptive:** This aspect explains the actual behaviour of organizations, illustrating how they operate and interact with stakeholders in reality. It offers a factual depiction of the organization's interactions with its stakeholders (Donaldson and Preston 1995).
- **Instrumental:** This perspective argues that managing organizations with a stakeholder approach leads to better outcomes, including profitability. It suggests that considering stakeholder interests is not only ethical but also pragmatic for achieving business objectives (Donaldson and Preston 1995).
- **Normative:** The normative perspective provides philosophical and ethical guidelines on how organizations should interact with stakeholders. It emphasizes the moral obligations of organizations to treat stakeholders fairly and equitably, advocating for moral management practices (Carroll 1991).

While enabling a refined conceptualization, Freeman (1984) was a key pioneer in the growing stakeholder spirit, however over time other researchers have also shaped the way in which we now characterize stakeholders (Freeman et al. 2010). Moreover, using both contractors or participants in exchange relationships, stakeholders are characterized by the give and take found in these relationships. (Mitchell, Agle, and Wood 1997). This has led to the emergence of the concept to stress relationships between organizations and their stakeholders (De Lopez 2001) (Freeman et al. 2010).

Though it was first applied to corporate stakeholders, stakeholder theory is also applicable to project management. Stakeholder theory is an indicator that satisfies the criteria; it directly relates to project-specific stakeholders, which can be considered as temporary organizations (Aaltonen and Kujala 2010). A sensible stakeholder is methodological as well as using the problem space and context of project purposes. The concept of project stakeholders refers to, people who have legal, and/or ownership interests in projects, participate in projects, and can influence or be influenced by the project (Aapaoja and Haapasalo 2014).

The stake of a stakeholder in the project implies his requirements and interests in effect from the project, moreover, his behaviour during the project development (Aaltonen and Kujala 2010). This idea can be applied to all kinds of units of analysis, including individual humans, groups of humans, organizations, and even larger parts of society like neighbourhoods and the natural environment (Mitchell, Agle, and Wood 1997). For example, Rodrigue et al. In addition, Ton et al. (2010) point out the variety of stakeholders relevant to the port operations, such as port authorities, public authorities, haulage companies, and shipping companies. The roles and influence of stakeholders are dependent on the project landscape (Aapaoja and Haapasalo 2014).

Moreover, the stakeholder theory emphasizes the ethicality and social liabilities associated with organizational management. An alternative to the traditional shareholder-centered model, it incorporates broader societal considerations. In a global-warming greenhouse gas emissions context, this ethical dimension has real implications and is closely tied to future environmental sustainability and corporate social responsibility (CSR) (Freeman et al. 2010). In this context, the role of business is to generate value, as part of the wider process of value creation for all stakeholders. It is in line with the principles of sustainable development because companies are prompted to consider environmental, social, and economic issues in their actual operations (Hörisch, Freeman, and Schaltegger 2014).

Stakeholder theory has practical implications for coastal climate adaptation projects. These projects are typically implemented by a wide array of stakeholders that can be local communities, landholders, businesses, the government, and environmental NGOs. Objectives of effective stakeholder engagement include seeking the



collective wisdom of all parties to the table, and more broadly ensuring that we are meeting the interests and concerns of all parties from an ecosystem perspective, and that broader social justice outcomes prevail (Badru et al. 2023). With the renovation of Køge Bay Strandpark as an example, the stakeholder theory illustrates in a good way the view of the complicated interrelations between different kinds of stakeholders. Stakeholder analysis can lead to more equitable participation and answerability, due to procedural justice principles.

### 4.3 NBS and Coastal Climate Adaptation

Nature-Based Solutions (NBS) have emerged as a promising paradigm in addressing environmental challenges by leveraging the inherent properties of natural ecosystems. The International Union for Conservation of Nature (IUCN) defines NBS as "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits" (IUCN 2016b). These solutions span various applications, including climate change mitigation and adaptation, disaster risk reduction, food security, and water security.



Figure 6 Conceptual framework on Nature-based Solutions (IUCN 2016b)

NBS differs from traditional engineering solutions by integrating natural features and processes, often in combination with grey infrastructure. This integration makes NBS versatile and accessible, capable of addressing a wide range of environmental issues while also being cost-effective and sustainable over the long term (Seddon et al. 2020). In coastal management, for instance, NBS includes restoring mangroves, constructing living shorelines, and revitalising wetlands to mitigate flooding and erosion.

In the context of coastal protection, NBS harness the protective benefits of ecosystems like dunes, wetlands, and reefs, which can absorb wave energy, reduce erosion, and enhance coastal stability (Cohen-Shacham et al. 2016). These solutions emphasise the conservation and restoration of natural habitats to provide crucial defence against

sea-level rise and storm surges, leveraging the inherent capacity of ecosystems to support human well-being alongside biodiversity conservation (Seddon et al. 2020).

Nature-Based Solutions (NBS) are increasingly recognised for their effectiveness in addressing coastal climate adaptation challenges. These solutions leverage natural processes and ecosystems to enhance coastal resilience, providing ecological, social, and economic benefits. Various types of NBS can be employed to protect coastal areas, each offering unique advantages and addressing specific climate-related risks. In Table 3 there are some cases of different types of NBS in different countries.

Table 3 Types of Nature-Based Solutions for Coastal Climate Adaptation.

Type of NBS	Key Benefits
<b>Mangrove Restoration</b>	Shoreline stabilization, wave attenuation, carbon sequestration, biodiversity enhancement
<b>Salt Marsh Restoration</b>	Flood protection, sediment trapping, carbon storage, water filtration
<b>Coral Reef Restoration</b>	Wave energy dissipation, coastal erosion reduction, marine biodiversity support
<b>Dune Stabilisation</b>	Storm surge protection, erosion control, habitat provision
<b>Living Shorelines</b>	Erosion control, habitat creation, water quality improvement
<b>Seagrass Meadow Restoration</b>	Sediment stabilisation, wave attenuation, carbon sequestration, biodiversity support
<b>Hybrid Solutions</b>	Enhanced durability, ecological function support, flexible adaptation

The spectrum of NBS interventions in coastal areas ranges from purely green infrastructure, such as the restoration of mangroves and salt marshes, to hybrid approaches that combine natural elements with engineered structures. For instance, green infrastructure projects like mangrove restoration not only stabilise shorelines and improve water quality but also enhance carbon sequestration, supporting broader climate mitigation efforts (Barbier 2016). Hybrid approaches might include the use of breakwaters that incorporate living elements, such as oyster reefs, which reinforce the structure's durability and ecological function (Temmerman and Kirwan 2015).

## 4.4 Integrating Nature-Based Solutions into Coastal Management Strategies

Mainstreaming NBS within coastal management frameworks necessitates a multi-faceted approach, emphasising policy integration, institutional capacity building, and cross-sectoral collaboration. Effective policy integration involves embedding NBS into national and regional development policies, coastal zone management plans, and climate adaptation strategies to ensure comprehensive and coherent policy support (Kauark-Fontes, Marchetti, and Salbitano 2023). Building institutional capacity is crucial for implementing these policies, requiring training, resource allocation, and the development of expertise in NBS techniques and principles (Sutton-Grier, Wowk, and Bamford 2015). Cross-sectoral collaboration enhances the implementation of NBS by involving various stakeholders, including governmental bodies, environmental NGOs, academia, and local communities, facilitating shared understanding and joint action (Reid et al. 2019)(Few, Brown, and Tompkins 2007a).

Traditional "grey" infrastructure, such as concrete seawalls and breakwaters, are designed to protect coastal areas by providing a physical barrier against waves and storm surges (Pontee 2013). However, these structures can be prohibitively expensive to build and maintain. Additionally, they often lead to unintended ecological consequences, such as habitat loss and altered sediment dynamics. For instance, seawalls can exacerbate erosion downstream by interrupting the natural flow of sediments, leading to a "coastal squeeze" where natural habitats like wetlands are trapped between rising seas and fixed structures (Pontee 2013).

Moreover, traditional infrastructure tends to be inflexible and does not adapt well to changing environmental conditions. As sea levels continue to rise, many of these structures will require significant upgrades or replacement, further escalating costs and environmental impacts. This inflexibility also reduces the overall resilience of coastal systems, making them more vulnerable to extreme weather events and long-term climatic changes.

Nature-Based Solutions, on the other hand, offer dynamic and adaptive responses to coastal challenges. By leveraging natural processes and ecosystems, NBS can provide effective and sustainable coastal protection while delivering a range of co-benefits.

## 5 Methodology

The present research is carried out under a qualitative approach with an emphasis on the socio-territorial, in which the processes of climatic adaptation on the coasts are investigated, as well as the local responses to the possible effect of gentrification and maladaptation.

Qualitative research techniques in the social sciences were used to understand the complexity of individuals, phenomena, spaces and social processes through the experience of the subjects; In addition, qualitative epistemology recognises the constructive-interpretative, communicational and dialogical nature of knowledge through which historically constructed realities can be understood, producing knowledge about subjectivities (González Rey and Torres 2017). People-centred methodologies have been used to explore the geographical experience of communities through a more empirical approach, a humanism as a practical approach that does not seek to verify theories but to examine a particular knowledge of place (Rodaway 2006).

### 5.1 Literature Review

Denmark's history in creating and enhancing blue-green spaces provides a rich backdrop for this research. Køge Bay Strandpark, often referred to as the "Sleeping Beauty," exemplifies Denmark's long-term commitment to nature-based solutions (NBS) and coastal protection. Initially conceptualised in 1977, the project has developed over four decades, with recent modernisation plans. This case study also demonstrates that, when communities are not considered as powerful stakeholders, NBS projects can showcase what is missing or failing in the process.

In conducting this literature review, state-of-the-art reviews, a specific sub-type of literature review, were employed. These reviews are particularly useful when the goal is to build directly on previous research addressing current issues, offering new perspectives on existing problems (Grant and Booth 2009). Unlike traditional keyword searches, the initial identification of materials for this review was based on conversations with experts, including a personal communication with the laboratory researcher also on the Case in Køge Bay Strand Park. This approach ensured that the most relevant and current sources were included in the analysis.

Various bibliographic sources were utilised as the primary tools for data collection. These sources included articles, reports, theses, and websites, which were meticulously classified to provide a comprehensive understanding of the subject matter. The main sources and their classifications are detailed in Table 4.

Table 4 Main Sources for Literature Review.

