

Seeing the wood for the trees

Exploring the role of municipalities in creating
equitable green space

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Summary

Urban greening is increasingly promoted and used in urban planning and decision-making due to the ecological, social and economic benefits they provide. Consequently, cities around the world have been developing greening strategies to deal with challenges as climate change and urbanisation. Yet, the discourses promoting the benefits of UGS such as ecosystem services, raise issues of justice. The benefits of urban greening are argued to portray green space as a win-win solution while not paying enough attention to the negative spatial and social outcomes such as the so-called green-gentrification. As more or better green space is added to the neighbourhood, the attractiveness and public health of that neighbourhood improves, making it more desirable and increasing housing costs. In turn, these housing costs are no longer affordable for the original residents, leading to gentrification. This research focused on how municipalities take these negative spatial and social outcomes into consideration during the provision of urban greening interventions, while looking at the city of Amsterdam. Through a single-case study with two-subunits this research sought therefore to understand *'To what extent are environmental justice concerns included in the urban greening strategies of the city of Amsterdam?'*. This research showed that the municipality of Amsterdam does try to involve residents and their values into the urban greening projects, however, thereby does not take potential gentrification into consideration, increasing the chances of marginalized groups being displaced.

Keywords: Urban green space, ecosystem service, environmental justice, urban greening, environmental gentrification

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1. Introduction

There are a number of significant factors that are converging and demanding a re-examination of the way cities are planned, designed and lived in. One of these factors is the rapidly changing climate, which poses one of the greatest challenges to society today. As a result of climate change, the earth is now about 1.1 degrees Celsius warmer than it was in the late 1800s and the last decade (2011-2020) was known to be the warmest since temperatures started to be recorded (United Nations, n.d.). Climate change has significant impact on ecosystem functioning and well-being of people. Climatic stress leads to an increase of extreme weather events such as rising temperatures, heat waves, extreme precipitation events, flooding and droughts. As a consequence, these extreme weather events cause discomfort, economical loss, migration and increased mortality rates at a global level (Kabisch et al., 2017). Effects of climate change on nature and people are first experienced in cities, since cities' climate often differs from the surrounding rural countryside as it is generally more polluted, warmer, rainier and less windy. Consequently, the effects of climate change will be experienced to a greater extent in urban areas compared to its surroundings (Emilsson & Ode Sang, 2017).

At the same time, cities are also now home to the majority of humans. The amount of people living in urban areas has increased from around 30 percent to almost 56 percent over the last 60 years (World Bank, 2018). The fact that more and more people move to the city is not just a trend of the last 60 years. According to the United Nations (2013), this number will only increase to nearly 70 percent by 2050. The increasing urbanisation rate has resulted in urban areas having to deal with new challenges. Urbanisation has led to increased energy consumption (Zhao & Zhang, 2018), impermeable surfaces, loss of habitat and biodiversity, and climate change. Furthermore, cities often are blamed for contributing disproportionately to global greenhouse gas emissions and the catastrophic effects of global warming (Young, 2010). The consequences of climate change and urbanisation are already faced in cities today. Thus, urban planners and decision-makers have to take urbanisation and climate change related challenges into consideration and have to find ways to keep the city a liveable place. Over the last decades, therefore, there has been a focus towards developing the city in a 'sustainable' way. In an urban context this implies creation of both resource efficient systems and good, engaging urban design for attractive cities with good quality of life (Haaland & Van den Bosch, 2015). An important aspect of a sustainable and liveable city is urban green space [UGS].

UGS is a term referring to vegetated public land (including parks, cemeteries, natural areas, roadside vegetation and riparian corridors) maintained by local government (Boulton et al., 2021). UGSs provide several environmental and social benefits for city residents. Such benefits include processes of local climate stabilization through air filtration and cooling through shade provision. Furthermore, UGSs reduce noise, increase carbon storage and have positive effects on rainwater interception and infiltration which, consequently, leads to water purification (Kabisch, 2015). Social benefits relate to the effect that UGSs contribute to public health and increase the life quality of urban citizens by offering enjoyment, recreational opportunities and improvements in physical and psychological well-being (Wolch et al., 2014). The recent COVID-19 pandemic made this even more evident. Residents used UGSs as a substitute for indoor fitness and sports activities (Venter et al., 2020), while UGS also helped people dealing with depression or loneliness caused by self-isolation (Soga et al., 2020). In academic environments, the benefits of UGS are usually referred to as ecosystem services. The concept of ecosystem services is developed for policymakers to understand the consequences of changes in urban ecosystems and show the importance in order to make informed decisions about them (Fisher et al., 2009).

Due to the ecosystem services provided by UGS and the promotion of them in academic and political environments, large cities around the world are investing in urban greening to improve the wellbeing of residents, as well as to improve climate-adaptation and sustainability. Cities have produced and implemented numerous municipal environmental strategies, policies and plans to 'go green'. Huge projects like parks, greenbelts and green roofs are increasingly found in cities such as the famous New York's High Line, the Rose Kennedy Greenway in Boston and the Bosco Verticale in Milan (Anguelovski et al., 2020). Moreover, many urban greening interventions are further supported or encouraged by policy and research schemes on a supranational level, such as the United Nations Sustainability Goals (To make cities inclusive, safe, resilient and sustainable) or the European Commissions' 'Towards an EU Research and Innovation Policy Agenda for Nature-Based Solutions & Re-Naturing Cities' (Verheij & Corrêa Nunes, 2021). Some cities have now even embraced their green status and are using it to portray themselves as attractive cities to stimulate tourism, private investment, and real estate development (Garcia-Lamarca et al., 2021).

However, as more and more cities develop greening strategies, scholars have started to critique the way greening is framed and used. Greening strategies would put too much emphasis on the ecological, social and economic benefits, thereby marginalizing the negative social and spatial outcomes of greening interventions (Chu & Cannon, 2021). There is also stressed that so-called win-win situations, where the placement of UGS only provides benefits and has no negative outcomes, rarely occur in practice since urban greening often involve trade-offs between different development goals (Anguelovski et al., 2018a). Indeed, many studies have proven that the placement of ecosystem services often results in unequal social and spatial outcomes. Usually, this is done through the environmental justice perspective. Environmental justice is concerned with inclusive decision-making (procedural justice), acknowledgement of different social and cultural values in the process (recognition justice) and recognising that benefits and burdens should be equally distributed across the population irrespective of social and economic differences (distributional justice) (Byrne, 2020). For instance, distributional environmental justice studies have found that many greening projects are accompanied by the so-called green-gentrification. As more or better green space is added to the neighbourhood, the attractiveness and public health of that neighbourhood improves, making it more desirable and increasing housing costs. In turn, these housing costs are no longer affordable for the original residents, leading to gentrification. In addition, these residents may end up in a less desirable neighbourhood again that is dealing with green-poverty problems (Wolch et al., 2014).

In other words, despite the (social) benefits greening can bring, it does not necessarily lead to social inclusiveness and can result in unequal situations. The social and spatial outcomes of green space interventions therefore have to be carefully considered in the planning process for it to be 'just'. This means that there have to be found ways to implement urban greening strategies that on one hand make the city greener and a nicer place to live, and on the other hand, support social inclusiveness and avoid or minimize effects that create urban inequities. However, to find these ways, it is first necessary to know how spatial inequities in planning and implementation of urban greening strategies are acknowledged by municipalities (Haase et al., 2017). This would allow for an analysis of what still has to be improve and what municipalities are doing right in creating just green space. Yet, to date, only little research addresses the role of municipal decision-makers and agencies in preventing inequities in urban greening (Anguelovski et al., 2018a; Brenner et al. 2021; Rutt & Gulrud, 2016) or how municipalities make decision about just urban greening (Choumert, 2010; Wang & Chan, 2018). This research therefore dives into the 'world' of municipal managers in addressing urban inequities surrounding ecosystem services and urban greening. In this study, the focus lies on urban greening in the city of Amsterdam, the Netherlands.

At the moment, the pressure on green space in the city of Amsterdam is rising. Amsterdam is dealing with urbanisation, which has resulted in a huge housing shortage. Around 50.000 new dwellings have to be realised in the Amsterdam metropolitan area in the coming decades (AT5, 2020). To limit urban sprawl, the municipality decided that these new dwellings should be realized within the existing urban fabric (De Vries et al., 2020). However, since Amsterdam is already a very dense city, it is difficult to find new locations to build on. As a consequence, the amount of green space per residents has been slowly decreasing (see figure 1). UGSs were the subject to infill development, while the amount of new green spaces created also did not match the number of new people coming in (Van Zoelen, 2021). Moreover, the green space in the city is unevenly distributed. While some neighbourhoods have more than enough green space per residents, others are struggling to even reach 20m² (Rekenkamer Metropool Amsterdam, 2021). Amsterdam has therefore been investing heavily in creating a greener, more sustainable city over the last years. To realize these ambitions, the municipality has released the Green Vision 2050, in which describes how Amsterdam can develop itself as a green city from now till 2050. One of the mains goals of this vision is to create enough green space for everyone (Municipality of Amsterdam, 2020d). Given the big urban challenges Amsterdam is dealing with and since equitable UGS is high on the agenda of the municipality, it is important that environmental justice issues are taken into consideration. Amsterdam therefore makes a relevant case.

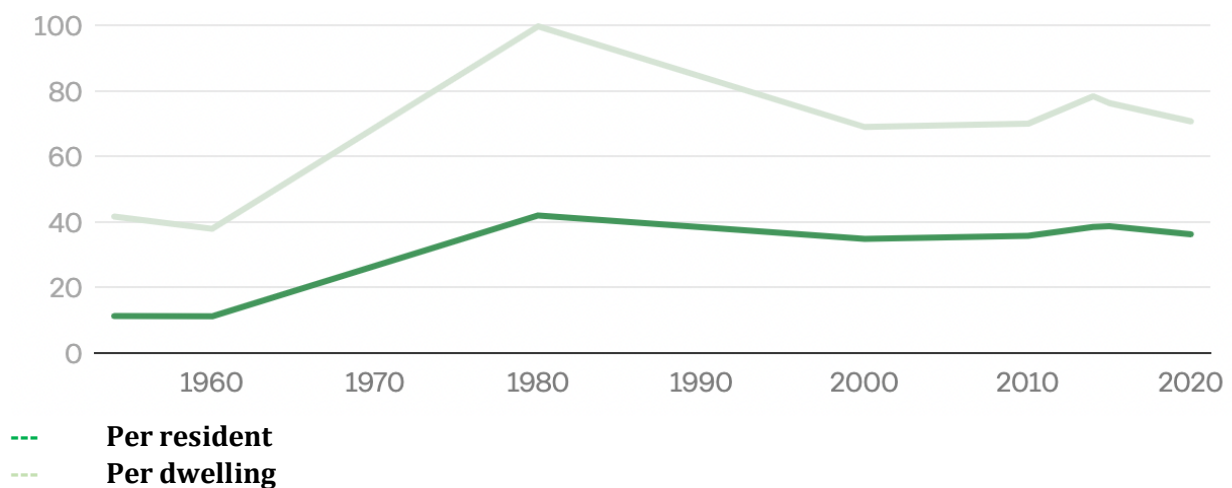


Figure 1. Amount of green space per m² in Amsterdam (Van Zoelen, 2021)

1.1 Purpose and research questions

This research focuses on how municipalities take environmental justice issues into consideration during the provision of ecosystem services and urban greening. As stated above, there exists a knowledge gap on how environmental justice issues are considered and dealt with out on the ground (Anguelovski et al., 2018b; Brenner et al., 2021; Chu & Cannon, 2021; Rutt & Gulsrud, 2016). As greening is increasingly promoted and placed in urban centres, it becomes essential for urban planners to consider what the consequences of these greening interventions are and how to then make them 'just'. Ultimately, the aim of this research is therefore twofold. First, this research aims to contribute to developing knowledge of how social priorities are currently articulated in urban planning for ecosystem services. Second, this research tries to shed light on the potential ways municipalities can properly integrate justice into their greening plans. Which practices and strategies lead to a more just city and which practices should be avoided? These strategies can help municipal decision-makers and urban planning professionals achieve

equitable greening outcomes. To achieve these aims, this study explores insights from urban planners and decision-makers working on two greening projects in the municipality of Amsterdam: the Noorderpark and the Nelson Mandelapark.

This purpose may be summarized by the following research question:

To what extent are environmental justice concerns included in the urban greening strategies of the city of Amsterdam?

In order to answer this main question, the following sub-questions have been formulated:

1. *How does urban greening create environmental injustices?*

As mentioned earlier, despite being promoted that way, urban greening does not always result in equitable outcomes (Garcia-Lamarca et al., 2021). The environmental justice literature states that urban greening is intertwined with three kinds of sociospatial inequities: recognition, procedural and distribution injustices (Sikor, 2013). For this research, it is important to first dive into how urban greening leads towards these injustices because this would make it possible to examine whether these are accounted for in Amsterdam's urban greening strategies. The relationship between urban greening and inequities is discussed heavily in scientific literature (e.g., Anguelovski et al., 2020; Gómez-Baggethun & Ruiz-Pérez, 2011; Langemeyer & Connolly, 2020). This sub-question will therefore mainly be answered by using literature.

2. *To what extent does the municipality of Amsterdam address environmental injustices arising through urban greening interventions?*

This sub-question explores the strategies that the municipality of Amsterdam is employing to combat green-gentrification from happening. As Rigolon et al. (2020) describe, there is a dearth of information on the strategies urban planners and decision-makers use to achieve equitable outcomes for urban greening. Therefore, more research is needed on the tools and strategies used in order to find out which policy tools best address displacement and marginalization in different situations (Anguelovski et al., 2018a). Getting insights through conducting interviews with municipal decision-makers and analysing policy documents helps filling this knowledge gap.

3. *What does the decision-making process on urban greening of the municipality of Amsterdam look like?*

Multiple scholars have stressed that the decision-making process of municipalities on UGS is underexposed in scientific literature (Choumert, 2010; Ordóñez et al., 2019; Wang & Chan, 2018). The rationales of how and why municipalities place ecosystem services are essential for uncovering why a greening project resulted in injustices. For example, a decision-making process on urban greening cannot be transparent and participatory enough or can fail to include diverse voices, values, or viewpoints (Chu & Cannon, 2021). This sub-question therefore dives deeper into the decision-making process on green space of the municipality of Amsterdam through interviews with urban planners and decision-makers. Additionally, policy documents are analysed since decisions on green space are made in the context of these documents.

4. *How are marginalized groups acknowledged in planning processes surrounding urban greening in Amsterdam?*

One of the three notions of environmental justice is concerned with is recognition justice. Recognition justice refers to the acknowledgement of different social and cultural values, including the specific understanding of what is just and the needs and preferences of different social groups in planning processes. Most of the time this relates to to what extent values and perceptions of typically excluded social groups such as migrants, women or elderly persons are being considered (Langemeyer & Connolly, 2020). However, as Rutt and Gulsrud (2016) note, a knowledge gap exists around how urban planners and decision-makers identify and consider the values of marginalized groups in UGS planning processes and what this means for their participation. Therefore, it is interesting to see how the municipality of Amsterdam tries to ‘recognize’ marginalized groups in their planning processes.

