

Environmental Justice in Greening the Hofbogen

Urban greening and environmental justice in Rotterdam for the Hofbogenpark project



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Abstract

Urban greening has become a main element of climate adaptation in cities since it can improve the health, well-being of citizens and the liveability of urban areas. While planning for climate adaptation is embedded in many policies and practices, there are still some barriers and obstacles in using the concept. Environmental justice stems from various thinkers, literature and studies and has become a core concept in the planning field. Overall, the three main (linked) elements of environmental justice are considered to be recognition justice, procedural justice and distributional justice. In urban greening, there are several concerns from a justice perspective such as the unfair distribution of the benefits and burdens, non-recognition of different perspectives and values, the exclusion and participation of marginalized groups and green gentrification. The Hofbogenpark is a plan for a long green park on top of an elevated train track in the city of Rotterdam. This research looked at the Hofbogenpark (designing) project using several methods (interviews, documents and observations) through the lens of environmental justice. Several frameworks are combined to get a full view of the environmental justice concept. The Hofbogenpark is a long and complex project which included different interests and many actors. With references to the New York High-Line and the Promenade Plantée and the role it has for Rotterdam North, this project is considered to be important. This research shows that several environmental concerns were taken into account. Many people got the ability to be involved in the process and much time and effort is invested in reaching people. However, traditionally marginalised groups and entrepreneurs were poorly involved. The outcome of the design suggests that people could express their influence and concrete changes were made. Process-related elements such as a management of expectations, communication and transparency lacked in some perspectives and could be improved. The park will provide in many benefits for various (local) actors and nature. Expected burdens are divided among the local residents and entrepreneurs and require a solid park management for the reduction of these concerns. Besides, green gentrification is not seen as a serious concern in this stage. The park will be accessible for most people and various design elements meet preferences and needs of future users. The expected effects of the park are beneficial for various actors and the burdens are mainly distributed amongst the local residents and entrepreneurs. Based on the main findings and literature, some recommendations for future research and policy recommendations are made.

Keywords: Environmental justice, urban greening, participation, Hofbogenpark, recognition justice, procedural justice, distributional justice

Preface

Dear reader,

This master thesis is the final result and completion of my master's degree in Spatial Planning with a specialisation in Cities, Water & Climate Change. As a sequel to the subjects and courses in the master's degree, the master's thesis tries to combine all the knowledge and information from the last couple of years, varying from qualitative methods to APA-style referencing to urban greening and its impact. Therefore, I am happy to present my research as a bundle of all the knowledge I acquired over the years.

During my bachelor's (Geography, Planning & Environment) and master's, I developed an interest in urban greening, sustainability and citizens participation. Especially during my bachelor's thesis, I encountered that participatory processes can be rather difficult and justice concerns can occur. For my final research, I wanted to focus on environmental justice in combination with climate adaptation and urban greening since this is the common ground of my interests. Because my background lies in the Randstad, I found a suiting and beautiful project in the form of the Hofbogenpark project in Rotterdam. This park can provide in many benefits for local residents and other actors in a rather grey district.

However, since this is a large project involving many different actors and interests, I wanted to find out what role environmental justice concerns had in this development. In the last couple of months, I spoke with many involved actors and enjoyed their different views and experiences. I walked on the roof of the Hofbogen, drank coffee in an arch under the Hofbogen, was welcomed in peoples' homes and visited a neighbourhood community centre. I am looking forward to visiting the Hofbogenpark in the future and hope that it is a successful park where many involved people can happily stay, recreate, meet, play, work, exercise and rest.

This research could not be created without the help of some people, who I want to thank.

Firstly, I want to thank all the different respondents for their time, flexibility and effort. Furthermore, their openness, knowledge and expertise improved the research and lead to several insights.

Secondly, I want to thank my thesis supervisor, Iulian Barba-Lata, who supported me during the development of my research, gave many insights and critically reflected on my work, even when his schedule was overflowing.

Finally, I want to thank my family and friends for supporting me during the many studying hours, with critical reflections and the effort and time to think along.

I hope you enjoy reading my research in order to get an insight into the Hofbogenpark project.

Tim Vleesenbeek

Table of contents

Abstract	3
Preface	4
Table of contents	5
1. Introduction	7
1.1 Urban greening and environmental justice	7
1.2 Objectives and research questions	8
1.3 Societal and Scientific relevance	9
1.3.1 Societal relevance	9
1.3.2 Scientific relevance	10
2. Theoretical framework	11
2.1 Urban greening	11
2.2 Environmental Justice	13
2.2.1 Recognition justice	14
2.2.2 Procedural justice	15
2.2.3 Distributional Justice	18
2.3 Operationalization and conceptual framework	21
3. Methods	23
3.1 Research Methodology	23
3.2 Research Strategy	24
3.3 Research methods	25
3.3.1 Interviews	25
3.3.2 Documents	27
3.3.3 Observations	29
3.4 Validity and Reliability	29
3.5 Data analysis	31
3.6 Stakeholder analysis	32
4. Results	35
4.1 Overview Hofbogenpark process	35
4.2 Recognition (Who counts?)	36
4.3 Procedural (Who gets heard?)	40
4.3.1 Reaching and representativity	40
4.3.2 Communication	43
4.3.3 Information	45
4.3.4 Influence and correctability	47
4.3.5 Transparency and Trustworthiness	51
4.4 Distributional (Who gets what?)	53
4.4.1 Benefits	53
	5

4.4.2 Burdens and Compensation	57
4.4.3 Accessibility and Attractiveness	60
5. Discussion	62
5.1 Recognition justice	63
5.2 Procedural justice	64
5.3 Distributional justice	66
6. Conclusion	68
6.1 Conclusion	68
6.2 Policy recommendations	69
6.3 Limitations	70
7. References	72
8. Appendices	80
Appendix A- Overview Hofbogenpark process	80
Appendix B. Interview guides	88
Appendix C. Observation scheme	91

1. Introduction

1.1 Urban greening and environmental justice

The effects of climate change are becoming increasingly visible in urban areas. Weather extremes occur more often and cities are especially facing challenges concerning these changes. Heat in cities brings health issues for vulnerable people and is more intense in cities due to the amount of concrete, large buildings and lack of green. Next to these Urban Heat Islands (UHI), heavy rainfall (pluvial flooding) is also a challenge for cities. Climate adaptation is seen as a top priority in recent years in urban planning agendas. However, urban contexts are often very complex and many different challenges need to be worked on at the same time. Seeing the multi-beneficial character of green, urban greening is a way to fight climate change and make cities more adaptive, resilient, attractive and liveable in the future.

While urban greening is beneficial in many aspects, due to the wickedness of climate change, problems could occur through the practices of greening the city. One of the focuses in literature and research that is mentioned in planning for urban greening concerns environmental justice, building on justice theory from core thinkers such as Lefebvre, Rawls, Fainstein and Young. Several aspects are considered as justice issues in urban greening. Firstly, greening projects could be prioritized in areas with high-income groups. Secondly, the low availability and quality of the green spaces in low-income neighbourhoods contribute to poorer health and living environment. Also, the exclusion of typically marginalized groups could take place in the procedure of urban greening. Finally, there is also a paradox with urban greening in terms of gentrification, or in this context, green gentrification. Greening projects can make areas more attractive and liveable, and set off rounds of gentrification that can drastically reduce housing options and can drive out low-income groups (Wolch, Byrne & Newell, 2014). The justice concerns can be divided into three main clusters, namely distributional justice, procedural justice and recognition justice (Toxopeus et al., 2020).

For the transition towards a green and climate adaptive city, local authorities rely on support from and collaboration with different actors. Participatory governance is a transition in decision-making practices that is seen as crucial for facing the challenge of climate change (Kabisch et al., 2016). This requires different approaches in planning, with citizens in the lead, collaboration between market, state and civil society, bottom-up initiatives and knowledge sharing where justice is also an important aspect.

Cities are looking for space and new ways in the urban area to implement green and space for water. One of the leading cities in climate adaptation in the Netherlands is Rotterdam. The municipality of Rotterdam is currently working on seven city projects in which they want to improve the liveability and adapt to climate change. The Hofbogenpark is a project in which the municipality, together with different actors, wants to transform an elevated, obsolete and abandoned train track into a green park with a length of 1.9 kilometres. Justice concerns are not yet specifically studied and are important in working toward just urban greening practices, especially since this is a large and complex project situated in culturally, ethnical and socio-economic diverse neighbourhoods and this project will be the longest and most narrow green park of the Netherlands (Rotterdam, 2020). The project has similarities with the High Line in New York, which has become famous and attracted a lot of tourists. While the park was created for the residents in order to improve the living environment and

the surrounding neighbourhoods, it attracted a lot of other people and started green gentrification, pushing out local residents (Rice et al., 2019). The case of the Hofbogenpark will be looked at during this research considering environmental (in)justice, in order to work towards concrete concerns and lessons for a more just approach in urban greening in Rotterdam and possibly other cities with large greening projects.

1.2 Objectives and research questions

This research aims to complement the existing knowledge on urban greening projects and critically reflect upon the concept looking from an environmental justice perspective. While urban greening is a well-known and often-used method of adapting to climate change, there are existing environmental justice concerns regarding the planning, design and management of urban greening projects. Through the in-depth study of an urban greening case in Rotterdam, this research tries to derive if and how currently the planning of an urban greening project takes environmental justice concerns into account. This can then result in an overview with (in) justice concerns or lessons for this project and work towards better knowledge regarding the concept. It can add in providing information by bringing environmental justice literature into praxis. This is important since just urban greening can contribute to the physical and mental health of citizens and improve liveability and well-being and therefore improve the cities' living environment (Liotta et al., 2020). But this has to be available for everyone.

To do this, there will be an in-depth study of an urban greening project in the city of Rotterdam. The, to be developed, Hofbogenpark will be an urban green park on an obsolete and elevated train track. This case is selected due to its various characteristics, diverse involved parties and uniqueness. Due to the impact and size of the project and the role in the strategy of the municipality of Rotterdam, this research can contribute to a more just approach to urban greening. Also, in light of the justice issues of the famous High Line Park in New York, this case could be an interesting view from an environmental justice perspective (Rice et al., 2019). This research can create lessons and a path forward for considering and dealing with justice issues in urban greening practices in redeveloping existing spaces and using several frameworks. The takeaways from this research will be used to formulate some recommendations and advice for praxis that can help in preventing and taking into account (in) justice concerns for urban greening projects.

To translate the research aim, the following main research question is formulated:

“What role do environmental justice concerns have in greening the Hofbogen for climate adaptation in the city of Rotterdam?”

To answer the main question, the following sub-questions are formulated:

1. How is environmental justice related to urban greening?
2. What parties are involved and how are these related?
3. To what extent are actors (and their needs, preferences and values) seen as relevant actors in the project (*Recognition justice*)?
4. To what extent are relevant actors equally included and can participate in the decision-making process (*Procedural justice*)?

5. How are benefits and burdens situated and divided in the project (*Distributional justice*)?

1.3 Societal and Scientific relevance

1.3.1 Societal relevance

Overall, the importance of urban greening in cities has been stressed by many researchers and authors. The benefits and opportunities it can gain for the well-being, living environment and health of people and nature are mentioned often in literature. The development of climate adaptation has been embedded in many different national and international policy documents, such as the Sustainable Development Goals (2015), Green Deal (2021), National Adaptation Strategy (2016), Agreement Climate Adaptation (2018) and local policies.

Looking at the SDG's, goal number ten (reduce inequalities within and among countries) stresses the importance of justice concerns in policies. Especially in tackling the effects of climate change, some existing inequalities become more visible and could occur. In the first place, existing green spaces in cities are often distributed unequally among neighbourhoods. Poorer neighbourhoods have less access to green spaces and the quality of these spaces is low. This then contributes to poorer health in these neighbourhoods, with being more vulnerable to pluvial flooding and heat, leading to more contamination, lower air quality and greater risks of hazards (Liotta et al., 2020). To deal with these injustices, urban greening can help reduce health risks, and stimulate local economy and well-being. However, this can reflect in higher housing and land prices, leading to possible (green) gentrification and forced displacement that affect less-favoured citizens (Haas, Hassink & Stuiver, 2021). This is also seen as the paradox of urban greening (Toxopeus et al., 2020; Wolch et al., 2014). In order to approach just urban greening, there needs to be a community-based decision-making, taking into account environmental and social externalities and make liveable spaces for all people (Toxopeus et al., 2020).

Other than the effects of the implementation of urban green regarding justice, also the procedure of implementing green can stimulate or bring forward inequalities. Procedural justice and recognition issues can be negative for some marginalized groups (Kaufmann et al., 2021). The low level of engagement by vulnerable groups and the poor influence they have in the process makes that procedural justice concerns, participation and community-based decision-making must be taken into account (Toxopeus et al., 2020; Yang, Lee & Juhola, 2021). Analysing urban green practices such as the Hofbogenpark can help in formulating these justice concerns in approaching a more 'just' urban green. Since the Hofbogenpark connects multiple culturally, ethnic and socio-economic diverse neighbourhoods, and is an innovative project, it is important to also consider the possible justice concerns. This can improve the liveability, well-being, quality of life and inclusion of these local inhabitants and especially the marginalized and vulnerable groups. Examples of the High-Line showcase what possible concerns could be encountered otherwise. Hence, this research will result in specific and practical concerns or practices for justice in this urban context and its outcome can help policy makers (for Rotterdam and other cities) in identifying and possibly taking into account these justice concerns or best practices, especially in the

complex context of the Hofbogenpark project. This can contribute to reducing injustices and inequalities in the future.

1.3.2 Scientific relevance

In the literature on urban greening (and related concepts), there are several justice concerns that have been studied. First, it is considered difficult to create true participation with the inclusion of marginalized groups in planning, design and management processes in urban greening (Anguelovski et al., 2020). Structural inequalities and the privileging of green infrastructure attracting and serving higher income are still present in planning practices. It is important to recognize and equally include all the relevant actors in order to have a just urban greening process. The culturally and ethnic diverse context of the Hofbogenpark requires an approach in which all the needs, values and preferences are taken into account. This research can contribute to formulating practical concerns and lessons for this case and planning practice.

In urban greening practices, there is spoken of a paradox in greening neighbourhoods and cities. Consequently, this 'green gentrification' can lead to the displacement and push away of local inhabitants (Toxopeus et al., 2020; Wolch et al., 2014). When looking again at the New York's' High Line, the park was aimed at benefiting residents but through ecological modernization created increasing property values in the surrounding neighbourhood and became a premier destination for tourists (Wolch et al., 2014; Reichl, 2016). This research can add to looking into the significance of displacement and looking at this beforehand (Kabisch et al., 2016).

Since the Hofbogenpark has some similar characteristics, it needs more integrative sustainability policies to protect communities and to prevent this from happening. If principles of inclusion, emancipation, equity and fairness are considered with urban greening or climate adaptation, the more environmental justice is improved in cities (Toxopeus et al., 2020). However, how this is done remains uncertain and is context specific (Rice et al., 2019). While urban greening may be considered as beneficial for citizens, it may not be beneficial for all population groups to the same degree. By looking into the Hofbogenpark project, this research can see if and how these justice concerns are taken into account, since an integrative and transdisciplinary participation is needed (Kabisch et al., 2016).

From an empirical perspective, it is considered uncertain how to use and address the injustice issues for urban greening on the ground and integrate different perspectives and how these align (Cousins, 2021; Zuniga-Teran & Gerlak, 2019). This research can add to this by translating and adopting environmental justice theory to analyse a specific urban greening case in its context.

2. Theoretical framework

2.1 Urban greening

Urban greening is about implementing green in urban areas and can vary in its size, vegetation, quality, species and facilities (Wolch et al., 2014). Some examples of green spaces in the urban context include parks, sporting fields, greenways, community gardens, street trees and green walls. Urban greening as a practice has a rich history and is supported by many studies, policies and political agendas over the years.

Climate change has been on the agenda for some time, with first appearances on global agenda in 1979. The First World Climate Conference (1979) was the first conference where climate change was discussed globally, this was the start of the problem framing phase, where different conferences followed (Gupta, 2010). After this first phase, different organisations and leaders came together to articulate leadership and targets for climate change in the Climate Change Convention (1992) and the first Conference of the Parties (COP-1). After this phase, climate change became more embedded in conferences and policy, after which followed the Kyoto Protocol (COP-3) in 1997, the assessments reports of the IPCC and more COPs followed (Gupta, 2010). The position of climate change also had some drawbacks such as the withdrawal of the United Nations in 2001 and the global recession in 2008. However, different strategies, policies and organisations formed and developed across various scales. The sustainable development goals framework (SDGs), as formulated by the United Nations, is considered as a framework for future development around the world. In light of this framework, goals number eleven (*make cities and human settlements inclusive, safe, resilient and sustainable*) and thirteen (*take urgent action to combat climate change and its effects*) call for the prioritisation of dealing with climate change and making cities sustainable and resilient for the effects of climate change (United Nations, 2015). These SDGs are being executed by countries nationally and internationally. In the Netherlands, the collaboration between the ministries and societal actors for executing these goals is crucial. The national government maps the progression of these goals and shows what needs to be done, for example by supporting initiatives from society (Ministry of Foreign Affairs, 2017). From the European Union, there is also a focus on climate adaptation through the Green Deal with the climate law and the new climate adaptation strategy (2021) (European Commission, 2021). Here, the importance of climate adaptation for people and nature is stressed and is enforced through the use of different economic and legal tools (e.g., LIFE subsidy).

Shifting from the international context to the Dutch national context, The Dutch government implemented a National Adaptation Strategy (NAS) in 2016, which describes the most important climate risks and sets out a course for tackling these risks. There are furthermore collaborations (e.g. 'Samen Klimaatbestendig', 'city deals'), financial incentives, innovation and research and the signing of the coalition agreement climate adaptation (2018) that work as drivers for climate adaptation and push towards sustainable development (Kennisportaal Klimaatadaptatie, n.d.). The Draft National Strategy on Spatial Planning and the Environment (NOVI) (2019) is a document that aims for sustainable development for the living environment in the Netherlands and focuses on different major challenges, trends and developments (Government of the Netherlands, 2019). This document is a part of the Environment and Planning Act, which will probably enter into force in 2023. The long-term

vision of the NOVI entails national interests that are clustered into four priorities. The first priority is: *Space for climate adaptation and energy transition* and shows the urgency of adapting to climate change by ways of having space for water storage in cities and having sufficient green spaces (Government of the Netherlands, 2019). This is also seen as an improvement for the quality of the living environment and nature. With the Environment and Planning Act that will come into force, the municipalities in the Netherlands also needed to develop a strategy for spatial planning and the environment (Omgevingsvisie) for their municipality. This also includes the concerns about climate change and the need to adapt. This is enforced by these vision documents and other climate adaptation plans.

The growing international, national and local attention in policy and practice for climate-related issues originally stems from grand literature about climate change. Some famous studies that started to look specifically at urban green and its effects originated from 2004 onwards. Chiesura (2004) conducted a study of the role of Dutch parks as providers of social services and the role for achieving sustainability. She showed that urban green spaces fulfil many psychological needs and social functions of inhabitants and, therefore, is key for urban sustainability (Chiesura, 2004). Also, she found that different age groups can have different motives to visit a park. Next to the social functions and perceptions that are improved by green spaces, also self-perceived health is better for people that live in a green environment than for people living in a less-green environment (Maas et al., 2006). A systematic review by Bowler et al. (2010) studied the cooling effect of urban greening, which showed that on average, a park is 1 °C cooler than the surrounding area. The positive effects that urban greening has are plural. These include the filtering of the air, removal of pollution, its cooling effect, infiltration of (rain)water and the providence of food (Wolch et al., 2014). It has been proven that urban green spaces can contribute to the well-being, better health and social cohesion of residents through its cooling effect, recreational, social and leisure use (Bowler et al., 2010; De Haas, Hassink & Stuiver, 2021). Parks can serve as a site which promote physical activity and can be connected to the reduced risk of certain diseases and all-cause mortality (Wolch et al., 2014). Hence, greening in cities can have social, economic and physical benefits for its citizens and users (Angelo, 2019). Following the beneficial character of urban greening in combination with urban densification, climate change and other challenges, urban greening and climate adaptation have become major topics during the years in policy and practice.

While the importance of urban green is supported, the practice of urban greening is, however, often quite complex. The growing densification, competing space and the combination of different (urban) challenges create complex situations. Following the overall densification and the need for urban greening, new ways of implementing green and prioritization are needed. While the city is becoming more compact, there are some possible opportunities in space that are suited for urban greening. For example, underused or obsolete infrastructure, back alleys, abandoned transport corridors or empty sites could be transformed (Wolch et al., 2014). These offer opportunities for the redevelopment and improvement of the city with the use of existing space. However, this must be seen in a wide context together with other challenges, the involvement of different stakeholders and perspectives.

A famous example of the transformation of obsolete infrastructure is the New York High Line. This abandoned elevated train track was transformed into a long aerial city park (Rice et al., 2019). The park was a major success and attracted many tourists, urban residents

and businesses. By making deprived and typical low-income areas more attractive and liveable, *'urban greening can set off rounds of gentrification, dramatically altering housing opportunities and the commercial/retail infrastructure that supports low-income communities'* (Wolch et al., 2014, p. 239). While urban greening is often portrayed as a multi-beneficial strategy, it can have paradoxical results that include: *'increasing property values, the displacement of vulnerable populations, deepening of existing inequalities, and forms of cultural imperialism in proscriptions for the design and use of green space'* (Angelo, 2019, p. 3). This is referred to as 'green gentrification' or 'ecological gentrification'. Some scholars argue that this environmental gentrification can not only be seen as 'unintended consequences', but that the establishment of new green spaces in deprived neighbourhoods are used to attract well-heeled newcomers and exploit rent gaps (Rigolon & Németh, 2018). This is really a conundrum of environmental gentrification, where urban green is used to make the city more liveable, resilient and healthy, but also resulted in significant gentrification, especially in large green infrastructure projects (LGIPs) (Rigolon & Németh, 2018). Gould & Lewis (2017) dedicated a book to the concept of green gentrification in context of environmental justice. In here, they mention the green growth machine, where greening is seen as a form of growth or improvement for different actors (Gould & Lewis, 2017). This green growth machine shows that urban greening *'to a large extent (...) promise to contribute to the global production of the very problems they ostensibly seek to adress'* (Gould & Lewis, 2017, p. 152). It is therefore important to incorporate these concerns in urban greening processes, for example by implementing environmental justice aspects.

2.2 Environmental Justice

As cities are adopting urban greening or nature-based solutions in their policy and spatial interventions, this calls for a just and fair process. Environmental justice is a topic that has been studied for a long time and is embedded in most spatial planning practices. From which many have focussed on the environmental disparities among race and class since then, and many movements have stood up to fight these environmental injustices. There are various concepts that are connected to justice and are mentioned in studies by some famous thinkers in social sciences. A core thinker of justice in the city context is Lefebvre, with his work on right to the city, he addressed that space is a social construction and that all groups should have a right to the city (Lefebvre, 1968). In this sense, space became a place consisting of relations that produce and reproduce and a contributing source to injustices and inequalities (Fainstein, 2014). Spatial justice then is about letting the citizens have a right to decide through the notion of the participation in the production of space.