Topic	Reference	Type of Source
<b>Køge Bay Strandpark</b>	Køge Bay Strandpark A/S, Brøndby Kommune, Greve Kommune, Ishøj Kommune, and Vallensbæk Kommune. 2023. "Modernization of Køge Bay Beach Park."	Report
	I/S Køge Bugt Strandpark. 1986. "Køge Bugt Strandpark." 1986	Report
<b>Nature-Based Solution in Coastal Climate Adaptation</b>	Bona, Sara, Armando Silva-Afonso, Ricardo Gomes, Raquel Matos, and Fernanda Rodrigues. 2023. "Nature-Based Solutions in Urban Areas: A European Analysis." <i>Applied Sciences</i> 13 (1). <a href="https://doi.org/10.3390/app13010168">https://doi.org/10.3390/app13010168</a> .	Article
	Badru, Gbolahan, Shakirudeen Odunuga, Ademola Omojola, and Emmanuel Oladipo. 2023. "Stakeholder Engagement in Coastal Adaptation Interventions: Insights from the Southwest Coast of Nigeria." <i>Marine Policy</i> 155:105690. <a href="https://doi.org/https://doi.org/10.1016/j.marpol.2023.105690">https://doi.org/https://doi.org/10.1016/j.marpol.2023.105690</a> .	Article
	Sutton-Grier, Ariana E, Kateryna Wowk, and Holly Bamford. 2015. "Future of Our Coasts: The Potential for Natural and Hybrid Infrastructure to Enhance the Resilience of Our Coastal Communities, Economies and Ecosystems." <i>Environmental</i>	Article

	Science & Policy 51:137–48. <a href="https://doi.org/https://doi.org/10.1016/j.envsci.2015.04.006">https://doi.org/https://doi.org/10.1016/j.envsci.2015.04.006</a> .	
	Rozance, Mary Ann, Ashlie Denton, A Marissa Matsler, Zbigniew Grabowski, and Wendy Mayhugh. 2019. "Examining the Scalar Knowledge Politics of Risk within Coastal Sea Level Rise Adaptation Planning Knowledge Systems." <i>Environmental Science &amp; Policy</i> 99:105–14. <a href="https://doi.org/https://doi.org/10.1016/j.envsci.2019.05.024">https://doi.org/https://doi.org/10.1016/j.envsci.2019.05.024</a> .	Article
	Dushkova, Diana, and Dagmar Haase. 2020. "Not Simply Green: Nature-Based Solutions as a Concept and Practical Approach for Sustainability Studies and Planning Agendas in Cities." <i>Land</i> 9 (1). <a href="https://doi.org/10.3390/land9010019">https://doi.org/10.3390/land9010019</a> .	Article
<b>Stakeholders Participation</b>	Reed, Mark S. 2008. "Stakeholder Participation for Environmental Management: A Literature Review." <i>Biological Conservation</i> 141 (10): 2417–31. <a href="https://doi.org/https://doi.org/10.1016/j.biocon.2008.07.014">https://doi.org/https://doi.org/10.1016/j.biocon.2008.07.014</a>	Article
	Hörisch, Jacob, R. Edward Freeman, and Stefan Schaltegger. 2014. "Applying Stakeholder Theory in Sustainability Management." <i>Organization &amp; Environment</i> 27 (4): 328–46. <a href="https://doi.org/10.1177/1086026614535786">https://doi.org/10.1177/1086026614535786</a> .	Article
	Anguelovski, Isabelle, James J T Connolly, Hamil Pearsall, Galia Shokry, Melissa Checker, Juliana Maantay, Kenneth Gould, Tammy Lewis, Andrew Maroko, and J Timmons Roberts. 2019. "Why Green 'Climate Gentrification' Threatens Poor and Vulnerable Populations." <i>Proceedings of the National Academy of Sciences</i> 116 (52): 26139–43. <a href="https://doi.org/10.1073/pnas.1920490117">https://doi.org/10.1073/pnas.1920490117</a> .	Article
	Badru, Gbolahan, Shakirudeen Odunuga, Ademola Omojola, and Emmanuel Oladipo. 2023. "Stakeholder Engagement in Coastal Adaptation Interventions: Insights from the Southwest Coast of Nigeria." <i>Marine Policy</i> 155:105690. <a href="https://doi.org/https://doi.org/10.1016/j.marpol.2023.105690">https://doi.org/https://doi.org/10.1016/j.marpol.2023.105690</a> .	Article
	Arnstein, Sherry R. 1969. "A Ladder Of Citizen Participation." <i>Journal of the American Institute of Planners</i> 35 (4): 216–24. <a href="https://doi.org/10.1080/01944366908977225">https://doi.org/10.1080/01944366908977225</a> .	Article

This research employs a dual-scale analysis to provide a comprehensive understanding of urban green space provision from both a national and site-specific perspective. This approach enables a nuanced assessment of NBS and local community needs (Haase et al. 2014). The national analysis will explore the integration of NBS into overall urban densification policies, offering insights into the broader policy context. In contrast, the site-specific examination of areas like Køge Bay Strandpark will delve into the direct impacts and community perceptions of procedural justice, particularly during the early stages of the project.

Understanding the historical and cultural dynamics of urban planning in Denmark is essential for identifying potential challenges and opportunities within the current policy framework. This understanding serves as a tool to unlock the benefits of integrating community engagement, thereby avoiding possible negative responses, such as green gentrification, which are common in coastal projects (Casprini et al. 2023).

In summary, the literature review will draw from a wide range of sources, including articles, reports, theses, and websites, to provide a comprehensive analysis of the integration of NBS in coastal climate adaptation. Through analysing national policies and case studies, this review aims to provide information on successful strategies and possible challenges when incorporating fairness into urban planning initiatives.

## 5.2 Semi structured Interviews

This research utilises semi-structured interviews as the primary data collection tool with communities, considering that this interview technique is a qualitative research method that involves asking questions to generate a conversation with participants. It is defined as semi-structured because it provides certain flexibility to achieve much more robust results and allows individuals to respond in their own language, providing richer and more detailed information (Clifford et al. 2010).

To enhance the understanding of the practical aspects of coastal adaptation strategies, this thesis incorporates a qualitative research method through surveys and semi-structured interviews with key stakeholders involved in the Køge Bay adaptation projects. The initial plan was to interview a diverse range of stakeholders from the public sector and conduct interviews on-site. A total of 5 potential interviews were identified (see Annex 1), including representatives from the five municipalities, public organisations, and private businesses in the area.

Despite the comprehensive planning, the actual interviews conducted included a successful semi-structured interview with the main project leader and responses from 8 residents who actively use the area(). These community interviews provided valuable grassroots perspectives. The interviews are designed to gather in-depth insights into the experiences, perceptions, and recommendations of stakeholders, focusing particularly on the integration of climate justice into adaptation practices.

Table 5 Interviews used as part of the research

Interviewee	Position & profession	When & where	Contributions to the report	Resume
<b>Christine Brønnum-Johansen</b>	Inter-municipal project manager	22. of April Vallensbæk Stationstorv 100	Contributed with knowledge and reflections of the case Project re modernisation and urban planning practices.	Annex 1
<b>Residents (8 interviews)</b>	Not Defined	4 - 5 of May Ishøj Station Køge bay StrandPark	Contributed to reflections about community engagement interest	Annex 2

By engaging with these stakeholders, the research aims to capture a wide range of views and experiences, providing a rich, qualitative understanding of the procedural and practical challenges and opportunities in implementing climate adaptation strategies. This method ensures that the voices of both decision-makers and community members are heard, offering a comprehensive picture of the project's impact and the effectiveness of its stakeholder engagement efforts.

## 5.3 Surveys

Surveys are a widely used research method for systematically collecting data from a large number of respondents. They involve the use of questionnaires to gather information about individuals' attitudes, behaviours, opinions, or characteristics. The primary benefit of using surveys in research is their ability to gather large amounts of data efficiently, allowing for the analysis of trends and patterns within a population (Fowler 2013). Surveys are particularly valuable in social science research because they enable the collection of standardised data, which can be quantitatively analysed to draw generalisable conclusions (Groves et al. 2009). Additionally, surveys facilitate the inclusion of diverse perspectives, enhancing the robustness and validity of the research findings (Bryman 2016).

This method was used to systematically collect data from the community residing in and around the Køge Bay area, whether or not they actively use the space. The survey was created in an online format and distributed via social media (Facebook Groups) platforms within the five municipalities. The survey was open from April 28 to May 15, and a total of 16 responses were collected. Additionally, a site visit on May 5 resulted in 22 community members completing the survey in person, for a total of 38 surveys responded, 31 surveys from residents and 7 other stakeholders like visitor were collected (See Annex 3).

To conduct the surveys for this research, custom-designed questionnaires were developed. The primary objective of these surveys was to assess the current state of climate justice in the research area and to gather local insights on procedural justice and coastal climate adaptation. In the first stage, the questionnaire aimed to determine respondents' awareness of both the modernisation project and the decision-making process, including its transparency. The following table presents the format of the questions and answers.

Table 6 Survey Format.

Title		Community Feedback Survey on Procedural Justice in the Re-modernisation of Køge Bay Strandpark			
<b>Presentation</b>	As part of my Master's Thesis research, this survey aims to collect data that will help us understand the level of procedural justice in the re-modernisation project of Køge Bay Strandpark and identify areas for improvement. Your participation by sharing your thoughts and opinions is greatly appreciated. Thank you for contributing to this research.				
<b>No. Question</b>					Answers
1	Do you know the concept of Procedural Justice?	Yes	No		
2	Are you aware of the plans for the re-modernisation of Køge Bay Strandpark?	Yes	No		
3	Have you been involved in any discussions or decision-making processes regarding the re-modernisation project?	Yes	No		
4	Do you feel that the decision-making process regarding the re-modernisation project has been transparent?	Yes	No	Not sure	
5	How would you rate the level of communication between the stakeholders (e.g., local government, residents, environmental organisations) regarding the re-modernisation project?	Excellent	Good	Fair	Poor
6	Do you believe that your concerns and opinions have been taken into account during the planning phase of the re-modernisation project?	Yes	No	Not interested	
7	In your opinion, what improvements could be made to ensure a more procedurally just approach to the re-modernisation project?	Open Answer			

The data collected from these interviews and surveys will be analysed to complement the findings from the literature review and the interviews. This triangulation of data sources enriches the research, providing a robust basis for understanding the influence of adaptation practices on urban planning and community dynamics in Køge Bay Strandpark.