1.2 Relevance

In the academic world, a lot of attention has been paid to what the consequences are of making the city greener. While some scholars have focused on the benefits of these greening interventions (e.g., Heidt & Neef, 2008; Jansson, 2014; Kleerekoper et al., 2012), others have discussed how urban greening can result in inequitable situations. Environmental justice studies have proven that there is a relationship between the promotion of urban greening, the actual provision of ecosystem services and the creation of new injustices such as gentrification (Checker, 2011; Wolch et al., 2014). However, as stated before, in scientific literature less attention has been paid to if and how urban managers take up issues of environmental justice in their daily urban greening practices and management (Anguelovski et al., 2018b; Brenner et al., 2021; Rutt & Gulsrud, 2016). More research on the role of urban planners and decision-makers is crucial, since they are seen as the key actors in the governance process on UGS. Their decisions directly shape what UGS looks like, how much is provided and where it is placed. In addition, understanding the political dynamics in governance and decision-making is increasingly important given rapidly changing urban environments and the increasing demands and expectations placed upon green space in urban centres (Ordóñez et al., 2019).

Yet, there are a few studies that have looked into how justice is included in planning processes surrounding urban greening. Anguelovski et al. (2018a) found that the municipality of Medellín did not effectively respond to the concerns of low-income communities about relocation. In the name of a resilient city, the municipality had planned a new green belt. However, this new green belt meant the relocation of poor communities, while wealthier residents were given the right to remain in place and at the same time benefit from new green spaces. At the same time, community members that opposed the plan were not given a voice. Furthermore, Verheij and Corrêa Nunes (2021) researched if greening strategies in Lisbon are based on a discourse of the benefits green provide, without aiming to ensure access to green space for different population groups, or if equity issues were included into the process. They concluded that in Lisbon, the focus was placed on discrepancies in terms of spatial distribution of green space rather than creating a fair and equitable decision-making process. As a result, Lisbon’s greening strategies did not fully contribute to environmental justice. Similarly, Mandelbaum (2021) states that the city of Beersheba in Israel aimed for a more equitable city by creating a certain amount of green space per square meter throughout the city. Yet, this new policy failed to translate justice into practice

because the policy resulted in large UGSs in newer areas, while the amount of green space in other marginalized areas remained low.

Although these studies fill certain aspects of this knowledge gap, they make no or only partial use of the environmental justice framework. For instance, Rigolon et al. (2020) and Mandelbaum (2021) only focused on distributional justice, while Verheij and Corrêa Nunes (2021) studied procedural and recognition justice. Looking at all three dimensions is important since they are closely tied together. For example, a well-designed participatory process can lead towards a better distribution of green space (Sikor, 2013). This research therefore adds to the literature by looking into all three notions of justice and how they are considered by the municipality of Amsterdam. Furthermore, this research is relevant because only little is known about the European context of urban planners and decision-makers in how they take up issues of social equity and marginalization (Rutt & Gulsrud, 2016). Only a few scholars have done research in European countries, while the diversity of these countries provides a great spectrum of difference in relation to motivations of placing UGS and addressing socio-economic inequalities. Thus, because the cases central to this research are situated in the Netherlands, it adds to the understanding of the decision-making process and the inclusion of environmental justice in different contexts.

On a societal level, this research is also relevant. Environmental justice studies have found that neighbourhoods that are characterized by low income, high poverty, less education, more ethnic minorities, more elderly people and greater risk of crime tend to have less green space than upper-class neighbourhoods (Gabbe & Pierce, 2020; Harlan et al., 2006). Now that climate change and urbanisation are affecting the liveability of the city, green spaces have become essential for making sure the city remains a nice place to live. The fact that marginalized neighbourhoods have less green space means that these neighbourhood do not experience the benefits of UGS to the extent upper-class neighbourhoods do. As a result, these neighbourhoods are more prone to, for example, the consequences of climate change such as extreme temperatures and bad air quality (Heidt & Neef, 2008). Cities therefore need approaches that on the one hand make these neighbourhoods greener, while also considering and preventing the negative social outcomes, such as gentrification, from happening. This way, residents from lower socio-economic classes can also enjoy and make use of the benefits UGSs provide to the same extent upper-class neighbourhoods can. This research contributes to this cause by looking at the best practices and lessons that can be learned on creating equitable UGS. Urban planners and decision-makers can use these for future urban greening projects. Secondly, this research is relevant for the municipality of Amsterdam. As stated before, one of the main goals of the municipality related to UGS is to 'make Amsterdam a green city for everyone' (Municipality of Amsterdam, 2020d). At the same time, the municipality wants to green 'rigorously', also in development neighbourhoods (Municipality of Amsterdam, 2021b). Amsterdam therefore has to find the right balance between greening the city and keeping UGS available for everyone.

1.3 Reading guide

This thesis is structured as follows. In chapter two, an extensive literature review on environmental justice and urban greening is provided from which a conceptual framework is derived. This is followed up by chapter three, where the methods used to conduct this research are explained. Here, attention is given to pros and cons of case study research, sampling, data collection and analysis. In addition, it elaborates on the context on the two chosen cases. In chapter four, the results of the research are presented, and chapter five then critically discusses these results by answering the sub-questions. Finally, the last chapter of this thesis ends with a conclusion, recommendations for further research and both the main question will be answered.

2. Literature review

This chapter explores existing scientific literature about the relationship between justice and ecosystem services, specifically focusing on the role that municipalities play in this relationship. It provides an overview on the theories, relevant concepts and topics that help answer the questions posed in the introduction. The first part of this chapter will talk about what green space can bring to a city and why it is essential for a city to function and stay liveable. This is followed by paragraph 2.2, which dives deeper into the concept ecosystem services, a way to show the economic value of green in the city. Subsequently, paragraph 2.3 discusses how the placement of ecosystem services can result in injustices and introduces the environmental justice framework. Paragraph 2.4 then focuses on the missing links between theory and practice presents the knowledge gaps found in academic literature. Lastly, in paragraph 2.5 the conceptual framework is presented, which gives an overview of the main concepts and theories found in the literature review.

2.1 The need for urban green space

When the urban planning field came up, planning theorists were already discussing the use and need for UGS. One of the first 'green space theorists' was Ebenezer Howard. His concept of the Garden City encompassed the idea that cities were intended to be planned, self-contained communities surrounded by parks, containing sufficient residences, industry and agriculture. This would lead to a healthy living environment for the factory workers and other residents (Howard, 1946). Later, there was Jane Jacobs, who saw urban greening as a way of preserving and enhancing diversity within big cities. Greening would have to serve the goals of diverse, active, neighbourhood-scale urbanism (Connolly, 2019). However, it has been only for the last decades that scholars have been actually researching the use and need for UGS. Now that UGSs are under pressure due to rapid urbanisation, this topic is more relevant than ever. Planners have to take these benefits into consideration when deciding about the placement or removal of UGSs. This paragraph therefore gives an overview on the benefits UGSs provide and why it becomes increasingly important that they are provided sufficiently.

2.1.1 Ecological benefits

One of the characteristics that sets apart cities from more rural areas is the urban climate. Not only does the climate influence the way cities are being built (e.g., buildings have to be built climate-proof so that they can deal with high temperatures), cities also influence its own climate (Kleerekoper et al., 2012). Cities are denser, produce more shade caused by buildings of varying height and the type and amount of vegetation differs from rural areas. As a result, solar radiation, air temperature, windspeed, cloud cover and precipitation can vary significantly. In addition, air pollution in urban areas is around 25 times higher than nearby rural areas due to pollutant emissions, especially from transportation and industry. Among other effects, high air pollution results in less solar input, but greater heat trapping. Moreover, cloud coverage and rainfall can increase due to higher atmospheric particulate concentrations that provide condensation nuclei for water (Heidt & Neef, 2008).

One of the best-known effects of the influence of the urban environment on its climate is the urban heat island effect (UHI effect). This means that the temperature in city centres is higher than in the surrounding rural areas (Nuruzzaman, 2015). Almost every city around the world today is usually warmer than its surroundings. The difference in temperature can rise to four degrees for a city with 10.000 residents and seven degrees for a city with 200.000 residents (Royal Netherlands Meteorological Institute, n.d.). There are a couple of causes for the UHI effect. In cities

more vehicles, power plants, air conditioners and other heat sources can be found than in rural areas. These release anthropogenic heat which then gets stored into the many roofs and walls, as well as pavement a city contains (Rizwan et al., 2008). These surfaces absorb solar radiation instead of reflecting it. The sunlight also gets trapped between buildings and streets causing the temperature of the surfaces and their environment to rise. In addition, since buildings in cities are often higher and have a larger surface area, heat emitted by the earth's surface is intercepted by the obstructing surfaces on the way up (Kleerekoper et al., 2012). According to Heidt & Neef (2008), the greater percentage of impervious surfaces and less area with vegetation or bare soil also plays a role. This means that there are fewer trees, shrubs, and other plants to shade buildings and intercept solar radiation, and less evapotranspiration of moisture from vegetation and unpaved soil to cool urban surroundings.

The consequences of the UHI effect are problematic for cities because the increased heat has a negative influence on the health and well-being of residents (Heidt & Neef, 2008). Extreme temperatures can influence the human thermoregulatory system, which deals with imbalances between heat gains and losses. Possible effects are heat stress, thermal exhaustion or even heat strokes. In the worst case, these complications could even lead to death (Kleerekoper et al., 2012). Another problem is that due to the heat, the energy usage from air conditioning increases. The increased electricity generation by power plants then leads to higher greenhouse gas emissions which results in higher temperatures (Jenerette et al., 2011). In other words, it is a feedback loop, where higher temperatures lead to even higher temperatures. Lastly, the warmer temperatures can result in an increase of the smog production. For every degree Celsius rise in temperature, the formation of smog increases by 7% to 18% (Heidt & Neef, 2008).

Now that global temperatures are set to rise due to climate change, the frequency of days with extreme heat and/or a lot of rainfall is also set to increase (Doick et al., 2014). Cities will therefore have to look for ways to keep the city liveable. Increasing trees and vegetation in urban areas can help dealing with the UHI effects and can therefore also be beneficial for the health and well-being of residents (Jenerette et al., 2011). UGSs stabilize the local climate by filtering the air, water and soil of many pollutants and can cool through shade provision and evapotranspiration (Kabisch, 2015). For example, UGSs can be 1–3 °C, and sometimes even 5–7 °C, cooler than surrounding built-up areas (Zhang et al., 2017), while neighbourhood parks can improve air quality via uptake of pollutant gases like ozone and via the high particulate dust-binding capacity of leaves (Heidt & Neef, 2008). As a result of these benefits, greenhouse gas emissions go down, electricity demands are reduced because of the cooler temperatures and soil drainage improves drastically (Jenerette et al., 2011). UGSs also have other ecological benefits that can help cities deal with climate change. Cities increasingly experience heavy rainfall and flooding. Stormwater management costs caused by the many impermeable surfaces can be lowered by increasing the number of UGSs, since they have positive effects on rainwater interception and infiltration. Furthermore, UGSs provide a habitat for fauna and flora that counteracts biodiversity loss (Kabisch, 2015). High biodiversity of species results in stable ecosystems that can provide many ecosystem services for ecological and other benefits (Jansson, 2014). UGSs are therefore regarded as essential urban infrastructure that can provide diverse ecosystem functions (Boulton et al., 2020) and these should be considered when making decisions about UGS.

2.1.2 Social benefits

UGSs are not just beneficial for the urban climate in cities, but they have a lot of social benefits as well. One of the biggest health issues around the world is physical inactivity. Being physically active helps to prevent diseases such as diabetes, cancer, and heart disease (World Health Organisation, 2019). It is therefore important for people to stay active. UGSs provide recreational

and relaxational opportunities such as engaging in sports, meet other people or simply walking through a park or forest (Kabisch, 2015). As a result, people living closer to UGSs with high recreation values spend more time in physical activity than others and because of that are less overweight and experience less stress (Jansson, 2014). Another health benefit is that blood pressure is usually lower with vegetation around (Zhou & Parves Rana, 2012). This is also caused by the fact that UGSs have some noise-reducing effects. Not only does this block the sound from, for example, a nearby highway, but also the risk of high blood pressure and cardiovascular diseases caused by traffic noises goes down (Jansson, 2014).

Exposure to UGSs can also positively influence mental health and well-being. Mental health problems such as stress and depression are a big problem in cities. Studies found that access and provision of UGS leads to less stress and a higher quality of life (Lee & Maheswaran, 2010), while living more than one kilometer from the closest green space is associated with the opposite (Jansson, 2014). UGSs serve as a way to 'escape' from the stressful world, afford emotional relief and a walk in a park with trees improves people's ability to concentrate (Zhou & Parves Rana, 2012). Moreover, green spaces provide a place to socialize and bringing people together for users to strengthen and form their neighbourhood social ties. These social ties would then contribute to a residents' sense of safety and adjustment (Lee & Maheswaran, 2010).

Lastly, UGSs can increase the quality of life in terms of e.g., safety, participation and attractive living. People living around more green space feel safer than people that are living with less green space around. A big reason for this is that green space is often associated with lower levels of poverty and violence crime (Jansson, 2014). Additionally, parks and gardens support personal development. UGSs provide educational resources where people can learn about nature and ecological processes (Heidt & Neef, 2008). Being in nature stimulates creativity and ingenuity, which improves the performances of students. For example, according to Jansson (2014), schools with large windows facing trees and other vegetation have a higher percentage of students with good study results. Not only students benefit from UGSs because scholars can use them to conduct research on ecology, vegetation, and animals. UGSs also stimulate community gardening which can make people more attached to their neighbourhood. Consequently, residents want to 'participate' keeping the neighbourhood a nice place to live (Jansson, 2014).

2.1.3 Economic benefits

From an economic development standpoint, green space is associated with economic growth and neighbourhood revitalization through real estate development and business creation (Anguelovski et al., 2018a). Studies showed that the attractiveness of a neighbourhood increases with a lot of green space around, especially for big parks (Xiao et al., 2017). Consumers rated natural open space as the feature they desired the most in a new home development. As a result, financial returns for property developers would be five to fifteen percent higher depending on the type of project. According to Choumert and Salanié (2008), this is also a positive development for governments. Increasing property values means that property taxes increase as well, and, thus, governments will receive higher tax revenues. In addition, the willingness-to-pay for products of residents in neighbourhoods close to green space increased by around ten percent in these neighbourhoods (Heidt & Neef, 2008). For urban planners these benefits are important since they can be used to justify the implementation of the UGSs. In general, if green spaces are not publicly provided there is no incentive for private agents to produce them voluntarily as the economic benefits do not always cover the costs (Choumert & Salanié, 2008). Showing the developers the economic benefits might convince them to cooperate in establishing a park or planting multiple trees. For example, UGSs play a big role in tourism and city branding. A city with a lot of green

space can create a 'local identity' that attracts tourist, companies and high-skilled workers and consequently bring value to the neighbourhood (Jansson, 2014).

The ecological benefits can also create economic benefits. Zhang et al. (2012) found that due to the positive influence of urban green on rainwater-runoff reduction, the city of Beijing experienced great economic benefits. A total of 154 million cubic meters of rainwater was stored in vegetation, which resulted in an economic benefit of 1,34 billion due to the decreased flood impacts. Furthermore, Heidt and Neef (2008) state that using vegetation is a good for decreasing energy costs of cooling buildings. These buildings then need fewer cooling devices such as air conditioning.