In social justice, the concept of 'fairness' is brought forward by Rawls (1971), who famously addressed the fair distribution of available resources from an egalitarian approach (Davoudi & Brooks, 2014). In the further development of the justice perspective in the urban context, Fainstein (2010) argued that there are three governing principles for urban justice: democracy, equity and diversity (Fainstein, 2014). She also argues in the light of the decision-making context, that *'broad participation and deliberation should produce more just outcomes'* (Fainstein, 2014, p. 7).

Building on these core elements of justice, environmental justice has a focus on political and environmental activism, which has been going on for decades (Davoudi & Brooks, 2014).

Many of the environmental studies talk about the distribution of benefits or harms, or equity (Schlosberg, 2004). Schlosberg (2004) however, argues that this view is incomplete, and proposes a threefold view on environmental justice: *'equity in the distribution of environmental risk, recognition of the diversity of the participants and experiences in affected communities, and participation in the political processes which create and manage environmental policy'* (p. 517). These three aspects of environmental justice are used most often in studies and try to grasp the complete thickness of the environmental justice concept with all the related justice issues. While there is a distinction between the main three elements of environmental justice, the different concepts are interrelated and tied to one another (Schlosberg, 2014). These concepts will be used in this research to see how environmental justice is situated in the Hofbogenpark project by going through the three dimensions.

2.2.1 Recognition justice

The first concept in environmental justice is recognition justice, which has a different foundation than distributive and procedural justice. Where distributive justice is about the allocation and use of the benefits and burdens (or green spaces in this case), it ignores the structures that are embedded in politics and culture that are drivers behind the distribution (Davoudi & Brooks, 2014). In the Book 'Justice and the Politics of Difference', the main aim of Young (1990) was to address and theorise the cultural recognition of difference in society (Fraser, 1995). Her aim was to preserve and affirm the differences between groups, and recognize them. As Young formulated the idea that justice *'requires (...) institutions that promote reproduction of and respect for group differences without oppression'* (1990, p. 47). It is considered important to think about this recognition aspect since it is what can determine poor distribution, it can stem from a lack of recognition (Schlosberg, 2012). Fraser (1997) also sees recognition as a key aspect of justice and describes three types of misrecognition: cultural domination, nonrecognition (invisible) and broad disrespect or being routinely stereotyped in representations (Schlosberg, 2012). A more nuanced view of misrecognition was created by Walker (2009). Next to the devaluing of some people, the author sees the misrecognition of places as an important component that is intertwined with the misrecognition of people. In that sense, place stigmatisation is a concept that describes the identity of a place where positive senses are replaced with associations of threat, degradation and danger (Walker, 2009). Including this perspective of place stigmatisation, the more spatial perspective can lead to a better understanding of who is recognised in decision-making processes (Verheij & Corrêa Nunes, 2020). Procedural justice and distributive justice perspectives are two mutually reinforcing aspects of justice; when there is no recognition, there is no participation. Therefore, there could be overlap in findings between these two justice concepts. It is considered challenging to incorporate these justice concerns due to the weak recognition of marginalised groups and their needs and identities or competing planning goals (Anguelovski et al., 2016). The framework from Bulkeley et al. (2014) shows recognition as the bottom face underneath the pyramid of distribution, responsibilities, rights and procedures, interrelated and at the basis of the other justice concepts as a visualisation of climate justice.

To promote a more fair and equal distribution of the benefits of urban green spaces in cities, it is important for people to be recognized in the decision-making processes (Verheij &

Corrêa Nunes, 2020). Recognition justice is not only about recognizing all the people but also *‘recognizing the needs, values, and preferences of all stakeholders in a safe, fair, and non-discriminatory environment’* (Kronenberg et al., 2020, p. 7). This is of importance since especially the marginalized groups and vulnerable people often experience less effective representation within these processes (Rutt & Gulsrud, 2016). Following, this form of justice is more cultural and symbolic, where distributional justice is more socio-economic (Fraser, 2020). Recognition justice refers to the recognition of the different values and needs of relevant actors. This is also important for this research since the relevant actors and groups for the Hofbogenpark are culturally, socio-economic and ethnic diverse and many actors are involved. Recognition in urban greening is also an important part of justice, since there is a risk that in not hearing and incorporating different perspectives, the more privileged and powerful voices are amplified (Verheij & Corrêa Nunes, 2020). In that respect, it can then silence or mute other (marginalized) actors, affecting their living conditions, well-being and feelings. This justice is not about people being treated the same, as some might suggest, it is about how groups with different values and perspectives can equally participate and be recognised in a sometimes-conflicting dialogue (Fincher & Iveson, 2008). To have a just approach for urban greening, it is important to map the different values and perceptions over urban nature, since it can benefit everyone differently (Anguelovski et al., 2020). Therefore, one can consider how different people articulate or are attached to these values, needs and preferences regarding urban nature.

Two other terms that are connected to this concept of justice are inclusion and exclusion. Exclusion is seen as *‘the process which leads to a systemic shortage of opportunities to participate in society’* (De Haas et al., 2021, p. 2). On the other hand, inclusion then is *‘the process of improving the conditions of participation in society for people who are disadvantaged, by enhancing their opportunities and their access to resources’* (De Haas et al., 2021, p. 2). These concepts describe whether different actors are included or excluded in the process, and not only if people are recognised as relevant actors or groups.

2.2.2 Procedural justice

The last concept of justice refers to *‘whether all relevant groups are included in decision-making processes’* (Kronenberg et al., 2020, p. 7). This concept is, other than in distributional justice, not related to the outcome but to the process and is closely related to recognition justice (Walker & Day, 2012). Most of the thinking of procedural justice in the early years stems from the judicial decision-making context. One of the first mentions of procedural justice appeared in a study by Thibaut, Walker & Lind (1972), where they showed that the fairness of a procedure is influenced by multiple factors (Steensma & Vermunt, 2016). In a later study by Thibaut & Walker (1975), there was a connection found between the fair evaluation of a procedure and the ability to control the procedure using decision control or process control. Following, Leventhal (1980) presented six criteria that will lead to better procedural justice as part of a more practical framework of procedural justice which is: Consistency rule, bias suppression, accuracy, correctability, representativeness rule and the ethicality rule (Steensma & Vermunt, 2016).

This justice perspective is approached by claiming that the people who are most affected by decisions should have a particular saying or particular rights and should be fully informed (Walker, 2009). However, it is the question how this (‘people who are most affected’) is

spatially and practically defined. While this perspective is one side of approaching a just process, other people lean more towards an equal representation for all the relevant actors (Davoudi & Brooks, 2014). Following these thoughts, procedural justice is described as the *'meaningful inclusion and representation of marginalized groups (...) in decision-making processes about the location and qualities of environmental amenities and hazards'* (Rigolon et al., 2019, p. 3). Overall, by looking at the thoughts about a just process *'they aim to conceptualize, deconstruct, and propose solutions to structural inequalities that make some people the subjects of institutionalized forms of domination and oppression'* (Holland, 2017, p. 394).

When diving into the concept of procedural justice, participation is an important concept. Citizen participation can lead to concerns about misrecognition, exclusion or unequal distribution of harms and benefits (Verheij & Corrêa Nunes, 2020). While participation has become a core concept in most planning processes, the perceptions and interests that are leading these processes are biased (Kronenberg et al., 2020). Participation is seen by Fraser as the core of environmental justice, referring to equal participation and fair representation (Davoudi & Brooks, 2014). The aim of this participation is to engage citizens beyond traditional mechanisms in decision-making processes. This creates the involvement of diverse groups and also types of (local) knowledge (Verheij & Corrêa Nunes, 2020). A broadening in participation is needed since municipal adaptation often does not include community groups and this should include more integrated management and social approaches (Shi et al., 2016). One must consider who is participating, in what and for whose benefit in order to further clarify the process. These wider considerations of alternative forms of participation should also be taken into practice. A framework for stakeholder participation in environmental projects with different criteria is developed by Luyet, Parlange & Buttler (2012). Criteria for successful participation are described as:

- *A fair, equal, and transparent process that promotes equity, learning, trust and respect among stakeholders and the administration*
- *The integration of local and scientific knowledge*
- *The establishment of rules in advance*
- *An early involvement of stakeholders*
- *The integration of all stakeholders*
- *The presence of experienced moderators*
- *Adequate resources, including time* (Luyet, Parlange & Buttler, 2012, p. 214).

For a participatory process, the authors propose a framework including: stakeholder identification, stakeholder characterisation, stakeholder structuration, degree of involvement definition, choice of participatory techniques, the implementation and evaluation (Luyet, Parlange & Buttler, 2012). For the evaluation of adequate participation, there are several criteria, such as process related aspects (e.g., communication, information, representativeness, transparency and integration of interests) and the outcome related aspects (accountability and influence) (Luyet, Parlange & Buttler, 2012). The participation ladder from Arnstein (1969) gives more insight into the levels of involvement and the influence of involved actors (Figure 1). There are, in this sense, multiple tools that can be used to achieve a certain level of participation. Higher levels of participation are especially more valuable due to expert knowledge about local conditions and contexts from stakeholders. However, there are not only advantages to participation, it can also be time- and cost consuming, lead to vague results or be insufficient (Wilker, Rusche & Ryma-Fitschen, 2016). Therefore, it is crucial to find a balance between not having all actors involved and the complexity of creating a costly, time-consuming and long-term participation process

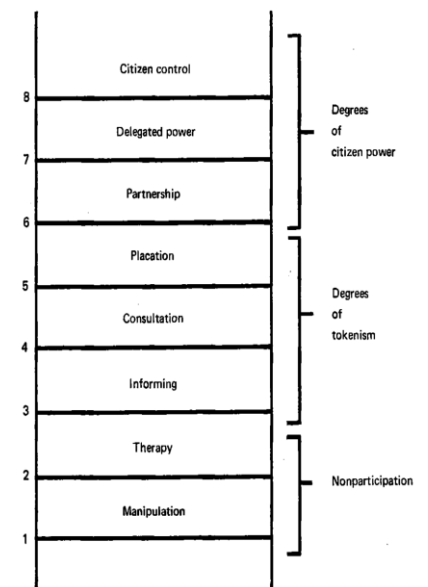


Figure 1. Participation ladder for citizen engagement (adopted from Arnstein, 1969)

While there are many efforts to procedural justice in practice, it could occur to work out differently or still remain not totally just. For example, facilitators or designers often do not allow groups having experienced insecurity or past violence to intervene. Also, even initially inclusive urban greening projects can become led by citizens from higher educational and socio-economic status (Anguelovski et al., 2020). It remains a question whose interest and perspectives should be leading in the processes of urban greening or climate adaptation (Kronenberg et al., 2020). The argument for participation in urban greening is supported and shown by describing the many positive outcomes as formulated by Fors et al. (2015). These list with arguments for participation include social and natural arguments and serve diverse priorities (e.g., consensus building, fostering local knowledge, environmental awareness or increased quality of the green space) (Foster et al., 2015).

In further working out the concept of procedural justice, there are three main pillars that are widely recognised as parts of procedural justice: *'access to information, access to meaningful participation in decision-making and access to legal processes for achieving redress or challenging decision-making processes'* (Walker & Day, 2012, p.72). These elements are also meaningful in the context of urban greening practices but there are less studies on what it specifically would entail (Holland, 2017). Access to information can refer to the information on the benefits and harms of the outcome of the project, its implications and further context. Meaningful participation includes the influence and sharing of knowledge. Finally, access to legal processes is important to protect legal rights that protect the vulnerable and marginalized groups and the possibility to be able to fight these when necessary. In order to further operationalize this concept, Ruano-Chamorro, Gurney & Cinner (2021) propose a detailed framework for procedural justice in conservation consisting of key literature from a (environmental) justice perspective (Figure 2).

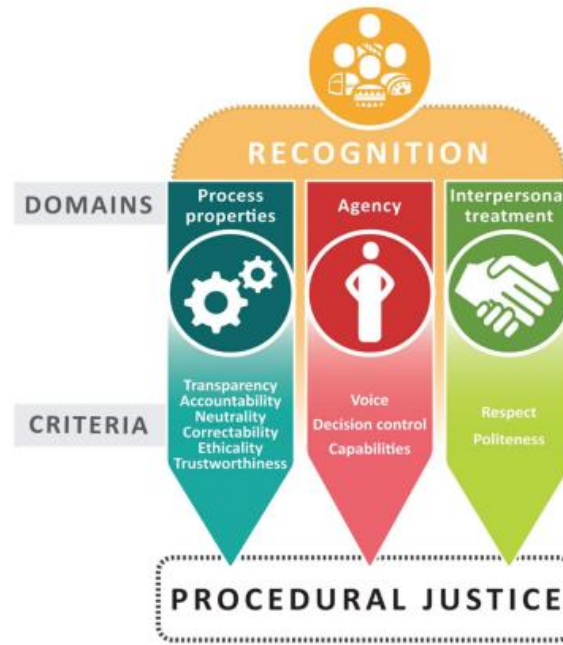


Figure 2. Procedural justice framework in conservation literature (Ruano-Chamorro, Gurney & Cinner, 2021)

There are three main domains (Process properties, Agency and Interpersonal treatment) and eleven procedural justice criteria in these domains. These entail the main concepts that come forward in procedural justice (Ruano-Chamorro et al., 2021). It is difficult to formulate a closed and fully fitting framework since the perceptions remain plural and are context-specific. What is considered just in one context could be unjust in another. Therefore, in looking at the procedural justice in the Hofbogenpark project, the mentioned frameworks (both procedural justice and participation) will be combined to analyse the involvement of actors in the participation process and decision-making. This leads to the following elements: reaching & representation, communication, information, influence & correctability and trustworthiness & transparency.

2.2.3 Distributional Justice

The third key concept in environmental justice is on behalf of the distribution of environmental risks and benefits. The environmental risks or burdens can include pollution, transport of natural disasters or other hazards related to climate change (O'Brien et al., 2017). The benefits on the other hand include access to high-quality environments, ecosystem services and improved health or air quality. Distributive justice has been a concept that is at the heart of environmental justice concerns throughout the years. The environmental justice movement (EJM) and the concerns about the unfair distribution of industrial waste and pollution in the 1950s and 1960s in the US started environmental justice activism (Davoudi & Brooks, 2014). Following this, the unequal distribution of the environmental risks and harms are traditionally exposed by environmental justice studies (Toxopeus et al., 2020). One of the main theoretical foundations of the distributional justice perspective is laid by John Rawls. In his thinking, a just society is a society where everyone

receives a fair share of the available resources (Rawls, 1971). Therefore, there should be an equal distribution of income and wealth and no group should advance at the cost of another (Davoudi & Brooks, 2012). It is however another question what then is a fair or just perspective, and that depends on what philosophical stance is used. These thoughts on what is just are contested and context-dependent (Shi et al., 2016). While there is a strong basis for environmental justice through the distributional perspective, many studies showed that this does not go far enough. Justice also entails the procedural obstacles for a meaningful participation for different groups, recognizing cultural differences and providing a minimum level of capabilities and opportunities (Shi et al., 2016).

While urban greening in cities is multi-beneficial in terms of improving physical health and mental well-being, promoting social inclusion and in creating a sense of belonging, unequal distribution is the cause for a limited availability for some people (Verheij & Corrêa Nunes, 2020; Wolch et al., 2014). Some studies in Europe and the US showed, for example, that different immigrant communities have less access to urban green spaces (Kabisch & Haase, 2013). The high population in urban areas and concentration of inequalities created conditions for an uneven access to green spaces or urban green infrastructure and recognized as an environmental justice issue (O'Brien et al., 2017). Applying the distributive perspective for climate adaptation, the distributional justice refers to the equal availability, accessibility and/or attractiveness of urban green spaces for different population groups (Kronenberg et al., 2020). The concern with distributive justice goes beyond the distribution of the green spaces amongst diverse groups of citizens, but also includes the physical quality of the spaces, adequate equipment and safety (Verheij & Corrêa Nunes, 2020). Other than the distance or availability of these green spaces, there are these other barriers that can prevent the usage and access for some people. There is a need to take into account the different cultural preferences of the resident that surround the green space (O'Brien et al., 2017). This uneven distribution often relates to already existing inequalities in socio-economic contexts, where these people experience difficulties in accessing and benefiting from urban green spaces, also in the poorer neighbourhoods located near the Hofbogenpark in this study (Verheij & Corrêa Nunes, 2020). There are important case-specific factors that can contribute to possible environmental injustice (Kronenberg et al., 2020). According to O'Brien et al. (2017), there are several factors that can form a barrier for the use of green infrastructure or green spaces. First of all, there is the distance and distribution of green. Other factors include large road infrastructure as a barrier, the quality of the greenspace, lack of recreational infrastructure, safety and confidence issues or a mismatch between the design and quality and preferences by minority groups (O'Brien et al., 2017). While there are many studies on the subject, the empirical studies on the ground remain scarce and should be more focused on by policymakers (Shi et al., 2016). When focussing on the distribution of green spaces in the Netherlands, there is a quantitative norm recommended by the government. They aim to have 75 square metres of urban green space per resident and that such a green space should be within 500 metres distance of the dwelling (O'Brien et al., 2017). This, however, only focuses on the distribution and distance of the green spaces, and not so much on the other factors that influence the distributional perspective (e.g. quality, attractiveness or accessibility). Specifically for Rotterdam, the city shows that there is a growing need for green spaces, especially in places where the most people live, there is the least amount of green (Municipality of Rotterdam, 2021a). They also state that green spaces are not always usable, accessible or connected and are sometimes not logically located, therefore showing the distributive perspective. In order to operationalize the distributional

justice perspective following the wider perspective and making it applicable for the case, the operationalization from Biernacka & Kronenberg (2018) is adopted next to the traditional benefits and burdens (in this hierarchical order):

1. Accessibility, *'when one feels that he or she is welcome there, and can freely enter this UGS and safely use it for recreational purposes at any time, without any restrictions', it is accessible.*
2. Attractiveness, *'when one willingly wants to use it and spend his or her time there, and when this UGS corresponds with one's individual needs, expectations and preferences, it is attractive'* (p. 23).

2.3 Operationalization and conceptual framework

In order to get from the theory to the gathering and analysing of data, it is important that the used concepts are operationalised. Operationalisation is a method in which theoretical concepts are being translated into entities that can be measured and observed during data collection. This is done by naming the key concepts, giving descriptions about what these concepts mean and translating them to measurable indicators (Van Thiel, 2014). Because environmental justice is the main concept of this research, it is divided in recognition justice, procedural justice and distributional justice. These are further explained in Table 1.

Key concepts	Description	Indicators
Recognition justice	Refers to recognizing the needs, values, and preferences of all stakeholders in a safe, fair, and non-discriminatory environment (Who counts?)	<ul style="list-style-type: none"> - To what extent the people are included and seen as relevant actors - To what extent the (basic) human needs, values and preferences as individuals and as part of a group are taken into account?
Procedural justice	Refers to whether all relevant groups and individuals are equally included in decision-making processes and can participate (Who gets heard?)	<ul style="list-style-type: none"> - To what extent actors are represented and reached in the decision-making processes - To what extent communication and organisation is clear and adequate - To what extent relevant actors have access to relevant information - To what extent relevant actors have the ability to influence the outcome or can correct - To what extent is the process transparent and is it trustworthy
Distributional justice	Refers to the benefits, burdens, equal availability, accessibility and/or attractiveness of urban green spaces for different population groups (Who gets what?)	<ul style="list-style-type: none"> - Are there benefits and how are these distributed amongst the actors? - Are there burdens and how are these distributed amongst the actors? - To what extent there are changes or compensations for the burdens? - Can everyone freely enter the green space and is everyone welcome there? (Accessibility) - Does the green space correspond with the needs, expectations and preferences and do people want to spend time there? (Attractiveness)

Table 1. Operationalization of the environmental justice concept

To answer the main research question following the theoretical framework, this research will be visualized with the help of a conceptual model (Figure 3). This model shows what steps needs to be taken in order to answer the research question. The urban greening project in Rotterdam, the Hofbogenpark, will be looked at through the lenses of recognition justice,

procedural justice and distributional justice. This all together will formulate the environmental justice of the process, leading to insights and recommendations for urban greening processes to incorporate environmental justice concerns.

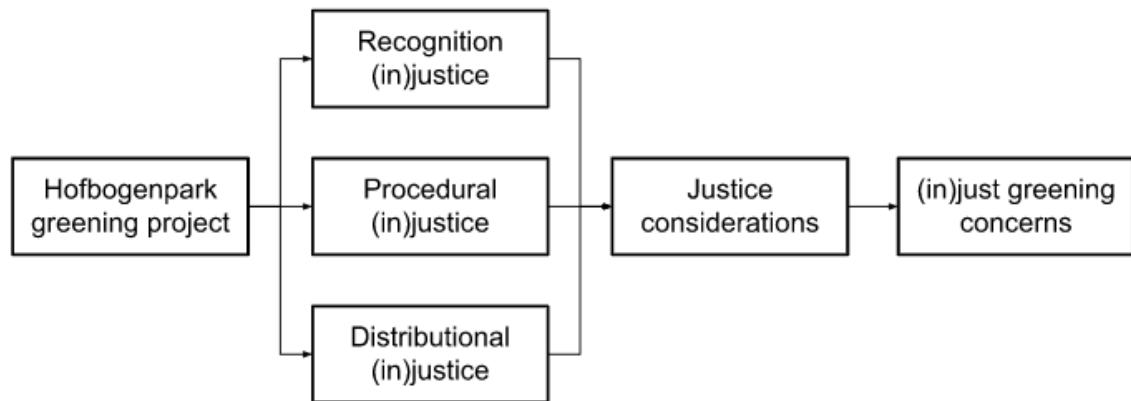


Figure 3. Conceptual model of the research for environmental justice and the Hofbogenpark

3. Methods

3.1 Research Methodology

In order to dive into the methods that will be used during this research, first, it is important to discuss the methodological foundations that will be built on. These foundations are at the core of this research and explain what view the researcher has on the world, what knowledge is and how knowledge can be created (Moses & Knutsen, 2019). This is also referred to by Guba & Lincoln (1996) as paradigms, which is *'viewed as a set of basic beliefs (or metaphysics) that deals with ultimates or first principles'* (p. 107). The foundations or paradigms include the ontological, epistemological and methodological assumptions that are made by the researcher.