## 5.4 Structured Observations

Structured observations are a systematic method of data collection where researchers use a predetermined framework to observe and record behaviours, events, or conditions within a specific setting. This approach involves the use of standardised tools, such as checklists or rating scales, to ensure consistency and objectivity in the observation (Cohen, Manion, and Morrison 2000). One of the key benefits of structured observations in research is the ability to collect reliable and comparable data across different subjects and settings. This method minimises observer bias and enhances the accuracy of the collected data, making it particularly useful for quantitative research where precision and standardisation are crucial (Angrosino 2007).

These observations also allow researchers to capture data in real-time, providing a direct and immediate account of behaviours or events as they occur. This is especially valuable in studies where understanding the context and nuances of interactions is essential (Mulhall 2003). Additionally, the systematic nature of structured observations

facilitates the replication of studies, thereby contributing to the validity and reliability of research findings (Mertens 2019).

As part of the Laboratory Research Group, we have planned two site visits to Køge Bay Strandpark (see Table 7). During these visits, we will employ the observation technique to understand who uses Køge Bay Strandpark and how the space is utilised. Additionally, these observations will help identify whether there is physical communication between the project developers and the local communities.

Table 7 Structured Observation Details

Location	Køge Bay Strand Park
Objective	Collect knowledge about who uses the areas and for what purposes, and identify any relevant groups or distinguishable sections of society that are more prevalent.
Dates	February 22 – 26 May 23 – 27
Data Collection	Insights into the communities' use patterns and predominant demographic groups utilising the area.

During these systematic observations, each researcher will be assigned specific observational tasks within the park. The structured observation technique involves detailed, real-time recording of behaviours, interactions, and activities using standardised tools to ensure consistency and objectivity. This method will provide reliable data on how different demographic groups engage with the park and interact with each other and the environment.

The insights gained from these observations will be invaluable in understanding the social dynamics of Køge Bay Strandpark. By comparing observational data with survey results, the aim is to validate and enrich the understanding of community engagement and the effectiveness of communication between project developers and the local population. This comprehensive approach will enable to identify key stakeholders, assess procedural justice in the project's implementation, and provide recommendations for enhancing community involvement and support.



## 6 Criteria for Ensuring Optimal Procedural Justice in Coastal Climate Adaptation Projects

This section presents the findings on the criteria necessary for ensuring optimal procedural justice in the planning and execution of coastal climate adaptation projects. Drawing from a comprehensive review of academic literature, policy documents, and case studies, this analysis identifies key principles and practices that underpin procedural justice in environmental governance.

### 6.1 Transparency and Access to Information

Transparency is a fundamental criterion for procedural justice. It involves the clear and open communication of project plans, decisions, and rationales to all stakeholders. Access to information ensures that stakeholders are well-informed and able to participate meaningfully in the decision-making process.

#### *Key Findings:*

- **Clear Communication Channels:** Communication channels that enable messages related to hosting objectives, durations, and effects of the project. Such as public meetings, online portals, and even informational brochures (Schlosberg 2013).
- **Timely Disclosure:** Information needs to be released in a time frame that gives stakeholders a real opportunity to grasp the proposal and respond. This kind of practice can increase trust and more effective participation (Fung 2006).

Transparency is critical in fostering trust and credibility among stakeholders. When stakeholders perceive that they are being kept informed and that their input is valued, they are more likely to support and engage with the project. Lack of transparency, on the other hand, can lead to mistrust, resistance, and conflict, undermining the project's success (Orsetti et al. 2022).

### 6.2 Inclusivity and Representativeness

Inclusivity ensures that all relevant stakeholders, particularly marginalized and vulnerable groups, are involved in the planning and decision-making processes. Representativeness ensures that the composition of stakeholder groups reflects the diversity of the affected population.

#### *Key Findings:*

- **Broad Stakeholder Engagement:** Efforts must be made to engage a wide range of stakeholders, including local communities, indigenous groups, NGOs, and private sector entities. This inclusivity helps to capture diverse perspectives and needs (Reed 2008).
- **Equitable Participation:** Mechanisms should be in place to ensure that all stakeholder voices are heard and considered, regardless of their socioeconomic status or political power (Roberts and Parks 2006).

Inclusion and representation are essential to guarantee that all stakeholders have a seat at the table during the planning and execution of coastal climate adaptation projects. These guidelines aid in ensuring that both the needs and the perspectives of different socio economic and cultural communities are taken into consideration, subsequently resulting in impactful results (Badru et al. 2023). If these principles are ignored, then decisions will be made without

the input of marginalized groups and the final policies and projects will fail to fully meet their needs or possibly make matters worse.

On the other hand, to guarantee broad stakeholder commitment, project planners must recognize as well as proactively engage with all appropriate stakeholders. That involves local communities, different demographic groups, NGOs, the private sector, and other stakeholders. Inclusive project outcomes are achieved by involving broader stakeholder engagement, which enriches the insights with a full range of viewpoints and needs (Reed 2008).

## 6.3 Empowerment and Capacity Building

Empowerment involves providing stakeholders with the resources and skills needed to participate effectively in the decision-making process. Capacity building enhances stakeholders' abilities to engage meaningfully and advocate for their interests. Together, these principles ensure that all stakeholders, particularly marginalized and vulnerable groups, have the capability and confidence to participate in the planning and execution of coastal climate adaptation projects.

### **Key Findings:**

- **Training and Education Programs:** Implementing training sessions and educational workshops can help stakeholders understand complex project details as well as environmental and social issues, empowering them to contribute more effectively (Badru et al. 2023)
- **Resource Allocation:** Allocating resources such as funding and technical support to minorities and marginalized groups ensures that all stakeholders have the capacity to engage in the process (Sabatier 2005)

Empowerment and capacity building are necessary to ensure that all stakeholders, particularly those belonging to marginalized communities, can partake meaningfully in decision-making processes. They set out to even the playing field, ensuring that a questioner with limited knowledge, resources, and power can meaningfully engage stakeholders from different informational regimes and affect project outcomes.

## 6.4 Fairness in Decision-Making Processes

Fairness in decision-making processes ensures that all stakeholders have equal opportunities to influence outcomes. This involves creating fair and equitable procedures for stakeholder engagement and decision-making, which are critical to procedural justice.

### **Key Findings:**

- **Equitable Decision-Making Structures:** Establishing decision-making bodies that include representatives from all stakeholder groups helps ensure fairness (Lind and Tyler 1988).
- **Conflict Resolution Mechanisms:** Implementing mechanisms for resolving conflicts and addressing complaints is essential for maintaining procedural justice (Reed 2008).

Fairness is essential to ensure that all stakeholders, particularly marginalized and vulnerable groups, can participate on an equal footing in decision-making processes (European Commission 2022). This principle helps to prevent the dominance of powerful interests and ensures that all voices are heard and considered. Fair decision-making

processes contribute to more legitimate and acceptable outcomes, fostering trust and cooperation among stakeholders.

Building fair decision-making processes requires a commitment to inclusivity, transparency, and impartiality. Establishing proportional representation in decision-making bodies helps to ensure that the composition of these bodies reflects the diversity of the affected population. This can involve setting quotas or other mechanisms to ensure that marginalized groups are adequately represented.

By incorporating these principles and practices, coastal climate adaptation projects can foster more inclusive, transparent, and fair decision-making processes. This not only enhances procedural justice but also contributes to more effective and sustainable outcomes.

## 7 Climate Justice in the Danish Context

Climate justice, a multifaceted concept addressing the ethical and political dimensions of climate change, has become a crucial framework in contemporary environmental discourse. It underscores the disproportionate impacts of climate change on vulnerable populations and emphasises the need for equitable distribution of climate benefits and burdens. This discussion will begin by examining climate justice from a global perspective, then focus on the European context, and finally delve into its manifestation and challenges in Denmark.

Globally, climate justice highlights the unequal contributions to and effects of climate change. Developed nations, historically responsible for the majority of greenhouse gas emissions, have the resources and technology to mitigate and adapt to climate impacts. In contrast, developing countries, which contribute the least to climate change, suffer the most severe consequences. This is evident in the frequent and devastating impacts of climate events in the Global South, where infrastructure and social systems are less equipped to handle such stresses (Bulkeley, Edwards, and Fuller 2014).

The Paris Agreement of 2015 marked a significant milestone in international climate policy, emphasising the principle of common but differentiated responsibilities (CBDR). This principle acknowledges the varying capabilities and responsibilities of different countries in addressing climate change. However, critics argue that the implementation of the Paris Agreement falls short in addressing the historical injustices and ensuring adequate financial and technological support for vulnerable nations (Roberts and Parks 2006).

In Europe, climate justice has become a key element of the European Union's (EU) climate policies. The EU's Green Deal, launched in 2019, aims to make Europe the first climate-neutral continent by 2050. A critical part of this plan is the Just Transition Fund, which is designed to support regions and workers moving away from high-carbon industries toward sustainable alternatives. This initiative recognises the socio-economic challenges of transitioning to a green economy and aims to ensure that no one is left behind (European Commission 2019).

By addressing the inequalities and vulnerabilities that climate change exacerbates, the EU is striving to create a fair and inclusive transition to a sustainable future. Through these efforts, the EU is setting an example for global climate action and demonstrating its commitment to environmental and social responsibility.

However, despite these efforts, Europe faces significant internal disparities in climate vulnerability and readiness. Southern and Eastern European countries, which generally have lower GDPs and higher climate risks, often lack the resources needed to implement comprehensive climate adaptation measures. These disparities highlight the importance of solidarity and equitable resource distribution within the EU to effectively address climate justice (Roberts and Parks 2006).

Denmark is widely recognised as a leader in climate action and sustainability. The Danish government has set ambitious goals to reduce greenhouse gas emissions by 70% by 2030 compared to 1990 levels and to achieve carbon neutrality by 2050. These targets are guided by the Climate Act of 2019, which mandates regular updates to climate action plans and establishes an independent Climate Council to provide government advice (Danish Ministry of Climate 2019).

Denmark's approach to climate justice is closely linked to its broader welfare state model, which prioritises social equity and support for vulnerable populations. Climate policies are in place to guarantee a fair transition to a

green economy, without widening social inequalities. For instance, energy taxes are structured to minimise the financial burden on low-income households, and there are substantial investments in public transportation and renewable energy projects in disadvantaged areas (Lund and Mathiesen 2009).