2.2 An introduction to ecosystem services

In 1987, the World Commission on Environment and Development released the Brundtland report 'Our Common Future'. This report contained a definition for sustainable development: development that meets the needs of the present without compromising the ability of future generations to meet their own needs (UNESCO, 2015). As stated in the last paragraph, UGSs are an essential part of a sustainable and liveable city due to the many benefits they provide. Thus, green space degradation can have a very negative impact on a sustainable city. Municipalities, therefore, have to make informed decisions about providing or removing UGSs. These decisions are almost always supported by assessments of value and can be contentious when there are competing ideas for how the land of green spaces has to be used (Fisher et al., 2009). Where some value green spaces for its recreational benefits, others see the land as a perfect place to build a new residential area. For instance, in the Netherlands, the housing shortage has resulted in a discussion about building in the 'Groene Hart', a preserved green area to limit the amount of urban sprawl in the country (Van Bakel, 2020). It is therefore up to the decision-makers to discuss this with stakeholders and to decide what brings the most value to a city.

However, green spaces are examples of market failures. This means that the market is not efficient in allocating resources in a way that achieves maximum social welfare (Choumert & Salanié, 2008). Generally, green spaces are public goods and, thus, non-rivalry and non-excludable. Economists use the terms non-rivalry to describe goods for which the 'consumption' or use by one individual does not decrease the quantity to others such as a tree. The term non-excludable is used for goods that people can enjoy the benefits of without having to pay for it and cannot be produced for one individual such as a park (there are of course exceptions such as private parks) (Fisher et al., 2009). Moreover, the benefits they provide such as rainwater interception and provision of shade cannot be captured and traded in traditional markets. Because of these characteristics, UGSs do not have a market price. It means that if green spaces are not publicly provided there is no incentive for private actors to produce them voluntarily as the economic benefits do not always cover the costs (Choumert & Salanié, 2008). Public planning agencies are therefore usually the providers of UGSs.

This leaves planning agencies in a challenging position. Planning agencies do not always have the funds to, for example, construct a park (Boulton et al., 2018). More importantly, when green space is provided with the taxes from residents, planners need to justify that the placement of urban green is a good investment. Unless the benefits of green spaces can be quantified, it is unlikely that they will be seen as the highest and best use of land (Nicholls & Crompton, 2005). Their lack of monetary value prevents green spaces from being properly considered in the cost-benefit analyses of public urban planning policies. For instance, if the value of UGS cannot be quantified, how can planners justify the placement of green space when there is a huge demand for houses in a city and will enough green spaces remain? Over the last decades, therefore, the concept of ecosystem services has been developed to find a way to value green spaces and to address the link

between ecosystems and human welfare to make green space conservation mainstream and attractive (Daily et al., 2009).

The term 'ecological services' was first used in the 1970s and has become increasingly popular since the 1990s. The idea behind the term was to demonstrate how the decline in biodiversity directly affects ecosystem functions that provide critical services for human well-being. When the concept evolved over time, so too did the definition of ecosystem services (De Groot et al., 2017). Generally, (urban) ecosystem services is a concept that refers to the benefits provided by (urban) ecosystems and their components. UGS is a crucial component of the urban ecosystem and thus provides a lot of those benefits. Being aware of all the ecosystem services UGSs provide is essential for policymakers to understand the consequences of changes in urban ecosystems (Tian et al., 2020). In theory, if the value of nature is recognized by institutions and individuals, more green spaces would be conserved (Daily et al., 2009). Understanding the link between ecosystems and human welfare is therefore crucial for a wide range of decision-making contexts (Fisher et al., 2009). Moreover, the concept of ecosystem services provides a way of communication among decision-makers from different sectors, makes it possible to discuss common questions, criteria and methods and thus, improves the decision-making process (Hauck et al., 2013). In short, ecosystem services try to inform and assist decision-making by showing the value of these services (Chan et al., 2012a).

2.2.1 Quantification of ecosystem services

An important motive for the development of the concept ecosystem services is the need to express value of these services. In this research, the definition of value by Farber et al. (2002) is used: the contribution of an action or object to user-specified goals, objectives or conditions. By definition, valuation is a subjective matter and is determined by perspective; everyone values these services differently. Thus, an absolute valuation does not exist. Despite the different perspectives and ways of measuring value, there is a desire to express the value in a uniform way of measuring. When ecosystem services are used in practice for decision-making, this almost always means that economic valuation methods are being applied. Other methods (e.g., social and biophysical valuation) do exist, however these are rarely used (Chan et al., 2012a). This research therefore focuses on economic valuation. Economic valuation brings the ability to express value of ecosystems in monetary terms (e.g., dollars or euro). Expressing the value of UGS in monetary units can help convincing policy makers, residents and developers about the benefits of UGSs. Monetary valuations enable the efficient use of limited funds, shows if compensation should be paid for the loss of green space and most importantly can be used by policy makers to manage trade-offs between urban green and other urban development and thus to make informed decisions (De Groot et al., 2012). Usually, the values are used in a cost benefit analysis. A cost-benefit analysis compares alternative policy options by weighing the expected costs against the expected benefits, so that the most advantageous solution can be chosen (Wegner & Pascual, 2011).

As mentioned before, urban green spaces do not have a market price established by supply and demand. To find a way to value them, it is therefore necessary to look at economic theory. According to Choumert and Salanié (2008), economists came up with tools to assess the economic value of UGS that can be divided into two categories: use values and non-use values. Use values consist of direct benefits (e.g., recreational activities), indirect benefits (e.g., environmental amenities) and option values (values assigned to potential visits in the future). Non-use values are the benefits for future generations. For instance, someone puts value on UGS due to their satisfaction from being able to pass on environmental benefits to future generations. These use and non-use values can then be measured by calculating the willingness-to-pay [WTP]; the maximum price a customer is willing to pay for a product or service. A good explanation of this

methodology is given by Farber et al. (2002): Imagine a city that is dealing with flooding and the damages of that are one million euros. In order to reduce the probability of floods in the future by 10%, society would be willing to pay 100.000 euros. Suppose that an already built park in the city reduces the chances of flooding by 20%, this would mean that society receives 200.000 euros of these services for free. This could then be seen as a part of the value the park provides.

There exist a lot of valuation techniques that can be used to establish the WTP for ecosystem services. The most used methods, however, are contingent valuation, hedonic pricing and travel costs. Contingent valuation involves directly asking people, in a survey, how much they would be willing to pay for specific environmental services. Respondents are confronted with a hypothetical scenario and base their pricing off that (Choumert & Salanié, 2008). For example, respondents can be asked the maximum they would pay to access a park. Secondly, the hedonic pricing method looks at prices of goods for which a market exists such as housing. A house is made up of many factors that may influence its value. The hedonic pricing method looks at these factors and estimates the marginal contribution of the individual factors (Sirmans et al., 2005). For instance, to what extent distance or access to UGS influences the price of housing. Basically, the contribution of UGS to the housing prices is used to determine its value. Lastly, the travel cost method estimates the value of a recreational site or changes in the environmental quality of that site by using the amount of money and time people spend traveling there. It tries to find out the willingness to pay for recreational services (Farber et al., 2002).

Context: The integration and use of ecosystem services in decision-making

Despite a big body of literature on ecosystem services and their valuation, it remains difficult to structurally integrate ecosystem services in urban planning and decision-making (Cortinovis & Geneletti, 2018; De Groot et al., 2010). For policy makers and practitioners it is hard to move from a scientific concept as ecosystem services to action (Chaudhary et al., 2015). In addition, the valuation of ecosystem services rarely determines a decision alone (Chan et al., 2012b). According to Daily et al. (2009, p. 23), to integrate ecosystem services into decision-making, this also requires “an understanding of the interlinked production of services; a grasp of the decision-making processes of individual stakeholders; integration of research into institutional design and policy implementation; and the introduction of experimentally based policy interventions designed for performance evaluation and improvement.” Several scholars have therefore developed frameworks that try to show how ecosystem services can be integrated into decision-making (e.g., Chan et al., 2012a; Daily et al., 2009; Rosenthal et al., 2014). However, the most influential of these frameworks is that of Daily et al. (2009), which is shown in figure 2.

Starting at the ecosystems ‘bubble’, the idea behind the framework is that through biophysical sciences, ecosystems are being translated into services. Here, it needs to be identified what the ecosystem services are and how they are being produced. Social sciences, thereafter, value these services (e.g., economic valuation). These values can show the impact of different decisions by revealing hidden values, externalities and long-term costs and benefits. Consequently, this information can help institutions such as municipalities in making informed decisions about urban green space and therefore establish institutional change. Institutional change is necessary because without it, communities may well continue to carry on with behaviors that are widely known to be harmful to society over the long term such as the high use of fossil fuels or the removal of too much green space. These institutions in turn provide incentives that enable decisions (such as monetary incentives to conserve green space), which culminate in actions that impact ecosystems (Daily et al., 2009). Thus, in order for ecosystem services to be integrated into decision-making, there is a whole process to go through and only valuing the services is not enough.

This also becomes clear when looking at the actual use of the concept out on the ground. Scientists have been monitoring the use and integration of the ecosystem services by policy makers and urban planners in different countries. For example, Cortinovis and Geneletti (2018) investigated to what extent ecosystem services are currently included in urban plans in Italy, Niemalä et al. (2010) identified advantages and disadvantages for the use of the concept in Finland and Kabisch (2015) analysed the governance challenges that ecosystem services bring in Germany. It turns out that although urban professionals recognize the usefulness of the ecosystem services concept, they are not always familiar with it (Kaczorowska et al., 2016; Niemelä et al., 2010). Ecosystem services are being used when making decisions, however the ecosystem service concept itself is not always being considered (Kabisch, 2015; Lam & Conway, 2018). A big reason for this is that scientific knowledge is only partly being transferred to planning practices (Cortinovis & Geneletti, 2018). Referring back to the framework of Daily et al. (2009), the information flow from the biophysical and social sciences thus has to improve in order for institutions to work with ecosystem services and for them to be integrated properly.

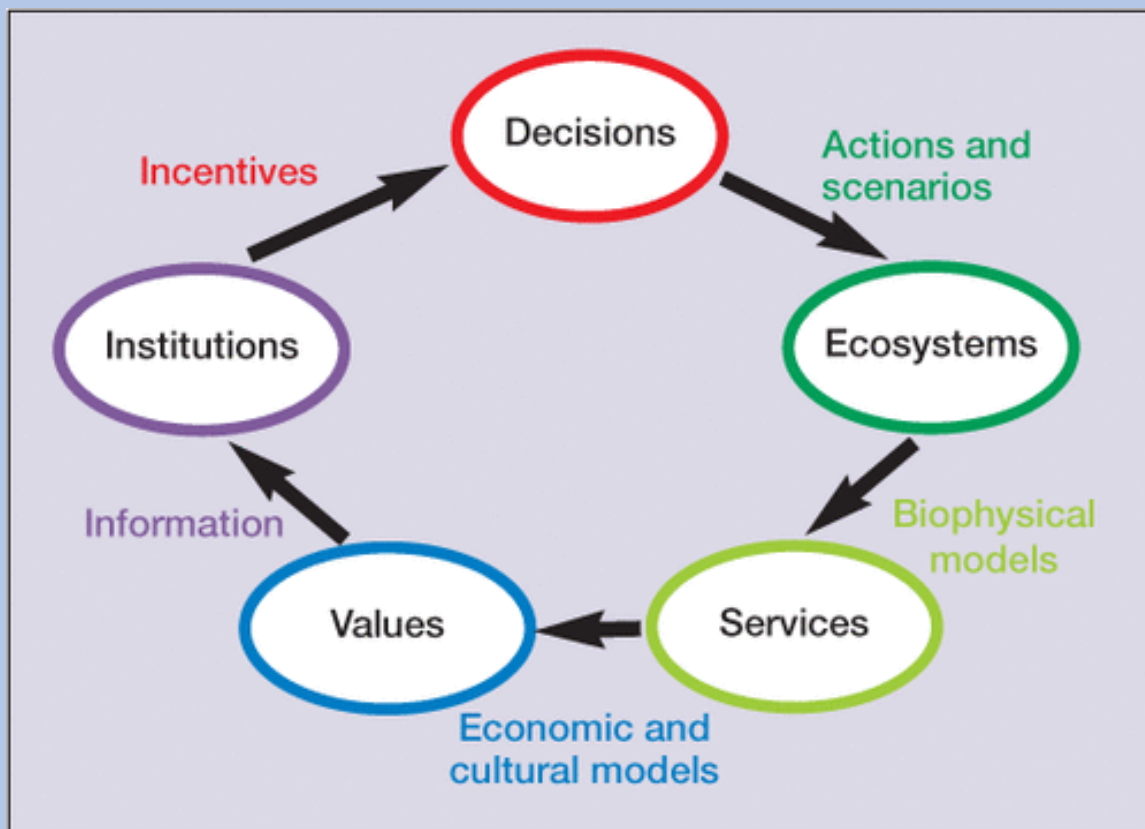


Figure 2. Framework for integrating ecosystem services into decision-making (Daily et al., 2009)

2.2.2 Critiques on ecosystem services and its valuation

The concept of ecosystem services has not been left uncriticized. Different scholars have developed critiques on certain aspects of the ecosystem services. Some of these arguments are ecological concerns. For instance, in their synthesis of critique and counter arguments about ecosystem services, Schröter et al. (2014) discuss the relation between humanity and nature. Ecosystem services would have an anthropocentric focus that would exclude other entities as plants and animals. As a result, this could lead towards an exploitative human-nature relationship, where green spaces are implemented and transformed into what humans need. This way, ecosystem services will turn people into consumers and become separated and alienated from nature. Additionally, Ridder (2008) contests the positive correlation between biodiversity and

UGSs. Only limited proof is found on the importance of species richness for ecosystem services. Planning and conservation strategies based on ecosystem services might not safeguard biodiversity, as ecosystem services can be used as a conservation goal at the expense of biodiversity. There are also social/institutional concerns. Chaudhary et al. (2015) note that for policy makers and practitioners it is hard to integrate ecosystem services into policy and decision-making. Moving from a 'concept' such as ecosystem services to action is a big challenge and there are not a lot of tools available for using the concept on the ground.

However, most of the critique addresses the valuation and use of ecosystem services. Wegner and Pascual (2011) argue that it is almost impossible to capture all values of ecosystem services with monetary valuations and the use of cost-benefit analyses. The social and cultural ecosystem services such as the psychological health benefits and a strong bearing on social relations are part of the emotional realm of humans and are thus hardly quantifiable in terms of a WTP. As a result, economic valuation and cost-benefit analyses may be incomplete. Moreover, throughout the last two decades economic valuations of ecosystem services have been used to create economic incentives for conservation. Scholars question if this economic view does not lead to commodification of ecosystem services (Schröter et al., 2014). Commodification refers to the process of market trade in previously non-marketed areas. Thus, where green spaces did not have a price tag before, is it now theoretically possible to include them into pricing services and market relations due to economic valuation methods. The potential commodification and privatization of ecosystem services is argued to have some counterproductive effects in the long term for green space conservation. Ecosystem services mask ecological complexity, non-economic values of ecosystems, and power asymmetries underlying environmental trade. Due to the economic value not being 'complete', ecosystem services can be exploited to maximise profits with the loss of green space as a result. Secondly, commodification turns ecosystem services into goods that are only accessible for the ones that can afford it. Ecosystem services would only be provided to maximize profits. For example, the commodification of a park could transform it from being open access to a private park, only accessible when you pay a certain price (Gómez-Baggethun & Ruiz-Pérez, 2011).