First, ontology is the ground layer of a perspective that is created. The key question that ontology is about is: *'what exists in the human world that we can acquire knowledge about?'* (Moon & Blackman, 2014, p. 1169). How the 'real' world is assumed is crucial for finding out how things really work and how things really are (Guba & Lincoln, 1996). The two main ontological positions are realist and relativist. Realist (or naturalism) ontology holds that one (objective) reality exists, can be experienced and understood as a truth (Moon & Blackman, 2014). The position of relativism (or constructivism or interpretivism). *'holds that reality is constructed within the human mind, such that no one true reality exists; instead, reality is relative according to each individual who experiences it at a given time and place'* (Moon & Blackman, 2014, p. 1170). Relativists state that reality is experienced and perceived differently by people. The social characteristics or individual characteristics can cause these different perceptions of the world, and therefore multiple realities exist (Moses & Knutsen, 2019). There are, according to Moon & Blackman (2014), two positions within relativism, these are bounded relativism and relativism. Bounded relativism argues that there is a shared reality within a group (based on culture or moral), but that reality between groups can differ. Relativism on the other hand argues that reality is created in the individuals' own mind, there is no reality beyond the subject (individual) (Moon & Blackman, 2014).

This research will have the relativist (which results in interpretivism) paradigm as its philosophical foundation. Relativism is a well-established way of thinking in social sciences, and fits this research since its main aim is to understand (Guba & Lincoln, 1996). This paradigm fits the main research question, since justice concerns are perceived and understood differently by different individuals and groups in society, these differences must be understood to get a grip of the issues and possible improvements for environmental justice concerns in urban greening. During the research, the investigator and the object of study are linked and together produce findings (Guba & Lincoln, 1996).

For the epistemology of the research, this will have the key principle that all knowledge is interpreted, and that the investigator tries to understand (van Thiel, 2014). Understanding people's perceptions and the study of the subject is crucial in subjectivism. This is important since *'people impose meaning and value on the world and interpret it in a way that makes sense to them'* (Moon & Blackman, 2014, p. 1172). Thus, the study of the case that is selected for this research should be investigated as a whole and different perceptions should be understood in order to get a clear view of the environmental justice perspectives of urban greening in Rotterdam.

Following the philosophical bases of this research, methodologically, qualitative research will be used. Since the different perceptions and context of the subject is very important for this study, qualitative research can help to examine this (Van Thiel, 2014). Qualitative research is also richly descriptive in order to get a deeper understanding of subjects but also: “(...) *understand situations in their uniqueness as a part of a particular context and the interactions there*” (Merriam, 2002, p. 5). The process in qualitative research, in contrast to quantitative research, is inductive. This means that the researcher gathers data to build concepts or theories, often because there is a lack of theory or theory that does not fit the phenomenon or situation that is at hand (Merriam, 2002). Because in this study, justice is a core concept that is being used and is perceived differently among people, the understanding of phenomena, processes, the perspectives and worldviews of the people is crucial in approaching this subject and is embedded in qualitative research (Merriam, 2002).

3.2 Research Strategy

In order to translate the philosophical foundations into ways of conducting research, the research strategy is the logical procedure or design that will be followed (Van Thiel, 2014). This study used a case study as a research strategy. A case study is a well-known and often used strategy in qualitative research (Van Thiel, 2014; Harrison et al., 2017). Merriam (2009) formulated a case study as follows: ‘*The case study is an intensive description and analysis of a bounded system*’ (p.40). Although there are many different definitions and characteristics of the case study, the foundation is that there is a focus on a particular thing and that the result of the study should be heuristic and descriptive (Harrison et al., 2017). With this type of strategy, the description of the case and its setting within the contextual conditions is involved in the approach (Creswell et al., 2007). The case study tries to explore the phenomenon within its real-life context (Vennix, 2016). In order to get a good understanding of a case, often in-depth data collection involving multiple sources of data are used next to each other, also referred to as triangulation (Yin, 2003; Vennix, 2016; Creswell et al., 2007). The unit of analysis is at the core of the study and is being studied in-depth (Merriam, 2002). Building on the relativist philosophical foundation of this research, Stake (1995) is most closely aligned with this interpretive orientation in a case study (Harrison et al., 2017). Reality is multiple and subjective, and is also based on understanding and meaning, which are very important aspects in justice-related questions. Hence, the data and information that is being collected in a case study is context and time-specific and is also interpreted by the researcher in his own way (Harrison et al., 2017).

A case study has several variants, including a single (instrumental) case study and a multiple-case study. In a single case study, the researcher focuses on one case that illustrates the chosen issue or phenomenon. On the other hand, a multiple-case study selects several cases on the bases of the chosen issue or phenomenon (Creswell et al., 2007). While in case studies, the internal validity is relatively high (through in-depth analysis and multiple data sources), the external validity is relatively low. The context of cases differs and therefore, researchers hold back in generalizing from one case to others, which is a drawback of case studies.

This study will use a single case study. A single case can be chosen based on several reasons, the case can be critical, unique or revelatory (Yin, 2014). The Hofbogenpark project

is a quite unique project in this perspective. First of all, the transformation of the railway viaduct is design-wise challenging due to the carrying capacity, the height, width and length of the old railway. In literature, the need for green is widely supported but also shown to be complex due to the competing claims for space and lack of available space. The transformation or re-use of obsolete infrastructure or spaces is seen as a way to implement green in the city (Wolch et al., 2014). Since the Hofpleinlijn crosses multiple neighbourhoods and changes the living environment in various ways, it is important to see how this is implemented from a justice perspective. The active participation of citizens represent a need and support for a park and the willingness to influence or contribute to the design and outcome of the process. The total image of the characteristics of this project shows a remarkably interesting case for studying environmental justice. Looking at the New York High Line as a well-known greening project, the park resulted in many positive outcomes but was also criticised due to the paradoxical results such as the overcrowding and so-called ecological gentrification. Seen the Hofbogenpark has some similarities, it is interesting to see how this redevelopment is taking place and what interests and concerns are taking into account.

3.3 Research methods

Moving from the more generous approach of a case study, the research strategy, research methods and techniques are used in the practical stage when conducting the data collection (Van Thiel, 2014). Different methods will be used to create an in-depth view of the case and to improve validity by triangulation of methods. The following methods will be used during this study and discussed in the following chapters.

3.3.1 Interviews

An important method that is used in qualitative research is the interview. It is also used often in case studies and is a method in which the researcher gathers information by questioning different respondents (Van Thiel, 2014). Interviews can be structured, semi-structured or open, according to the preferred flexibility and openness of the interview aimed at the information needed. This method can help in gaining more understanding on subjects since the researcher can ask supplementary questions or ask for more explanation to better understand the answers and context of the in-depth information that is been given (Van Thiel, 2014). However, since the interviews are flexible and can vary for different respondents, this can compromise the reliability of the research. The internal validity, however, is higher (Vennix, 2016). This research used semi-structured interviews, since it gives continuity across interviews but is still flexible in a way (Silva et al., 2015). In approaching the broad concept of environmental justice, it was helpful to leave room for follow-up questions and other topics related to the subjective knowledge and experiences of the respondents. Also since there are various respondents with different types of knowledge (e.g., decision-makers, local residents and organisations). An interview guide with thematic questions and topics is a primary tool in semi-structured interviews (Silva et al., 2015). In advance, there was a interview guide made with relevant sub-themes and questions (Appendix B). These are based on theory through the operationalization of the research or

try to reflect the research questions (Van Thiel, 2014). The guide that the researcher formulated has an introduction, middle section (the questions) and concluding section which differed for decision-makers and designers and involved actors. For this research, the main elements of the interviews are the three sub-themes of environmental justice. These three concepts have main grand tour questions that will guide the conversation, some follow-up or clarification questions can then help to further dive into the various aspects of environmental justice. It is important in semi-structured interviews to leave space and flexibility for aspects of information brought up by the respondents. In this respect, the interviewer can adjust the conversation based on the knowledge of the respondent but still try to retrieve as many details and information on the subject as possible. This might be the case since respondents hold various kinds of information. For selecting the respondents and units of analysis, purposive sampling is used (Van Thiel, 2014). This means that all the relevant actors connected to the project were tried to be included considering the importance of all the actors and their perspectives following documents and explorative interviews. An overview of the conducted interviews can be seen in Table 2. Some involved actors were not interviewed due to the lack of them wanting to be involved or the ability to reach them, as can be seen in Table 4.

Sector	Person	Role	Date	Location	Number
Municipality	Okach Bouchtaoui	Planteam (participation) & neighbourhood manager	19th of April, 15:30-16:30	Online, teams (duo interview)	Interviewee 1
	Peter Dekkers	Neighbourhood manager	19th of April, 15:30-16:30	Online, teams (duo interview)	
	Michel de la Vieter	Project manager	11th of May, 14:30-15:30	Municipality of Rotterdam, Wilhelminakade	Interviewee 2
Design	Dirk van der Peijpe	Urbanisten, project leader	20th of May, 12:00-12:25	Phone	Interviewee 3
	Lisa van Schagen	De Dakdokers	29th of April, 15:00-15:45	Online, teams	Interviewee 4
Owner	Dudok	Dudok group, commercial actor	No explicit role,	-	
BAG	Piet Vollaard	BAG, expert in ecology, urban architect and founder of de Natuurlijke Stad	17th of May, 11:00-12:15	Provernierswijk, office of Natuurlijke stad	Interviewee 5
Wijkraden	Leon van Barneveld	Wijkraad Bergpolder & entrepreneur Hofbogen	20th of May, 16:00-17:00	COPPI', coffee bar under Hofbogen	Interviewee 6

	Theo Coskun	Wijkraad Agniesebuurt (in the past), city council (in the past), SP	20th of May, 14:15-15:20	COPPI, coffee bar under Hofbogen	Interviewee 7
Residents & Organisations	Anonymous respondent	Active citizen, organisation vrienden van de hofpleinlijn	26th of April, 10:30-11:45	Wijkcentrum Liskwartier	Interviewee 8
	Marjan Tuk	Active citizen, BAG, noise study	11th of May, 11:00-13:00	At home, Bergpolder	Interviewee 9
	Daniël Opbroek	Active citizen, Founder of stichting GroenGoed, Management of Hof van Noord, BAG	26th of April, 13:00-14:30	Walking tour, on the Hofbogen roof	Interviewee 10

Table 2. Overview of conducted interviews for this research

3.3.2 Documents

Next to interviews, documents were also used and analysed. Desk research helped to gain a better understanding of the situation and context of the case. Documents are existing sources of material that can add to other sources of data. Documents include various sorts of written data such as: policy documents, legal papers, recordings of meetings, newsletters, design documents and many more (Van Thiel, 2014). In order to make use of these relevant documents, document analysis is *‘a systematic procedure for reviewing or evaluating documents- both printed and electronic (computer--based and Internet--transmitted) material’* (Bowen, 2009, p. 27). This document analysis contributes to the production of rich descriptions of certain phenomena, issues or events (Bowen, 2009). According to Bowen (2009), there are five functions of using documents:

1. Documents can provide data on behalf of the context of the unit of analysis
2. Information in documents can help in finding situations that needs to be observed or questions that need to be asked.
3. Documents provide in supplementary research data
4. Documents can help in tracking changes and developments of specific contexts or situations
5. Documents can be analysed in a way to verify findings from other data sources or corroborate evidence.

The advantages of document analysis include that it is an efficient method, there are often many documents available, there is a lack of obtrusiveness and reactivity, and documents have a broad coverage (Bowen, 2009). However, disadvantages of the use of documents are that there could be insufficient detail, the low retrievability and biased selectivity. The analysis of the documents (e.g., designs, advice and media) is crucial in producing useful and valid information for this study since it gives insight into the planning and foundations of

the Hofbogenpark project. Therefore, it is important to analyse the documents in a structural and critical way. It, for example, helped to track changes and developments during the years and show the historical path of the Hofbogenpark project. There are some key documents that describe and support the main choices for the project. Especially since this project is based on a design, the design is very important. It is important to state that the quality of the documents and the coverage are more important than the number of documents used in finding the right information.

The types of documents that are used for this analysis vary. First of all, there are several design and vision documents that describe the vision and plans for the Hofbogenpark project. The most recent design document is the 'preliminary design Hofbogenpark'. This document is based on different types of feedback and other documents that are created by different actors. The owner of the Hofbogen (Dudok real estate group) created a vision document for the future of the Hofbogen and the area. There are also different scientific and law documents that describe the frames in which the project needs to take place. The document of Programma van Eisen (PvE) among others describes the technical conditions such as the carrying capacity, waterproofing and other prerequisites for the project. Secondly, there are also participation documents and reports of neighbourhood sessions with the inhabitants. These show the feedback and input from the inhabitants for the project as well as the design of (a part of) the participation process. Thirdly, there are also news and media articles which can help in providing context and views for the project. Finally, there are some documents that will help in providing a wider context of the project in the development of the city area such as the municipal environmental vision or the neighbourhood agendas. The documents that were analysed can be seen in Table 3.

Documents names	Meaning
6 Reports from neighbourhood sessions	Report with minutes from 6 different neighbourhood sessions, this includes the presentations from designers and municipality, comments from attendees and chats (digital) and additional comments from mail contact.
Preliminary design Hofbogenpark	The preliminary design of the Hofbogenpark, created by the design team in collaboration with the municipality and the owner.
'Advies inrichting Hofbogenpark'	Advisory report written by the BAG working group with wishes and preferences from local actors.
Written responses from wijkraden and organisations	Letters and written responses to the council about the design
Programma van Eisen Hofbogenpark	Report with the demands from the municipality for the Hofbogenpark
Groene promenade Hofpleinlijn	Report of the preliminary investigation of the Natuurlijke stad for the development a park on the Hofbogen
Toekomstvisie de Hofbogen, het langste gebouw van Rotterdam	A report from Hofbogen BV (previous owners Hofbogen) with a future vision for the Hofbogen
De Hofbogen verbindt	A vision from Dudok about the development of the Hofbogen

Table 3. Overview of documents used and analysed

3.3.3 Observations

An observation is another qualitative method in which the researcher studies the subject in its everyday context. This results in a rich description and contextual information of the everyday practices and situations (Van Thiel, 2014). An advantage of observations is that one can encounter other things than can originate from documents or interviews. The Hofbogenpark crosses through different neighbourhoods and is connected to these areas. It can have different effects for the inhabitants given the characteristics of the neighbourhoods, especially seen the possible noise- or light pollution and the location of the different entrances leading up to the park. By engaging with the environment surrounding the project, more context and information about the situation can be given. This can all contribute to getting a representative picture of how environmental justice is positioned in this project. This can all lead to adding new dimensions for understanding the context of the project (Yin, 2014).

A lot of things that the researcher encounters in the observation can be helpful (conversations, documents, events etc.) (Van Thiel, 2014). An observation can be structured or unstructured (Mulhall, 2003). This was conducted by taking field notes, making field observations and taking photographs in stimulating the researchers' analytical insights (Silva et al., 2015). The data collected with use of jottings and other field notes can contribute and complement other data (from documents and interviews) by the functions of fact checking, contextual information, daily practices and local knowledge in relation to the urban greening project. In this case, there were a few small observations (Appendix C). Firstly, there was a walking interview on the roof of the Hofbogen, which was specifically helpful in creating validation of concerns and context of the project. Secondly, a visit to a house looking over the Hofbogen created more insight in some concerns about noise. Thirdly, a walking tour next to the Hofbogen and visiting of a coffee bar under the Hofbogen helped in creating context and local knowledge about the Hofbogen. Other than the data collection, also some practical content helped in this study such as taking photos at the sight. These photographs can help to convey case characteristics to outside observers in order to better understand the case (Yin, 2014). This is done at the Hofbogen.

3.4 Validity and Reliability

Reliability and validity are important factors for sound scientific research. These can work as forms of criteria for evaluating a qualitative study. There are no universal criteria that are agreed upon by all the researchers, but the validity and reliability are the most common and usable (Braun & Clarke, 2013).

The reliability of research says something about the accuracy and consistency of how the variables are measured (Van Thiel, 2014). In this study, high reliability means that the results show a representative picture of the real situation and are not coincidental. In order to promote the accuracy of this study, the operationalization of the (environmental justice) concepts and a clear structured interview guide will improve the accuracy (Van Thiel, 2014). However, in case study research, the results are always an outcome of the interplay between researcher and the data (e.g., interviewees) and the interest often lies in the individual meanings and experiences (Braun & Clarke, 2013). Reliability can then be seen as

the trustworthiness of the research and to see if the results really reflect the real situation in its context, this is tried to achieve by incorporating different sources of data. The second element, consistency, is about the repeatability of the research. This is harder to achieve in since this is a qualitative case study. In the analysis of the data, the data is coded in the same way by using the same variables to achieve greater reliability (Schwartz-Shea & Yanow, 2012). Furthermore, it is important to document the steps and procedures that are taken in the research to improve repeatability. The methods section is in this respect a way to describe how data is collected, in what steps and how this data is analysed.

Validity as a criterion for research is often divided into internal, external and construct validity. The overall definition of validity in a broad sense is that '*a piece of research is showing what it claims to show*' (Braun & Clarke, 2013, p. 280). The internal validity shows if the study really measured the effect that was intended to measure. This requires an adequate operationalization of the theories and concepts, therefore, formulating indicators for environmental justice concepts is important (Van Thiel, 2014). This concept, however, is mostly applicable for explanatory and causal studies and not for exploratory and descriptive studies, which this study is (Braun & Clarke, 2013; Yin, 2014). Therefore, the internal validity as described by Van Thiel (2014) will be measured in the construct validity, which is more applicable to these types of studies. External validity shows to what extent a study can be generalised to a wider group or population. The research questions can hereby also help to seek or hinder generalisation. Addressing 'why' and 'how' questions can be very helpful to provide an analytical generalisation (Yin, 2014). For this research, the aim is to describe and explore the environmental justice perspective for an interesting urban greening project. Therefore, achieving a high external validity is not the aim of this study but by using theory in a single case study such as this, the analytical generalisation can be improved. If theory is used, this can be matched with the case study findings and forms the groundwork for generalisation. The main goal is not to build on abstract theory but to generalise to other concrete situations (Yin, 2014). In the context of this study, the outcome for the concrete case of the Hofbogenpark project can lead to new insights for other concrete projects in Rotterdam or other cities working with similar characteristics.

The third form of validity, construct validity, '*is concerned whether a data collection measures what it aims to measure*' (Braun & Clarke, 2013, p. 280). How this construct validity can be improved is to maintain a chain of evidence. This means that the findings in the case study conclusion should be traced back by an outside reader to the initial research questions (Yin, 2014). As can be seen in Figure 4, the initial questions should be connected to the results and the steps must be traceable in each direction. This requires the theory, methodology, data collection and analysis to be well designed and fitting in the whole study. That is why the steps in translating theory to data collection and results need to be well designed. A concern with construct validity in case study research is the capability of the researcher to provide a sufficient operational set of measures and that subjective judgements are used in collecting data. This means that the researcher can decide to choose measures that support the preconceived notions or claims

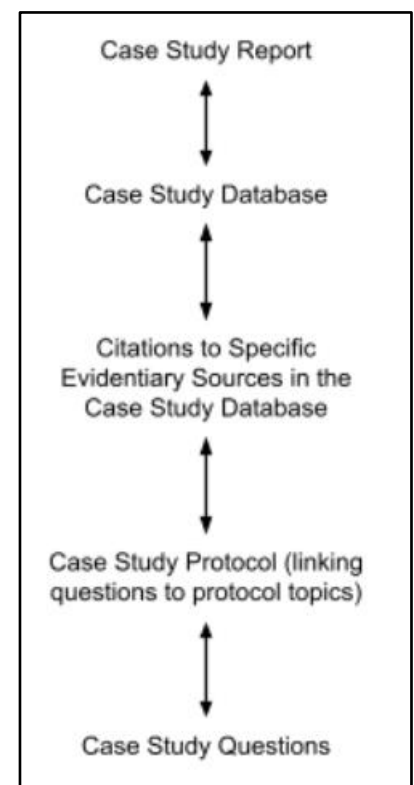


Figure 4. Maintaining a chain of evidence (Yin, 2014)

and that this can damage the trustworthiness of the research (Yin, 2014). That is why the argumentation behind theory and operationalization should be sufficient and transparent for the reader. This can improve the context of the research and the choices that are made by the researcher. Another way to improve the construct validity is to use multiple sources of evidence in order to provide confirmation of data, multiple angles and support for certain claims or findings (Yin, 2014).

To have substantive and improved reliability and validity of this research, triangulation of methods is used. Bowen (2009) explains the strength of using multiple data sources: *'By examining information collected through different methods, the researcher can corroborate findings across data sets and thus reduce the impact of potential biases that can exist in a single study'* (p.28).

3.5 Data analysis

The analysis of the data that is collected is a crucial part in translating rough data into usable information for this study. It is important for the analysis of qualitative data that there is a clear structure and that there are clear boundaries between different units of data and information (Van Thiel, 2014). To achieve this, setting up a filing system where every bit of information can be found easily and is structured can help. When all the data is stored and can be used properly, the data analysis can be conducted. While the data analysis is often seen as a linear next step after the data collection, it is important to cycle back and forth between existing data and finding new data (Miles, Huberman & Saldana, 2019). In this way, the researcher can fill gaps or proceed with data collection according to new findings. By working out the interviews during the data gathering phase in this study, the researcher was able to find out what elements were missing and needed to be gathered.

The main element in qualitative data analysis is coding and labelling different types and pieces of information, which is often a process of trial and error (Van Thiel, 2014). According to Graue (2015), qualitative data analysis *'is a process of the description, classification and interconnection of phenomena with the researcher's concepts'* (p. 8). This classification, coding or labelling of information retrieved from data can be done via several methods. Miles et al. (2019) describes different steps in qualitative data analysis; first cycle coding, second cycle/pattern codes and finally analytic memoing.

First cycle coding is used in this study by labelling the documents and interviews with short codes: *'most often a word or short phrase that symbolically assigns a summative, salient, essence capturing, and/or evocative attribute for portion of language-based or visual data'* (Miles et al., 2019, p. 63). This is often a descriptive code of what can be found in the text (Gibbs, 2007). These short codes help to filter the relevant codes out of the large data files. The second cycle makes use of the existing codes and was used to work toward more general themes and patterns (Miles et al., 2019). For environmental justice, some codes helped by created more context or background about the project, while others were more aimed at the indicators that are the foundation of environmental justice (e.g. codes about communication). These code groups can be used to categorize and cluster different data units and form the basis for further analysis and in forming a framework or thematic ideas about it (Gibbs, 2007; Van Thiel, 2014). For the quality of the analysis, this can help by applying the codes in a consistent way and providing transparency in the use of codes

across the different documents (Gibbs, 2007). This also adds to the reliability, the same code groups and clusters are used during the data analysis (Schwartz-Shea & Yanow, 2012). The program that is used, Atlas.ti, formulates second cycle as more process- and concept coding (Miles et al., 2019). Finally, the last part of the analysis was the theory development ('bigger picture') or working towards more general themes. In this phase: *'the different codes are compared and contrasted with each other to search for patterns, cause and effect relations, and other forms of interconnection'* (Van Thiel, 2014, p. 148). This was done by further clustering and combining different codes in order to get a clearer structure and overview (Miles et al., 2019). These are the more analytical codes which work towards connecting the theory with the data by using the previously made codes, and being more abstract (Gibbs, 2007). A way in which these code groups is helpful, is because it helps to combine different kinds of codes from various sources under a specific category. This analysis is crucial in working from many codes to trends, patterns and categories, without losing important aspects. By linking the codes in groups to the theoretical framework, the chain of evidence was tried to be maintained (Yin, 2014).