Despite its progressive policies, Denmark faces challenges in achieving climate justice. One critical issue is the country's agricultural sector, which is a significant source of greenhouse gas emissions. Policies aimed at reducing agricultural emissions, such as methane reduction targets and nitrogen regulations, have faced resistance from farmers who argue that these measures threaten their livelihoods (Hunter 2024). This tension highlights the need for inclusive policy-making processes that involve stakeholders from all sectors to develop fair and effective climate solutions.

Moreover, urban areas in Denmark, particularly Copenhagen, have been proactive in implementing climate adaptation measures. The city's cloudburst management plan, developed in response to severe flooding events, integrates green infrastructure to manage stormwater and reduce flood risks. However, critics argue that such projects can lead to "green gentrification," where property values increase, and low-income residents are displaced (Mikkelsen 2021). Ensuring that the benefits of green infrastructure are equitably distributed remains a key challenge for Danish cities.

## 8 Procedural Justice and Stakeholders Engagement

The following section presents the results of the survey and site visit aimed at understanding community perspectives on procedural justice in the re-modernisation of Køge Bay Strandpark. By systematically collecting data from residents through both online and in-person surveys, this analysis aimed to capture a wide array of viewpoints on the current state of climate justice and coastal climate adaptation in the area.

### 8.1 Residents Perception on Procedural Justice

The first three questions, which were formatted as yes/no questions, provided a general overview of the respondents' knowledge regarding procedural justice and their awareness of the specific case study of Køge Bay Strandpark. The results, depicted in Figure 7, indicate that approximately 84% of the participants were not familiar with the concept of procedural justice. Similarly, around 87% had not been involved in discussions related to the planning of the modernisation. This indicates a substantial lack of understanding of procedural justice among the community members, which could affect their ability to fully engage and advocate for fair processes in the project and a potential gap in stakeholder engagement highlights the need for more inclusive participation strategies to involve a broader section of the community.

In contrast, 55% of respondents were aware of the plans for the re-modernisation project, whether in detail or generally, indicating a higher level of awareness about the project's existence, while 45% of the residents negate any knowledge of the project. This indicates that slightly more than half of the respondents had some knowledge of the project, but there is still a considerable portion of the community that remains uninformed.

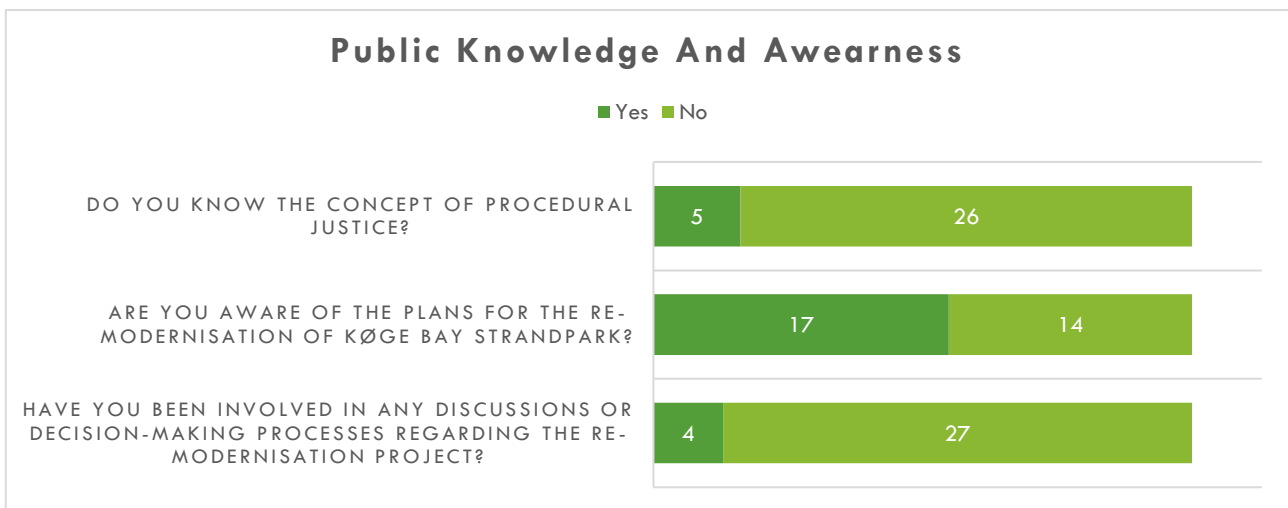


Figure 7 Questionary Results Residents (1,2,3)

Regards to an easy understanding of the concept of Procedural Justice and the participation of different stakeholders, question 4 presents a perspective of the residents about the decision making process, These results, as shown in Figure 8, highlight that a significant portion of the community, around 45%, believes the decision-making process has been transparent. However, a considerable number of respondents, approximately 36%, are uncertain about the transparency, and about 19% feel that the process has not been transparent. This indicates a mixed perception of transparency in the decision-making process, suggesting a need for improved communication and

engagement with the community to enhance transparency and build trust in the project's planning and implementation phases.

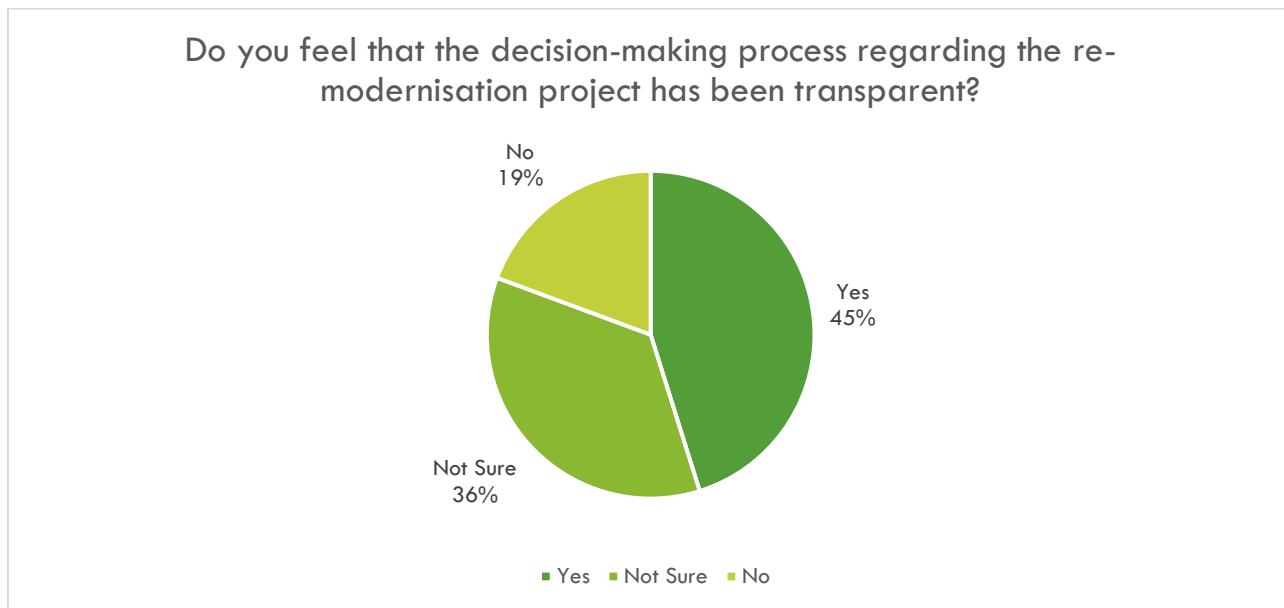


Figure 8 Questionary Results Residents(4)

The results include a general negative perception on the communication quality between the residents, and the others stakeholders of the re-modernization project (Figure 9). An "Excellent" rating was given by just 10 percent of respondents — with only a further 13 percent rating it as "Good". On the other extreme 35% and 32% said it is poor and fair respectively. The fact that 67% of respondents rated the communication as either "Fair" or "Poor" suggests a critical need for enhancing the communication strategies employed in the project. Effective communication is essential for ensuring that all stakeholders are adequately informed and can participate meaningfully in the decision-making process.

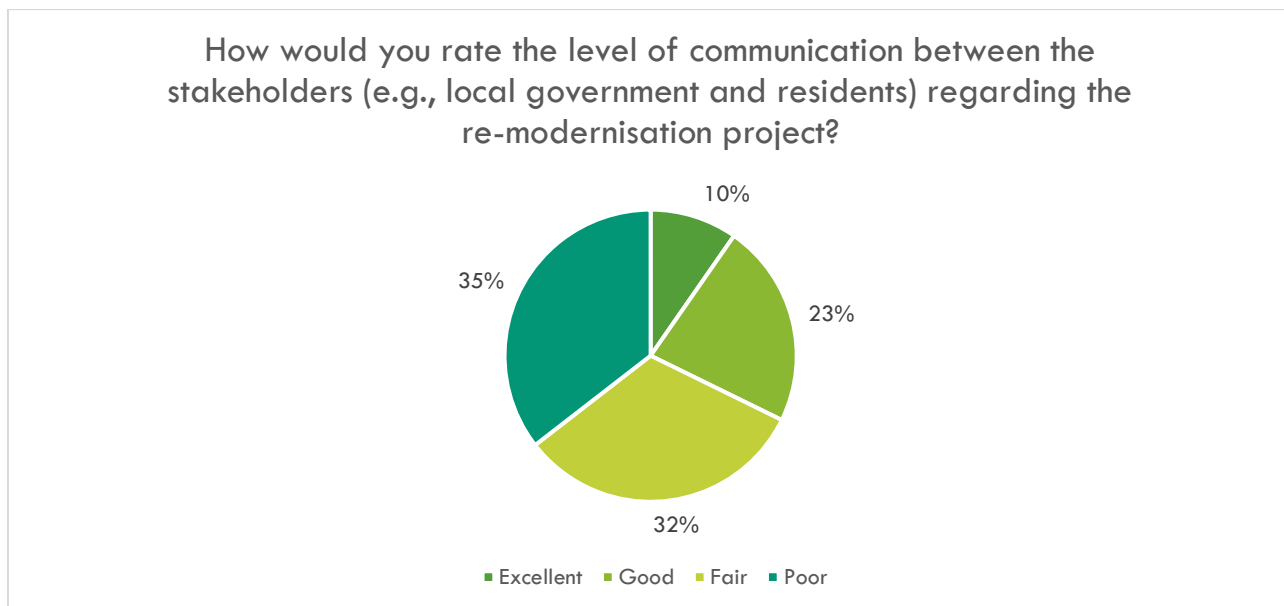


Figure 9 Questionary Results Residents (5)

The results for question 6 aimed to assess whether respondents felt that their concerns and opinions had been considered during the planning phase of the re-modernization project at KBS. The results indicate that a significant portion of the residents do not feel that their concerns and opinions were taken into account during the planning phase of the project. Only a small minority (10%) believe their input was considered, while nearly half (48.4%) feel that their concerns were not acknowledged.