In short, the ecosystem services concept is critiqued for being too 'homogenous', because it can be used anywhere without having to consider the social and cultural values and context. Scientists, however, argue that it is necessary to take these into account. Without it, conflicts and power imbalances are being concealed and the complex relationship between 'nature' and 'people' is ignored (Chaudhary et al., 2018). This brings us to the main theme of this research: the relationship between ecosystem services and justice. For environmental management and thus for green space provision, justice is important since actions nearly always have an impact on the distribution of benefits and responsibilities, different people's participation in decision-making or the recognition of their identity and history (Sikor, 2013). However, the distributional effects of greening on a city are often not considered and, as a consequence, the project ends up being disadvantageous to specific groups in society (Langemeyer & Connolly, 2020). The remaining part of the literature review will elaborate on this relationship between justice and ecosystem services.

2.3 Environmental justice and ecosystem services

The concept ecosystem services is increasingly being promoted and used in urban planning and decision-making for the justification of green spaces. Cities around the world have developed strategies and policies to not only show the benefits they provide, but also to make sure green spaces are provided sufficiently throughout the city. These UGSs are then expected to benefit all residents (Anguelovski et al., 2018a). Yet, this political discourse promoting ecosystem services, raises potential issues of justice. Justice concerns a situation, in which conditions within a society

systematically support some, while hindering others to live a healthy and fulfilled life or ‘make the most out of their life’ (Langemeyer & Connolly, 2020). Ecosystem services have been argued to portray green space as a win-win solution while hiding the negative social outcomes. In addition, the use of economic valuation of ecosystem services reduces complex management decisions to decisions made based on economic accounting. There exists a strong temptation to simply accept the economic valuation of ecosystem services in order to advance important conservation action. Here, the impact of green development can often be overstated, while the social and spatial impact is overlooked. Consequently, these decisions then fail to integrate the justice aspects of ecosystem services. Choosing a particular course of action because it ‘makes the most economic sense’ can therefore result into unjust and inequitable outcomes (Matulis, 2014). Currently, only few real-world urban greening interventions include attempts to integrate justice into ecosystem services assessments. Even those that do consider equity issues, tend to neglect the complex social-ecological process that can appear afterwards, for instance, the gentrification of a neighbourhood after a new park is implemented (Langemeyer & Connolly, 2020).

The theory that the academic and political discourses promoting the benefits of urban greening are generating justifications for greening projects such as parks while neglecting the sociospatial outcomes has been called the ‘urban greening orthodoxy’ (Anguelovski et al., 2018a). This urban greening orthodoxy shows that there is a clear conflictual relationship between the contemporary urban greening agenda and justice concerns. If the justice challenges are not acknowledged in the planning process, the green city is likely to result in exclusion, segregation and invisibilization. This raises the question whom this ‘new’ green city is actually for. Is the green city delivering on its promise of social, economic and ecological benefits, or is it exacerbating environmental disparities by creating more exclusion of the most disadvantaged residents?

2.3.1 A framework for just urban greening

To find out for whom the green city actually is for, it is first necessary to know what just/unjust urban greening entails and how the placement of ecosystem services can lead towards injustices. This research therefore uses the environmental justice framework of Schlosberg (2004), where justice is divided in three dimensions: distribution, procedure and recognition. The term environmental injustice comes from the environmental justice movement that sought to achieve more inclusive decision-making and recognise that benefits and burdens should be equally distributed across the population irrespective of social and economic differences (Byrne, 2020). Traditionally, environmental justice focused on health consequences associated with inequitable distribution of exposure to pollution and environmental hazards in low-income and minority individuals. However, since the 2010s, positive contributions of green spaces to health and well-being are increasingly considered as an environmental justice issue (Suárez et al., 2020). In addition, environmental justice theories shifted to a more pluralistic understanding of justice. Even though equitable distribution is important, it is incomplete without considering institutional contexts, rules, and languages that mediate social relations and are the foundation of unjust distributions of environmental benefits (Chaudhary et al., 2018). Thus, where environmental justice first mostly focused on the distributional outcomes, it now also looks at if the decision-making process is fair and inclusive (participation) and if different social and cultural values are acknowledged (recognition) (Langemeyer & Connolly, 2020).

For ecosystem services specifically, the environmental justice concept is used for describing the sociospatial inequities that are intertwined with and produced by urban greening (Anguelovski et al., 2020). In the past ten years, academic research has looked at the justice outcomes of urban greening interventions. These have pointed out that new greening interventions are increasingly taking place in neighbourhoods with a lower socioeconomic status, with benefits that accrue mostly to the middle and upper classes and ethnically or racially privileged residents, often at the

expense of more vulnerable social groups (Sekulova et al., 2021). This paragraph focuses on how the placement of ecosystem services can lead to new injustices, while applying and discussing the environmental justice framework. According to the framework, urban greening projects can potentially produce inequities by looking through the three lenses of justice:

2.3.2 Distributional justice: Green and environmental gentrification

The most known and discussed lens of justice is distributional justice. Distributional justice concerns the fair distribution of benefits and burdens to different groups of a society. It focuses on the objects to be distributed, the process of distribution, and the distributive consequences for various groups (Chaudhary et al., 2018). Thus, in regard to green spaces and ecosystem services, studies of distributional justice assess whether the placement of green spaces addresses existing inequities and whether the placement does not create new ones (Anguelovski et al., 2020). This may be the equal access to the benefits of ecosystem services, without discrimination based on factors as price and economic capacity, but also the displacement of residents due to the gentrification of a neighbourhood because of the new provided park (Aragão et al., 2016). Theories of distributional justice seek to find a way to allocate the benefits in burdens on the basis of just principles. What these just principles are, is the focus of considerable debate. According to McDermott et al. (2013), theories of distributional justice fall into one of two categories: Consequence-based or rules-based. Consequence-based theories argue that the most just outcome is the one that maximises social welfare, even if that means that the costs and benefits are unequally distributed. The use of cost-benefit analyses and ecosystem services is therefore consequence-based.

Under rule-based theories, distributional outcomes are considered just if they result from the application of fair rules. If a situation or problem is in accordance with these fair rules, it is considered just. One of the most influential works on this topic is the book '*A theory of Justice*' by John Rawls (1971). Rawls (1971) developed a thought experiment with the goal to find out the principles for a just society. People would be situated in an 'original position'. In the original position, people are asked to consider which principles they would select for the basic structure of a society or what that society would look like. However, in this situation, they make these choices behind a 'veil of ignorance'. This means without knowing what their own role and place in that society is going to be. Thus, they are prevented to know their ethnicity, social status, gender and their or anyone else's idea of how to lead a good life. As a result, Rawls argues, people will choose the distribution that maximizes the index of the least advantaged position because they are aware that they might end up in that position. For Rawls, this meant that distributional injustice arises when societal resources are unequally distributed, causing harm to some individual or group. By conducting the thought experiment, it would be possible to find out what the basic needs are for all citizens to take part in political and social life. Based on those considerations, choices could be made to justify an account of a just distribution of social goods (e.g., ecosystem services) (Rawls, 1971). The distributional justice literature on ecosystem services has mostly focused on the rule-based theories. For ecosystem services, the importance of rule-based distributional issues is elevated because the placement of UGS may shift the benefits from one individual to another (Langemeyer & Connolly, 2020).

Distributional justice studies have revealed that within cities, ecosystem services are not always equitably distributed. The amount of ecosystem services in a neighbourhood is often stratified based on aspects as income, race and age. For example, neighbourhoods with a lower socioeconomic status tend to have less high-quality green space than neighbourhoods with a higher socioeconomic status (Gabbe & Pierce, 2020; Wolch et al., 2014). Consequently, these neighbourhoods shoulder a disproportionate burden of environmental harm because they are

denied access to the benefits of UGS such as improved health and higher quality of life (Connolly, 2019). A major cause of this is that a green neighbourhood is often seen as an attractive neighbourhood due to the benefits of green space. Housing and rent prices in greener neighbourhoods are therefore higher and not always affordable for lower socioeconomic classes. The placement of ecosystem services in a lower-income neighbourhood, especially in the ones with not a lot of green space, may therefore be accompanied by gentrification.

Studies in urban planning have highlighted that many long-term residents are vulnerable to the so-called green-gentrification. Living next to a green space boosts the property prices and housing costs in a neighbourhood, which then results into lower-income groups not being able to afford to live there anymore. They are then replaced by wealthier and more educated residents, who can afford the new prices (Jansson, 2014). A similar process occurs during climate adaptation planning, where the distributional effects of green interventions are often overlooked. The placement of stormwater management infrastructure can, for example, lead to an increased desirability of that neighbourhood, with the displacement of the 'original' residents as a consequence. Vulnerable residents have to move to a neighbourhood that is more vulnerable to floods (Anguelovski et al., 2020). Other studies have focused more on environmental gentrification. Environmental gentrification describes the process in which implementing a greening agenda increases local property values and attracts wealthier residents to a previously low-income neighbourhood. It differs from green-gentrification in that it is operating under the seemingly a-political rubric of sustainability. Everyone from government officials to neighbourhood activists has focused on creating a 'greener', more 'sustainable' city. This would not only make it more liveable and desirable, but also make it more competitive in the global market. Arguments for such a city seem immutable because, after all, who does not want a greener and more liveable neighbourhood? Hence, the strong position of green removes the discussion about who will benefit from the changes and, as a result, creates negative consequences (Checker, 2011).

The process of green or environmental gentrification can be unintentional. Municipalities can provide green space to a deprived neighbourhood to make it more liveable without bearing in mind that gentrification might occur. Yet, other greening projects are accompanied by a clear strategy to bring in the more privileged residents in order to increase the profit. There are many cases where developers use rezoning ordinances and tax incentives to redevelop vacant land, which they can then transform in residences for higher-income groups (Anguelovski et al., 2018b). Garcia-Lamarca et al. (2021) speak of a green gap, where planners and investors are capitalizing on UGS to attract residents from high socioeconomic classes with a higher purchasing or rental power. In this process, greening projects are pushed through with arguments that they will lead to the city becoming more sustainable, resilient and attractive. This green gap then emerges when unused or underused land is identified and subsequently greened, generating amenities that might lead to increased economic value and profit accumulation and finally, gentrification.

2.3.3 Recognition justice: Biases and getting recognized

Recognition justice refers to the acknowledgement of different social and cultural values, including the specific understanding of what is just and the needs and preferences of different social groups. When values of a group are systematically excluded from a decision-making process, you speak of recognition injustice. A good example of this are the systems of apartheid, which excluded people based entirely on their race in South Africa (Langemeyer & Connolly, 2020). In relation to urban greening and ecosystem services, recognition justice is connected to the lack of attention to the values, identities and preferences different groups assign to green space (Anguelovski et al., 2020). Theories of recognition justice look at if these values are included when deciding about urban greening, but also try to find ways to include them. This is challenging

for a couple of reasons. First of all, social and cultural values are difficult to capture and measure. Secondly, the context differs for every urban greening intervention. Values and needs change over time and can be different based on the place. In an ideal process, therefore, the recognition of values and preferences would be assessed by a variety of measures at various points in time. Lastly, using social and cultural values into decision-making processes can be particularly challenging in urban areas because of the very high cultural and social heterogeneity. Different groups of inhabitants experience different sides to the same ecosystems. Considering and finding all these spatial 'perspectives' can take a long time (Gómez-Baggethun & Barton, 2013).

In other words, recognition justice is about whose values are included and seen as important in decision-making processes. However, as mentioned before, the use of ecosystem services is being critiqued because the method tends to neglect the social and cultural context, while putting too much focus on the monetary valuations. For example, people may have an emotional and affective bond with an ecological site, but these values are hard to quantify and therefore not included in the planning process (Chan et al., 2012a). Consequently, recognition justice challenges in urban greening can arise in multiple situations:

Anguelovski et al. (2020) discuss how the increased use of financial models and schemes encourage the implementation of flashy green interventions that are attractive to investors such as waterfront conversion over greening interventions conceived by over interventions with the support of activist groups, foundations or public agencies. These flashy greening interventions often fail to include the values of historically marginalized groups and have shown to erase community-driven resources that are of high value to them. Additionally, in relation to understanding ecosystem services for residents, Wegner and Pascual (2011) discuss that there is a variation between the way different groups of residents value ecosystem services and how they benefit from them. Urban planners should therefore not just systematically distribute ecosystem services over the city but have to take into consideration the socially differentiated needs. For instance, by valuing ecosystem services and establishing a market price for them, the prices are expected to reflect the preferences of individuals and the scarcity of resources. However, market prices are not always an accurate reflection of these factors due to imperfect flows of information, imperfect forms of competition and environmental externalities. As a result, decisions based on market prices might have a bias towards the preferences of higher-income groups in society. This is particularly relevant for ecosystem services since budget constraints of the lower-income groups may result in an underestimation of crucial ecosystem services. People who have lacked access to certain basic ecosystem services, may show low WTP for these services, because they are unaware of the benefits on their lives or because they consider them out of reach. Urban planners providing green space have to consider the different values and preferences. Urban planners have to account for this, otherwise decisions based on economic valuations may underprovide lower-income groups with ecosystem services (Wegner & Pascual, 2011). Furthermore, recognition injustice can also appear when the needs and preferences of certain groups are not addressed in a planning process. Enssle and Kabisch (2020) describe how a park was less accessible for old people with physical health constraints due to the physical environment of the park (e.g., the park not being accessible for wheelchairs, or the paths being badly maintained). Consequently, these people tended to visit these parks way less often.

2.3.4 Procedural justice: Uneven power relations and overriding agendas

Procedural justice refers to the idea of fairness in the political processes that resolve disputes and allocate resources (McDermott et al., 2013). For urban planning specifically, procedural justice is concerned with how to include the diversity of all potentially impacted groups in the planning process so they may actively express their demands (Enssle & Kabisch, 2020). In other words,

procedural justice theories look at the forms of participation, analyses who participates in decision-making, on what terms, and how decisions are made for equitable outcomes (Chaudhary, 2018). Generally, procedural justice can be reached by collaborative and communicative engagement across a wide set of stakeholders. Participation is theorized to lead to more just outcomes because it strengthens social rights and increases equity in decision-making (Langemeyer & Connolly, 2020). This is especially the case for participation processes that integrate stakeholder knowledge because they allow people to assign values to different ecosystem services and to decide how they should be evaluated. Not only can this lead to a more equitable distribution of outcomes, but because the values of the stakeholders are included also results in more recognition justice (Sikor, 2013).

Procedural injustice can occur once a planning process is not inclusive and fair. This is the case if the people, who are impacted by the decision, are not part of the decision-making process or if these people have not gained access to relevant information (Langemeyer & Connolly, 2020). Whereas urban planning (theory) strives towards inclusion and participation in planning for a sustainable city, research shows that in practice it does not always play out this way. Residents often experience marginalization during urban greening interventions. For instance, when urban greening agendas are getting pushed through because of environmental reasons without adequate participation and the consideration of residents their opinions (Anguelovski et al., 2020). Yet, most cases of procedural injustice in urban greening are related to the exclusion of marginalized groups and their opinions in decision-making. To illustrate, recent immigrant groups can be excluded from decision-making power due to language limitations, which makes them unable to participate in participatory processes. A more common example is more context related. In participatory processes, the context is extremely important. This includes the terms under which the participation takes place, the level of influence of the stakeholders, the formal and informal rules and the power structures in the decision-making process (Langemeyer & Connolly, 2020). Participatory processes surrounding ecosystem services tend to be dominated and led by the already most privileged. The more wealthy, more highly educated groups in a society are frequently better positioned to take part in a participation process and thus to take advantage of the opportunity. More marginalized groups, on the other hand, struggle with these power relations and letting their voice be heard (Matulis, 2014). To address procedural justice during ecosystem services provision therefore requires to not just look at who to involve, but to also look at the social and cultural context, the governance structures and the power relations between all the stakeholders (Verheij & Corrêa Nunes, 2021).