3.6 Stakeholder analysis

A stakeholder or actor analysis is the identification and analysis of the involved actors for a certain study. In this study, there are a lot of involved actors from different sectors. The actors that can be involved are individuals, organisations, individuals in organisations or networks from the different actors (Brugha & Varvasovszky, 2000). By using data from the relevant documents and interviews, the identification of actors and their roles could be made as can be seen in Table 4. The connections between the different actors can be seen in Figure 5. The main actors that are involved are the municipality (and municipal clusters) and the owner (Dudok) as principals, the design team (De Urbanisten, De Dakdokters, DS landschapsarchitecten & Bureau van Eig), the Wijkraden, different local organisations and foundations, local entrepreneurs and local residents. This gives a foundation and context for the further analysis of the environmental justice aspects. For a more in-depth description about the involvement of various actors, appendix A talks more about the background and history of the Hofbogenpark project.

Sector	Actor	Role
Owner	Hofbogen BV	Owner Hofbogen 2006-2019
	Dudok Groep	Owner Hofbogen from 2019 onwards, initiator of the Hofbogenpark project
	Prorail & NS	Owner Roof Hofbogen till 2019
Municipality	Municipality of Rotterdam	Initiator of the Hofbogenpark project and owner of roof by 'opstalrecht', different involved clusters such as city management (stadsbeheer), city development (stadsontwikkeling) and well-being (welzijn)
	Monumentenzorg	Responsible for the monumental status of the Hofbogen, needs to be incorporated and has to evaluate the design

Design	De Urbanisten	Design team, bureau for urban design and landscape, leading role in design of the park
	DS landschapsarchitecten	Design team, bureau for landscape architecture, design of the park
	De Dakdokters	Design team, bureau for designing and execute green roofs, design of the park
	Bureau van Eig	Design team, bureau for architecture, design of the entrances (stairs)
Wijkraden	Liskwartier	Connection between neighbourhood and municipality with directly chosen members
	Agniesebuurt	Connection between neighbourhood and municipality with directly chosen members
	Bergpolder	Connection between neighbourhood and municipality with directly chosen members
	(Oude Noorden)	Connection between neighbourhood and municipality with directly chosen members, poorly involved
Organisations	Stichting GroenGoed	Foundation that manages gardens and parks in Rotterdam in collaboration with many volunteers also manager of 'Luchtpark Hofbogen'
	Stichting Hofpleintrein	Foundation consisting of active residents and entrepreneurs that has the goal to restore and place an old railway wagon on the Hofbogenpark
	Vrienden van de Hofpleinlijn	Collective of active residents and entrepreneurs that has the goal to bring the Hofpleinlijn under the attention (with events and lectures) and think along for the development of the Hofbogen
	Hof van Noord	Allotment garden at the end of the Hofbogen with an own board and volunteers
	De Natuurlijke Stad	Collective of architects, urban planners and ecologists from Rotterdam that conducted a preliminary investigation (2016) of the Hofbogen park
Residents	Werkgroep Hofbogen	Collective of residents, entrepreneurs and (green) other involved initiators (with help from the municipality) that collaborative thought about the Hofbogen, predecessor for the BAG (till 2019)
	Bewoners Advies Groep (BAG)	Collective of residents, entrepreneurs and (green) other involved initiators (with help from the municipality) that are actively involved in the development of the Hofbogen (from 2019 onwards) and created the BAG report
	Residents from Liskwartier, Agniesebuurt, Bergpolder and Oude Noorden	Involved residents through neighbourhood sessions

Table 4. Overview of the involved actors, interviewed actors are in bold

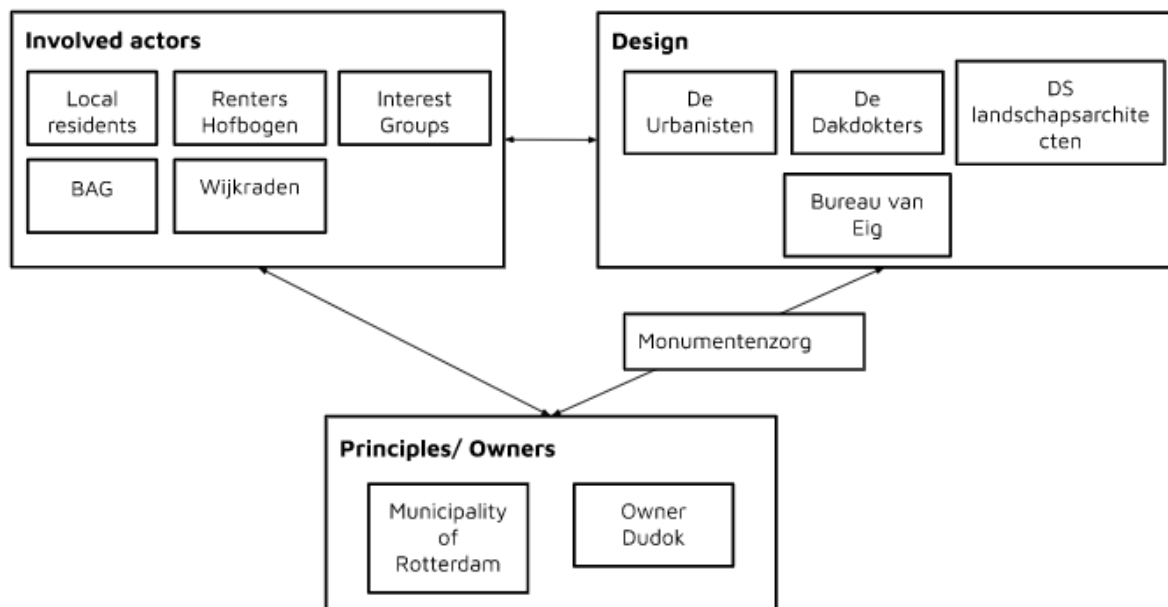


Figure 5. Overview of the clustering of actors and their relation

4. Results

4.1 Overview Hofbogenpark process

To get a full understanding of the Hofbogenpark greening project (Figure 6), it is important to outline the history of the process and the wider context of the project. The Hofbogen is characterised by its long, rich and complex history. Therefore, it is helpful to explain the process in order to get a good understanding of the process and work towards the environmental justice aspects. This overview will be separated in various parts, in which the timeline will be discussed with various developments and characteristics, this can be seen in appendix A.



Figure 6. Hofbogen viaduct in Rotterdam North (map) and photo of the roof (De Urbanisten et al., 2021)

4.2 Recognition (Who counts?)

When diving into the concept of environmental justice for the Hofbogenpark project, the first pillar is recognition. Recognition in literature is seen as the basis of environmental justice and overlaps with the procedural and distributional justice. Poor distribution or the lack of involvement in participation can stem from a lack of recognition (Schlosberg, 2012).

Recognition justice tries to determine to what extent people are included and seen in the decision-making process and what human needs, values and preferences are considered (Fincher & Iveson, 2008). Inclusion and exclusion are two concepts that are closely related to recognition and can be used to show recognition (De Haas et al., 2021).

From the moment that the train stopped running on the Hofpleinlijn, the active involvement from local residents and entrepreneurs started. By organising meetings and events, Vrienden van de Hofpleinlijn tried to raise awareness for the Hofbogen. By doing this, they wanted to actively be involved in the development of the Hofbogen (Interviewee 8, personal communication, 2022). The whole selling process and negotiations, behind the scenes, took a very long time and made the development quite complex (Interviewee 7, personal communication, 2022). In this stage, there was a lot of run-arounds between the different owners and lot was asked from the energy and time of residents and entrepreneurs (Interviewee 5, personal communication, 2022). A respondent says the following: *'I found the municipality way too distant; it is not our problem (...) not from Prorail and the housing corporations. So, we do not interfere, and that is not right'* (Interviewee 7, personal communication, 2022, p. 88). While the Gebiedscommissie Noord helped and initiated the working group Hofbogen, the entire process was just terribly slow (Interviewee 5, personal communication, 2022). The position of the local residents and entrepreneurs was created by themselves and therefore, recognition plays a different role during this time. The municipality and the owners supported the events, meetings and ideas, but more on the background. This collective of active people went to the different political groups and got speaking time to talk about the Hofbogen. In this sense, the political parties recognized them: *'I stood behind the lectern for three-quarters to answer questions and to discuss, everyone started to discuss it, so it was just really good that we were in the picture'* (Interviewee 8, personal communication, 2022, p. 84). From the perspective of recognition, one could say that this group of people actively tried to show their preferences and wishes. With the establishment of the working group Hofbogen, the involvement started to take a clearer form. There was room for people to join this working group, from which different people attended. A member of Vrienden van de Hofpleinlijn said: *'and in that working group, sort of everyone was in it, we were in it, someone was in it (...) who is working with plants in the city, with pickings gardens and I don't know what else, and also the director of the Hofbogen BV was involved'* (Interviewee 8, personal communication, 2022, p. 92). The Gebiedscommissie Noord was responsible for the participation of the neighbourhoods, but they did not have the resources and not enough people to do that right (Interviewee 8, personal communication, 2022). However, the working group was important since this would later become the BAG and the involvement became more concrete. Stichting GroenGoed was also involved with small meetings between local parties and the municipality, *'the meetings (...) were evaluated to a wider meeting were also multiple entrepreneurs and residents from the neighbourhood joined'* (Interviewee 10, personal communication, 2022, p. 58). Different actors were already included in this first stage, but with much own initiatives from local residents and entrepreneurs.

Sometime before the Hofbogen was sold to the Dudok groep, the first general meeting was organised in a local church (Bergsingelkerk) by the municipality (Figure 7). This meeting attracted approximately one hundred people and had the main goal as formulated by the project manager from the municipality: *'informing people about the upcoming sale and the selling process and what that would mean, that the municipality would obtain the recht van opstal. Also, what our ambitions are and what kind of design we would make'* (Interviewee 2, personal communication, 2022, p.20). The small group of people that were involved in the working group were already recognised, but as the project manager states: *'for a small group of people, it is very relevant, but you want to reach everyone'* (Interviewee 2, personal communication, 2022, p.20). At the end of the meeting, the manager asked who wanted to think along and join the working group. During this time, the approach by the decision-makers was that everyone was welcome to join the group (Interviewee 1, personal communication, 2022). Together with the working group, the new people who joined formed the BAG.



Figure 7. First official residents meeting in the Bergsingelkerk about the Hofbogen (Bewonersadviesgroep Hofbogen, 2019)

By deciding who needed to be involved, the municipality looked at the relevant actors in the area, which had a connection with the Hofbogen. This form of recognition was based on the identification of the actors who had an interest, were affected or influenced by the project and who were already a part of the network from the past (e.g., stichting GroenGoed or stichting Hofpleintrein). This made it easier to locate the relevant parties (Table 4).

Different ways were used to ensure that people were invited for the information meetings that were organised by the project team. Around 6000-8000 A5-flyers were delivered door-to-door in the four neighbourhoods surrounding the Hofbogen with an invitation to join the session (Interviewee 2, personal communication, 2022). Sometime later, there was a database with about one hundred names and mail addresses of involved people, which also got the invitation digitally. The entrepreneurs also got the flyers and an additional flyer digitally via the owner Dudok. The invitation was also put on Facebook (Interviewee 1, personal communication, 2022). The Wijkraden got an invitation and were asked to invite

their own network. Finally, some meetings were mentioned in the local paper, the Havenloods (Interviewee 9, personal communication, 2022). With this wide attempt to reach the different neighbourhoods and all the local actors, everyone was invited and able to join the different sessions. Most of the respondents acknowledge that much energy and time is invested in reaching people, *'they did their best to reach a lot of people'* (Interviewee 10, personal communication, 2022, p. 58) and *'I think that they really tried and therefore it also just is: take it or leave it'* (Interviewee 6, personal communication, 2022, p. 26). The aim was to include as much people as possible. As a result, the sessions attracted people varying between the neighbourhoods from a few to a hundred or more (Interviewee 1, personal communication, 2022).

While there was much effort to reach all the relevant actors, the audience that attended the sessions was often very homogenous. As the neighbourhood manager stated: *'there are Moroccans, Turks, Surinamese and other nationalities living in North, very mixed neighbourhoods (...) but the average crowd that we reach is white, grey and male'* (Interviewee 1, personal communication, 2022, p. 69). The traditionally marginalized groups were hard to reach during this project, such as younger people and foreigners. It remains difficult how to reach these people and to decide how far you go. As the project manager explains: *'I never was a supporter of a flyer in 6 languages (...) it is obvious what we are planning on doing and if you are interested, you are more than welcome'* (Interviewee 1, personal communication, 2022, p. 88). To reach and recognize the needs and preferences of the different residents of the neighbourhoods, the Wijkraden had a key role. As the project manager states: *'We brainstormed with the Wijkraad, how are we going to reach your inhabitants?'* (Interviewee 2, personal communication, 2022, p. 24). Especially in times of corona, some sessions had to be digital. After corona was less present, for the neighbourhoods of Liskwartier and Bergpolder, the Wijkraad thought that their target audience would be best reached through online sessions. *'In a manner of speaking, with a plate on their lap after work being able to follow, with little effort but still getting the information'* (Interviewee 2, personal communication, 2022, p. 24). On the other hand, the Wijkraad Agniesebuurt pointed out: *'we have to do something live, something apart from the Hofbogen where people will attend'* (Interviewee 2, personal communication, 2022, p. 24). The municipality organised an event on a sunny Saturday in the afternoon where there was a barista making fresh coffee, some soup to eat, activities for children, music and some stands with information about the project (Interviewee 1, personal communication, 2022). This session was well visited in this neighbourhood (i.e., fifty people attended). Another way in which people could show their interests and opinions was via an arch in the Hofbogen that was opened every day from 9-18u. People could walk in and put memos on the design to show their ideas and opinions about the project (Interviewee 6, personal communication, 2022).



Figure 8. Live neighbourhood session with market stands and the design (De Urbanisten et al., 2021)

While the overall mentality of the process was that everybody was welcome, the idea was to match the needs and preferences of diverse groups and lower the barrier to participate, a form of custom design (Interviewee 1, personal communication, 2022). An interesting aspect of the online sessions and the live session in the Agniesebuurt was that there were different kinds of attendees (Figure 8). For example: *'if we had these physical sessions (...) suddenly moms and children would come by and I found that very enjoyable'* (Interviewee 1, personal communication, 2022, p. 88) and *'a funny thing to see is that when we went digitally, you get a different kind of audience'* (Interviewee 1, personal communication, 2022, p. 40).

In this way of describing the recognition of the process, the line between procedural justice and recognition justice is very thin. Recognition in the process is seen by multiple respondents as the question who are reached and to what extent. This is closely related since the design is based on input from different sessions, meetings and talks, which represents the preferences and interests from the participants. So, the different kind of people could be recognized, but if they don't participate, their needs and preferences are not taken into account. The traditionally marginalized groups, such as foreigners and young people were not well involved. Some respondents think that more could have been done to reach those people. A local resident tells: *'I don't know if the mosque and the church are also involved, but I got the impression that this was quite normal in the past (...) because the residents organisations and community workers have been cut back, this all leads to the involvement going down'* (Interviewee 9, personal communication, 2022, p. 67). Another residents adds that more people could have been reached by organising more 'normal activities' and improve publicity in this way: *'you can think of all kind of stuff to let people say something (...) you can organise something small in many ways, even if it is a knitting afternoon (...) just an afternoon with chatting, or you can walk into a card-club'* (Interviewee 8, personal communication, 2022, p. 202). The cut back in social workers and the visible decline in social networks in the neighbourhoods are seen as reasons that less people are reached (Interviewee 9, personal communication, 2022). In an attempt to represent a wide group of residents and have a stronger voice, some residents formed a group *'to be able to articulate the interests or what was important not on behalf of one person, but on behalf of more'* (Interviewee 9, personal communication, 2022, p.122).

Most respondents also point out the fact that the local entrepreneurs in the Hofbogen were badly represented and involved. An active member the BAG points out: *'we often tried to get them involved, but that barely worked'* (Interviewee 5, personal communication, 2022, p.59). While this is seen as a pity, the municipality says *'in any case, we involve Dudok as the owner (...) and they have the interest to serve their entrepreneurs'* (Interviewee 2, personal communication, 2022, p. 117). However, in practice, the municipality sees that the owner has a larger interest in developing houses and is less involved in thinking along, also for the entrepreneurs (Interviewee 2, personal communication, 2022). Therefore, the question can be raised if the needs and preferences of the entrepreneurs are recognised and taken into account.

The recognition of the different (basic) needs and preferences of the participants will be discussed in the distributional justice chapter since this describes if the design of the park corresponds and matches the preferences and needs (Biernacka & Kronenberg, 2018).

4.3 Procedural (Who gets heard?)

Procedural justice is mainly aimed at ‘who gets heard’ and ‘*whether all relevant groups are included in the decision-making process*’ (Kronenberg et al., 2020, p. 7). Participation is an important concept in procedural justice and forms the basis of the analysis. The different elements that are proposed by Walker & Day (2012), Ruano-Chamorro, Gurney & Cinner (2021) and Luyet, Parlange & Buttler (2012) are combined and used as a framework. The elements are as follows: Reaching & representativity, Communication, Information, Transparency & Trustworthiness and Influence & Correctability.

4.3.1 Reaching and representativity

In the previous chapter on recognition, the thin line between recognition justice and procedural justice was described. In recognizing people and their needs and preferences, a lot has already been discussed about who is included and what is done to reach people. This chapter will continue to go more in-depth about reaching people and the representativity of the involved actors for the wider population. Table 5 gives an overview of what things are done to reach people, get them involved and who they were.

Classification	Specific action	Actors
Invitation	Door-to-door flyers	Everyone living around the Hofbogen including entrepreneurs (two or three streets wide)
	Mails to known involved actors	Actively involved residents, entrepreneurs via Dudok, foundations and Wijkraden
	Social media (e.g. Facebook)	Everyone that is interested
	Local papers	Residents of neighbourhoods
Activities	Online neighbourhood sessions	Local residents and Wijkraden, local organisations
	Live neighbourhood sessions (physical)	Local residents and Wijkraden, local organisations
	BAG-sessions	BAG group
	Sessions about specific themes (e.g. ecology and management)	People specifically interested in certain themes
	Open arch with information and possibility to give feedback (9-18u)	Everyone that is interested
	Hofbogen wide meetings (e.g. presentation preliminary design)	All involved parties

Table 5. Overview of different forms of invitations and activities organised during the process

Going more into depth in reaching people, an element that came forward during the interviews was the representativity and the difficulty of reaching (certain) people during the process. The prior mentioned groups, young people, foreigners, low-income and local entrepreneurs, are the most difficult to reach. *'Actually, the traditional groups who are always difficult to reach'* (interviewee 1, personal communication, 2022, p. 69). While overall, the involvement from the residents was good, the involved people were homogenous; white, often older, male and higher educated (Interviewee 1, personal communication, 2022). For the lack of reaching certain groups or people, the respondents formulated various barriers and explanations for not reaching these people.

The first group that is poorly reached are the foreigners and people with a low income. This was visible in the neighbourhood session in for example the Agniesebeurt, which is a very mixed neighbourhood with an overall low income and many different nationalities, where the attendance was quite low. Various reasons are given for the lack of involvement of this group. A member of the Wijkraad Agniesebeurt says: *'a lot of people living in the Agniesebeurt, however, are occupied with surviving, and are not engaged with the future of the roof of the Hofbogen'* (Interviewee 7, personal communication, 2022, p. 71). A local resident adds that the people *'perhaps did see the flyer, but could not read it, want to read it or did not label this as important'* (Interviewee 9, personal communication, 2022, p. 69). Another argument that is given, is the fact that some people with a low income often have problems with different local authorities and the municipality. This creates a form of distrust and can be a reason to not get involved (Interviewee 6, personal communication, 2022). Finally, the same respondent says: *'there are also people who, either way, shrug and just are happy that they have affordable homes in Rotterdam (...) accept that and think that they cannot express their influence'* (Interviewee 6, personal communication, 2022, p.112).

The second group that is specifically mentioned is the group of entrepreneurs. Their poor involvement could perhaps be caused by the length of the process: *'they think, it could take much time before people start walking above me, I don't care'* (Interviewee 6, personal communication, 2022, p. 77). This is seen as a problem by the respondent since they do not know how big the impact would be on their situation, seen the leakages and disturbance of vermin (Interviewee 6, personal communication, 2022). It could be that the entrepreneurs of the arches have a short-term interest and expect that perhaps, they are not even present anymore when the park will be implemented (Interviewee 2, personal communication, 2022). As mentioned before, the owner (Dudok) is less involved in thinking along for their entrepreneurs, especially since the aim is to connect the activities from the entrepreneurs with the activities on the roof park (Interviewee 2, personal communication, 2022).

Next to the barriers for certain groups, there are also some overall barriers mentioned by respondents that are more process- or content related. First of all, four respondents mention the need to understand and deal with the complexity of municipal processes overall. For example, as a member of the Wijkraad Agniesebeurt states: *'and then you have to completely explain how the municipality works, then it is three days later, and you lose half of the people'* (Interviewee 7, personal communication, 2022, p. 112). An active resident adds: *'people do not know the processes of contracting and tenders, how it works with legislation and they are not used to it, so you ask pretty much from residents'* (Interviewee 9, personal communication, 2022, p.169). In combination with the complexity of municipal processes, the high number of involved actors, interests and the large scale of the project: *'it is a super complex, super complex process, and it is very difficult to do it right in one try'*

(Interviewee 10, personal communication, 2022, p. 70). Furthermore, the length of the designing process, now taking almost 3 years, also adds to this complexity and could be a barrier for people. People who are not used to participation and everything that comes with it, have more difficulty in meaningful participation (Interviewee 8, personal communication, 2022). Overall, participating costs time and effort, which not all residents have. For this process and especially for participation in the BAG, since it is quite complex and takes a long time, much is asked (Interviewee 9, personal communication, 2022). Some people also have the feeling that this project has less priority or is not relevant for them, *'it is too far away for them'* (Interviewee 8, personal communication, 2022, p.155). Also, some people decide not to participate because they trust other active residents to represent their interests (Interviewee 7, personal communication, 2022). For the neighbourhood sessions, corona caused the need for some digital sessions via teams. While on the one hand, this attracted different kinds of people and opened different forms of involvement, people need to have digital skills in order to participate (Interviewee 9, personal communication, 2022). For the physical sessions on the other hand, a factor that plays a role is that the location of the session must be reachable for people (Interviewee 1, personal communication, 2022). There were two levels of participation for the residents, the neighbourhood sessions and BAG working group. Specifically for the BAG working group, a barrier was that people needed to sign confidentiality for a specific meeting. A member of the Wijkraad Liskwartier says: *'also with such a confidentiality, that is a pretty high barrier for people (...) people who do it for nothing, for themselves and you get these kind of barriers (...) it is not something that is taken with gratitude'* (Interviewee 6, personal communication, 2022, p. 104).