Additionally, 48% of respondents indicated they believe their opinions were not considered. The fact that only 10% of respondents felt their concerns were taken into account suggests a significant disconnect between the planning authorities and the community. This low level of perceived inclusion can undermine trust and support for the project. The 42% of respondents who were not interested in whether their concerns were considered highlight a potential issue of disengagement or apathy among the community. This could be due to a lack of effective communication or previous experiences of being overlooked.

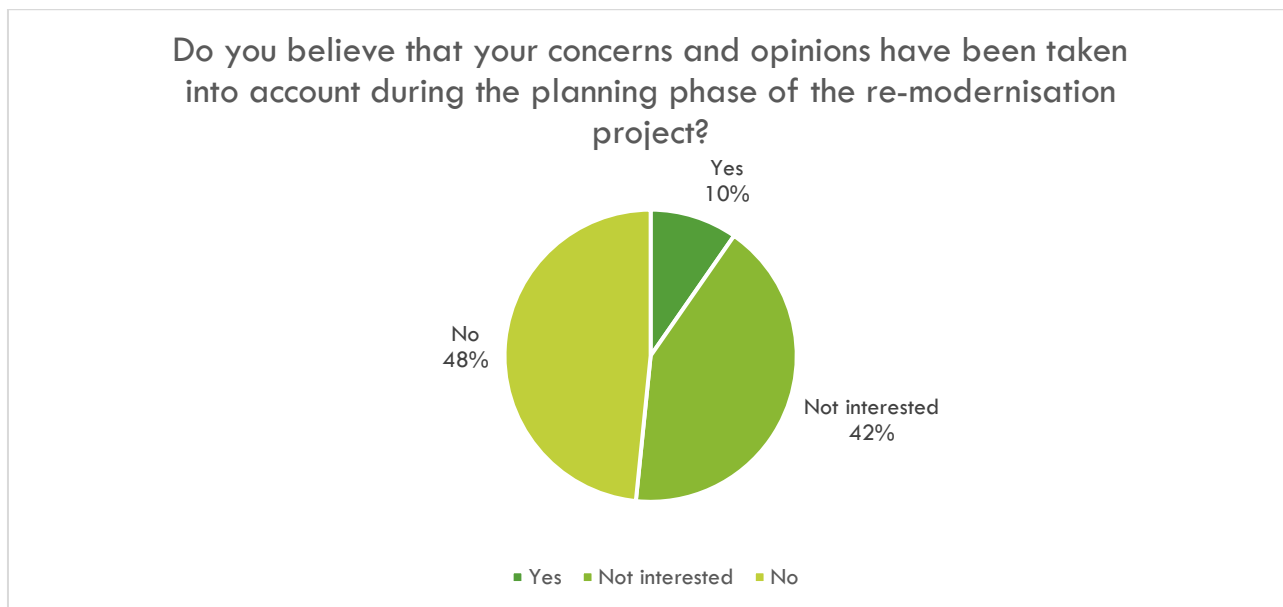


Figure 10 Questionary Results Residents (5)

The low perception of inclusion and high levels of disinterest suggest a need for more effective engagement and communication strategies. By addressing these issues, the project can foster a more inclusive environment where the residents feel their concerns and opinions are valued. This is crucial for building trust and support for the project's successful implementation.

The analysis of the interview responses from the local residents reveals several key themes related to stakeholder engagement and procedural justice. These themes have been filtered and simplified for clarity and easier inclusion in the research results. The revised table presents the findings concisely, focusing on three main areas: perceptions of stakeholder engagement, the extent to which concerns are valued, and suggested improvements for enhancing procedural justice



Table 8 Simplified Table of Interview Responses

Interviewee	Perception of Engagement	Value of Concerns	Suggestions for Procedural Justice
#1	Inadequate engagement, only rumours	Concerns ignored	Communicate through community centres and grocery stores
#2	Uneven engagement	Feedback not fully utilized	Better communication about climate justice
#3	Insufficient engagement beyond specific subgroups	No clear integration of all	Direct meetings with business and community stakeholders
#4	Lack of effort to engage families	Concerns about safety for children ignored	Family-friendly events for input
#5	Not enough information	No interest in participation	None
#6	Few updates, no involvement	Concerns not valued	Engage locals in accessible locations
#7	No participation	Concerns not valued	Collaborate with schools and youth organizations
#8	Poor engagement, knows only through social media	Concerns not sufficiently valued	More communication and inclusion of less active groups

The analysis reveals that marginalized communities, including immigrants and social housing residents, feel left out of the engagement process. This lack of direct engagement results in these communities relying on informal sources of information, such as rumours. For example, a resident with an immigrant background mentioned in Question 2: *"Do you think your concerns or ideas are valued in the decision-making process?"* responded *"No, I don't. We use the park too and have concerns; but we don't feel integrate."*

This reflects a serious need for targeted outreach so that these sectors all make their voices heard in decision-making. This may also be an isolated event, but that neighbourhood has many non-Danish demographic groups. It is necessary to engage these communities properly for procedural justice. Consequently, this is consistent with Arnstein's (1969) "Ladder of Citizen Participation," where a supreme goal is to utilize the opportunity of a deliberative forum to empower disempowered actors to have a voice or say in the decision-making process.

Furthermore, when talking about values of concern, stakeholders are often left with the opinion that the project is not communicating sufficiently. Transparent and open communication is critical in fostering trust with stakeholders. The sentiment was expressed by different stakeholders. Another longtime resident and business owner said, *"I feel that it should be more done by the body, and not just a few on this committee that has set back some of the subgroups."*

This points to the need for unambiguous, uniform, and simple-to-use communication strategies. Fung (2006) points out that the existence of reliable and functional channels of communication is indispensable for building trust and enabling effective representation.

An important aspect is that residents have clearly expressed the need for more inclusive processes for decision-making, such as this person, who said: *"More communication, there needs to be more speaking and linking with local residents... most of us have no idea what procedural justice or climate justice is, but it seems like there is no inequality and I think the project has been transparent. But that can consist of other classes of residents who are not that active in the community."*

Making decisions in this manner aids to ensure that the project considers different viewpoints and is suited to satisfy all the stakeholders involved. This is also consistent with the principles of deliberative democracy, which suggests that all relevant stakeholders should be involved in decision-making to increase legitimacy and efficiency (Reed 2008).

## 8.2 Other Stakeholders Perception on Procedural Justice

This study examines procedural justice by exploring the perspectives of stakeholders outside the immediate community. As outlined in the methodology section, which primarily employed surveys as a means of data collection, our investigation extended to include visitors - individuals who journeyed from locations beyond the confines of the five municipalities. These visitors, whose presence may be attributed to various motives such as tourism or engagement with specific attractions like Arken, contributed to our understanding through the collection of data from 7 participants. This segment of stakeholders, while external to the immediate locality, offers invaluable insights into the broader perceptions of procedural justice within the studied environment. Through their unique perspectives, we aim to enrich our understanding of procedural justice beyond the confines of local community boundaries.

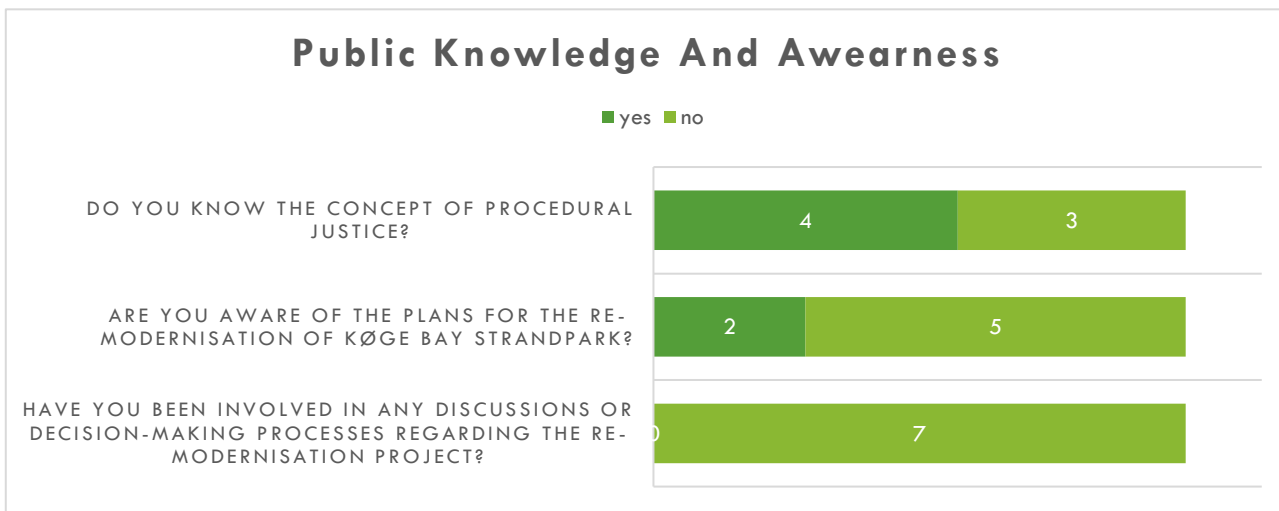


Figure 11 Questionary Results Other Stakeholders (1, 2 & 3)

The results show that none of the visitors surveyed have been involved in discussions or decision-making processes related to the re-modernization project. This 0% involvement highlights a clear gap in engaging visitors as stakeholders, which is significant considering their potential impact and interest in the area.

Among the visitors surveyed, only 28.6% are aware of the re-modernization plans, while a substantial 71.4% are not. This lack of awareness indicates that the communication strategies regarding the project may not be reaching or resonating with visitors, who are a critical stakeholder group. The complete lack of visitor involvement in the decision-making processes indicates a need for targeted efforts to include this stakeholder group. This can involve setting up visitor information booths, engaging with visitors through surveys on-site, and organizing open forums where visitors can voice their opinions and suggestions. The low level of awareness about the re-modernization plans among visitors suggests that existing communication efforts are not effectively reaching this group. Strategies such as information campaigns at the park entrance, social media outreach targeting visitors, and partnerships with local tourism boards could help bridge this gap.