However, a greening agenda can also bring up procedural justice issues. Urban planning has been influenced by the so-called communicative turn in planning theory. The communicative turn involves the switch of planning activities to a more communicative and collaborative approach. Including stakeholder in the planning process would build consensus, lead to more inclusion, while top-down decisions are avoided (Healey, 2020). However, if the desirability of the green city serves as an overriding agenda and leaves no room for discussion, this has huge implications for stakeholder involvement and equitable green city planning. Anguelovski et al. (2018a) state that this is the case. Many greening projects indeed fail to consider the interests of minorities and lower-income classes. Greening goals are used to de-emphasize asymmetric power relationships and disputes over competing resources, which lead to unjust outcomes. Swyngedouw (2007) calls this post-political tendencies, where promising discourses around urban greening projects undermine the possibilities for real politics. In other words, where ecosystem services are framed as an approach that can only be beneficial for the city when deciding about greening interventions, the approach avoids or misses justice issues as gentrification and invisibilization.

In short, the last three paragraphs have shown that the environmental justice framework provides a comprehensive overview on what can be seen as just urban greening and the inequities that can appear during ecosystem service provision. It therefore also shows that ecosystem services cannot simply be provided without taking distributional, recognition and procedural justice into account in the decision-making process. Assessing how different dimensions of justice play out in urban greening intervention is important and helps to analyse and categorize injustices into distinct types and instances (Anguelovski et al., 2020). In order to reach 'ecosystem service justice', therefore, planners have to consider the distributive outcomes, acknowledge different social and cultural values and make sure the planning process is inclusive and fair. By doing so, the process becomes even more just because the three notions of justice are connected to each other. Participation in decision-making can result in a more equitable distribution of outcomes; recognition of different social and cultural values can lead to the inclusion of particular people in decision-making; and, lastly, distribution can empower previously marginalized people to participate in decision-making (Sikor, 2013).

2.4 Missing links between theory and practice

Through academic research, it has thus become clear that there is a relationship between the promotion of urban greening, the actual provision of ecosystem services and the creation of new injustices. There exists an extensive amount of literature on revealing the diverse ways in which people are affected by ecosystem services (and disservices). Yet, despite the comprehensiveness of the framework, the environmental justice framework has also received some considerable criticism. Environmental justice frameworks have been argued to offer minimal guidance as to what justice issues may exist and how to observe and analyse them. The main reason for this is that environmental justice is not a standardized concept that can just be delivered or applied at any time. Environmental justice, and justice in general, differs across different places, people and times. What is just/unjust is an ideal that people continuously redefine. The framework therefore misses to fully reflect the ways in which residents experience justice and needs (Velicu and Kaika, 2017). According to Dawson et al. (2018), this is both a strength and a weakness. On one hand, the absence of a universal definition allows research, that discusses the three notions of justice, at various spatial and temporal scales of analysis and through the lens of different worldviews. On the other hand, the emergence of justice as a policy goal, calls for operational principles and approaches of justice that make it possible to use to concept in practice.

2.4.1 Theories and strategies for achieving environmental justice

Because of the limited policy guidance on how environmental justice issues can be integrated into planning processes, scholars have started to discuss the best ways to do so. At first, this was mostly related to inclusion and participation, such as through engaging with historically marginalized communities in policy design. However, more recently, scholars have focused on developing theories on what an urban greening project must look like in order to be equitable, but also developed strategies for addressing environmental justice issues in planning practice (Chu & Cannon, 2021).

Theories on what an urban greening project should look like vary greatly. For example, according to Trudeau (2018), social equity should be a fundamental part of the greening project or 'be part of the project's DNA'. In practice, this means that from the beginning, all involved parties have to discuss what an equitable/inequitable outcome would look like. Subsequently, based on these discussions, goals are set. In addition, Trudeau argues, an institution is needed to govern the project that, so to speak, protects that social equity is guaranteed and fostered. This institution has to consider how and when public participation actually helps integrating social equity. Dawson et al. (2018), on the other hand, discuss that for a project to be just, it is necessary that

power relations among different stakeholders are addressed. Although public participation can definitely help align interests and visions among residents and other stakeholders, it does not necessarily lead to social equity due to uneven power-relations and actors influencing each other. For instance, developers can influence community members during participation sessions in that ecosystem services are only beneficial to the city and leave out how greening can create inequities. Schreckenberget al. (2016) go even further and propose a generalized set of principles for equitable ecosystem governance in the context of protected areas. These principles are divided across the three dimensions of environmental justice. For recognition justice, this means, amongst others, that not only identities and values should be recognized but also the differences between genders, class and beliefs have to be considered. Procedural principles relate to full and effective participation, transparency in the process and clear responsibilities of all actors involved. Lastly, distributional principles have to identify costs, benefits, and trade-offs of a project. In addition, the impact of the project on future generations has to be included.

When it comes to strategies, there are researchers who have started looking at approaches that provide 'win-win' solutions, which try to provide ecosystem services throughout the city without it leading towards injustices. One of the most famous examples of this in practice is the 'just green enough' strategy. The strategy revolves around the willingness of planners and stakeholders to design greening interventions that are explicitly shaped by community concerns, needs and desires rather than basing them off market needs and standard urban design formulae. It aims for small-scale scattered green sites rather than big greening interventions that may be a cause of gentrification. To achieve this municipalities must closely collaborate with community groups and other local stakeholders to get an overview of the demands and needs (Wolch et al., 2014). Although this approach is promising, it again does not come with operational principles about what 'just green enough' entails. This way, it is hard for urban planners and decision-makers to carry out this policy. Yet, there are also studies that have identified strategies that are more operational. Rigolon et al. (2020) identified four sets of strategies that can address environmental justice issues that rise during urban greening:

1. *Affordable housing initiatives*: Around new green spaces and parks, affordable housing initiatives (e.g., social housing) can help preventing the displacement of marginalized residents. By keeping rents and rent increases low, the neighbourhood stays affordable for these groups.
2. *Diversity in hiring practices*: Rigolon et al. (2020) argue that it is essential that park development organizations reflect the ethnoracial diversity of the communities impacted by the new green. This would help understanding the needs of low-income communities and adapt the greening project towards these needs.
3. *Meaningful community engagement*: It is critical that longtime residents have a voice and are given an opportunity to participate. Consistent engagement can help to foster more inclusive planning and decision-making and decreases the chances of uneven power relations.
4. *New green spaces and programming that welcome marginalized groups*: Urban greening should reflect the needs and preferences of marginalized groups or, in other words, recognition justice.

Lastly, scholars call for a switch from a 'using standards' approach to a more 'needs based' assessment (Byrne, 2010). Municipalities tend to use using standards to make decision about the placement of UGS (Mandelbaum, 2021). Using standards refer to dividing ecosystem services across the city based on an equal amount of green per square meter, but also making decisions based on the accessibility or quality of green space. Using standards can be an effective method to

create sufficient green space in cities. However, they are mostly seen as controversial due to the fact that they mask local scale scarcity and do not provide real information about the actual accessibility or quality of the green space, thereby, not considering the justice outcomes (Haaland & Van den Bosch, 2015). The needs assessment approach is driven by the idea that greenspace provision should be calculated according to the needs of the population for whom it is planned and is therefore argued to result into more just outcomes (Byrne, 2010).

2.4.2 Knowledge gaps in addressing environmental justice issues

There are two things that become apparent when looking at theories and strategies to reach environmental justice. First, the variety of approaches and theories to achieve 'justice' indicate that there are no coherent, widely held criteria in literature for ensuring justice in planning practices. There is therefore a need to identify ways in which these criteria can be developed and applied during the provision of ecosystem services. Right now, there continues to be limited guidance on how justice can be achieved 'on the ground' (Chu & Cannon, 2021; Rigolon et al., 2020). Therefore, in order to develop these just criteria, information is required that addresses to what extent municipalities include these justice issues and how their actions compare to the theories on how justice should be implemented. For example, which practices are working for municipalities in creating equitable green space and which practices should be avoided. This also brings us towards the second point: while the environmental justice framework has been used in scientific research to write about how ecosystem services can create new injustices and to develop theories on how to make planning processes for ecosystem services more equitable, the framework has not been used to find out if and how urban managers take up issues of justice in their daily and strategic ecosystem services provision and management (Rutt & Gulsrud, 2016). There is little empirical evidence about the role of municipal decision-makers and agencies in addressing or preventing inequities in greening (Anguelovski et al., 2018b; Brenner et al., 2021). So, in order to find ways local governments can better enable distributional, recognition and procedural justice in planning processes, it is first necessary to dive deep into the urban planning and decision-making processes of municipalities.

However, also not a lot is known about how municipalities make decisions about the placement or removal of ecosystem services, presenting another knowledge gap. Only few studies conduct qualitative research to understand how ecosystem services are actually supplied (Choumert, 2010; Wang & Chan, 2018; Ordóñez et al., 2019). The rationales of how and why municipalities place ecosystem services are essential for uncovering why a greening project resulted in injustices. A good example is the urban greening orthodoxy, where the creation of a green sustainable city plays a bigger role in the decision-making process than the values, perceptions and worries of residents. In addition, the decisions municipalities make are important because, despite the fact that many stakeholders are involved, the provision of ecosystem services is strongly influenced by the decisions, opinions and the policy tools of municipalities. Policy tools are the planning instruments that determine, how much, and what type of green space is provided in the city (e.g., legislation, policies and strategies) (Boulton et al., 2021). For just greening interventions and counteracting gentrification, policy tools can play a major role. Municipalities can use anti-gentrification tools such as rent control, housing cooperatives, inclusionary zoning or social housing to create just outcomes (Anguelovski et al., 2018b). Yet, more research is needed on which tools are used by municipalities and why these tools were used in order to find out which policy tools best address displacement and eviction in different situations (Garcia-Lamarca et al., 2021; Rigolon et al., 2020). Lastly, a knowledge gap also exists around how urban planners and decision-makers identify and consider the values of marginalized groups in UGS planning processes and what this means for their participation (Rutt & Gulsrud, 2016).

In short, what seems to be missing in scientific literature is the connection between theory and practice. Researchers have shown how the placement of ecosystem services can lead towards injustices and thought about ways to improve this. However, only a few studies actually dive deeper into the world of municipal decision-makers and how they include environmental justice into their planning processes. This research addresses these knowledge gaps pointed out in the paragraph by researching (1) how decisions surrounding ecosystem services are being made, (2) how municipalities address and try to prevent these potential injustices during the provision of ecosystem services and (3) how the values of marginalized groups are included in UGS planning processes.

2.5 Conclusion and conceptual framework

This chapter has provided an overview of existing literature on the relationship between injustice and urban greening, and the knowledge gaps that still exist in this field. From scientific research, it appears the placement of urban green space is increasingly promoted in academic and political environments. Concepts as ecosystem services are used to show the 'true' value of green space and try to make sure it is provided sufficiently throughout the city. Consequently, the pressure on municipalities to place enough green space in order to become more sustainable and resilient is rising. However, due to the economic focus of ecosystem services, social and spatial outcomes are not being considered in the decision-making-process. In other words, justice is not integrated into ecosystem services concept. Choosing a particular course of action because it 'makes the most economic sense' can therefore result into unjust and inequitable outcomes or 'environmental injustice'. Specifically, for ecosystem services three types of environmental injustices can occur: distributional, recognition and procedural injustice.

Municipalities have to take these three notions of justice into consideration in the planning process, in order to reach a just outcome. This is shown in the conceptual framework (figure 3). A conceptual framework provides a comprehensive overview of the relevant concepts from the literature and shows how they are connected to each other. It can serve as a guideline and point of reference throughout the research (Scheepers et al., 2016). The conceptual framework shows that by balancing the three notions of justice the centre of the triangle, 'ecosystem service justice', is reached. The arrows leading towards to centre show how the types of justices are achieved. Distributional justice is accomplished by a fair distribution of ecosystem services, where the negative distributive outcomes (e.g., gentrification) are counteracted (a), recognition justice through acknowledging people's different values, identities and their ecosystem service needs (b), and, lastly, procedural justice by making sure the planning process is inclusive, fair and offers stakeholders ways to participate in the decision-making (c). The arrows between the dimensions of justice display the connection between them. For example, recognition justice is fundamental to participation in decision-making processes, both of which fundamentally influence distribution justice of ecosystem services.

The environmental justice framework provides an important research approach for uncovering the injustices that can appear during ecosystem service trade-offs. Studies of environmental justice in the context of ecosystem service trade-offs have revealed these injustices and tried to come up with theories to integrate justice into decision-making. However, there are also areas surrounding environmental justice and ecosystem services that have been relatively neglected in scientific literature. There exists little research on how municipalities deal with justice implications that can occur after the placement of ecosystem services. Knowledge gaps exist around how decisions on ecosystem services are being made, to what extent justice is included in the decision-making process and what municipalities do to prevent injustices. The question to what extent justice is included in the planning process is therefore very relevant, but hard to

answer beforehand purely based on literature. Thus, research has a key role in finding out the missing link between theory and practice.

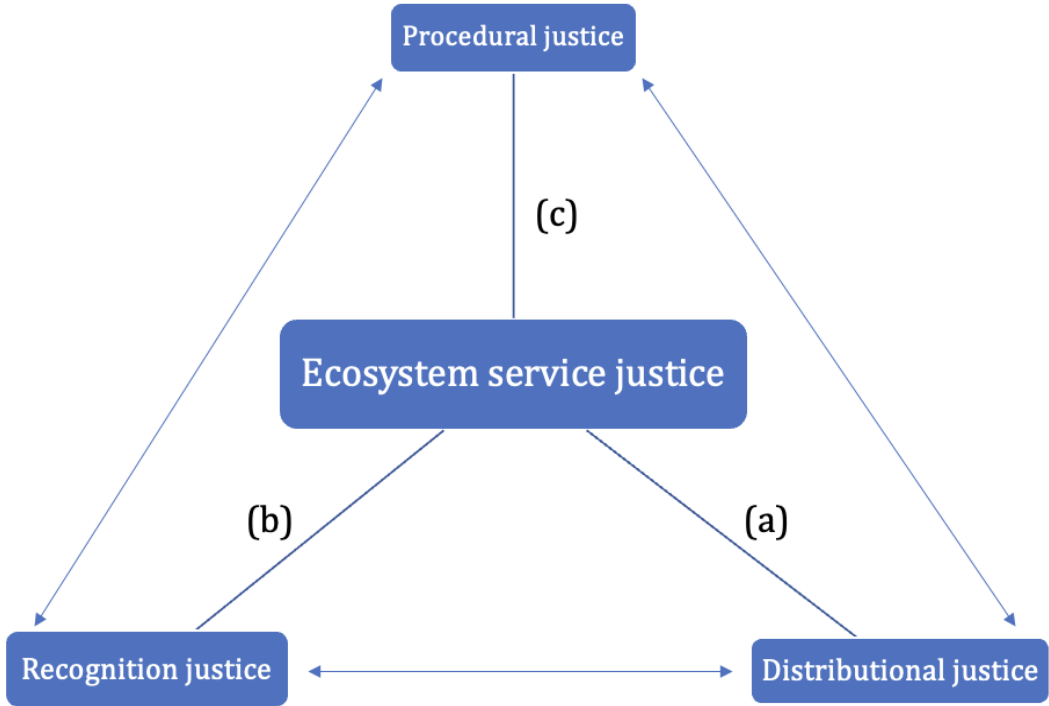


Figure 3. Conceptual framework on ecosystem service justice. Adapted from Schlosberg (2004).