Another reason for the lack of involvement is mentioned by a member of the Wijkraad Bergpolder. It is the difference in involvement from the Wijkraden. For example, the Wijkraad Liskwartier did not attend the sessions because they were against the system, but they represent the neighbourhood. About this, he said: *'I was the only Wijkraad, Liskwartier was against it, so they did not show up. And I understand, I am also against the BAG, but that is the system so I should then just join'* (Interviewee 6, personal communication, 2022, p. 100).

Building on these barriers, the representation of these mentioned groups and people is therefore also lacking. The representation of some groups in the neighbourhood could be intercepted with the help of the Wijkraden, however, these were not always well involved as well. The same thing counts for the entrepreneurs due to the lack of active involvement by the owner, who can represent the interests of the entrepreneurs. For the municipality, it is difficult how to reach certain people: *'how do you reach a target audience, who actually does not want to participate?'* (Interviewee 6, personal communication, 2022, p. 24). Furthermore, there was room for everyone to participate and people cannot be forced if they do not want to (Interviewee 1, personal communication, 2022). Another difficulty in talking about representativity is the carrying capacity of certain interests and opinions. If there is a selective group participating, *'the question is: the worries that are being shared, are those the concerns of a large part of people or particular concerns from certain people?'* (Interviewee 2, personal communication, 2022, p. 105). This also raises the question for the municipality what people think who don't participate: *'do they think it is okay, did they drop out or do they find it annoying?'* (Interviewee 2, personal communication, 2022, p.22).

Not only the representation of the relevant actors of the sessions, but also in the BAG working group can be questioned (Interviewee 6, personal communication, 2022). Since the BAG was the highest form of influence, this could have an impact on the representation of

certain interest and opinions of people not involved. Overall, most of the respondents think that the municipality invested much time and energy in reaching people. The involvement varied for the different meetings and sessions but is relatively high for such projects (Interviewee 2, personal communication, 2022). An overview of this chapter is given in Table 6.

Positive aspects		Aspects to be improved	
<i>Reaching</i>	<i>Representativity</i>	<i>Reaching</i>	<i>Representativity</i>
<ul style="list-style-type: none"> • Much time and energy invested in reaching people • Wide range in forms of invitations (e.g. mails, flyers, local papers and social media) • Use of various participation methods (digital and live sessions) • Different people are reached with custom design sessions (outdoor sessions or digital sessions) • Everyone was welcome 	<ul style="list-style-type: none"> • People trust that active residents represent their interests • Wijkraad as a way in which the neighbourhood is represented • BAG report as a package of wishes from local actors 	<ul style="list-style-type: none"> • Lack of involvement from local entrepreneurs and traditionally marginalised groups (i.e. foreigners, low income/education groups, women, youth) <p><i>Barriers for individuals and groups:</i></p> <ul style="list-style-type: none"> • Lack of language skills • Distrust against the municipality • No or less priority (e.g. poor financial situation) • Lack of relevance • Lack of experience in or knowledge about participation • Trust that other residents will represent certain interests • Lack of time and energy to participate <p><i>Barriers of the process and content:</i></p> <ul style="list-style-type: none"> • Complexity of municipal processes • Length and complexity of the process • Bad reachable locations (for physical meetings) • Lack of digital skills (for online meetings) • Complex language of the designers/ municipal servants • Signing of confidentiality (BAG meetings) • Lack of involvement from some Wijkraden 	<ul style="list-style-type: none"> • No good representation BAG working group • Mostly one-sided participants (white, male, higher educated, older) • Lack in representation needs and preferences local entrepreneurs and traditionally marginalised groups • Lack of involvement from some Wijkraden

Table 6. Overview of the reaching and representativity aspects

4.3.2 Communication

Communication is another aspect that is considered to be important in participation. As already mentioned, the main form of communication was via the invitations for the different meetings and sessions. This was done through different forms of communication, such as social media, flyers, mails and local papers. The flyers were seen by multiple respondents as a good way of reaching many people, especially since it was done in multiple streets wide surrounding the Hofbogen. The invitations and communication about the meetings were,

however, sometimes on short notice (Interviewee 9, personal communication, 2022). *'I got an invitation a week or one and a half prior, but my agenda is very full, so I needed to reschedule private activities in order to be there'* (Interviewee 6, personal communication, 2022, p. 96). This is especially important since it is difficult to join later in the process because you miss information about things that are already decided. You could potentially drop out if you miss a meeting (Interviewee 6, personal communication, 2022). In between meetings, there sometimes was radio silence from the municipality. This is seen by the municipality as a point for improvement: *'we did once have a period of radio-silence towards the working group when we were searching for the right way ourselves. We could have better said at the start in the process: then and then are the working groups'* (Interviewee 2, personal communication, 2022, p. 131). This is also agreed upon by the initiator of stichting GroenGoed: *'it was not clearly been communicated, sometimes you just do not hear a thing for a couple of months'* (Interviewee 10, personal communication, 2022, p. 102).

Communication also played a role in managing expectations during the process. This is seen by multiple respondents as a point of improvement. In the first place, the planning of meetings and sessions was not always clear for the respondents. Not only when the meetings will take place, but also what is discussed. A resident tells: *'We got a global planning, but when are we going to talk about that? How are we going to organise that? and what will it look like? that was unknown'* (Interviewee 9, personal communication, 2022, p. 120). A member of Wijkraad Bergpolder adds: *'I think that that should be better monitored, like, what are we actually talking about, a legend or some sort of definition description'* (Interviewee 6, personal communication, 2022, p. 51). This would improve the process since sometimes, the interests of people and what was discussed did not match. However, there was communication about the planning of some upcoming meetings and sessions by the municipality in a later stage during neighbourhood sessions (Verslag buurtsessie Noorderkanaal-Bergselaan, 2021). Another aspect that came up during the interviews was the fact that there was no communication about what level of influence or participation there would be. This is explained by a resident: *'it was kind of vague, so when we are talking about co-decision or the level at which you actually participate, that was actually unclear for me from the start'* (Interviewee 9, personal communication, 2022, p. 57).

These different elements show that it was unclear on various levels for residents and other actors what to expect such as the time management, what subjects are discussed and the level of influence. These elements had an influence on the feelings and perceptions of the involved actors about the participation process. A respondent formulates: *'I think that you should start with expectation management and I think that that is exactly where it very much lacks: that people are then expecting too much and think that it is a drawing that they can colour in themselves, but that is totally not how it works'* (Interviewee 6, personal communication, 2022, p. 31). Another important aspect in the communication found by the respondents was the communication about changes or feedback on input from involved actors. On some occasions, it was unclear what was being done with the input. As a resident tells: *'it is then incorporated in the preliminary design, but you never see it back or there is never told: that did the residents tell. That is always kind of vague'* (Interviewee 8, personal communication, 2022, p. 135). Another respondent further explains: *'I see the designs and I can tell what has changed, but not everyone sees that'* (Interviewee 6, personal communication, 2022, p. 57). However, the reports from the neighbourhood sessions show that there were multiple times where the designers or municipality gave specific feedback on things that were done with the input (Verslag buurtsessie Noorderkanaal-Bergselaan, 2021).

During the process, the language and communication of the civil servants was believed to be good and the servants themselves were open and approachable (Interviewee 6, personal communication, 2022).

Finally, a way in which residents felt left out was with the hiring of a designer for the entrances to the park. There was no communication about choosing this designer, suddenly, there was a designer chosen, which the people did not know (Interviewee 5, personal communication, 2022). Communication turns out to be a difficult aspect in participation: *‘That is the most difficult to design, if everyone is heard and kept up-to-date.’* (Interviewee 10, personal communication, 2022, p. 104). While many things did go well, there were some main elements that respondents found lacking (Table 7).

Positive aspects	Aspects for improvement
<p><i>Overall aspects</i></p> <ul style="list-style-type: none"> • Wide range in forms of invitations (e.g. mails, flyers, local papers and social media) • Open and clear language invitations • Clear language used and open and approachable attitude from civil servants • Feedback about incorporating input • Some form of time planning 	<p><i>Overall aspects</i></p> <ul style="list-style-type: none"> • No involvement in choosing designer entrances • Invitation for meetings sometimes on (very) short notice • Moments of radio silence from the municipality • (Somewhat) Unclear what is done with the input <p><i>Lack in expectation management</i></p> <ul style="list-style-type: none"> • No clear time planning • (Sometimes) No clear clustering of content related subjects • Unclear what the level of influence would be

Table 7. Overview of the communication aspects

4.3.3 Information

Information is a subject that is closely related to communication. The main question for this section is: do all the actors have access to the relevant information? (Walker & Day, 2012). In designing the Hofbogenpark, information plays a crucial role. The way in which information was being communicated was through the different (neighbourhood) sessions or meetings with the BAG. In these meetings, people would get informed about the preliminary ideas and sketches of the design and could give feedback. The information that was given, while there were still some comments, is considered to be sufficient (Interviewee 10, personal communication, 2022). In the BAG meetings, which had the most influence, the working group got early access to a design which had not been publicised yet. Some information was specifically shared with them. To process the information gathered during the neighbourhood sessions in a right way, the municipality made documents with the minutes of everything that was discussed. These documents were shared with the attendees of the sessions. This was a helpful way for attendees to re-read the information shared during the evenings. Multiple respondents mentioned the stagnation of the process when new people entered because it was hard for new people to know what already was discussed and the process was being held back. Therefore, the documents were put on a website, a resident tells: *‘that is also the reason why those folders were set up on the*

Bergpolder website (...) now you can say if new people enter: read it beforehand' (Interviewee 9, personal communication, 2022, p. 83).

The BAG meetings, on the other hand, did not have notes or recordings documented. This made it difficult for people who did not attend to keep up with the process. As another initiative, a resident uploaded audio tapes of the meetings and distributed these to the involved people to keep them updated.

The knowledge about municipal and participation process is a different way in which information is important. For people who don't know how the municipality works, it can be difficult to understand and participate in the process. Especially since they don't know how long processes can take or what legislation and interests play a role. *'If you let residents participate, you need to make them experts (...) you need to have people who say: this and this is important to make a good decision, this has a role, you cannot expect from everyone that they read 15 years' worth of information'* (Interviewee 9, personal communication, 2022, p. 230). This aspect is also important since it would be beneficial if people not only responded from emotions, but from expertise and knowledge. This can add to having more meaningful participation (Interviewee 9, personal communication, 2022). Furthermore, it can reduce the barrier for people to participate, since it cost much time and energy to get knowledge about the process and content-related subjects.

Information also was very important for some discussions between different actors. In some cases, there was a clash between local knowledge by residents and entrepreneurs and information given by the decision-makers. For example in a discussion about parking (Figure 9) in the neighbourhoods: *'there is a very high parking pressure, during the night, all cars just park on the sidewalks because everything is full. My advice: I think that the parking pressure will rise much more and then we get as a response: we think that it will not be that bad (...). You don't know what you are talking about.'* (interviewee 6, personal communication, 2022, p. 88). Another example is the expected concerns about noise, which some residents are very afraid of. While there was a study about noise and its effect on the Hofbogen and the designing team incorporated a part of these pieces of advice, they do not understand how bad the noise can be (Interviewee 9, personal communication, 2022). These examples show that there could be a difference in local information and experiences from local actors and the decision-makers. A respondent explains: *'I think that it is difficult to decide something if you do not know how it really is there, but that is how the municipality works'* (Interviewee 6, personal communication, 2022, p. 90). In this clash in information, also the balance and valuing of different interests play a role.



Figure 9. Parking pressure as can be seen near the Hofbogen

At the intersection between communication and information, the position, experience and knowledge of individuals can be important for getting things done. A resident from the stichting Hofpleintrein mentions that it is helpful to have connections in the municipality. The position and connections of individuals can help in getting access to information or getting

questions answered (Interviewee 8, personal communication, 2022). A member of the Agniesebuurt adds: *‘A lot of civil servants know that I know how things work, that does not say that they always listen to me, but if I say something, they must do something with it’* (Interviewee 7, personal communication, 2022, p. 59). Therefore, information has a role in the communication, involvement of actors and the input for decisions and is an important factor for just participation (Table 8).

Positive aspects	Aspects for improvement
<p><i>Information sessions and meetings</i></p> <ul style="list-style-type: none"> • Good transfer of information • Notes of sessions distributed amongst attendees • Helpful to have notes about sessions on local neighbourhood website • Access to information before being published (BAG sessions) <p><i>Knowledge and expertise</i></p> <ul style="list-style-type: none"> • Helpful to have connections with the municipality and experience in participation • Helpful to have expertise in certain subjects • Ability to share knowledge in specific meetings (e.g. ecology) 	<p><i>Information sessions</i></p> <ul style="list-style-type: none"> • Notes (initially) not available for new involved people • No initial notes or recordings taken in BAG-meetings (only from own initiative residents) <p><i>Knowledge and expertise</i></p> <ul style="list-style-type: none"> • More difficult to participate if you have no process or content related expertise/experience • (Sometimes) Clash between local knowledge and information for decision-makers

Table 8. Overview of the information aspects

4.3.4 Influence and correctability

Influence and correctability are core elements of procedural justice, since this is where the real influence of actors is measured (Interviewee 5, personal communication, 2022). As mentioned in the overview of the Hofbogenpark process, there were several ways in which the actors had an influence on the design of the Hofbogenpark. The first and by far most important manner in which local actors could express influence was through the BAG working group. That the influence of this group, especially with the BAG report, was the largest as agreed upon by most respondents. This report was a collection of different wishes, advices and desires by the BAG in designing the park (Bewonersadviesgroep Hofbogenpark, 2019). Different respondents from the municipality and the designing team mentioned the importance of this document. The designer, De Urbanisten, says: *‘It was important that it was present, a basis with a program of wishes from the residents’* (Interviewee 3, personal communication, 2022, p. 25) and the project leader adds: *‘they wrote an advice in a couple of months before there was a new owner (...) with the things that the residents wanted to transfer, that makes it much easier for the municipality to see what we should aim for’* (Interviewee 2, personal communication, p. 107). The local residents did see that many aspects from the BAG report were incorporated in the designs. Furthermore, when the participation ladder was shown to the respondents, the BAG report was by some actors seen as a form of co-production. A member of the BAG and stichting GroenGoed

says: *'I already have seen a lot of things come back in the final design and approach'* (Interviewee 10, personal communication, 2022, p. 92). The BAG meetings were seen by some respondents as the place where the most influence was in the process next to the BAG report (Interviewee 3, personal communication, 2022).

The neighbourhood sessions were a second way in which residents could express influence. During the presentation of the design, people could give feedback or comments about certain aspects. Also, during the discussion about the platforms, the municipality gave the attendees the possibility to vote for different types of platforms. The third way was through meetings about specific subjects, such as ecology or management. In these meetings, people had the opportunity to give feedback about these specific issues (Interviewee 2, personal communication, 2022). A final way in which actors could have an influence was through written responses or reactions to the council about the design. Especially the different organisations, such as the Wijkraden and foundations could give feedback in this way (Interviewee 6, personal communication, 2022).

To come back to the BAG report, the involved actors wished for a maximum amount of participation by local residents and entrepreneurs, since there was a large involvement and local expertise that could be used. This is especially an aspect for the involved people where the process lacked. A respondent formulates this as follows: *'that advice from the residents, was leading in the process, but with that, the actual co-determination of the residents came to a stop'* (Interviewee 5, personal communication, 2022, p. 63). An active resident adds: *'when there were no commercial parties, it was a co-creating process, and the word co-creation, that is not the case anymore'* (Interviewee 9, personal communication, 2022, p. 15). The level of influence when the municipality stepped in and organised the different sessions and meetings was reduced. The respondents describe this as a lack of having real influence, more reacting instead of acting and only being informed and not being able to influence. Respondents formulate this as: *'and then they noticed that it was actually more just listen and not seeing how they decide or the valuation of arguments'* (Interviewee 9, personal communication, 2022, p. 57) or *'there sure was participation, they organised a lot of 'catch-up sessions', but actual influence, or co-determination about the subject, that was not actually there'* (Interviewee 5, personal communication, 2022, p. 51) and finally, *'you cannot have the illusion that the residents have a form of influence (...) I am already happy that some things are implemented'* (Interviewee 6, personal communication, 2022, p. 59). As can be seen, by these reactions, there is a feeling by some involved actors that there was no real decision power or participation during the process. This has partly to do with the earlier discussed fact that there was not agreed upon a certain level of influence for the involved actors (Interviewee 9, personal communication, 2022). This is seen as a shame since some actors entered the process thinking that they could co-create the park, working from the BAG report. The outcome was that the process felt like just another 'normal' participation project, where people only get informed but cannot have influence (Interviewee 8, personal communication, 2022). Also, in the non-involvement of the choosing of a designer for the stairs to the park the respondents saw a reduction in involvement: *'we just had to be satisfied with that, so the influence became less, less and less'* (Interviewee 8, personal communication, 2022, p. 106).

The municipality mentions that the meetings were mostly about informing and consultation, but: *'in some cases also co-production, we have people who have a lot of knowledge about ecology, those people really thought along and some things originated from that'*

(Interviewee 2, personal communication, 2022, p. 44). The importance of participation as seen by the municipality is two-fold, *'the first thing is that comments from residents improve your plan, these are people that walk there daily, know things that you or the project team did not notice and know better what the needs are from the neighbourhood (...) the second goal is to organise support and create understanding for certain choices'* (Interviewee 2, personal communication, 2022, p. 30). So partly, it is a way to improve the design, but it is also an obligation in informing people and creating support. The latter mentioned aspect, participation as obligation, is also felt by some respondents: *'the people were like, we organised participation, and we checked our boxes, check, check, check. That is not governing, that is a 'checkmark culture''* (Interviewee 9, personal communication, 2022, p. 233). The project leader stresses that it is quite difficult to organise much participation in a project with such a large scale (Interviewee 2, personal communication, 2022). Also, the high number of different interests adds to this difficulty. The municipality has an interest for creating a park for whole Rotterdam, the different neighbourhoods, keeping the owner (commercial actors) on board and satisfied, possibly tourists and finally, the municipalities also has its own conditions (Interviewee 2, personal communication, 2022). A respondent also stresses the difficulty in these balances: *'tourism is fun, but how are you going to incorporate that, how do you manage to keep the local versus the commercial balanced, that the commercial is not going to overrule and the local is not pleasant anymore'* (Interviewee 9, personal communication, 2022, p. 222). These different interests can lead to imbalances and feelings of not being heard or not being important. For example, that the commercial interest is much more important than the residents (Interviewee 5, personal communication, 2022). On the other hand, that the municipalities' own interest is more important: *'they actually think that: residents are rather troublesome because they have ideas, but we have studied for it'* (Interviewee 7, personal communication, 2022, p. 75). In weighing these different interests, if people want influence, much is asked from their own energy and time. As a member of the Wijkraad Agniesebuurt illustrates: *'I told that every time to the residents, you have to stay on top of it, because before you know it, you are not included in the talks between Dudok and city development and the corporations'* (Interviewee 7, personal communication, 2022, p. 84). The municipality explains that they tried to find a balance between giving a blank sheet and no influence at all, the influence lies in fine tuning for the design (Interviewee 2, personal communication, 2022).

The objective way of describing influence, shows that there was a use of participant's input. Certain things in the design could be influenced or corrected by the attendees. Table 9, with changes and concrete points of influence, shows that input from residents is used in the design. These changes indicate that there was room for the design to be altered according to the input of the involved actors. What caused the changes to be made is in some cases not very clear. Two respondents mentioned the importance of the position of individuals or organisations in being heard. For example, in the case of stichting Hofpleintrein and the motion about the railway wagon: *'Dudok and those civil servants tolerate us, and that is because of the motion, they have to. (...) that such a motion should provide that you get something like that done, I doubt if it would otherwise ever be placed on the roof'* (Interviewee 8, personal communication, 2022, p. 182). Another reason for the changes is labelled by another respondent as these being logical changes: *'it is about the fact what you do when the residents want something and you do not, if you will do it or not'* (Interviewee 5, personal communication, 2022, p. 161). However, it is difficult to balance the different values and interests and change something. The municipality says that it is sometimes hard to tell

how wide a certain opinion is carried and people often think from a micro-level perspective (Interviewee 2, personal communication, 2022). Here, the influence of involved actors depends on representation of these concerns or interests. The municipality makes also clear: *'it is not the case that: you ask, we do it'*, certain elements are decided upon from different interests (Interviewee 1, personal communication, 2022, p. 123).

Subject	What is it about?	Concrete action/ correction after feedback
Position/Position/number of entrances	Position entrances ('Hof van Noord')	Design: Position stair Hof van Noord changed to the East-side
	Elevator ('tak van Poortvliet')	Design: Elevator removed from entrance
	Arches as entrances	Design: Arch-entrance removed
	Number of entrances	Design: Number of entrances reduced
Platforms	Choices for type of platform	Design: Platforms matches the wishes from attendees
	Choices for type of platform	Design: Playground removed from platform
	Number of platforms	Design: Number of platforms reduced in design
Noise and privacy	Location path	Design: Position path changed to where the distance is largest to the houses
	Location green	Design: High green is implemented in places close to the houses
	Location platforms	Design: No or more quiet platforms in places where houses are close
	Noise Happy Italy	Promise to talk with Happy Italy
Overall design	Feeling of the park	Design: Calmer to the North
	Railway wagon ('Stichting Hofpleintrein')	Design: Placement of railway wagon on the roof
	Plants (Stichting GroenGoed)	Design: Incorporation of edible plants

Table 9. Overview of concrete changes and actions on behalf of the input by different actors

Positive aspects	Aspects for improvement
<p><i>Methods of influence</i></p> <ul style="list-style-type: none"> • Largest influence through BAG advisory report local actors • neighbourhood sessions input and feedback • Letters to the council • Arch in the Hofbogen with memo's about the design • BAG meetings • Meetings for specific subjects (e.g. ecology) <p><i>Level of influence</i></p> <ul style="list-style-type: none"> • BAG report seen as form of co-production • neighbourhood sessions and BAG seen as informing and consultation <p><i>Use of input and correctability</i></p> <ul style="list-style-type: none"> • Many concrete changes after input • Different actors caused concrete changes 	<p><i>Methods of influence</i></p> <ul style="list-style-type: none"> • There could be more evaluation meetings or informal meetings • More attention to park management <p><i>Level of influence</i></p> <ul style="list-style-type: none"> • Unclear what the level of influence was (not agreed upon) • Much was only informing or consultation • No real influence after BAG report • A strong position and/or connections with decision-makers are needed to get certain things done <p><i>Use of input and correctability</i></p> <ul style="list-style-type: none"> • No real trade-off, only logical things changed • Costs much time, energy and effort to get changes implemented (for local actors)

Table 10. Overview of the influence and correctability aspects

4.3.5 Transparency and Trustworthiness

The last element of procedural justice is transparency and trustworthiness. This goes hand in hand with some other elements of procedural justice. Some respondents found that there was no clear feedback on what was being done with the input. One respondent specifically mentions that the process is not transparent since there were some false arguments given for some aspects in the design. For example, he mentions that the municipality said from the start that the entrances (stairs) needed to be on one side of the Hofbogen since it was an obligation from Monumentenzorg. Some stairs would be better positioned on the other side of the Hofbogen and created much frustration and discussion with the residents. However, this claim was not true according to the respondent, the stairs only could not disturb the linear character of the Hofbogen (Interviewee 5, personal communication, 2022). The same respondent also tells about the inclusion of the hedgehog. While this is seen as a beacon for biodiversity, it is dangerous for the hedgehog to be on the roof and it should not be on there. This indicates that the process was not always transparent and that there was no trust in his perspective. As he formulates: *'there is rather a distrust towards to the own residents than trust'* (Interviewee 5, personal communication, 2022, p. 146). According to other respondents, the municipality did some things behind the scenes, such as the selling process (Interviewee 7, personal communication, 2022). Also in communicating about what is done with input, a respondent says that the municipality is not quite transparent: *'we have a BAG session, and then we hear nothing for some time, and then we have another session were you can see a drawing were perhaps this is a bit different of that a bit greener, then*

they also shrug (...) that is just not very transparent' (Interviewee 6, personal communication, 2022, p. 124).