On the other hand for question 3, 57% of visitors understand the concept of procedural justice, compared to 43% who do not. This higher level of understanding among visitors suggests that there is a foundation upon which to build more effective communication and engagement strategies, as these stakeholders may be more receptive to discussions about fairness and inclusivity in the project.

The survey question 4 assess visitors' perceptions of the transparency of the decision-making process regarding the re-modernization project at Køge Bay Strandpark. The result shown in figure presents that The majority of visitors surveyed (71.4%) were unsure about the transparency of the decision-making process. This uncertainty suggests a significant communication gap between the project planners and the visiting stakeholders. Only a small fraction of respondents felt confident enough to express a definite opinion, with an equal split between those who believed the process was transparent (14.3%) and those who did not (14.3%).

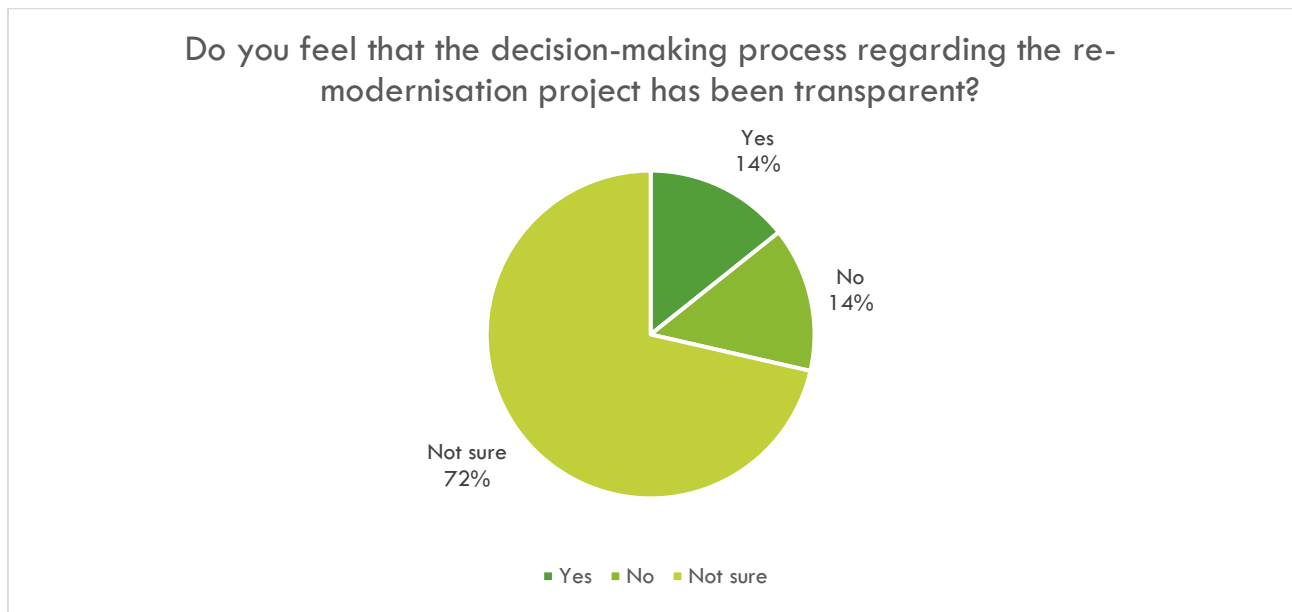


Figure 12 Questionary Results Other Stakeholders (4)

The high percentage of respondents who are unsure about the transparency of the decision-making process indicates that information regarding the project's planning and execution is not being effectively communicated to visitors. The results highlight the necessity of making information about the project more accessible and understandable to visitors.

The survey question 5 (Figure 13) assessed visitors' perceptions of the communication quality between various stakeholders—such as local government, residents, and environmental organizations—regarding the re-modernization project at Køge Bay Strandpark. See below:

How would you rate the level of communication between the stakeholders (e.g., local government and residents) regarding the re-modernisation project?

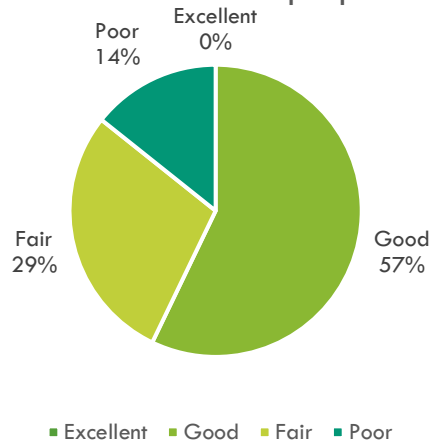


Figure 13 Questionary Results Other Stakeholders (5)

The survey results indicate a moderately positive perception of communication quality among visitors, with a majority rating it as "Good" (57%). However, none of the respondents rated the communication as "Excellent," suggesting there is still room for improvement. Additionally, 29% of respondents rated the communication as "Fair," and 14% rated it as "Poor." The fact that 57% of respondents rated the communication as "Good" indicates that many visitors perceive the communication efforts positively. This suggests that some existing strategies are effective and appreciated by the stakeholders. The absence of "Excellent" ratings and the presence of "Fair" and "Poor" ratings highlight areas where communication can be further improved. Enhancing these aspects can help elevate the perception of communication quality to higher levels.

The results for question 6 (Figure 14) indicate that none of the visitors felt their concerns and opinions were taken into account during the planning phase of the project. A significant majority 86% indicated that they were "Not interested" in whether their opinions were considered, while 14% explicitly felt that their concerns were not considered.

Do you believe that your concerns and opinions have been taken into account during the planning phase of the re-modernisation project?

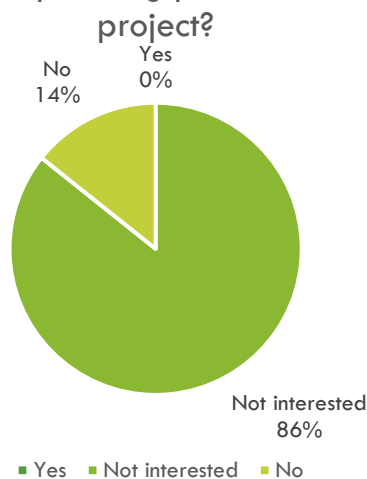


Figure 1.4 Questionary Results Other Stakeholders (6)

The fact that no respondents felt their concerns were taken into account suggests a significant disconnect between the project planners and the visiting stakeholders. This could be due to a lack of effective mechanisms for gathering and incorporating visitor feedback.

The survey results highlight a significant challenge in ensuring that visitors feel their concerns and opinions are considered in the re-modernization project at Køge Bay Strandpark. The high level of disinterest and the absence of perceived consideration suggest a need for more effective engagement and communication strategies.

### 8.3 Insights from the Project Leader Interview

The interview with the project leader of the Køge Bay Strandpark re-modernization project provided valuable insights into the implementation of procedural justice within the project. This semi-structured interview allowed for an open dialogue, exploring the project leader's understanding and application of procedural justice principles.

The project leader, Christine, acknowledged that she is not "*familiarize with the term,*" but understands its "spirit" through practice and experience. This idea is not completely unfamiliar to us though; it is recognized (if only in the context of urban planning and development projects). In the interview, one of the issues regarding procedural justice that Christine discussed was the challenge of pulling together multiple stakeholders, a fundamental idea of the concept. She stated, "*For the project development, it is important to integrate the various stakeholders. As shown in the plan for the modernization, we have open dialogues and workshops with the stakeholders in all the municipalities.*"

The interview also delved into the importance of climate justice within the project. Christine expressed an understanding of the need to ensure that all voices are heard, particularly those from marginalized communities. She explained that the original development of the park aimed to provide a recreational area for the entire population, including those from Brøndby and Ishøj, which have high concentrations of social housing. Kristine noted, "*The population in these communes, especially Brøndby and Ishøj, have the highest social housing of the area, so they will also benefit from the project.*"

Yet Christine also pointed out what may be a potential tension between technical assessments vs. community input. She suggested that although community benefits are taken into account, decisions are based largely on engineering judgments and the need to guard against what he says should be the overriding goal: fighting climate change. She said, "*At the end of the day, the technical assessment is more important than the interest of specific interest.*" This is a familiar tension between the operational requirements of the technology and the engagement of the community, so it is an important reminder that procedural justice is an ongoing need in the production side of policy decisions.

Additionally, the Project Leader mentioned that the project board includes representatives from various entities, including *Danske Handicaporganisationer*, *Arken representatives*, *marinas*, and *community leaders* from the different municipalities. This diverse board composition suggests an effort to include a wide range of perspectives and expertise in the project's governance structure. However, the effectiveness of this inclusion in practice would require further evaluation based on stakeholders' feedback and the impact of their contributions on decision-making processes.

Overall, the interview with the project leader underscores the importance of procedural justice in urban planning and development projects. While there are efforts to engage a broad range of stakeholders and incorporate their input, there are also challenges in balancing technical assessments with community needs and ensuring that all voices are adequately heard and valued. These findings highlight the need for continuous improvement in stakeholder engagement strategies and the integration of procedural justice principles to achieve more equitable and inclusive outcomes in the Køge Bay Strandpark re-modernization project.

## 9 Discussion

The re-modernization of Køge Bay Strandpark represents a critical case study in understanding the principles and application of procedural justice in coastal climate adaptation projects. This discussion focuses on the meaning, importance, and relevance of procedural justice from the perspective of the resident community, analysing the findings in relation to existing literature and the broader context of coastal climate adaptation.

### 9.1 Stakeholders and participative justice

The results from the literature review demonstrate the crucial role of inclusivity and communication for achieving procedural justice. It allows for various viewpoints to be accounted for and is essential in negotiating the diverse interests of the collective community. It helps in building trust and fosters a community in which every citizen should have a meaningful role to play. In the case of KBS many residents and other stakeholders highlighted insufficient information, compelling a requirement for stronger communication strategies.

The literature further supports these conclusions, specifically highlighting that procedural justice rests on the ability to provide inclusive and transparent decision-making processes. A well-designed public participation process can make decision-making processes more equitable and sustainable through the input and acceptance of diverse viewpoints (Fung 2006), also stresses the importance of inclusive stakeholder engagement for discerning a broad range of views and requirements in the process of designing strategies for climate adaptation (Reed 2008).