This research therefore tries to address these knowledge gaps by applying the environmental justice framework and interviewing municipal decision-makers. The framework suits this research for a couple of reasons. First, the framework is well suited to explore plural perspectives of diverse stakeholders, consider the political dynamics, which may promote or impede justice, and look across different policy arenas to uncover the best ways to provide ‘just’ ecosystem services (Dawson et al., 2018). Second, the environmental justice rests on developing tools and strategies to eliminate unfair, unjust, and inequitable conditions and decisions. The framework also attempts to uncover the underlying assumptions that may contribute to and produce differential exposure and unequal protection. Moreover, it brings to the surface the ethical and political questions of ‘who gets what, when, why, and how much’. This makes it possible to uncover what injustices play a role during urban greening and, consequently, find out if these are being included by municipalities during ecosystem service provision. Finally, the ecosystem service framework can enrich the assessment of urban environmental inequities, in providing both conceptual and practical tools to better understand the benefits, disservices and trade-offs that are at stake within urban greening interventions (Calderón-Argelich et al., 2021). In conclusion, to what extent justice is included into decision-making on ecosystem services can be judged with the support of the environmental justice framework.

3. Methods

This chapter discusses the methods used to carry out this research. In this research qualitative methods were used in the form of a case study with interviews and document analysis. The chapter elaborates on which choices were made, and why. In paragraph 2.1, the choice for qualitative research and case studies will be explained. This is followed by paragraph 2.2, which talks about how the cases and the sub-units were selected. Then, in paragraph 2.3 the data collection is discussed. This includes a description of how the data was collected and what methods were used. Finally, in paragraph 2.4, the quality of this study is justified.

3.1 Research design

The previous chapter has discussed how ecosystem services highlight the multiple benefits of urban green space. As a result, ecosystem services are increasingly informing actual decisions over green space policies and planning. Here, the question arises if this not at the expense of an environmentally just city. This research therefore investigates to what extent urban planners and decision-makers include environmental justice issues in their planning practices through the framework (figure 3) of Schlosberg (2004). His framework provides a starting point for reaching ecosystem service justice, namely by considering recognition, procedural and distributional justice in the planning process. In order to judge to what extent justice is integrated, therefore, the integration of the three notions of justice has to be analysed. However, this can be hard to assess and difficult to observe. A research design is needed that provides more information about the planning process that takes place around green space. It is, for example, necessary to know how decisions are being made, who is in charge and in what way residents are involved in the process. In other words, context is key in finding an answer to the main research question. Qualitative research suits this research design since it provides concrete, context-dependent knowledge (Flyvbjerg, 2006). It is used for describing people or situations in such a way that the reader can understand the reasoning behind their actions. As a result, it is possible for people that were not involved to visualize the situation since participants can explain it in great detail (Scheepers et al., 2016).

There are a few ways in which qualitative research can be conducted. This research has analysed Amsterdam's greening strategies through an analysis of the overall greening policies of the city, to then zoom in on two specific cases. The research is therefore a case study. During a case study an intensive analysis of a community or organisation is made (Bryman, 2016). According to Mason (2018), a case study allows an investigation to retain the holistic and meaningful characteristics of real-life events- such as individual life cycles, organizational and managerial processes, neighbourhood change, international relations, and the maturation of industries. Thus, by interviewing urban planners and decision-makers involved in the chosen cases, a detailed and complete picture of the planning process is provided. With these insights, it is possible to judge to what extent environmental justice concerns are acknowledged by the people responsible for green space development. More specifically, this research has adopted an embedded single-case study design. An embedded single-case study involves the analysis of a single case at more than one level, or, as Yin (2018) states: 'a distinction is made between different sub-units'. In this study, the city of Amsterdam is the main case, while the two chosen greening projects in the municipality, the Noorderpark and the Nelson Mandelapark, are the sub-units. To make this clearer, the situation has been visualized in figure 4.

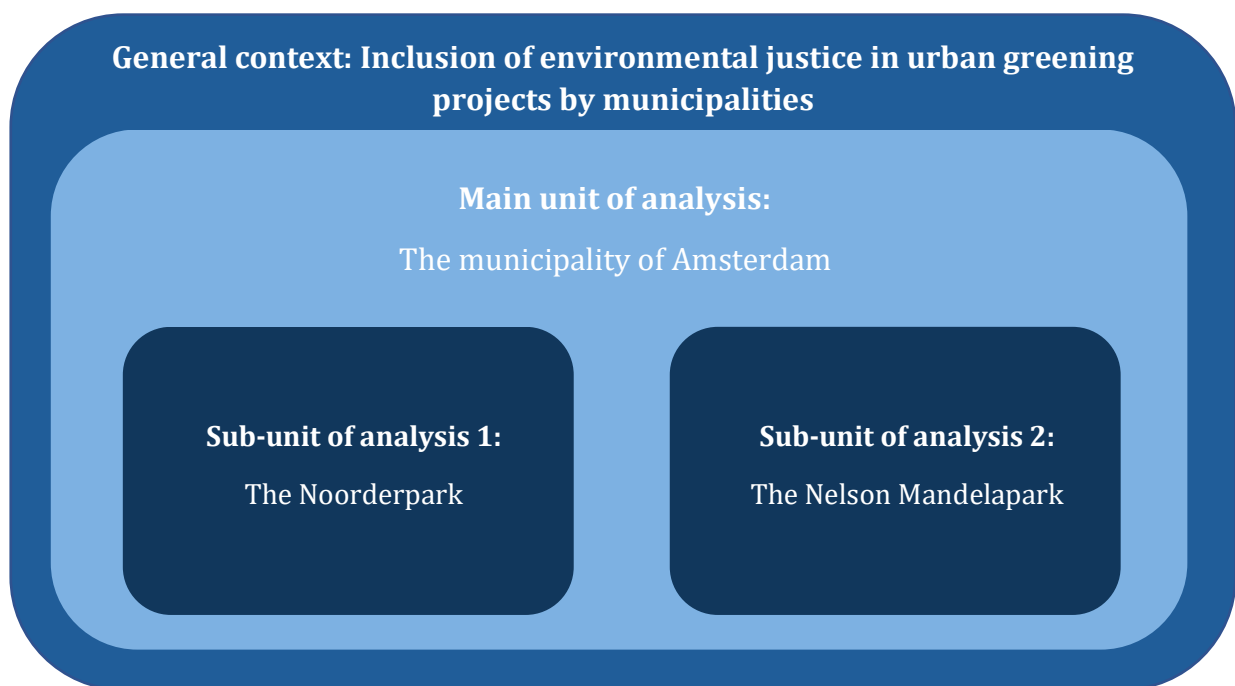


Figure 4. Visualization of the embedded single-case study design.

There are a couple of reasons an embedded single-case study design suits this research. For the first reason, it is necessary to understand a bit more about the Dutch planning system. In the Netherlands, cities set out their city-wide greening strategies, challenges, and goals in policy documents. For example, every city, but also every province and the government itself, have to make an environmental vision or in Dutch a *‘Omgevingsvisie’*. The environmental vision describes and sets out the ambitions and policy goals for the physical living environment for the coming 20-30 years. Based on these policy documents and guidelines, urban greening projects are carried out throughout the city. However, while these policy documents and guidelines are formed at a municipal level, in Amsterdam they are usually carried out at a city district or project level. At this level, specific decisions about the placement of UGS are made, participation processes are organized and is being thought about how to make the greening intervention suitable for the neighborhood. In order to get a full picture of how justice is included in the planning process for UGS therefore, it is necessary to zoom in from the municipal level to a project level and, thus, to distinguish sub-units.

Secondly, in scientific literature, there have been debates on the generalizability of case studies. Case studies have been critiqued for only providing context-dependent knowledge, that cannot always be generalized to other cases (Yin, 2018). In response to that, Flyvbjerg (2006) argued that within social sciences predictive theories do not exist and therefore context-dependent knowledge is more valuable than the search for predictive theories. Thus, while a case study may not provide theories that always apply in other contexts as well, it is possible to learn lessons from them. This suits this research since one of the aims was to find the best practices and lessons that can be learned for future greening projects to better integrate justice. An embedded case study research helps achieving this aim because the sub-units allow for a look at multiple greening projects in the same municipality with different contexts. This makes it possible to discover patterns in the integration of justice in the municipality of Amsterdam during the provision of new or better UGS and to compare whether findings in one case are also found in the other case.

Moreover, it can be judged how the guidelines from the policy documents compare to how the projects are carried out in different contexts.

Thirdly, an embedded case study design allows for an identification of enough sub-units that make it possible to sufficiently go in-depth. All the time and effort can be put into these two sub-units, which will result into a higher level of detail and less general conclusions as opposed to a study that researches more sub-units (Bryman, 2016). This is especially useful for this master's thesis, since it is bound to time constraints. Thus, by just taking a look at two sub-units, it is possible to provide a relatively rich analysis of the role of justice in urban greening in the city of Amsterdam.

3.2 Case selection

This research has solely focused on the municipality of Amsterdam and is therefore a single-case study. According to Yin (2018), the single-case study design is appropriate under several circumstances. Yin thereby gives five examples: the critical case, the unusual case, the common case, the revelatory case and the longitudinal case. In this research, the city of Amsterdam was considered as a critical case. A critical case can be defined as having strategic importance in relation to the general problem (Flyvbjerg, 2006). The following paragraph elaborates on why the city of Amsterdam is a critical case.

3.2.1 The main unit of analysis: Amsterdam

This research was conducted in the city of Amsterdam. Amsterdam is the capital and most populous city of the Netherlands, with a population of over 900.000. As mentioned in the introduction, the pressure on UGS in the city is rising. Due to a huge housing shortage, the municipality is planning to build tens of thousands of homes within the city limits. This is part of the so-called compact city policy, which Amsterdam has a long history with (Balikçi et al., 2021). The 'compact city' is characterized by high density housing, mixed use, well-functioning public transport (transit-oriented development) and promotion of cycling and walking (Burton, 2000). This would reduce the amount of travel time; decrease car dependency; lower rates of energy use; limit the consumption of building and infrastructure materials; mitigate pollution and, most importantly, limit the loss of green and natural areas (Bibri et al., 2020). In practice, however, it is questionable if these policies actually prevented the loss of green space in the city. According to a study of the University of Amsterdam, Amsterdam lost over five hundred 'football fields' of green space in the period between 2003 and 2016 (Van Zoelen, 2021). Furthermore, since 2015, the amount of green space per inhabitant has been decreasing. Where Amsterdam had 31,5 square meter of green space per resident in 2015, this is now (2022) 29,75 square meters (Van Zoelen, 2022).

Recently, the municipality of Amsterdam has acknowledged the problems regarding the pressure on UGS due to the housing shortage and stated that given the importance of ecosystem services, urban challenges (e.g., the housing shortage) should not be at the expense of green space and its quality (Municipality of Amsterdam, 2020d). This is then also one of the reasons Amsterdam has been investing heavily in creating a greener, more sustainable city and expressed big ambitions in relation to UGS. Over the last few years, the municipality has released multiple policy documents that discuss subjects as the importance of green space for a liveable city, dealing with climate change and increasing social wellbeing. This includes the Environmental Vision, the Climate Adaptation Strategy, but also a specific vision for green space in the city; the Green Vision 2020-2050. The Green Vision is the vision of Amsterdam on the role of green space and nature in the city for now and in the future. The vision emphasizes the importance for green space based on four themes: health, social wellbeing, climate adaptation and nature. The municipality plans to achieve these goals by improving the already existing green spaces in the city and making them

more accessible, while also adding new green space to connect the different green infrastructures (Municipality of Amsterdam, 2020d).

At the same time, the municipality of Amsterdam has expressed its ambition to become an inclusive city. According to the Environmental Vision, this means that *“the city wants to ensure every (new) resident feels at home and that the city provides opportunities to develop themselves. This means that we strive to ensure that everyone has an equal chance of a good life, a pleasant living environment, a job, a home, and success* (Municipality of Amsterdam, 2021b, p. 158). In other words, the municipality wants everyone to have equal access to amenities such as good education, healthcare, and sport, but also to the amenities this research is about: affordable housing and UGSs. The Environmental Vision emphasizes this by stating that Amsterdam wants to prevent people from lower socio-economic income groups from having to move to a different location because they can no longer afford the prices in their old neighbourhood. The municipality is therefore aiming at affordable housing for all groups of residents regardless of what neighbourhood the housing is located in (Municipality of Amsterdam, 2021b). That Amsterdam wants to become an inclusive city is also reflected in the Green Vision. One of the goals of the Green Vision is to create enough varied green space that is available for everyone (Municipality of Amsterdam, 2020d).

Thus, Amsterdam is dealing with many different goals that are intertwined with each other. In an already dense city, the municipality is trying to find place for new green spaces and dwellings, while also aiming for a more inclusive city. The challenge for the municipality is therefore to find a balance between greening the city on the one hand, and on the other hand ensuring that this does not lead to the displacement of the most marginalized groups to a less desirable neighbourhood or even to another city. Considering all the, sometimes even conflicting, goals the city of Amsterdam has set, it becomes interesting to see how they achieve these goals simultaneously. Amsterdam is therefore a case of strategic importance because the city serves as a much-needed example for implementing future environmentally just greening projects in Amsterdam, but also in other municipalities, where so many interests are at stake.



Figure 5. Research area (Municipality of Amsterdam, 2021b)

3.2.2 Criteria for the sub-units

In addition to the main case, it is also important to discuss how the sub-units were chosen. As mentioned before, this research focuses on two greening projects in the city. However, with the current greening ambitions of the municipality, many greening projects are taking place throughout the city. The municipality of Amsterdam has reserved 53,1 million euros for the construction of new green spaces and the improvement of existing ones (Municipality of Amsterdam, 2022a). It is therefore necessary to distinguish several criteria that make it easier to pick sub-units that are relevant for this research and help answering the research questions. The following criteria were identified:

1. The project is a large-scale greening project

As Wolch et al. (2014) argue, large-scale greening interventions (e.g., parks and playgrounds) have a higher chance of causing gentrification. Even though smaller-scale greening projects (e.g., green roofs and community gardens) also provide ecosystem services, they distribute the access to nature for urban residents rather than creating a focal point for property development strategies. Large-scale greening interventions are therefore more relevant for this study since they have more impact on the neighbourhood.

2. The project takes place in a development neighbourhood

The municipality of Amsterdam has identified so-called development neighbourhoods. A development neighbourhood is a neighbourhood that lags behind the rest of the city. This is mostly reflected by that they are mostly populated by marginalized groups such as people with a lower income, immigrants or elderly, who have fewer opportunities than their fellow city dwellers in other districts. In these neighbourhoods, the municipality is working on a quality improvement of housing, the residential environment, and the amenities with the goal to improve the quality of life and the socio-economic position of these residents (Municipality of Amsterdam, 2021a). Since this research is about the displacement of marginalized groups due to urban greening interventions, two greening projects in development neighbourhoods were used.