A member of stichting GroenGoed makes clear that he has more trust in the municipality, but that it still is difficult. He sees that the municipality made some changes, for example, the position of the stairs at Hof van Noord (Interviewee 10, personal communication, 2022). Stichting GroenGoed will lose the garden on station Hofplein and that requires trust, as he tells: *'the question is, are we going to fight for this (...) or do we consider the alternative, while it is quite tense (...) it is difficult to give in, into trust'* (Interviewee 10, personal communication, 2022, p. 116). Some other respondents saw a good intention with the municipality to listen. Furthermore, they add that they are feeling heard (De Urbanisten et al., 2020). In trusting the municipality and getting things done, a member of the Wijkraad Agniesebuurt stresses the complexity of the municipality (adding to not being transparent): *'the municipality is, and I say that more often, a nine-headed dragon. They have one body and nine heads. If the municipality wants something, one head says one thing, while the other one exactly says the opposite, and sometimes they bite each other in the throat, and if you are lucky, they breathe fire in the same direction, city development is different than city management, than safety'* (Interviewee 7, personal communication, 2022, p. 63).

Positive aspects	Aspects for improvement
<ul style="list-style-type: none"> • People feeling heard • Trust that the municipality has the right intention • Trust because of some changes and compensation 	<ul style="list-style-type: none"> • Feeling that some false arguments were given for decisions • No clear expectation management, not transparent • Some elements took place behind the scenes

Table 11. Overview of the trustworthiness and transparency aspects

4.4 Distributional (Who gets what?)

Distributional justice is originally aimed at the distribution of the benefits and burdens of certain implementations. Next to these aspects of distributional justice, Biernacka & Kronenberg (2018) use other specific aspects of the distributional aspect of urban green spaces: availability, accessibility and attractiveness. Because the planning will be that the park is being executed, the availability aspect is not relevant in this case. The focus will be on the expected benefits, burdens of the designed park and the accessibility and attractiveness. An important thing to note is that these aspects cannot be objectively measured, since there is no park yet. Therefore, the different aspects are a visualization of what is expected by the respondents and documents.

4.4.1 Benefits

In the first place, every one of the respondents sees the added value of a park in the urban area. There are many different benefits mentioned by the respondents. However, some of them mention that the success of the park, or what benefits will be present, depends on the implementation and park management (Interviewee 9, personal communication, 2022). The different benefits can be clustered in different groups, namely natural & climate adaptation, economic and social (Table 12).

Nature and climate adaptation

The first benefit is the role of green for the neighbourhoods. There is a lack of available space in Rotterdam North for the implementation of green, and the neighbourhoods are relatively grey (Interviewee 1, personal communication, 2022) (Figure 10). The neighbourhood manager mentions: *'you can see that the North, especially the Agniesebuurt, (...) turns red because of the heat. And the park of 1.9 kilometres is in that case a real lung that runs through those neighbourhoods'* (Interviewee 1, personal communication, 2022, p. 61). This park will be an improvement for all the local residents but also for the local entrepreneurs in the Hofbogen. As a member of the BAG states: *'it is now a black roof with tar, and it becomes bloody hot, even now it is hot inside there. Not to mention during the summer which we had last years'* (Interviewee 5, personal communication, 2022, p. 59). Another benefit that is mentioned together with the grey identity of Rotterdam North is the improved water system. The park will play an important role in the water management of the neighbourhood, especially in preventing disturbance from heavy rainfall or long-term drought (Municipality of Rotterdam, 2020). This can improve the living conditions for the people living in the area. The benefits of climate adaptation are summarised by a respondent: *'that is where the green is really going to help, the cooling effect, water buffering, the absorption of nitrogen'* (Interviewee 10, personal communication, 2022, p. 215). Another way in which the park is strongly promoted, is with the improvement of biodiversity. The core of this vision is that there will be a biodiversity company where human, animals and nature are in balance (De Urbanisten et al., 2021). A way in which the animals specifically get more space is through the so-called 'mammal-stairs'. Because the Hofbogenpark will be a network park, the different green areas will be connected. Small mammals such as hedgehogs and rodents are invited to the park and can possibly enter via these stairs. However, there has been a lot

of discussion about whether you should invite the hedgehog to the park, because it is not its natural habitat and it could be dangerous: *'it is dangerous for a hedgehog and he does not need to be there, he can fall off the edge, because they are really blind'* (Interviewee 5, personal communication, 2022, p. 47). Still, the park will be inclusive for nature and has an aim of improving biodiversity in the city.



Figure 10. Ammersooiseplein (square) as an example of a grey area in the Agniese buurt neighbourhood

Economic benefits

The park can add to the economic value of the neighbourhood (Dudok groep, 2019). Furthermore, this park can improve the national and international allure of the Hofbogen and add to the varied and mixed entrepreneurs in the Hofbogen (Municipality of Rotterdam, 2020) (Figure 11). The park can lead to more attractiveness of the neighbourhood and the Hofbogen, which can be positive for the entrepreneurs. By the municipality, it is seen as a catalyst for an improvement for the quality of the whole area (De Urbanisten et al., 2021). A member of the Wijkraad Bergpolder formulates it as follows: *'I think that this is also a prestige project for the municipality and that they hope that this will be an attraction with a pulling effect for the liveability and the financial spin-off for the neighbourhood'* (interviewee 6, personal communication, 2022, p. 127). The economic benefits are also the main goal of the owner, Dudok. The owner has fewer goals for climate adaptation, which the municipality has given more priority. As the project leader formulates: *'Dudok wants to aim more for commercial developments, so terraces, and to be developed buildings, they want it to be pleasant on a recreational level'* (Interviewee 2, personal communication, 2022, p. 63). Following this thought, the park could also mean that the value of the surrounding property would rise. The municipality says about the rise of housing values: *'It is not a separate goal, because it also has a positive effect for the municipal taxes for example, a higher 'WOZ-value' (...) so it happens and that is a kind of side-effect'* (Interviewee 2, personal communication, 2022, p. 87). A part of the benefits also are aimed at the entrepreneurs, the

owner of the Hofbogen and other actors that have an interest in these rising values. However, it can be a burden for other people, which will be later discussed.



Figure 11. Commercial zone in the middle of the Hofbogen where Happy Italy can create a terrace on the roof

Social benefits

The park is a public space that is beneficial for many people. It is a place for people to recreate, meet, come to a rest, exercise and enjoy nature (De Urbanisten et al., 2021). Because there are not many green spaces in Rotterdam North, this will be an important green place for people and improves the liveability in different ways. A benefit that is mentioned multiple times is the role of the park for the strong connection between the different neighbourhoods. The owner uses the concept of placemaking: *'the starting point together with the collaboration between cultural institutions, residents and social corporations will be the cause of attractive placemaking, strengthening of involvement and ownership of the different neighbourhoods'* (Dudok groep, 2019, p. 5). As a connector, the park will connect the different identities from the neighbourhoods as a place for neutral interactions and meetings between residents (De Urbanisten et al., 2021). A resident also indicates the possibility for a connection between the areas: *'public space is now always isolated, were people can move, but it should be a interstice (tussenruimte) where people can neutrally meet'* (Interviewee 9, personal communication, 2022, p. 193). Another concept that is used, is social cohesion. With an extra place for people to meet, the social cohesion could be improved. Not only the benefits for the local residents is mentioned by the respondents, also the benefits for the whole of Rotterdam. Because this Hofbogenpark project is a city project, it should be beneficial for the whole of Rotterdam.



Figure 12. Elevated from the city, different perspective on the Hofbogen roof

The Hofbogenpark should be a place for everyone from Rotterdam. As the municipality formulates: *‘we are not only doing this for the neighbourhood but we also want that people who not live here, people in east or in west or in Hoogvliet also just take the subway and think: yes, I will go to the Hofbogenpark, that is fun!’* (Interviewee 2, personal communication, 2022, p. 30). The Hofbogen also adds to a different experience, walking on an elevated roof, stepping out of the rush of the city (Observation 1, 2022) (Figure 12). Something that is beneficial for the Rotterdammer could be a burden for local residents, who are going to live on street-level. A final benefit that is mentioned by the neighbourhood manager is a benefit that was not thought about before, an unintended benefit. In the current situation, there are a few places where children can play in the neighbourhoods. This causes the children to often cross dangerous roads in order to reach a playground or soccer field. Because of the Hofbogenpark, the children in the future have the possibility to walk to the playground via the Hofbogen without having to cross dangerous roads (Interviewee 1, personal communication, 2022).

Benefits		
<i>Nature and climate adaptation</i> <ul style="list-style-type: none"> • Reduced heat stress • Prevention of water stress and drought • Improved biodiversity (e.g. inclusion of small mammals) • Connection of green areas • Capturing of nitrogen 	<i>Economic</i> <ul style="list-style-type: none"> • National and international allure (more visitors) • Spin-off of the neighbourhoods and Hofbogen • Rising housing values 	<i>Social values</i> <ul style="list-style-type: none"> • Connection between different neighbourhoods and people (social cohesion) • Safe travel children • Space to meet, rest, sport and recreate • Park as a getaway for the whole of Rotterdam

Table 12. Overview of the expected benefits of the Hofbogenpark

4.4.2 Burdens and Compensation

Burdens

Next to the benefits, there are also various expected burdens brought forward by the respondents. An important aspect to mention about these burdens is that a large role in reducing or preventing these burdens lies in a good and solid management. By some respondents, this is seen as the most important aspect of the participation process. However, the talks were often about the design while many aspect are connecting to the management. The meetings about management were often postponed or would start in a later phase. This leaves many concerns with some residents. As the project leader from De Urbanisten formulated: *'the difficult part is that a lot of aspects had to do with management, and that made it more difficult in the preliminary design since there really was no management plan made'* (Interviewee 4, personal communication, 2022, p. 29). That management is very important for the success of the park is agreed upon by most respondents. Also, it is considered crucial that local residents can have a role in the management of the park. As a respondent mentions: *'I really think that management is super important for those people'* (interviewee 6, personal communication, 2022, p. 138) and *'how do you make sure that the residents have an influence on their living environment, that will be very crucial'* (Interviewee 9, personal communication, 2022, p. 122). A member of stichting GroenGoed speaks from experience and agrees on this importance: *'Make sure, beforehand, that on the basis of experiences of the station Hofplein, you have good agreements about surveillance and enforcement, that there are short connections to the parties with whom things should be reported about damage, disturbance or dangerous situations'* (Interviewee 10, personal communication, 2022, p. 194). Moving forwards from this perspective, the management phase, collaboration and agreements will be crucial in preventing or dealing with the expected burdens that will be mentioned (Table 13).

Firstly, there are various concerns being felt by the local residents that are living near the Hofbogen. These concerns are mainly about the noise and privacy of the houses directly next to the Hofbogen (Figure 13). When talking about noise, there are many worries about experiencing disturbance. Especially since there is much reflection of sounds and it is expected that many people will be walking on the Hofbogenpark in the future. A resident that is living directly next to the Hofbogen shows this noise problem, where the reflection is well hearable (Observation 2, 2022). The resident describes: *'I will be on street level then, if I open my window, I can have a talk with someone, I can really hear everything'* (Interviewee 9, personal communication, 2022, p. 79). The noise can come from the terraces that will be situated in the park, the ongoing park or the platforms or stations where people



Figure 13. Some houses are very close to the roof of the Hofbogen

can stay, meet or recreate (Interviewee 10, personal communication, 2022). Respondents mentioned that the seriousness of these concerns is sometimes not really seen by people and the municipality. *‘As soon as we are arrived at the execution, the people then really are going to notice this, and where can they go to? It is a serious aspect, are you going to move out then?’* (Interviewee 9, personal communication, 2022, p. 96). Next to the concern about noise, there is also a concern about privacy. When walking on the roof, this especially comes forward as a serious concern: *‘If you walk here on the roof, I am really trying my best to look forward, because as soon as you look to the right or left, you suddenly look into someone’s room’* (Interviewee 10, personal communication, 2022, p. 191). Also in the neighbourhood sessions, people express their concerns about issues on privacy, noise and disturbance.

There are some local places where there is a disturbance of youth and alcoholics (e.g., Eudokiaplein). People are afraid that these people will go on the roof and the disturbance will be worse (Interviewee 6, personal communication, 2022). Social control will become a challenge with many people visiting and the disturbance concerns and the liveability will be under pressure (Interviewee 9, personal communication, 2022). The question of how social safety will be improved is raised by the neighbourhood (Verslag buurtsessie Noorderkanaal-Bergselaan, 2021). All these concerns are closely related to the management of the park and remain a large concern for (some of) the respondents, the impact of the park can be seen in Figure 14. Another interesting aspect is that in comparison to the High-Line case, there are not many concerns about the rising housing values and displacement of certain groups. The municipality understands the issues that it could bring but finds no reason to not make the city a better place or try to prevent it from happening (interviewee 2, personal communication, 2022).

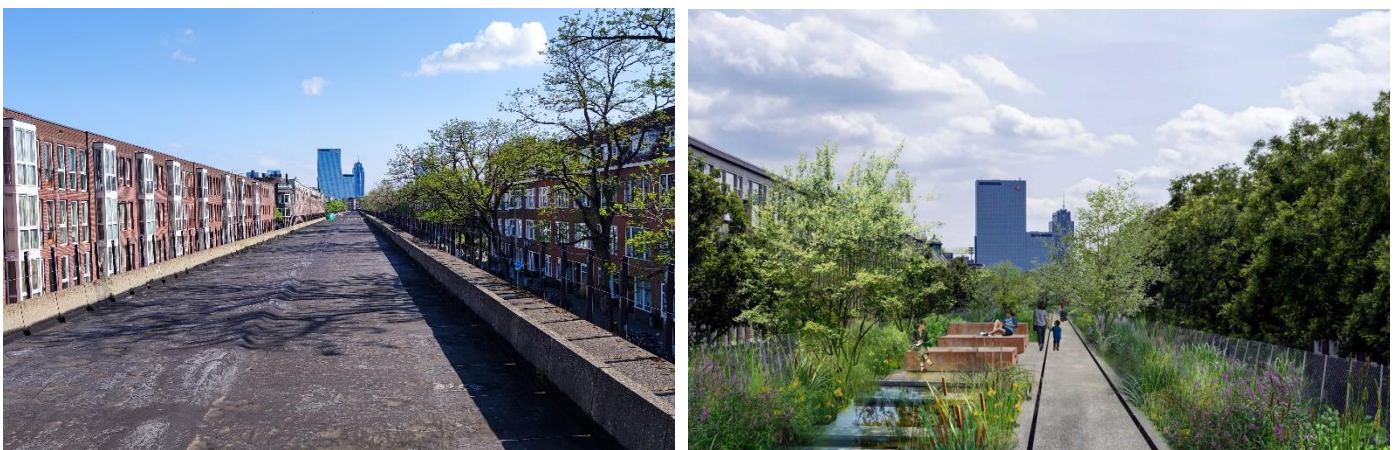


Figure 14. Difference between the Hofbogen roof now and the preliminary design

As mentioned in the chapter on procedural justice, there were differences in local knowledge versus information from the decision-makers. The example of parking pressure was shown. There is currently already a high parking pressure, this is expected to grow if the park is being executed (Interviewee 6, personal communication, 2022). This will be a burden for local residents.

For the natural aspect of the park, there are some concerns as well. Firstly, because there will be stairs for small mammals, people expect that this will attract more mice and rats. This

will cause disturbance for the local residents (Interviewee 9, personal communication, 2022). Secondly, not really a burden but more of a missed opportunity seen by an urban architect is the lack of room for nature to grow (wild nature). The whole natural system is designed, and this is not seen as real nature anymore. This is a missed opportunity for a representative natural system, also because there is no brown and dry part designed (Interviewee 5, personal communication, 2022). There is also a concern that the park will cause some leakages for the entrepreneurs, which are now the case (Interviewee 1, personal communication, 2022). Lastly, stichting GroenGoed has been managing the Luchtpark Hofbogen on the Hofplein station for some years now. In the new design, this garden needs to be removed to create space for Dudok to develop a terrace. This garden, which was being managed by volunteers, brought many positive aspects for the visitors and volunteers (Interviewee 10, personal communication, 2022). The aspect of gardening and the garden now is not supposed to come back in the park but will be transferred to a different place near the Hofbogen.

For most of these concerns, as mentioned, a well-organised management with effective collaboration between different actors is seen as crucial. As a resident summarises this: *'if we cannot think along on these levels in the management of the park, or let nature have a certain influence, then this is a lost battle'* (Interviewee 9, personal communication, 2022, p. 180). There are some compensations given and changes made in order to (partly) remove the concerns of the different stakeholders which will be discussed next.

Compensation

During the process, the decision-makers also acknowledged some negative aspects of the park and tried to reduce or compensate these in some cases. For the aspects of noise, privacy and disturbance, the design is changed in various ways as can be seen in table 6. Some changes that try to reduce these effects are the positioning of the walking path where the distance to the houses is largest, use of green to reduce direct views in nearby houses, the positioning and design of platforms (not close to houses) and the design of the park being more quiet and calm to the north (De Urbanisten et al., 2021). These are all changes that aim to reduce the possible burdens of the park. However, this is not always felt as enough for the residents. There could be done more to compensate for the possible noise and privacy complaints. However, the municipality wants to point out the large positive effect that the park has on the local residents. Also, the project leader talks about giving more compensation: *'we did think about giving the people who are affected by the noise and are worried about that double-glazing, but we thought: in other streets, there are also people with single glass and there is more noise there. How do we explain to those people that we are giving away double-glazing for free at the Hofbogen?'* (Interviewee 2, personal communication, 2022, p. 99). When thinking about equality and justice, the municipality decided not to compensate in this perspective. Also, for the removal of the Luchtpark Hofbogen and the garden for stichting GroenGoed, the municipality promised to give another spot to develop on ground level. Also, the municipality has the aim to include GroenGoed in the management of the park (Interviewee 2, personal communication, 2022). As can be seen, there are various ways in which the decision-makers tried to compensate or reduce the negative effects of the Hofbogenpark. Returning to the management of the park, the municipality states that they want a management team with one contact point, to make it easy for people to come with questions and complains (Interviewee 2, personal

communication, 2022). Also, they want to involve the residents and stichting GroenGoed in the management. It is not clear yet how this will take shape. That is why some people are also worried, because the management will be the main factor for the success of the park, but also for the liveability of the local actors. *‘There lies a crucial factor in management, how that will be, very much, but that is the silly thing, every time when we talked about it, they said: now is not the right time to talk about it’* (Interviewee 2, personal communication, 2022, p. 79).

Burdens & Compensation		
<i>Nature/ climate adaptation</i> <ul style="list-style-type: none"> • Dangerous for hedgehogs • No room for wild nature • Lack of ‘dry’ nature • Removal of Luchtpark Hofbogen and its garden 	<i>Social values and liveability</i> <ul style="list-style-type: none"> • Concerns about noise pollution • Concerns about reduced privacy (direct view in nearby houses) • Concerns about disturbance teenagers and alcoholic (e.g. alcoholics Eudokiaplein) • Concerns about reduced social safety and cohesion due to increased visitors and disturbance • Concerns about increased parking pressure • Possible rise of housing values, gentrification and displacement of groups 	<i>Compensation</i> <ul style="list-style-type: none"> • Promise of a good management with involvement of local actors (for several burdens) • High plants and location of the path furthest away from the houses (privacy and noise) • No platforms where the houses are closest to the Hofbogen and location path furthest away from the houses (privacy and noise) • Replacing space for gardening on ground level (to be developed location) (for Luchtpark GroenGoed)

Table 13. Overview of the burdens and compensation

4.4.3 Accessibility and Attractiveness

Distributional justice for green urban spaces also includes the aspects of accessibility and attractiveness. A just approach for urban green spaces requires that the questions: *‘Can everyone freely enter the green space and is everyone welcome there? and does the green space correspond with the needs, expectations and preferences and do people want to spend time there?’* (Biernacka & Kronenberg, 2018, p. 23). For the Hofbogenpark, there can be looked at what is done in the design about the attractiveness and accessibility. While objectively speaking, these aspects cannot be measured, the expected accessibility and attractiveness can according to the data be illustrated (Table 14).

Accessibility

To make it possible that everyone can enter the green space, a few things are to be considered. Firstly, according to the project leader, the park is free for everyone to join, everybody is welcome and there is no entrance fee or charge (Interviewee 2, personal communication, 2022). He also continues and mentions: *'but you also have to take care that people feel welcome. It is the case that there are people who are handicapped, who cannot walk, it is important that there are enough elevators'* (Interviewee 2, personal communication, 2022, p. 101). Since this park is elevated, the designers created several locations for elevators next to the stairs (Figure 15). The path in the park will be wheelchair- and stroller friendly and therefore, handicapped people, old people, disabled people and parents with strollers are welcomed to the park. The project leader continues: *'but it also has to be inviting for different target groups. There are a few commercial zones chosen where people can get a beer or a coffee, nowadays, that costs 3 euros, which is not reachable for everyone, so there has to be enough space for people to people can sit with their own thermos with drinks'* (Interviewee 2, personal communication, 2022, p. 101). This means that people can, without paying, walk along the park and can get to each end of the trail.