In KBS, the failure to adequately engage marginalized groups suggests a need for more targeted outreach and engagement efforts. This gap in engagement highlights a broader issue within many environmental projects where marginalized communities often feel excluded from the decision-making process.

In order to enhance procedural justice, it is vital to broaden the scope of stakeholder engagement. This involves actively seeking the participation of underrepresented groups such as immigrants, low-income residents, and social housing tenants. These groups often have unique perspectives and needs that are critical for comprehensive climate adaptation planning.

One effective approach is to utilize community centres, local organizations, and social media platforms to disseminate information and gather feedback. Tailored engagement strategies that consider language barriers, cultural differences, and varying levels of familiarity with procedural and climate justice concepts can significantly enhance participation from marginalized groups (Badru et al. 2023).

The project leader acknowledged active effort to have discussions that are taking place with the community, such as public meetings and workshops, which is a good sign. Yet, current feedback from residents tells us that these efforts might not be enough or even inclusive enough. In one example, local residents reported feeling excluded, relying on informal sources of information, and perceiving their concerns as undervalued.

Moreover, one of the pillars of procedural justice is effective voicing. This is not just about making the information available but also making sure that it is presented in a clear, transparent, and timely manner. Results showed that current communication practices are seriously lacking. Multiple stakeholders reported that they were not informed in a timely manner, and current methods of communication were not adequate at reaching all segments of the community.

To address these issues, project managers could implement multiple communication channels, including newsletters, social media updates, community meetings, and informational brochures. Furthermore, community cooperation who can help connect project leads and marginalized groups can substantially help to build trust and ensure everyone remains in the loop (Roberts and Parks 2006).

Another crucial aspect to address is the unbalance between the technical and social considerations, the project leader's emphasis on the technical aspects of climate adaptation highlights a common tension between technical and social considerations in environmental projects. While technical assessments are essential for designing effective adaptation strategies, they must be balanced with social considerations to ensure equitable outcomes. Perhaps there are historical reasons, such as the lack of voice in such projects, a default to trust urban planners and government officials to make the right decisions, or a feeling that the project is so early that it will not yet be affecting the community. Resident engagement and perceptions of the project may vary across different stages of the project.

Therefore, it is necessary to include all local participants, residents from the same region, organizers from local communities, and local leaders in the planning process. By collaborating across disciplines, we can gain a more complete understanding of the problems and potential solutions of coastal climate adaptation (Hörisch, Freeman, and Schaltegger 2014). This approach allows the project to be informed by the intrinsic perspectives of the community and engages with the community directly to address the technical and social aspects of the solutions, meeting the needs of the targeted community instead of those who created them.

The perceived lack of transparency and inclusivity has contributed to mistrust among residents, efforts to build trust should focus on demonstrating a commitment to addressing the concerns and needs of all stakeholders. This can be achieved through regular updates on project progress, open forums for discussion, and visible changes based on stakeholder feedback. Ensuring that stakeholder input genuinely influences project outcomes can significantly enhance trust and cooperation (Mitincu et al. 2023).

Overall, the findings highlight significant gaps in current engagement practices, particularly in reaching marginalized communities. Ensuring that all stakeholders, especially those from marginalized communities, are actively involved in the planning and execution of coastal climate adaptation projects is crucial for promoting social equity and environmental sustainability.

## 9.2 Bridging the Gap Between Theory and Practice in Procedural Justice

The gap between the theoretical ideals of procedural justice and the practical realities observed in Køge Bay Strandpark re-modernisation plan highlights the complexities of implementing these principles in real-world contexts. Despite theoretical emphasis on such criteria as inclusivity, transparency, fairness and empowerment embedded in the normative theory of climate justice, actual implementation has generally faced considerable obstacles due to issues ranging from resource constraints to bureaucratic inertia and socio-cultural obstacles. We will go into these challenges and possible approaches to make the research closer to the practical world, linking ideas from the different sections of this discussion.

Implementing procedural justice in coastal climate adaptation projects like Køge Bay Strandpark involves addressing multiple practical challenges. Limited resources can restrict the extent and depth of stakeholder engagement activities. Financial constraints often mean that outreach programs are not as comprehensive as they



could be, leading to insufficient engagement with marginalized communities (Badru et al. 2023). On the other hand, bureaucratic barriers, such as rigid administrative procedures and fragmented governance structures, further complicate efforts to implement inclusive and transparent decision-making processes (Sabatier 2005).

Additionally, socio-cultural barriers play a significant role in hindering procedural justice. Language differences, cultural norms, and varying levels of trust in government institutions can all impact the effectiveness of stakeholder engagement. In KBS re-modernisation, residents with non-Danish heritage backgrounds reported feeling excluded from the decision-making process, highlighting the need for more culturally sensitive engagement strategies.

To bridge the gap between theory and practice, it is essential to adopt a more pragmatic and context-specific approach to procedural justice. In this case, can involves developing targeted outreach programs that actively involve a diverse residents group. Tailored engagement strategies that address language barriers, cultural differences, and varying levels of familiarity with procedural and climate justice concepts can significantly enhance participation from these groups (Malekpour, Tawfik, and Chesterfield 2021). Meaningful participation requires empowering marginalized communities and providing resources and support, ensuring that all voices are heard in the decision-making process.

### 9.3 The Role of Local Governance

Denmark's approach to climate justice, while widely praised, has faced its share of criticism. Scholars and activists argue that Danish climate policies, despite showcasing strong commitments to technological innovation and economic growth, often fall short in addressing the deeper structural changes necessary to tackle social inequalities and environmental degradation (Lister 2008). This section delves into these critical perspectives and suggests future directions to enhance the effectiveness and equity of Denmark's climate policies.

To advance climate justice, Denmark must strengthen mechanisms for public participation, especially for marginalized groups, in climate decision-making processes. Effective climate policies should not only aim at reducing emissions but also ensure that the voices of all stakeholders, particularly those most affected by climate impacts, are heard and considered (Schlosberg 2012). In this context, public participation can be the tool to ensure climate justice, this one can take many forms, from consultations and public hearings to participatory planning and community-led initiatives.

In Denmark, there have been efforts to engage the public through various platforms, but these efforts need to be more inclusive and far-reaching (Jørgensen et al. 2022). For instance, involving low-income communities, ethnic minorities, and rural populations in climate dialogues can help ensure that policies are more equitable and address the specific needs and vulnerabilities of these groups (Badru et al. 2023).

Additionally, enhancing transparency and accountability in decision-making processes is crucial. This implies not only making information accessible but also ensuring that public input genuinely influences policy outcomes. Strengthening local governance structures and supporting grassroots movements can empower communities to take an active role in climate action, leading to more resilient and just outcomes (Bulkeley, Edwards, and Fuller 2014).

To advance spatial justice in coastal adaptation and engagement of the public, Denmark could implement structured policy framework that mandates the inclusion of social equity metrics in all Nature-Based Solutions (NBS) projects (Jørgensen et al. 2022). This framework could involve setting specific targets for the participation of residents and underrepresented groups, ensuring that their voices and concerns are integral to the planning and

execution of adaptation initiatives. By systematically incorporating social equity metrics, projects can be designed and evaluated based on their ability to address and mitigate socio-economic disparities.

Monitoring the socio-economic outcomes of adaptation projects is equally important. Continuous assessment of how these projects impact different segments of the population can help identify whether the benefits are being equitably distributed (Badru et al. 2023). For instance, system of measurement could include assessing changes in local employment opportunities, access to recreational spaces, and the resilience of vulnerable populations to climate impacts (Aapaoja and Haapasalo 2014). These assessments can be used to make necessary adjustments to project plans, ensuring that they remain aligned with the goals of procedural and distributive justice.

Implementing this structured policy framework can make projects like KBS a model for leveraging procedural justice in urban planning and coastal adaptation. By aligning theoretical principles with practical strategies, Denmark can ensure that its coastal adaptation efforts are not only effective in addressing environmental challenges but also in promoting social equity.

Moreover, such a framework can serve as an example for urban planners globally, demonstrating that it is possible to balance environmental sustainability with social justice (Turner et al. 2022). This approach would require strong political will, adequate funding, and a commitment to continuous learning and adaptation (Carlson-Ostroff and Ostrander 2024). However, the long-term benefits of creating more resilient and equitable coastal communities far outweigh the initial challenges.

The integration of social equity metrics into coastal adaptation projects also aligns with broader international goals and frameworks, such as the United Nations Sustainable Development Goals (SDGs). Specifically, SDG 10 aims to reduce inequality within and among countries, while SDG 13 focuses on taking urgent action to combat climate change and its impacts (OECD 2020). By embedding these goals into national and local policies, Denmark can contribute to global efforts to create a more sustainable and equitable future.

By establishing clear standards for procedural justice and embedding them coastal adaptation planning, Denmark can set a precedent for other nations facing similar challenges. This approach not only enhances the resilience of coastal communities but also ensures that the transition to more sustainable urban landscapes is inclusive and just (Sutton-Grier, Wowk, and Bamford 2015). It is a holistic strategy that acknowledges the interconnectedness of environmental, social, and economic systems, and seeks to create solutions that benefit all stakeholders.

Ultimately, advancing spatial justice in coastal adaptation requires a multifaceted approach that combines policy reform, community engagement, and continuous evaluation. It is about creating processes that are as inclusive and transparent as they are effective, ensuring that the voices of all community members are heard and valued. By doing so, projects like the Køge Bay Strandpark re-modernisation can serve as beacons of procedural justice, illustrating how theory can be successfully translated into practice to create more equitable and resilient urban environments.

In conclusion, the path to achieving procedural justice in coastal adaptation projects involves a concerted effort to integrate social equity metrics into all stages of project planning and execution. Denmark's commitment to this approach can make its coastal adaptation projects exemplars of how to effectively balance environmental sustainability with social justice. By setting specific targets for participation, monitoring socio-economic outcomes, and

providing the necessary resources and support, Denmark can ensure that its coastal adaptation efforts are both inclusive and effective, setting a global standard for procedural justice in urban planning.

## 9.4 Limitations

This research, while comprehensive in its aims and scope, is subject to several limitations that affect its findings and conclusions. These limitations are related to time constraints, the scope and quality of data collection, language barriers, and the representativeness of the stakeholder engagement.