3. The neighbourhood where the project takes place experiences issues of gentrification

The two chosen projects were selected because the neighbourhoods they are located in were already dealing with gentrification issues. Hence, the municipality knows that gentrification is taking place and should therefore theoretically take environmental justice into consideration during the provision of better or more green space. Especially since the city is aiming to become an inclusive city. It is therefore interesting to see if the municipality is extra careful deciding about how much and what kind of green is provided.

4. Two projects in two different neighbourhoods in different districts

This research looks at how environmental justice is considered in urban greening projects in different contexts in Amsterdam. Although every greening project is different, different projects in the same neighbourhood or district still deal with, for example, similar stakeholders, district policies or neighbourhood issues. To avoid having two too similar cases therefore, two cases were chosen in different parts of the city. This then also allows for a comparison to be made between cases that are both positioned in the municipality of Amsterdam, but have different contexts

Based on these criteria, two sub-units were chosen: The Nelson Mandelapark and the Noorderpark. Figure 6 shows where the parks are located in Amsterdam. The context of these two cases is discussed in the following paragraph.

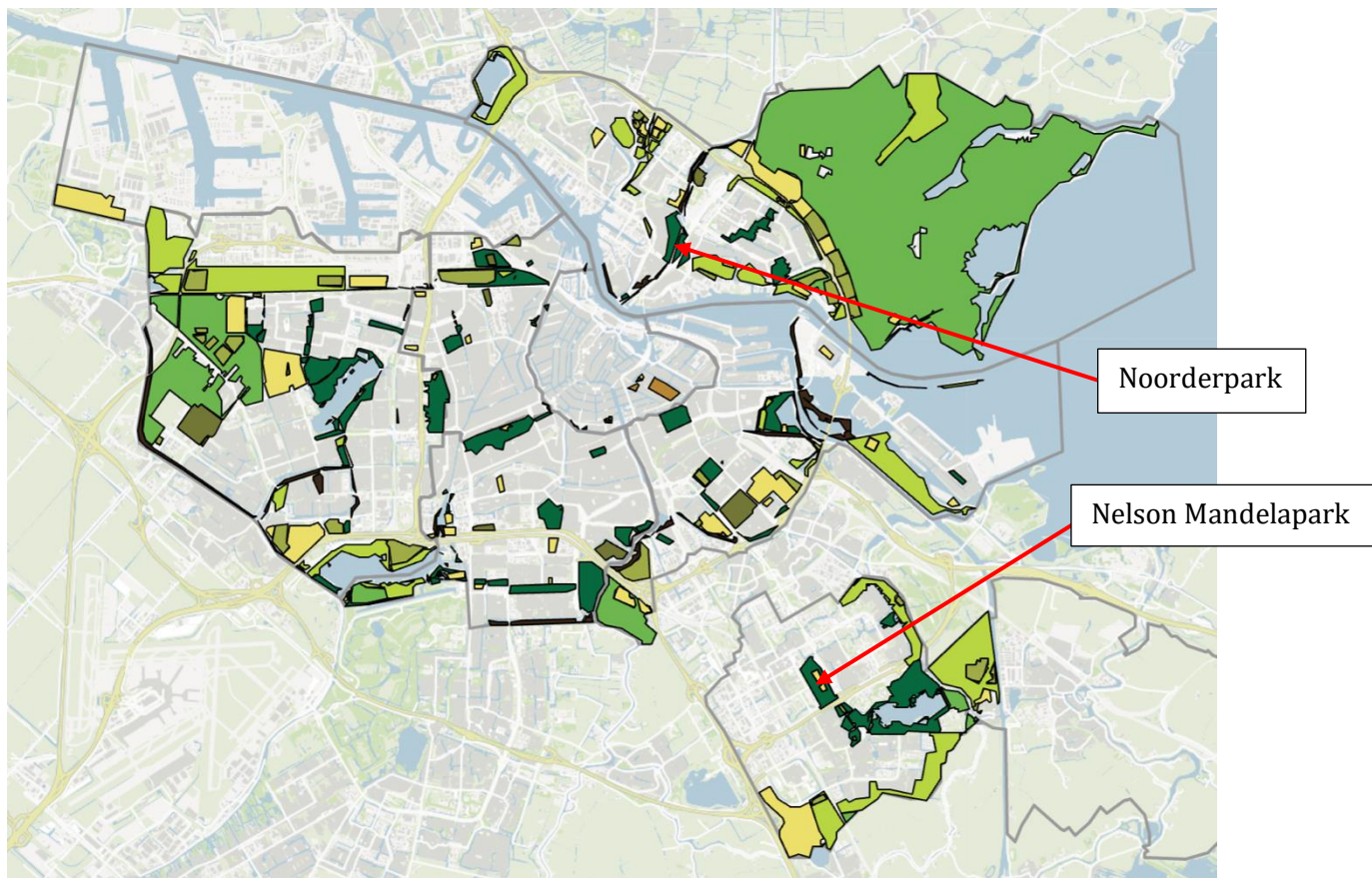


Figure 6. Location of the chosen sub-units in the main green structure of Amsterdam (Municipality of Amsterdam, 2020d)

3.2.3 Nelson Mandelapark

The Nelson Mandelapark is an urban park in the middle of the Bijlmer neighbourhood in Amsterdam-Southeast. The park was constructed in 1969/1970 and was originally called the Bijlmerpark. In 2014, the name was changed to the Nelson Mandelapark, as a tribute to the South African politician Nelson Mandela, who died in 2013. The neighbourhood the park is located in, the Bijlmer, is often seen as a ‘peripheral’ or ‘poor’ neighbourhood and is stigmatized as one of the most racialized urban areas. The neighbourhood was constructed in the 1970s as part of a modernist extension plan for the south-east of Amsterdam. Despite the fact that the area’s social rental housing was designed for the middle class, it was mostly populated by low-income and immigrant families, particularly Surinamese families who immigrated to the Netherlands around the time of Suriname’s independence in 1975. In the 1980s, the neighbourhood was struggling with flawed urban design, management issues, vacancy and poverty, while also attracting vulnerable migrant groups such as refugees and undocumented immigrants. Increasingly, the Bijlmer was considered a ‘quintessential symbol of urban decline’ and a Dutch Black ghetto (Van Gent & Jaffe, 2016).

At the moment, the Bijlmer is still characterized by a large Surinamese community as can be seen in table 1. Table 1 gives an overview of the demographics of the Bijlmer neighbourhood. Furthermore, what stands out is that the average income is way lower than the average in Amsterdam (€20.300 compared to the €32.200 in the city). Similarly, the education level is also lower in this part of the city. Where 48% of the residents in Amsterdam have a high-education background (academic degree), in the Bijlmer this is 27,4%. To improve the situation, the municipality has classified the neighbourhood as a development neighbourhood and is aiming to up the equality of opportunity by ‘upgrading the neighbourhood’.

Table 1. Demographics of the Bijlmer Centre (AlleCijfers.nl, 2022)

Demographics	Data						
District	Amsterdam-Southeast						
Neighbourhood	The Bijlmer Centre						
Number of residents	24.560						
Average income	€20.300						
Migration background	<table border="0"> <tr> <td>No migration background</td> <td>17%</td> </tr> <tr> <td>Western migration background</td> <td>13%</td> </tr> <tr> <td>Non-western migration background</td> <td>70% (of which 39% have a Surinamese background)</td> </tr> </table>	No migration background	17%	Western migration background	13%	Non-western migration background	70% (of which 39% have a Surinamese background)
No migration background	17%						
Western migration background	13%						
Non-western migration background	70% (of which 39% have a Surinamese background)						
Education level	<table border="0"> <tr> <td>Low</td> <td>32,7%</td> </tr> <tr> <td>Average</td> <td>40%</td> </tr> <tr> <td>High</td> <td>27.4%</td> </tr> </table>	Low	32,7%	Average	40%	High	27.4%
Low	32,7%						
Average	40%						
High	27.4%						

Recently, plans for improving the neighborhood or ‘urban renewal’ started to appear, including a twenty-year approach to prevent the neighborhood from declining even more. The plan should, amongst others, lead to more safety, more houses for people with higher incomes and more and better green space. Many city council members and residents have questioned this approach. They are concerned that this gentrification might lead to displacement of original residents. In response, the mayor of Amsterdam, Femke Halsema, argued: *“Sometimes mixing socioeconomic classes is a good thing, but it shouldn't lead to inequality. My view on Amsterdam-Southeast is like the resurrection of the Brooklyn neighborhood in New York, but without the high housing prices”* (Koops, 2020). For green space specifically, the municipality has announced to invest around five million euros to improve the Nelson Mandelapark. This includes improving the connections and routes in and around the park to make it more accessible, placing more green space, strengthen the ground to withstand the extra visitors and constructing a sports park for urban sports and a paddling pool. Moreover, the park will be connected to the Brasapark, a newly constructed park on top of a highway tunnel that connects the Nelson Mandelapark to the Gaasperpark. The three parks together form the biggest connected park in Amsterdam.

In short, the municipality of Amsterdam has recognized that gentrification could be a consequence of the new developments, including the provision of more green space, in the neighborhood. The challenge for the municipality is therefore to find a way to improve the neighborhood by providing

ecosystem services, while also taking justice implications into consideration. The following figures show the old and the planned situation.



Figure 7. The ‘old’ Nelson Mandelapark (Municipality of Amsterdam, 2022a)



Figure 8. The planned park (Municipality of Amsterdam, 2022a)

3.2.4 Noorderpark

The Noorderpark is located in the middle of Amsterdam-North. Amsterdam-North once was the location of shipbuilding and other heavy industries, where workers were housed in specific housing projects near production sites. The area was a distinct part of Amsterdam where functions that were deemed undesirable could be located. The physical detachment from the city center combined with limited accessibility (it could only be accessed by ferry and car) contributed

to strengthen a general feeling of neglect in the area since the late 1990s. However, since the 1990s, this area has evolved into a hotspot for the creative sector and, more recently, has been subject to active urban redevelopment (Savini & Dembski, 2016).

The Noorderpark itself was created in 2014, after merging the Florapark and Volewijkspark, which were located on both sides of the Noordhollandsch Kanaal. The biggest part of the park lies in the neighbourhood Volewijck. As table 2 shows, Volewijck is characterized by its low socio-economic status. Similar to the Bijlmer, the residents tend to be of lower-income groups and are relatively lower-educated than the average in Amsterdam. Moreover, a high percentage of the residents has a migration background, of which the biggest group is from Morocco.

Table 2. Demographics of Volewijck (AlleCijfers.nl, 2022)

Demographics	Data	
District	Amsterdam-North	
Neighbourhood	Volewijck	
Number of residents	9.440	
Average income	€21.200	
Migration background	No migration background	46%
	Western migration background	13%
	Non-western migration background	41% (of which 27% have a Moroccan background)
Education level	Low	34,9%
	Average	34,6%
	High	30,5%

Since 2018, Noord has been connected to the city through the new metro line Noord/Zuid, which makes it possible to travel to the centre of the city in around five minutes. The construction of the metro line was accompanied by the development around the station, including 2600 houses and more space for greenery, business and cultural activities (Municipality of Amsterdam, 2021c). According to the municipality, the challenge here is to let the residents of these existing neighborhoods benefit from the development of their district by also improving public services such as parks, swimming spots and biking lanes. However, this has been questioned by resident groups in Amsterdam-North. These developments have been met by demonstrations against

gentrification that call for more social housing, more participation and priority on housing for people, who have been living in Amsterdam-North for a long time (Verdedig Noord, n.d.).

One of the improvements that has been going on for a while is the redesign of the Noorderpark. The redesign of the park focuses on its role as a green link between the neighbourhoods, and the development along the northern IJ-bank. The existing green space will be improved, and more green space will be added. With the investment, the design of the park west of the Noordhollandsch Kanaal will be elaborated and implemented in consultation with residents around and users of the park (Municipality of Amsterdam, 2018). Here, the question is whether these new improvements of the park do not stimulate gentrification around it and if the green space is not changed on behalf of the old residents, but only suits the values of the new residents.



Figure 9, 10 & 11. Current situation in the Noorderpark (GGD Amsterdam, 2019)

3.3 Data collection

The empirical research has used multiple methods to gather the data. To understand to what extent municipalities include environmental justice into their greening plans, we can either look at the formal mandates of the institutions behind them or elicit ideas directly from the people carrying out the project. Therefore, the following qualitative methods were selected: semi-structured interviews and the analysis of (policy) documents. Why they were chosen and how they were used will be explained in this paragraph.

3.3.1 Document analysis

The first part of the research consists of a document analysis. Document analysis is a systematic procedure for reviewing or evaluating documents. The analysis entails finding, selecting and making sense of data contained in the documents that can help answering the research questions

(Bowen, 2009). Document analysis is used here as a means of triangulation. Triangulation entails using more than one method or source of data in study of social phenomena. By triangulating data, the researcher can corroborate findings across data sets and thus reduce the impact of potential biases that can exist in a study such as a single method bias (Bryman, 2016). This is especially useful for qualitative case studies, since non-technical literature, such as report and policy documents can serve as a source of empirical data. For example, the context in which urban greening managers operate. Documents can therefore help a researcher discover meaning and develop understanding (Bowen, 2009). The document analysis consisted of municipal policy documents, district policy documents, reports from governmental research institutions and content from the website of the municipality of Amsterdam. In this research, policy document analysis was first used to get a good image of the overall and city-wide greening policies, to then zoom in on the two aforementioned cases. As a result, similarities and differences could be distinguished between the two. The following documents were analyzed:

Table 3. Analyzed policy documents

	Document	Publication date	Municipality / Project
1.	Strategie Klimaatadaptatie Amsterdam	2020	Municipality of Amsterdam
2.	Groenvisie Amsterdam 2020-2050	2020	Municipality of Amsterdam
3.	Omgevingsvisie Amsterdam 2050	2021	Municipality of Amsterdam
4.	Coalitieakkoord 2022-2026	2022	Municipality of Amsterdam
5.	Masterplan Zuidoost	2021	Nelson Mandelapark
6.	Visie Nelson Mandelapark	2022	Nelson Mandelapark
7.	Stedenbouwkundig plan Nelson Mandelapark	2022	Nelson Mandelapark
8.	Noorderpark – middengebied, definitief ontwerp	2018	Noorderpark
9.	De herinrichting van het Noorderpark en het veranderde gebruik door haar bezoekers	2019	Noorderpark
10.	Integrale landschapskaart Noord	2020	Noorderpark

3.3.2 Semi-structured interviews

Many formal municipal documents are sometimes limited in the information they can provide on how justice is being included, specifically, the stakeholders, resources, processes, and rules behind decision-making are hard to capture solely by using policy documents (Ordonez et al., 2020). Therefore, to examine the multifaceted and complex influences on how urban green space is delivered and managed and the role of justice in this, it was necessary to understand the perspective and reasoning of the urban greening experts involved in the decision-making. The research method that best fits this goal is qualitative data analysis in the form of interviews. According to Mason (2018), conducting interviews is the best research methods when the researcher wants to go into depth and wants to know more about experiences and opinions of the participants. Interviews can provide such a description of the situation that the reader can understand what moved the people and how decisions were made (Scheepers et al., 2016).