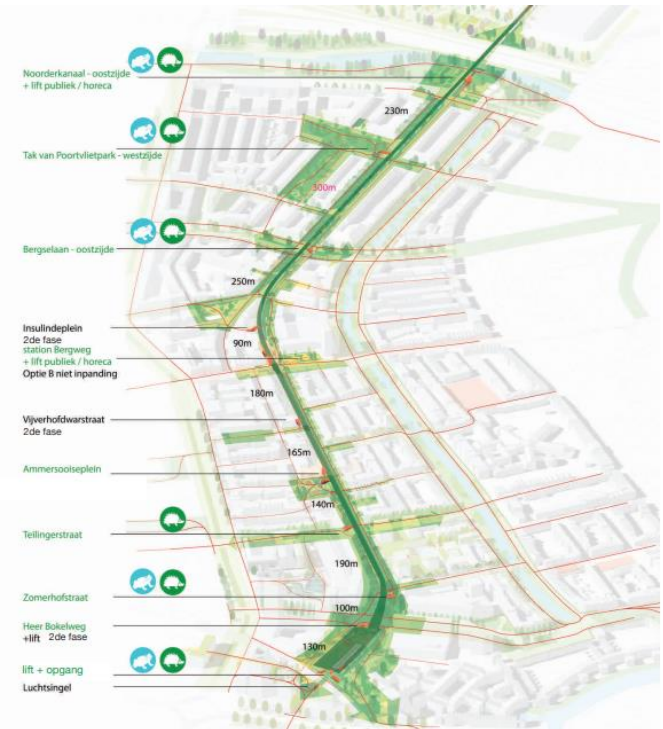


Figure 15. Design of the Hofbogenpark with the locations of elevators and stairs (entrances) (De Urbanisten et al., 2021)

Attractiveness

The next section is whether the green space corresponds with the needs and preferences of the users. The Hofbogenpark is designed to meet preferences from different users. In any case, because a green space is on its own is already beneficial for everyone (Interviewee 10, personal communication, 2022). As brought up, there is room for people to buy something to eat or drink on the roof, but also to bring own food and drinks (Interviewee 2, personal communication, 2022). A second use of the green space is promoted by the presence of street furniture and Wi-Fi in some spots (Figure 16). This makes it possible for people, on a warm day, to work outside (Interviewee 2, personal communication, 2022). The respondent adds: *'we try to address different target groups, we are also working on art on the Hofbogen for people who love art or to seduce people who do not like art to get in touch'* (Interviewee 2, personal communication, 2022, p. 103).

Another way in which the preferences and needs from the users were taken into account is through the design of platforms (or stations). The designer discusses: *'but at the platforms, that were pieces where we gave more freedom, where residents could share their ideas'* (Interviewee 3, personal communication, 2022, p. 38). There were some options given for the design of the platforms from which the attendees could choose during the neighbourhood sessions. This is a concrete way in which the green space match the preferences of the users. Other smaller things were also mentioned by the designer as ways in which different users are reached: *'there are places where people can come to rest, street furniture, platforms with pergola's and a water tap where people can tap water, the plants vary from start to end and it gets more calm to the end of the park, so in various way, we incorporated this'* (Interviewee 2, personal communication, 2022, p.38). In some management choices, some people can feel more welcome while other people are excluded. For example, dogs will not be allowed in the park, this will exclude dog owners. On the other hand, as a resident tells: *'because no dogs are allowed, maybe people with a Muslim background will make more use of it, I would find that really pleasant'* (Interviewee 9, personal communication, 2022, p.191). Finally, as mentioned before, a side effect of the park is that children can safely travel to playgrounds. This is also a way in which children are welcomed. The wish of the respondents is that the park will have mixed users and that it can be a real connection between the neighbourhoods. According to a member of the Wijkraad Agniesebuurt mentions that it will be a success if the park is really used for different uses such as walking or sporting (Interviewee 7, personal communication, 2022). Concludingly, there are several ways (in design or management) in which the preferences and needs of different users are met.



Figure 16. Platform in design (VO) with street furniture and resting places (De Urbanisten et al., 2021)

Accessibility	Attractiveness
<ul style="list-style-type: none"> • No entering fee • Presence of elevators (for strollers or wheelchairs) • Everyone can walk the whole path without the obligation to buy something • Exclusion of dogs • Stairs for small mammals 	<ul style="list-style-type: none"> • Street furniture and Wi-Fi • Three places for terraces • Platforms for sports, (water) playing, resting, playing, picknick and water taps • Railway wagon with history • Art on the roof • Different types of nature • No dogs allowed

Table 14. Overview of the accessibility and attractiveness indicators

5. Discussion

This research aimed to investigate what role environmental justice had in the Hofbogenpark urban greening project in Rotterdam. To answer the main research question, there are sub-questions formulated that together are able to answer the research question. After an overview of the relevant actors and the connection between environmental justice and urban greening, the final sub-questions are related to the recognition justice, procedural justice and distributional justice.

5.1 Recognition justice

The first mentioned aspect is recognition justice. The central question is: *To what extent are actors (and their needs, preferences and values) seen as relevant actors in the project?*

In the Hofbogenpark project, there was much bottom-up involvement from residents and local entrepreneurs in the stage prior to the selling of the Hofbogen. Especially the group Vrienden van de Hofpleinlijn initiated many events and lectures about the Hofbogen, reaching hundreds of people. The main goals were to promote the Hofbogen and create publicity, also in politics. The municipality was, according to respondents, too distant in this stage and less pro-active. However, the creation of the working group Hofbogen and later the BAG working group was seen as a good thing for involving residents and entrepreneurs.

When the participation process started, before the selling of the Hofbogen, the main idea was 'everyone is welcome', the people who wanted, could join the meetings and sessions and were given the opportunity to join the BAG. The relevant actors were seen because of their own involvement in the project, their relevant position in regard of the project or them being affected by the project. Different methods were used to reach people and get them involved. They delivered door-to-door flyers with invitations, send mails to existing networks (e.g. owner and the local entrepreneurs), posted the invitation on social media, had an opened arch where people could comment on the design and organised several online and physical meetings. People could express their needs and preferences in this way (Kronenberg et al., 2020). Also, the Wijkraden were consulted to find out how the residents from the different neighbourhoods could best be reached. Much effort and time is invested in the reaching of people and the language was clear. What was seen by the involved actors is that the people that attended, both in the BAG and the neighbourhood sessions are mostly homogeneous; white, male, higher educated and grey. Traditionally marginalized groups (e.g., foreigners, low income and youth) and local entrepreneurs were not well involved. However, the municipality did see that the online and physical sessions (outside) attracted different groups that are normally not reached.

Normal or fun activities (e.g., chatting, knitting and a quiz for children) could help in make the Hofbogen more alive and in reaching more people. Also, the churches or mosques could be involved and, in this way, reach different target groups. Finally, there is a reduction in social workers and social networks in the neighbourhoods which could have a role in the non-involvement. Therefore, people are less involved and there are less connections between residents.

As found in literature, recognition justice lies at the foundation of environmental justice since it determines the poor distribution and sees who is included and recognized in the decision-making process (Schlosberg, 2012). As can be seen in this project, everyone was welcome and got the opportunity to be included and were tried to reach in multiple and custom ways. However, this project fails to address the more fundamental problems in recognition, as can be seen by the lack of involvement and reaching of traditionally marginalised groups. Multiple barriers (e.g., overall distrust, lack of capacities, complexity and relevance) cause the lack of involvement from these groups and shines through in the distributional and procedural aspects. What remains a concern is that the voices of the more powerful and privileged people are amplified and that it is difficult to produce an equal representation in this sense (Verheij & Corrêa Nunes, 2020). More specifically, the inclusion of marginalized groups in urban greening in creating true participation is a challenge as can be seen in this case (Anguelovski et al., 2020). Future research can focus on how these groups can be recognized in a more fundamental way, by taking away certain barriers for people.

5.2 Procedural justice

The second aspect of environmental justice is related to the question: *To what extent are relevant actors equally included and can participate in the decision-making process?* Procedural justice has several aspects that are incorporated.

As can be concluded from the recognition section, different methods were used to reach people (e.g. flyers, mails, Wijkraden and social media). The traditionally marginalised and local entrepreneurs were not (much) present in the Hofbogenpark process. The respondents formulate some barriers for people individually to participate and get involved. These are the lack of language skills, distrust against the municipality, lack of relevance or priority and lack of experience and knowledge about participation. Next to personal barriers, some process and content-related barriers were brought up: the complexity of municipal processes, length and complexity of the process, lack of digital skills, lack of involvement from some Wijkraden and the signing of confidentiality for some meetings. These different barriers caused the fact that some people did not participate. This also affects the representation of people and interests in the neighbourhood sessions and BAG. The BAG group was not an equal representation of the different target groups, and the neighbourhood sessions were homogenous, which could be a justice concern (Davoudi & Brooks, 2014). Some groups' preferences and needs could therefore be missed.

The communication during the process knew some strong and weaker elements. Firstly, the civil servants were seen as approachable and open. Participants received (some) feedback on their input and in some cases, a time planning was shared. Finally, the invitations for the meetings were spread in multiple ways and many people were reached in this way. Next to these positive aspects, there are some points for improvement. The invitations for some meetings were sometimes on (very) short notice. Furthermore, in communication aimed at the BAG, there were some moments of complete radio silence for a couple of months. Another way in which the process lacked was in an unclear management of expectations. The involved actors received no (long-term) time planning with meetings and stages of the process, there was sometimes no clear clustering of subjects, and it was unclear what the level of influence was. This means that, in some cases, involved people did not know what to

expect and needed to invest more own energy and time. The establishment of rules in advance, or expectation management, lacks in this perspective as a criterion of successful participation (Luyet, Parlange & Buttler, 2012).

Some information was available for the involved actors, for example, the BAG received the preliminary design before other actors and could give final comments before it was shared and published. There were initially no recordings of the BAG sessions, which meant that people who did not attend could not know the outcome. Therefore, a resident made audio tapes. On the other hand, the neighbourhood sessions had notes with all the relevant information which was shared with the attendees. This made it difficult for new people to know the prior discussed aspects and history of the design. Therefore, the Wijkraad Bergpolder put the notes on their site. Since the municipal and designing processes is quite difficult, it helps to have knowledge and expertise about these elements. There could be more access to process- and content related information which would make the process more just (Walker & Day, 2012). Because it can be a barrier for people who do not have this knowledge. Another way in which knowledge played a role is via the clash between local knowledge from local actors and the decision-makers. Local actors expressed concerns or ideas that sometimes were not seen the same or recognized by the decision-makers.

Another important aspect in participation is the influence and correctability. The BAG report and BAG sessions are the elements in which the actors could express the most influence. Next to this, some actors could write responses and letters to the council and people could join meetings and neighbourhood sessions. The BAG report is seen as a form of co-production or co-creation, because many things were incorporated in the design. This is also seen by some as the point where the real influence stopped. The neighbourhood sessions were mostly informing and consulting. The level of influence was not agreed upon and created false expectations for some people. There was no real decision power felt by local actors and this made clear that own time, energy and a strong position with relevant connections with decision-makers were needed to get things done. Some people are disappointed and see the participation as only being an obligation for the municipality. This relative low level of influence is explained by the municipality and others by the presence and weighing of many different interests from the owner (Dudok), the city of Rotterdam, the municipality itself, Monumentenzorg, neighbourhoods and designers. This felt for some people as an imbalance where for example commercial interests were put before local residents' interests. Furthermore, the Hofbogenpark is a very long and complex process with a large scale and not every group and it is very difficult to give residents a larger role, also since people often look from their own micro-level at the project. Besides, it also costs much time, money and energy to let people be more involved (Wilker, Rusche & Rymsa-Fitschen, 2016). However, one can see by the many concrete changes and compensation in the design that the people really did have a certain influence on the project.

Finally, the transparency and trustworthiness of the process are perceived differently. There was overall a good intention from the municipality and people felt heard. Because there were some concrete changes in the interests of the local actors, some respondents have more trust in the municipality. On the other hand, some respondents claim that the municipality gave false claims for certain decisions in the design. Also, some elements of the process took place behind the scenes (e.g., choosing of designer stairs), not improving the transparency. Finally, because there was no clear management of the participation process, this reduces transparency of the process itself. This could be improved since it is important

to have a safe environment where there is trust and transparency in breaking forms of domination or oppression (Ruano-Chamorro, Gurney & Cinner, 2021; Holland, 2017).

Overall, the formulation of rules in advance (expectation management) and a transparent process with trust is where dissatisfaction and concerns were. On the other hand, outcome related elements were found to be more adequate, with some concrete changes and compensations being made and the BAG report functioning as a basis for the design. This project shows how difficult participation is in a long and complex project. Because participation literature is used, the outcomes could perhaps be less fitting for environmental justice, but it is a step in bringing together different perspectives (Cousins, 2021). Further research on procedural justice could focus on outlining and finding out what the relevant and practical elements for measuring justice (operationalisation) in participation could be in perspective of environmental justice.

5.3 Distributional justice

The final aspect of environmental justice is about: *How are benefits and burdens situated and divided in the project?* This includes the traditional spreading of the expected benefits and burdens, but also for urban green spaces the (expected) accessibility and attractiveness.

Firstly, there are various benefits that are distributed amongst the actors. For nature and climate adaptation, the park will cause a reduction in heat stress, the prevention of water stress and drought, improved biodiversity, the capturing of nitrogen and the connection of different green spaces. Besides these benefits, economic aspects that are beneficial for the owner, entrepreneurs and other local actors are national and international allure (more visitors), a spin-off of the Hofbogen and the neighbourhoods, possible gentrification and rising of housing values. Finally, there are social benefits that the park will have. These include the improvement in the connection between the neighbourhoods and resident groups (social cohesion), a space for local residents and Rotterdammers to meet, rest, sport and recreate and a safe way of travelling for children and other people. These benefits are mostly aimed at the local actors.

Secondly, there are also some burdens raised by participants. Negative aspects for nature include the lack of room for wild nature, the danger for hedgehogs (to fall off the edge) and the removal of the Luchtpark Hofbogen. As compensation for the removal of the Luchtpark Hofbogen, stichting GroenGoed will receive a different location on ground level to develop a garden. The social burdens include noise pollution from the park and reduced privacy for nearby houses. To reduce those concerns, the walking path is located where the distance is largest to the houses. Also, there are no (busy) platforms near the houses and high plants will reduce direct views inside houses. Other social burdens are the disturbance of tourists, alcoholics and youth, the reduction in social safety and social control and increasing parking pressure. These burdens are especially pressing on the local residents, not equally being spread among the actors (Toxopeus et al., 2020). There are no real concerns about the rising of housing values and displacement of marginalised groups. It is seen as a possible side effect, but not as a real concern yet. Green gentrification could be a problem since earlier examples show the impact it could have (Wolch et al., 2014). For these different social burdens, it is very important that there is solid park management, with clear

agreements, short connections between the actors, one contact point and the involvement of local actors. If this is done correctly, some of the burdens can (partly) be taken away. The management aspect is not yet been fully discussed and was often postponed.

The final aspect of distributional justice is about the expected accessibility and attractiveness of the park. This is also connected to recognition justice, by looking at what preferences and needs of people are incorporated. The park is accessible for everyone, since there is no entering fee and everyone can walk in the park without for example having to buy something at the commercial zones. Also, the park will receive different elevators for people with wheelchairs and strollers to also be welcomed in the park. Small mammals (hedgehogs and rodents) are also welcomed in the park through the 'mammal stairs' next to the normal stairs. To meet the preferences and needs of different users, the design of the park tries to welcome different target groups and meets different needs and expectations (Biernacka & Kronenberg, 2018). Street furniture and Wi-Fi gives people the opportunity to work and rest at certain points along the park. Platforms with different designs meet the preferences of the local residents. Furthermore, next to the commercial zones, people also have the opportunity to bring their own food and drinks. With art on the Hofbogen, room for sports, walking and recreating, different target groups are tried to reach. Finally, the exclusion of dogs in the park excludes dog owners to enter but can meet the preferences of other people. Since accessibility and attractiveness are no official indicators or environmental justice, future research could find out whether environmental justice for urban greening can include these aspects of accessibility and attractiveness as indicators (Biernacka & Kronenberg, 2018).

6. Conclusion

6.1 Conclusion

With the help of data from interviews with involved actors, documents and (small) observations and literature, the researcher tried to approach the answer to the main research question:

'What role do environmental justice concerns have in greening the Hofbogen for climate adaptation in the city of Rotterdam?'

By answering the sub-questions and reflecting upon the literature, some conclusions can be drawn. Environmental justice concerns are important since this project can improve the well-being, liveability and quality of life of people. The recognition, procedural aspects and distribution of the burdens and benefits determine how these benefits are distributed, and to what extent all groups and people are involved, recognised and could participate.

Environmental justice concerns do, to some extent, have a role in the greening of the Hofbogen. For recognition, some steps are made to take away barriers for some normally poor involved groups to participate and everyone got the opportunity to participate in several ways. However, more fundamental concerns about how to involve the marginalized groups remain. To this extent, people are recognised but no additional fundamental actions are taken to counter those processes that lead to shortages or lack of opportunities for these groups (take away barriers). Environmental justice concerns for participation also have a role in the Hofbogenpark process. Outcome-related elements show that people could express their influence and could participate in many ways. The more process-related elements show that there is room for improvement. In formulating clear expectations, making the process transparent and actively informing and involving people, people could more meaningfully participate. This would also give people a fairer chance to participate, especially seen the complexity and length of the project. Much is asked from the involved actors and therefore, only the privileged could be left over. The main question remains how much involvement and influence are needed in order to create a just process since many interests and factors are involved in this process, adding to the complexity of participation. For the distribution, the park provides many benefits for nature, local residents, organisations and other actors. There are also concerns and burdens which are important to include since this could have negative effects on local residents if there is no solid park management and can lead to injustice(s). The accessibility and attractiveness had a large role in the design and participation. The park is accessible for (almost) everyone and many wishes and preferences are taken into account. Since it is uncertain how justice issues are related to urban greening and can be used to analyse a case, the used frameworks for procedural and distributional justice can contribute to this knowledge gap but need to be further developed. The expected concern on green gentrification plays a very small to no role in this project, but time will tell what effect this could have. To finalise, environmental justice is a broad concept and in praxis, can be challenging to incorporate into real-life cases. The complex characteristics of the Hofbogenpark project make the weighing of values and interests, meaningful participation, distribution of benefits and burdens and structural (non-) recognition concerns very challenging, especially taking into consideration the limited resources that decision-makers have.

6.2 Policy recommendations

Building on the main findings of this research, there are a few policy recommendations that can be used for taking justice concerns into account for future urban greening projects. These policy recommendations for praxis must be seen in the context of the city of Rotterdam and should take into account the limitations of this research.

1. *Create a clear expectation management for the participation process, including a clear time planning, a framing (clustering) of what is discussed and an agreed level of influence for the involved actors*

It was clear that a lot of dissatisfied feelings from the participants stemmed from unclear information about the process, creating false expectations or vagueness. To prevent false expectations and create more insight and clear expectations for the involved people, some things need to be clear beforehand. Especially for a long process, a time planning can help for people to get insight in what is discussed when. This reduces time wasted through a clear clustering of subjects and, for example, keeping ecological concerns and aspects in a meeting about ecology. During the process, things were discussed about management while, the design had to be discussed. If people would have known beforehand when management would be discussed, this would make it clearer. Also, people know what they can expect in how much influence they have, partly preventing disappointed or angry feelings.

2. *Give much attention to park management aspects, include local actors, make clear agreements, have a well-functioning collaboration and start early with discussing this (simultaneously with the design)*

As can be seen in the case of the Hofbogenpark, many of the expected burdens have to do with disturbance, noise and privacy. These are aspects that can be (partly) treated by having a well-functioning park management. If meetings about park management started earlier, a lot of these concerns could possibly be reduced leaving a more just distribution of expected burdens. It also could have reduced the time needed for the designing process. The park management track could for example run simultaneously with the design track. Also, it is important for the management of the park that there are clear agreements on who is responsible for what, where people can go in case of issues and concerns. Local actors need to be involved as well. By doing this, the liveability of the local residents can be maintained or even improved, and ownership is created.

3. *Clearly inform people and transfer knowledge and expertise in order to create meaningful participation and in being transparent about the process and content, this works both ways.*

Municipal processes and the Hofbogenpark itself are, due to its many involved actors and interests, large scale and long-time frame, pretty complex. It costs time, energy and knowledge for people to participate and also meaningfully participate. By transferring practical knowledge about how municipal processes work and giving people expertise on certain subjects, you create more understanding for the process and content of the design. Also, by giving people this information and making it available, more people can meaningfully participate, including new people. Finally, residents and local organisations have much local knowledge and experience about their neighbourhoods. Evaluate and use this information to improve the plan, also trust the residents and take them seriously from

this perspective.

4. *Try to take a proactive stance as decision-makers in including relevant actors, this includes having clear communication, reducing barriers for involvement and giving feedback on input*

Finally, it is often forgotten that much is asked from participants and that more often, the effort and input from participants could be better appreciated. By having clear communication and showing the participants what is done with the input given, people are incentivised to participate and see what their influence is. Especially in this project, many things were initiated by local residents and organisations. The decision-makers could be more proactive in stimulating and also facilitating these initiatives since it can contribute to the outcome and create support from local actors. Because currently, people have to put much effort into getting things done. The municipality, for example, can have a more active attitude in promoting these initiatives and acknowledging their worth or value.

6.3 Limitations

It is important for this research to acknowledge the limitations from a methodological and theoretical perspective. This research aimed to find out to what extent environmental justice concerns were taken into account in the Hofbogenpark project. Multiple documents are analysed, and interviews are conducted, and observations were conducted.

Firstly, the importance of triangulation of methods is mentioned often in methodology. While documents and interviews were analysed and conducted, observations had a less important role and were not adequately conducted. For improvement of the research, more structured observations (based on literature) with possible street interviews could be conducted. In this research, observations had a role in creating a context for the project (walking on the Hofbogen roof) and certain claims (such as concerns on privacy and noise). While this is helpful in strengthening certain claims, observation could have had a more active role, for example in observing meetings and sessions in participation. This was, however, not possible since these meetings were already initiated. This is partly anticipated by analysing the notes of the neighbourhood sessions.

Secondly, the interviews were semi-structured, which means that the repeatability is not very high. This could lead to incomplete or inadequate results, where questions are asked differently or interpreted differently. The consistency in this perspective could be challenged, also because the researcher was actively involved in the interviews and could have altered the outcome (Schwartz-Shea & Yanow, 2012).

Thirdly, for the representation of the involved actors and internal validity, some comments can be made. While the owner of the Hofbogen was involved in the process, they did not want to get involved because of their small role and influence. It can be challenged, if their perspective is incorporated. Furthermore, there are three residents interviewed for this research. While these are active residents who are involved for a long time and know many involved people and opinions, this is not representative for the whole population. Also, there was no specific involvement of the entrepreneurs and snowballing is used with the residents, not adding to the trustworthiness of the results (Van Thiel, 2014). There was one respondent

who, himself, rented an arch in the Hofbogen and knew the worries of entrepreneurs. However, it could be questioned if this is enough.

Finally, the theoretical framework in this research used a combination of different frameworks which has not been peer-reviewed or studied. The quality of the framework could be questioned and need to be further developed.