The research was conducted over a period of four months. This relatively short timeframe had significant implications for the depth and breadth of the study. A considerable portion of this period was dedicated to planning and logistical arrangements, which reduced the time available for actual data collection and analysis. Ideally, a longer research period would allow for a more thorough investigation, including longitudinal studies to assess changes over time and the long-term impacts of stakeholder engagement practices.

The months of April and May were used to gather the data. Even though these months fall within the spring season, when better weather often leads to increased public engagement, the precise timing may have had an impact on participation rates. For example, in bad weather, fewer inhabitants may be accessible or willing to take part in surveys or interviews, which might alter the findings. Furthermore, some public events or seasonal activities that were not included in this time range can offer insightful information about community engagement that was overlooked.

The study employed a mix of surveys and semi-structured interviews, reaching out mainly via social media in both Danish and English. Although this form of approach primarily looked easier as it helped in catering to a wide range of audiences, it had its own limitations. However, all of the interviews took place in English. Even though surveys were conducted in both languages, it is likely that the underrepresentation of non-English speaking residents was caused by Interviews' reliance on English. Due to this restriction, certain groups might not be as well-represented in the qualitative data as they could be.

The distributing surveys through social media can lead to favouritisms towards the internet-savvy or users of specific platforms. This element might exclude residents who are not active on social media or do not have a steady stream of internet, thus limiting the representativeness of the data. Similarly, the short duration of data collection could mean that the experiences and opinions of stakeholders are less representative. Broadening this timeline could provide a complete picture of community engagement, and the annual variability in the use of parks by residents.

Additionally, a single interview from stakeholders that directly involved in the development of the project (the project leader) was obtained. Although this gave us a great view of how the project was planned and official standings, it did not give a complete picture of the total views of all the stakeholders that were involved in the project. These research findings may not have captured the experiences and insights of others in the research community or of the developers, planners, or other officials responsible for the development. As a consequence, the study may not provide a complete representation of the spectrum of views or complexities of decision-making. These limitations were expected to be improved in terms of future research. Other researchers might have more comprehensive research, have some follow-up indication, and even long-term trends if the date was extended.

## 10 Conclusion

This thesis aimed to explore how stakeholder engagement can ensure procedural justice in the planning and execution of coastal climate adaptation projects, with a specific focus on the re-modernisation project at Køge Bay Strandpark. Through the examination of key criteria for procedural justice, the perceptions of local residents and other stakeholders, and the challenges and opportunities in integrating these principles into policy frameworks, this research provides valuable insights into the dynamics of inclusive and fair climate adaptation processes.

Reflecting on the central research question, this study demonstrates that effective stakeholder engagement is crucial for achieving procedural justice in coastal climate adaptation projects. Procedural justice, which encompasses principles such as transparency, inclusivity, accountability, and fairness, ensures that all stakeholders, especially marginalized communities, are actively involved and their voices are heard in the decision-making process.

### ***Criteria for Procedural Justice***

The criteria identified for ensuring optimal procedural justice include transparency and access to information, inclusivity and representativeness, accountability and responsiveness, and empowerment and capacity building. These criteria are essential for creating a framework that not only facilitates effective stakeholder engagement but also ensures that the benefits of climate adaptation projects are equitably distributed. By systematically incorporating these criteria into project planning and execution, coastal adaptation initiatives can be designed to address and mitigate socio-economic disparities, thereby promoting social equity alongside environmental sustainability.

### ***Perceptions of Procedural Justice***

Local residents' perceptions of procedural justice in the re-modernisation project at Køge Bay Strandpark highlighted several gaps in current engagement practices. Many residents, particularly those from minorities, reported feeling excluded from the decision-making process and expressed a need for more targeted outreach and engagement efforts. This finding underscores the importance of developing culturally sensitive and inclusive engagement strategies to ensure that all community members are adequately represented and their concerns are addressed.

Other stakeholders, including local businesses and visitors, emphasized the need for more effective communication and inclusive decision-making structures. Including diverse stakeholder perspectives is critical for ensuring that the project meets the needs of the entire community and achieves its intended social and environmental outcomes.

### ***Relevance and Implications***

The relevance of this work extends beyond the specific case of Køge Bay Strandpark, providing a framework that can be applied to other coastal climate adaptation projects. By highlighting the importance of procedural justice and demonstrating how it can be practically implemented, this research contributes to the broader discourse on climate justice and sustainable urban planning. The findings underscore the need for a more structured policy framework that mandates the inclusion of social equity metrics in all Nature-Based Solutions (NBS) projects, ensuring that the transition to more sustainable urban landscapes is both inclusive and just.

This framework involves setting specific targets for stakeholder participation, monitoring socio-economic outcomes, and providing the necessary resources and support to ensure that all community members have the opportunity to

participate in and benefit from coastal adaptation projects. By establishing clear standards for procedural justice and embedding them into the fabric of coastal adaptation planning, Denmark can set a precedent for other nations facing similar challenges.

In conclusion, this research underscores the necessity of robust stakeholder engagement to ensure procedural justice in coastal climate adaptation projects. The core takeaway message is that procedural justice is not merely an aspirational goal but a practical necessity for the success and sustainability of such projects. Future initiatives should build on these findings by adopting more inclusive and transparent engagement practices, ensuring that all voices are heard and valued. This approach will not only foster greater community support but also lead to more resilient and equitable outcomes.

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## Annex 1

Contact	Position	Email	Status
<b>Christine Brønnum-Johansen</b>	Project Leader	cbj01@vallensbaek.dk	Responded
<b>Merete Amdisen</b>	Member of the board	mem@ishoj.dk	No Response
<b>Café Ka'nalū</b>	Local Business	<a href="https://www.facebook.com/kanalucopenhagen/">https://www.facebook.com/kanalucopenhagen/</a>	No Response
<b>Strandcaféen</b>	Local Business	<a href="https://www.facebook.com/strandcafeen.2660/">https://www.facebook.com/strandcafeen.2660/</a>	No Response
<b>Danske Handicaporganisationer</b>	Organisation	dh@handicap.dk	No Response

Figure 15 List of Potential Interviews

## Annex 2

### Residents Interviews

Date: 4 - 5 of May

#### Interviewee 1: Local Resident (Immigrant Background)

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "I don't feel there have been that many attempts to really come to us. Only rumor from neighbours, and there has not been any real news on Tv."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "No, I don't. We use the park too and have concerns; but we don't feel integrate.."

Q3: How can we increase procedural justice in this project?

A3: "They must communicate resources and community gatherings. And they would need to get out in the community, to places where our community lives, like to grocery stores and community centres, to come and talk to us and get our input."

#### Interviewee 2:

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "From my viewpoint, it is that there have been a few efforts made to engage stakeholders; however, it has been uneven."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "Partially. Feedback from us has not gone unnoticed, but as to what extent it is being put to use, it should be there, but there is a gap between listening and implementation. At times, social issues are not at the discussion of their attention, as economic priorities are more important."

Q3: How can we increase procedural justice in this project?

A3: "Maybe more communication and that we can understand even what is and why is important climate justice."

#### Interviewee 3:

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "More work should involve the whole of the body, not just the few and specific subgroups."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "In some ways, yes; to the second part, on the whole, no; business issues and impacts are still too rarely major opportunity determinants. We need to be told direct what changes will mean for us economically."

Q3: How can we increase procedural justice in this project?

A3: "Meeting with business and other stakeholders part of the community can help to have a perspective of each other."

#### Interviewee 4: Young Parent (Brøndby Strand)

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "I haven't seen much effort to engage families with young children. Most of the information seems to be targeted at older adults or general residents without considering the specific needs of families."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "Not really. I have specific concerns about safety and amenities for children, but there hasn't been a platform to voice these concerns."

Q3: How can we increase procedural justice in this project?

A3: "There should be more family-friendly events where parents can give input."

#### Interviewee 5: Local Resident (Immigrant Background)

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "I don't have enough information."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "No, but I don't have interest of being part of, I don't have the time."

Q3: How can we increase procedural justice in this project?

A3: "Nothing"

Interviewee 6:

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: " I get very few updates and as a result, never really feel involved in the planning process."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "Not really"

Q3: How can we increase procedural justice in this project?

A3: "Meeting locals where they are would produce a much broader and more inclusive body of comments."

Interviewee 7:

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "I have not participate in any process."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "no"

Q3: How can we increase procedural justice in this project?

A3: "Work together with local schools and youth organizations."

Interviewee 8:

Q1: How do you perceive the level of stakeholder engagement in the re-modernization project at Køge Bay Strandpark?

A1: "I don't think is so good, I know from social media the project, no more."

Q2: Do you think your concerns or ideas are valued in the decision-making process?

A2: "Not sufficiently."

Q3: How can we increase procedural justice in this project?

A3: "more communication, and connecting with the locals, many of us does not know what is procedural justice, or climate justice, but I think that there is no inequality and that the project has been transparent, but it can include other groups of residents that are no so active in the community"

## Annex 3

	Have you been involved in any discussions or decision-making processes regarding the re-modernisation project?	Are you aware of the plans for the re-modernisation of Køge Bay Strandpark?	Do you know the concept of Procedural Justice?	Do you feel that the decision-making process regarding the re-modernisation project has been transparent?	How would you rate the level of communication between the stakeholders (e.g., local government, residents, environmental organisations) regarding the re-modernisation project?	Do you believe that your concerns and opinions have been taken into account during the planning phase of the re-modernisation project?			
<b>Yes</b>	4	17	5	Yes	14	Excellent	3	Yes	3
<b>No</b>	27	14	26	Not Sure	11	Good	7	Not interested	13
				No	6	Fair	10	No	15
						Poor	11		

Figure 16 Surveys Count for Residents

	Have you been involved in any discussions or decision-making processes regarding the re-modernisation project?	Are you aware of the plans for the re-modernisation of Køge Bay Strandpark?	Do you know the concept of Procedural Justice?	Do you feel that the decision-making process regarding the re-modernisation project has been transparent?	How would you rate the level of communication between the stakeholders (e.g., local government, residents, environmental organisations) regarding the re-modernisation project?	Do you believe that your concerns and opinions have been taken into account during the planning phase of the re-modernisation project?			
<b>Yes</b>	0	2	4	Yes	1	Excellent	0	Yes	0
<b>No</b>	7	5	3	No	1	Good	4	Not interested	6
				Not sure	5	Fair	2	No	1
						Poor	1		

Figure 17 Surveys Count for Visitors and other stakehold