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8. Appendices

Appendix A- Overview Hofbogenpark process

First developments and ideas for a park (2006-2015)

The Hofbogen was originally used in 1908 for a train connection between Rotterdam and the Hague (Scheveningen) for especially luxurious commuters and bathers (Lans & van Zuijlen, n.d.). In 2006, the housing corporations Havensteder and Vestia (together Hofbogen BV) bought the Hofbogen. It was already known that the train would stop running on the Hofbogen in the near future. Hofbogen BV was in possession of the arches under the Hofbogen, which could be rented (Figure 17). Because there was much to be changed for the Hofbogen, the Hofbogen BV wrote a vision for the future of the Hofbogen in 2008 (Crimson, 2008). Sometime later, in 2010, the last train stopped running on the Hofpleinlijn and the Hofbogen lost its function (Lans & van Zuijlen, n.d.).



Figure 17. Examples of entrepreneurs and arches in the Hofbogen

The ownership of the Hofbogen was very complex and also therefore, the development process took many years (Interviewee 7, personal communication, 2022). Prorail was officially the owner of the roof but had no interest in keeping the roof because it had no function anymore. There were, however, still elements of the track on the roof, such as the rails and gravel which needed to be removed. The owner of the Hofbogen, Hofbogen BV, had no interest anymore in keeping the Hofbogen because of changes in the vision of the national government. According to the government, housing corporations should no longer be investing in anything other than social housing after some major failures with for example the SS-Rotterdam from corporation Woonbron (Interviewee 7, personal communication, 2022). The Hofbogen was also obsolete and there were problems such as the many leakages (Opbroek, personal communication, 2022). The municipality of Rotterdam also had an interest in the Hofbogen since the Hofbogen was recognised as a national monument due to its technical features (first reinforced concrete) and there was much talking about created a public green space on the roof of the Hofbogen (Interviewee 8, personal communication,

2022). Also, the municipality was responsible for the streets and public space and some open arches (Interviewee 5, personal communication, 2022). Before the last train stopped running, the city council went on an excursion to see the 'Promenade Plantée' in Paris as a source of inspiration (Interviewee 7, personal communication, 2022) (Figure 18). But the municipality didn't want to buy the Hofbogen since the government intended to lose much own ownership in real estate (privatisation). Concludingly, there were three owners that had different interest with no one wanted to buy it. However, the Hofbogen needed to be renovated and renewed.



Figure 18. Promenade Plantée in Paris, inspiration for the Hofbogen (Alamy, 2017)

At the same time that the train stopped running and these difficult negotiations between the owners took place, there was a group of 50 local residents called 'vrienden van de Hofpleinlijn' that were becoming very active (Vrienden van de Hofpleinlijn, 2010). This group organised several lectures with hundreds of visitors about the future of the Hofbogen (Lans, personal communication, 2022). There were several people invited to speculate and think about the future of the Hofbogen (e.g. architects and city designers), talk about the history of the Hofbogen viaduct and the connection between the Hofbogen and the different neighbourhoods. The municipality, Hofbogen BV and local residents were invited to attend and think along on these well visited sessions. Next to these meetings, Vrienden van de Hofpleinlijn also initiated the event 'Het langste podium' in 2013, 2014 & 2015 (Otten, 2015). This was an event where people could walk along the Hofbogen and see many different kinds of art, music and theatre in the different arches under the Hofbogen. This was a way to improve the visibility and publicity of the viaduct and getting the Hofbogen known. Het langste podium was also a very well visited event with also hundreds of people attending (Interviewee 8, personal communication, 2022) (Figure 18). The residents group of Liskwartier also went to see the 'Promenade Plantée' in Paris and through these lectures,

events and involvement with the Hofbogen, the idea of creating a roof park was starting to become alive for the residents. Furthermore, the residents also talked about the Hofbogen with different political groups, in an attempt to get it on the political agenda and in the picture, which was successful (Interviewee 8, personal communication, 2022).



Figure 19. Event 'De Hofbogen het langste podium' initiated by vrienden van de Hofpleinlijn (Bewonersorganisatie Liskwartier & Bewonersorganisatie Bergpolder, 2013)

In 2014, there was a change in the governance structure of Rotterdam with the arrival of the Gebiedscommissies. These Gebiedscommissies consisted of directly chosen people and was aimed at creating more participation and initiatives from the local residents (de Koster, 2013). However, *'they didn't have the resources and not enough people'* and the actual decision power of the Gebiedscommissie was low (Interviewee 8, personal communication, 2022, p. 102). Still, the Gebiedscommissie Noord initiated a 'werkgroep Hofbogen' (Working group) in which the entrepreneurs, local residents and the municipality could think about developments and improvements for the Hofbogen, which would show to be important for later (Interviewee 8, personal communication, 2022).

While the inhabitants were much involved in the future of the Hofbogen, the real development was very slow. The municipality made some steps towards creating a park with the motion: 'Maak de Hofbogen groen' (Make the Hofbogen green) in 2015 and the agreement between the municipality and Hofbogen BV that the municipality would obtain a 'recht van opstal' (building lease) (Interviewee 2, personal communication, 2022). This would mean, that in case the Hofbogen would be sold, the municipality had the right to design and create a park on the roof of the Hofbogen. Beside these developments, the process of selling and the developing the Hofbogen took many years. There were complicated negotiations in which the different actors didn't want to pay, renovate or take responsibility. *'In this way, you can play ping-pong for a very long time, getting the run-around and it just won't work'* (Interviewee 7, personal communication, 2022, p. 35).

Another development that took place in 2015 was the renovation and the opening up of station Hofplein. This was the station at the beginning of the Hofbogen. For some years, the

roof was totally stripped and a layer of soil had been added. Together with the renovation of the arches under the roof, the new public 'Luchtpark Hofbogen' (roof park) was being opened in a collaboration between Hofbogen BV and the municipality (Odé, 2015) (Figure 20).



Figure 20. Luchtpark Hofbogen on the roof of station Hofplein, managed by GroenGoed

First study for a park and selling the Hofbogen (2016-2019)

While the complex negotiations continued with the Hofbogen BV, Prorail and the municipality, a local collective with different architects, ecologists, urban planners offered to create a strategy for the roof of the Hofbogen (Interviewee 5, personal communication, 2022). This organisation called 'De Natuurlijke Stad' was hoping for a green roof park and felt that the whole process took too long. In 2016, the municipality gave the assignment to 'De Natuurlijke Stad' to formulate a development strategy for the roof of the Hofbogen, which resulted in the report: 'Development strategy: green promenade on the Hofbogen'. In this document, the goal was to explore the different (technical) possibilities for a green promenade and the possible involvement of different actors in this development for when a new owner was found (De Natuurlijke Stad, 2016).

At the same time, 'vrienden van de Hofpleinlijn' kept organising lectures about the Hofbogen in 2016. Furthermore, originated from the 'Vrienden van de Hofpleinlijn', the 'stichting Hofpleintrein' (foundation Hofpleintrein) was founded in 2016 by local residents. Its goal was to restore an old railway wagon, that originally ran over the Hofbogen viaduct, and give it a place on the Hofbogen (Hofpleintrein, 2021). Sometime later, in 2018, the city council adopted a motion (*tjoeke, tjoeke, tjoek, zo doet de trein*) which said that the municipality

needed to give the railway wagon a spot on the roof (Interviewee 8, personal communication, 2022; Municipality of Rotterdam, 2018) (Figure 21).



Figure 21. New design (VO) of the station Hofplein and the renovated train wagon (De Urbanisten et al., 2021) (Stichting Hofpleintrein, 2021)

Also in 2018, there was another shift in the governance structure of the municipality. The Gebiedscommissies were replaced with the new Wijkraden. The Wijkraden consists of chosen people from each neighbourhood. The Wijkraad stands up for the neighbourhood and via this structure, residents, organisations and entrepreneurs can ask attention for certain themes (Municipality of Rotterdam, 2022).

Then, in 2019, the Hofbogen was officially offered for sale (Interviewee 1, personal communication, 2022). When the selling process started, the municipality organised the first meeting in the evening at a local church for the development of the Hofbogen. There was a neighbourhood manager, from the municipality that decided to look into the participation of the different actors in all the four neighbourhoods during the process. The first meeting attracted about 100 people and the idea from the municipality was: *'the railway is going to be sold and we want to make a park on the roof, also, we want to involve you because it runs straight through your neighborhoods'* (Interviewee 1, personal communication, 2022, p. 35). At the end of the evening, the question was asked who wanted to think along with the development. In combination with the workgroup Hofbogen that already existed and the entries from this meeting, they formed a group of approximately 75 active residents and entrepreneurs, which was called the 'Bewoners Advies Groep' or BAG (resident advisory group). This group had several meetings with representatives of the Wijkraden and thought about the wishes, interests and advice for the creation of a park.

In June 2019, the selling process brought Dudok Groep forward as a new buyer. Dudok bought the whole Hofbogen viaduct and made a vision for the future of the Hofbogen in April (Dudok groep, 2019). With the new buyer, the municipality obtained the 'opstalrecht' and the design could begin. The BAG tried to map all the different visions, wishes and advice from the different actors. This finally resulted in the 'Advies Inrichting Hofbogenpark', which was an advisory report with collected ideas and interests (Bewonersadviesgroep Hofbogenpark, 2019). There was a clear wish from the BAG to incorporate as much from this advice as possible, actively involve people during the whole process and use existing knowledge and information (Bewonersadviesgroep Hofbogenpark, 2019). This advisory report proved to be very important and helpful for the development of the park and was presented to the board

of the municipality (Interviewee 3, personal communication, 2022; Interviewee 5, personal communication, 2022).

Designing the Hofbogenpark and participation process (2019-2022)

Together with the new owner Dudok, the municipality could start looking for a designer. There were several designers that could pitch their ideas about creating a park on the Hofbogen (Interviewee 5, personal communication, 2022). The design team of de Urbanisten, DS Landschapsarchitecten and de Dakdokters in the end was selected for making a sketch design (Schetsontwerp) for the Hofbogen. This design was mainly aimed at designing the roof, but would later be part of a network park in Rotterdam North (De Urbanisten et al., 2021). In this first phase, the design team started working on the sketch design and incorporated the visions from the BAG, Dudok groep and municipality (De Urbanisten et al., 2020). In combination with the development of the sketch design, the Programma van Eisen (PvE) was formulated with guide lines from the municipality for the design in 2020. During this phase, the design team had several meetings with the BAG about the sketch design and certain themes such as management, safety, ecology and the entrances to the park (De Urbanisten et al., 2020). Other involved parties during this phase were the stichting GroenGoed (Foundation), Hof van Noord and the already mentioned stichting Hofpleintrein. Stichting GroenGoed is a collective of many volunteers governed by a board that has the goal to manage and create urban gardens. Their vision is to combat poverty, reduce the ecological footprint, learn how to be self-sustainable and create inclusive forms of ownership of land (GroenGoed Rotterdam, n.d.). This foundation is involved in the first place because they have gardens in the area of the Hofbogen. Secondly and more important, GroenGoed is the manager of the 'Luchtpark Hofbogen'. They open and close the roof and manage the green with help of volunteers during fixed work moments every week (Interviewee 10, personal communication, 2022). By using the experiences from managing the Luchtpark Hofbogen, GroenGoed will probably get a role in the management of the Hofbogenpark and can give knowledge for the design (Interviewee 10, personal communication, 2022). The second involved actor is Hof van Noord. This is the association that manages the allotment 'Hof van Noord', a garden at the end of the Hofbogen. They had a specific interest because the Hofbogen would be connected with an entrance to the garden, which lies directly under the Hofbogen. The last actor, stichting Hofpleintrein, was mainly involved due to the railway wagon that would get a place on the roof. In 2019, the foundation was able to transport the wagon to Rotterdam from East-Germany (Hofpleintrein, 2021). Until today, the wagon is being restored and renovated with the help of students from different schools from Rotterdam (Interviewee 8, personal communication, 2022). After meetings with the stichting Hofpleintrein, some conditions about the placement of the railway wagon on the roof are being adopted in the PvE (Hofpleintrein, 2021). Next to the meetings, the different actors also had the possibility to react on the design via letters to the city council (Interviewee 6, personal communication, 2022; Interviewee 8, personal communication, 2022).

Apart from these different meetings with the involved actors, the project group (i.e. Municipality of Rotterdam and Dudok group) and design team (i.e. De Urbanisten, DS landschapsarchitecten and de Dakdokters) organised sessions with the local residents from Rotterdam North. However, this showed to be somewhat ineffective:

‘Because we presented a plan for the whole track, and for example for someone who was living in the north, it is not interesting what is happening in the southern part (...) we decided to organise 4 neighbourhood sessions (...) with different parts from the track’ (Interviewee 1, personal communication, 2022, p. 47).

So after the general meeting, in the second phase of the preliminary design (Voorlopig Ontwerp), seven neighbourhood sessions with the different neighbourhoods surrounding the Hofbogen were organised to discuss parts of the Hofbogenpark (De Urbanisten et al., 2021). In general, two neighbourhood sessions for each part. The first session was aimed at telling the people: *‘This is the plan, what do you think about it, and then we gather input’* (Interviewee 1, personal communication, 2022, p. 47). The second session would be a couple of months later where there would be feedback on what is done with the input of the residents (Interviewee 1, personal communication, 2022). These sessions took place in 2021, when the preliminary design was made. These sessions took place during corona, therefore the municipality was forced to organise online sessions via MS Teams (Interviewee 2, personal communication, 2022). Corona slowed down the process and made it more complex. After the impact of corona was reduced, some sessions were organised physically again. These had a more informal character. For example, one session was organised outside in the Agniese buurt, where they started with handing out soup and fresh coffee. They had some playing equipment for children and market stands with information about the Hofbogen (Interviewee 2, personal communication, 2022). The municipality tried to apply custom forms of sessions for the different neighbourhoods in collaboration with the Wijkraden. While the Agniese buurt preferred a physical session, the Wijkraad of Liskwartier thought that their neighbourhood would be best reached with an online session. *‘So actually you reach different conclusions with the Wijkraden, every neighbourhood is being served in its own way (...) a form of customization’* (Interviewee 2, personal communication, 2022, p. 24).



Figure 22. Design of the Hofbogenpark with entrances and stairs (De Urbanisten et al., 2021)

With the help of PowerPoint slides, questions and mentimeter during these sessions, the residents could give input on the design (Verslag Buurtsessie 1, 2021). The subjects that were discussed differed from management related subjects (e.g. noise, disturbance, opening times etc.), to the placement of entrances and the design of platforms. Participants got the opportunity to give reactions and show concerns for their part of the Hofbogenpark design. Also, they got the opportunity to show their preference for the activities on platforms on the Hofbogenpark (e.g. running water, peaceful and quite or water art) (Verslag Buurtsessie 1, 2021). Finally, they could give feedback on the design and placement of the entrances (stairs and elevators) to the Hofbogen (Figure 22).

After the sessions and the completion of the preliminary design, this was presented via an online session to the involved actors (Figure 23). Sometime later, there was also an physical meeting organised in the 'stadsarchief' where the preliminary design was presented. This was received with applause from the audience and positive reactions (Interviewee 1, personal communication, 2022).



Figure 23. Visual representation of the Hofbogenpark preliminary design (De Urbanisten et al., 2021)

Final design (DO), construction and management (2022-Unknown)

After the presentation of the preliminary design, the design and project team are working on the final design after the last input. After the final design is completed around the third quarter of 2022, a contractor will be chosen. In which the Hofbogenpark would be constructed in multiple stages (De Urbanisten et al., 2021). The construction will probably start in 2023, how long this will take is unclear.

Appendix B. Interview guides

Designers/Municipality (Dutch)

A. Zou u uzelf kunnen voorstellen en vertellen wat uw rol is binnen het Hofbogenpark project? (Introductie)

1. Kunt u in het kort wat vertellen over het Hofbogenpark project?

B. Welke personen en actoren worden gezien in het project? En welke verschillende voorkeuren, wensen en waarden? (Recognition)

2. Welke mensen en partijen worden benaderd vanuit het project? Welke niet?
3. *Wordt het belangrijk gevonden om iedereen te bereiken?*
4. Wie worden binnen het project gezien als relevante actoren (jong/oud/achtergrond)?
5. *Wat wordt er in het proces gedaan om verschillende mensen te bereiken?*
6. In hoeverre worden de verschillende waardes en voorkeuren meegenomen?

C. Kan iedereen op een gelijke en eerlijke manier participeren en meedoen met het besluitvormingsproces? Wie worden gehoord en hoe? (Procedural)

Proces algemeen

7. Hoe is het besluitvormingsproces ingericht? *Welke rol heeft participatie?*
8. *Hoe kunnen actoren invloed uitoefenen op het eindresultaat?* En hoe krijgt dit vorm (wat gebeurt er met de input)?
9. Hoe hebben de actoren een rol in de verschillende onderdelen van het proces? Ontwerp, uitvoering en onderhoud?

Proces specifiek/verdieping

10. Is er ruimte in het proces om fouten te verbeteren of elementen te veranderen?
11. In hoeverre was iedereen het eens met het ontwerp en de keuzes die zijn gemaakt?
12. In hoeverre is er sprake van een gevoel van vertrouwen dat de actoren worden gehoord?
13. Hoe transparant is het besluitvormingsproces?
14. Wie draagt verantwoordelijkheid in het proces?

Informatie en communicatie

15. In hoeverre heeft iedereen toegang tot volledige informatie?
16. Is het proces toegankelijk voor iedereen? Laagdrempelig?

17. Hoe wordt iedereen op de hoogte gehouden?
18. Hoe wordt er omgegaan met de verschillende mensen en achtergronden (etnisch, opleiding etc.)?

D. Wie ondervindt de voor- en nadelen van het park? Hoe zijn de kosten en baten verdeeld? (Distributional)

19. Is het park bereikbaar voor iedereen? Wat zorgt in de plannen hiervoor?
20. Hoe wordt ervoor gezorgd dat iedereen welkom is in het park?
21. Hoe wordt ervoor gezorgd dat het park aansluit op de wensen en behoefte van de verschillende gebruikers?
22. De New-York High-Line is een bekend voorbeeld van het vergroenen van een oud viaduct/spoorlijn, worden hier of uit andere projecten lessen uit getrokken?
23. Wat wordt verwacht dat er gebeurt met de waardeestijging van woningen en eventuele gentrification (aantrekken rijke/welvarende bewoners en stijgen van huurprijzen en woningprijzen, WOZ-waarde)?

E. Wilt u zelf nog iets zeggen wat nog niet naar voren is gekomen, wat u gemist heeft of graag kwijt wilt? (Sluiting)

24. Had het participatie proces er anders moeten of kunnen uit zien? Waar bent u tevreden over/ wat zijn punten van verbetering?
25. Heeft u nog mensen in gedachten die ik kan spreken?
26. Heeft u documenten of notulen van vergaderingen, en participatie bijeenkomsten?

Interview guide relevant actors (Dutch)

A. Zou u uzelf kort kunnen voorstellen en vertellen hoe u betrokken bent geraakt bij het project?

1. Wat is uw rol binnen het Hofbogenpark project?

B. Heeft u het gevoel dat u bent gezien in het project? En uw verschillende voorkeuren, wensen en waarden? (Recognition)

2. Hoe bent u benaderd voor het project?
3. Wat is er gedaan om u te bereiken? Welke inspanningen zijn er gedaan?
4. Denkt u dat alle mensen (in de wijk) zijn bereikt voor het project?
5. Heeft u het gevoel dat verschillende waardes en behoeftes worden meegenomen?

C. Heeft u het gevoel dat u betrokken was bij het besluitvormingsproces? En dat u gehoord werd en uw voorkeuren en wensen kon uiten? (Procedural)

Proces algemeen

6. Heeft u het gevoel dat u invloed kunt uitoefenen op het ontwerp/resultaat?
7. Hoe wordt uw input gebruikt? Is dit teruggekoppeld?
8. Vindt u participatie belangrijk? En zo ja, waarom?

Proces specifiek/verdieping

9. Was er ruimte in het proces om fouten te verbeteren of elementen te veranderen?
10. Waren er onenigheden of was iedereen het eens met het ontwerp?
11. Heeft u een gevoel van vertrouwen richting de gemeente dat u echt wordt gehoord?

Informatie en communicatie

12. Heeft u toegang tot alle informatie over het ontwerp en project?
13. Vond u het proces toegankelijk? Dat het makkelijk is om mee te doen?
14. Wordt u op de hoogte gehouden van ontwikkelingen? En zo ja, hoe?
15. Wat vindt u van de communicatie over het project?
16. Heeft u verbeterpunten voor het proces of positieve opmerkingen?

D. Welke voordelen of/en nadelen denkt u te ervaren met het park? (Distributional)

17. Wat zijn voor u de voordelen van het park?
18. Ziet u ook nadelen aan het park? Voor welke mensen/groepen?
19. Is het park bereikbaar voor iedereen? Wat zorgt in de plannen hiervoor?
20. Denkt u dat, in het huidige ontwerp, u zich welkom voelt in het park?
21. Heeft u het gevoel dat er is gezorgd dat het park aansluit op uw behoefte en wensen of op dat van de bewoners?
22. Bent u nog bang dat de waarde van de omringende woningen zullen stijgen? Of dat het project andere soort bewoners aantrekt? zogenoemde gentrification?

E. Afsluiting

23. Wilt u zelf nog iets zeggen wat nog niet naar voren is gekomen?
24. Wat zouden verbeterpunten zijn voor het participatie proces?
25. Wat vindt u goed aan het proces?

Appendix C. Observation scheme

Aspects	Observation 1 (Walking on the Hofbogen roof)+ taking pictures	Observation 2 (Inside house directly next to the Hofbogen)	Observation 3 (Walking next to the Hofbogen and attendance coffee bar) + taking pictures
Sound	<ul style="list-style-type: none"> • Silence, not much noise from street or city • Different perspective on noise, there is reflection of noise from nearby houses 	<ul style="list-style-type: none"> • Much reflection of noise on the backside of the house, can hear people a couple of houses further talking • Close distance to the Hofbogen, much noise from the street is hearable • There is double-glazing in some houses 	<ul style="list-style-type: none"> • Some streets are very busy while others are calm and quiet. • Sounds become less when walking towards the Noorderkanaal
Privacy	<ul style="list-style-type: none"> • Much possibilities to glimpse or see the living rooms or bedrooms of surrounding houses • Some houses are really close to the roof 	<ul style="list-style-type: none"> • Living at street level when the park is there, people can look inside 	<ul style="list-style-type: none"> • Some houses are really close to the Hofbogen
Experience	<ul style="list-style-type: none"> • Different feeling and experience, other perspective in looking at the city. • Retreating from the rush of the city. • Hof van Noord at the end of the line is a place of resting and feels like being out of the city 		<ul style="list-style-type: none"> • Ammersooiseplein, square is very grey, children are playing and women are seated on a bench • The end of the line at the Noorderkanaal is more quiet and calm, edge of nature, park Hof van Noord.