The interviews were conducted in a semi-structured way. During a semi-structured interview, the interviewer follows a list of topics that serve as a guideline throughout the research. However, it is possible to deviate from the topic list based on the answers of the participant. This means that there is not one single order of asking the questions. Consequently, the interview becomes more open and less stale, which makes it possible to go in depth with the respondents. Furthermore, semi-structured interviews provide more possibilities to keep asking question based on the respondents' answers (Philips & Johns, 2012). This was necessary for this research, because every green space project takes place at a different location and, thus, in a different context. Lastly, due to the interviews not being completely structured, the respondent has more freedom in the conversation. This gives the participants the opportunity to show their perspective and perhaps to cover important pieces of information that would not have been covered by the asked questions or did not appear in the literature (Bryman, 2016). The topic list was based on concept from the literature review and the policy document analysis. It was divided into three sections, all addressing one of the notions of justice. So, the first section discusses how green space is distributed and to what extent the municipality deals with issues of gentrification, the second section zooms in on the decision-making and participation process and the last section discusses how the values of the residents are included in the project. This topic list can be found in appendix 1.

Through the interviews, this research sought to understand the extent to which environmental justice concerns are acknowledged by those responsible for green space development in Amsterdam. Since this research focused specifically on the role of urban greening experts, all interviews were conducted with municipal officers involved in the decision-making/planning process around the Nelson Mandelapark and the Noorderpark. Interviews with them can provide specific insights about the decision-making process and policies there. The greening expert were reached out to by email and through the so-called snowball method. This implies that after the interview, the question was asked which other municipal officers were involved in the process and whether it would be possible to send the contact details so there could be reached out to them. Furthermore, this thesis was written during the Covid-19 pandemic. Due to these developments, it was not possible to conduct the interviews in person. This means that the interviews took place on the online platform Microsoft Teams or by using the phone. A total of nine municipal officers have been interviewed and the list of respondents can be found in table 4. This list has been anonymized to ensure the privacy of the respondents.

Table 4. Research participants and their role at the municipality

Respondent	Role at municipality	Date
Respondent 1	Policy advisor UGS	17-05-2022
Respondent 2	Program manager UGS	24-05-2022
Respondent 3	Landscape architect	01-06-2022
Respondent 4	Project manager	03-06-2022
Respondent 5	Urban planner	14-06-2022
Respondent 6	Process manager	16-06-2022
Respondent 7	District coordinator	17-06-2022
Respondent 8	Landscape architect	22-06-2022
Respondent 9	Project manager	24-06-2022

For analysing the data, permission was asked to the respondents to record the interview. After being recorded, the interviews were manually transcribed, which can be found in appendix 2. The transcripts were manually analyzed to discover recurring themes in the interviews and find differences.

3.4 Quality of the research

In scientific research, it is important to take into account the quality of the research. Several points were considered while conducting and writing this study to improve the quality. For qualitative research, reliability and validity are particularly important requirements (Scheepers et al., 2016). This paragraph will therefore go over how this was done by looking at reliability and validity, but also at ethics and limitations.

Reliability

Reliability is concerned with the question of whether a research, when conducted the exact same way, will result in the same outcomes and, thus, if the research is reproducible (Bryman, 2016). This research has taken a couple of steps to increase the reliability. First, this chapter gives insights into which steps have been taken and what choices were made. Even though it is difficult to repeat the research under the exact same circumstances, due to the explanations in this chapter, it becomes possible to understand how the research was conducted and why it was conducted

that particular way, which makes it easier to follow the exact same steps. Secondly, the interviews were transcribed. Not only does this increase the reliability because it gives insights on the answers given by the respondents, but this also makes it possible to see how these were processed into the results.

Validity

Validity refers to the integrity of the conclusions that are generated from a piece of research. According to Bryman (2016), there are four main types of validity that are typically distinguished: measurement validity, internal validity, external validity and ecological validity. For this research, measurement validity and external validity are the most relevant. Measurement validity is concerned with whether the methods used in the research measure what is intended to be measured, and whether the correct conclusions are drawn from the research. External validity looks at whether the result of the study can be generalized beyond the specific research context (Bryman, 2016).

According to Yin (2018), the measurement validity of a research is ensured by using multiple sources of evidence or, in other words, if triangulation takes place. As mentioned before, this research makes use of triangulation by using two methods for data collection: document analysis and semi-structured interviews. Secondly, the measurement validity was ensured by frequently summarizing participant responses during the interviews by the researcher, to ensure that the points raised were well understood and by checking with the participants that the researcher's interpretations were correct (Scheepers et al., 2016). When it comes to external validity, this is more difficult to ensure. A case study is hard to generalize due to being context heavy. However, the purpose of this study is to find out how environmental justice is included in urban greening projects and to find best practices and lessons that can be learned to do so. Thus, the research does not try to generalize for other contexts.

Ethics

It is important to look at the role of ethics in the research. In relation to this research, this is mostly to respect the privacy of the participants. According to Boulton et al. (2021), the relative scarcity of practitioner perspectives in the literature may arise partly because access to key informants about urban greenspace provision is challenging, especially when individuals are reluctant to participate or share perspectives that could compromise their job security or future funding. Discussing insights of certain projects can reveal sensitive information and if this is used in the research, without permission of the respondents, it might influence the project in the future. To prevent this from happening, respondents were given the option of having their results anonymized. The research therefore only mentions the role of participant in the project and leaves out the name. Moreover, at the end of the interview, respondents were asked if they wanted to be sent the final report to check whether they agreed with the results. Lastly, the transcripts of the interviews were solely sent, along with the research, to the supervisors at Utrecht University for review, and are not released publicly due to privacy concerns.

Limitations

During this research, the Covid-19 pandemic has brought some limitations upon the methods of this research. First, due to these developments, it was not possible to conduct the interviews in person. The interviews had to take place online on platforms such as Microsoft Teams, Skype and Zoom or on the phone. However, online interviews also have some disadvantages. For example, interviews that take place over the phone are unlikely to run for a long time. It is much easier for the interviewee to terminate a telephone interview than one conducted in person (Bryman, 2016). Secondly, it was not possible to observe body language to see how interviewees respond in a physical sense to questions. Body language can be important because of the interviewer's ability to show emotions such as discomfort or confusion (Bogner & Menz, 2009). Moreover, the projects

themselves were also influenced by the pandemic. The planning and participation processes also made a temporary switch towards an online environment. This could have led to different outcomes of the participation processes. For example, an online environment can be hard to work with for people that are not so skilled in operating a computer.

4. Results

In this chapter, the results of the empirical research are analysed and discussed. The chapter is structured as follows. The first section discusses the city-wide strategic documents and policies on urban greening and environmental justice. This is then followed by the second section that zooms in on the sub-unit the Nelson Mandelapark and the third section that takes a look at the Noorderpark. Each section is divided into three paragraphs, which each address one of the three notions of justice.

4.1 Urban greening and environmental justice in Amsterdam

Over the last few years, the municipality of Amsterdam has been releasing several policy documents in relation to UGS and ecosystem services. These documents provide directions, recommendations and intentions, which serve as important guidelines to be followed in greening projects. As mentioned before, the main policy documents for UGS are the Environmental Vision, the Climate Adaptation Strategy and, most importantly, the Green Vision. How these city-wide greening policies address environmental justice is discussed in this paragraph.

4.1.1 Distributional justice

Amsterdam is facing many challenges that are changing the city and the way it is used. As mentioned in the last chapter, the city is dealing with a big housing shortage, which the city wants to solve by only building within the urban fabric. As a consequence of these densification policies, the use of amenities such as parks will intensify, while the environmental impact of the city will increase (Municipality of Amsterdam, 2020d). At the same time, climate change poses a threat to the liveability of the city. Due to climate change the probability of extreme weather events is increasing. Currently, Amsterdam is already dealing with heat waves and extreme rainfall, while also being at risk for floods in the future (Municipality of Amsterdam, 2020b). To overcome these challenges and keep the city liveable, the municipality wants to use UGS as an important tool. According to the Green Vision, the investment in urban greening contributes to this goal for four 'main' reasons:

1. Health: Amsterdam considers a green environment essential for good mental and physical health of its residents. Moreover, UGS stimulates exercise, recreational activities and provides people with a place to relax and thereby contributes to a healthy lifestyle.
2. Social wellbeing: A pleasant, green living environment that belongs to and is for everyone is high on the agenda of the municipality. UGS invites people to meet and for them to take initiative. For example, neighbourhood gardens that bring people together.
3. Climate adaptation: The city wants to be prepared for the changing climate. Well provided and maintained greenery in the city contributes to this. UGS helps the city deal with floods, extreme rainfall and heatwaves.
4. Nature: UGSs provide a habitat for fauna and flora that counteracts biodiversity loss. Enhancing biodiversity improves the health of green space, the surface and the water (Municipality of Amsterdam, 2021b)

Thus, the municipality uses ecosystem services to show the benefits UGS can bring and to show that is important that is provided sufficiently throughout the city. When it comes to the distribution of UGS across the city therefore, the city has big ambitions. In the Environmental Vision, one of the main goals of the municipality is to green 'rigorously'. This implies that the Amsterdam wants to aim for more and, above all, better UGS, while reducing the amount of impermeable surfaces throughout the city. The city plans to do so by greening streets, squares and the city, parking spaces and roads become available as public space, and thus also for UGS

(Municipality of Amsterdam, 2021b). Moreover, the municipality has the ambition to connect and improve green spaces that are close to each other, with the goal to create a coherent green network (green infrastructure). Connecting different green spaces would create more opportunities for animals and plants to live, while the recreational benefits for residents would also increase. Figure 5 shows the plans regarding UGS for 2050 and how the city wants to connect them to each other.

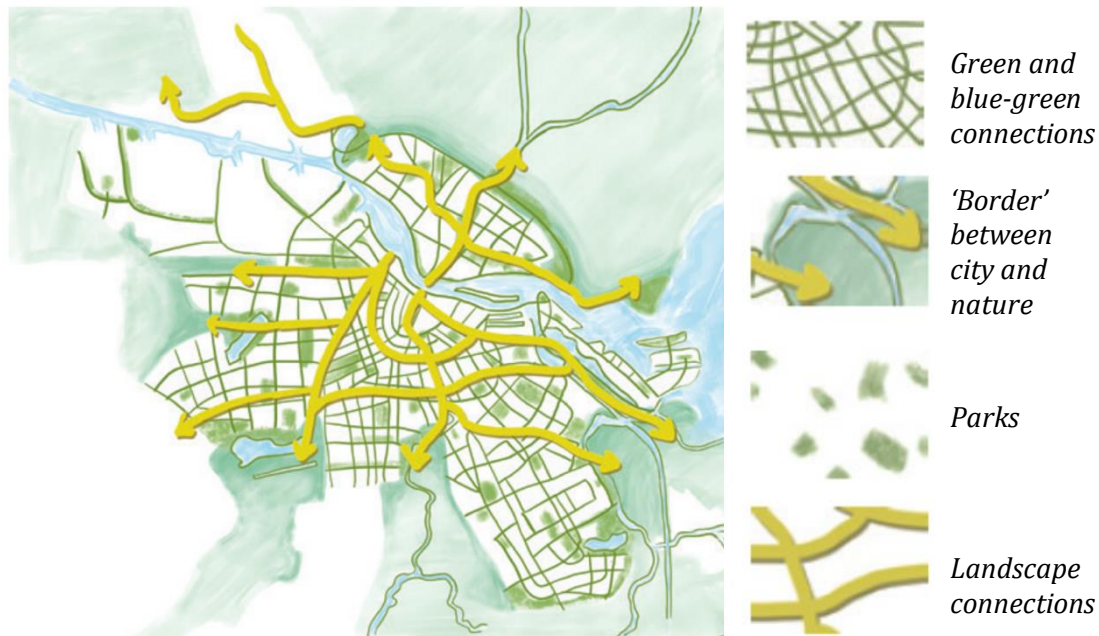


Figure 12. Amsterdam main green structure in 2050 (Municipality of Amsterdam, 2020d)

However, that the municipality has these big greening ambitions does not yet say anything about the (just) distribution of UGSs. Recently, a study carried out by the Rekenkamer Metropool Amsterdam (2021) found patterns of uneven spatial distribution of Amsterdam’s green spaces, suggesting that some parts of the city have less green space than others. Mainly the city centre and the eastern part of the city were struggling in terms of green space. This stands out because in contrast to what Wolch et al. (2014) stated, these are the neighbourhoods with a high socioeconomic status. Neighbourhoods with a lower socioeconomic status such as Amsterdam-North and Amsterdam-Southeast even had the highest amount of green space of the city. Moreover, the study found that there was a difference between the type of green space between districts. Some districts lacked green that contributes to climate adaptation, while others did not have enough space for biodiversity and nature (Rekenkamer Metropool Amsterdam, 2021).

In the main city-wide policy document on green space, the municipality does not address these differences in green space between neighbourhoods. Yet, the Green Vision does discuss how Amsterdam is planning to distribute UGS across the city. When Amsterdam is adding, improving, managing or designing UGS, the city wants to do so while taking a number of principles in consideration. One of the four principles explicitly talks about the distribution of UGS, stating:

Principle 1. We want to make sure everyone has enough and varied green space

Every citizen has to enjoy sufficient green space in and around the city. We guarantee access to a certain amount of green space per inhabitant. How much that is, depends on the type of green. (Municipality of Amsterdam, 2020d, p. 25)

To carry out this principle the municipality is making use of using standards, similar to the ones Haaland and Van den Bosch (2015) discussed. Amsterdam wants every resident to be able to walk to a park-like environment in a time frame of ten minutes, while the distance to a large green area, such as a forest, has to be within a fifteen-minute biking distance. Moreover, residents immediately have to notice greenery on streets, squares and quays when they step outside of their homes. The municipality, thereby, is implementing the so-called '*green, unless*' concept. This concept means that public space, such as streets and squares, become green, unless other functions (e.g., public transport, bicycle lanes) make this impossible. Lastly, UGS have to become more accessible. The municipality wants to make parts of private green space open to the public, but also wants to improve the public transport connections to green space. For newly built residential or commercial areas, the using standards are different. New development areas have to deal with a greening standard. This means that per home 22m² has to be available. If this is not the case, this target has to be realized in and around the development area (Municipality of Amsterdam, 2020d). However, according to one of the respondents these standards are not 'hard' standards:

"The moment you start developing a new area and you are having problems reaching the green space target, it is possible to differentiate from it as long as you can substantiate why it is not possible or how you are going to achieve the target in a different way" (Respondent 1, personal communication, May 24, 2022).

Distributional outcomes

When analysing the city-wide greening documents, it becomes clear that they do not address local particularities and place-specific needs and concerns. Rather, the greening documents discuss general targets for the distribution of ecosystem services across the city, thereby addressing the city as a uniform and homogeneous area. However, there is an exception. According to one of the interviewees, some decisions on the distribution of UGS are made based on climate adaptation. For example, the programme Amsterdam Rainproof is aiming towards making the city resilient against extreme weather events together with residents and businesses. The programme, but also the municipality itself, has made multiple 'stress maps', which show which places are still vulnerable to extreme weather. Based on these bottlenecks, the municipality decides on the type and distribution of UGS (Respondent 2, personal communication, May 25, 2022). Yet, for other greening projects there seem to be no guidelines for specific districts or neighbourhoods.

What also becomes clear is that the potential negative distributional outcomes of greening the city are not addressed. In the policy documents, UGS was only talked about in a positive way, primarily in the sense of ecosystem services. Words as gentrification or displacement were not mentioned. One of the possible reasons for this is that the placement of ecosystem services or the improvement of UGS is not always associated with gentrification. One of the interviewees questioned if gentrification is not just a result of the forces of the free market (Respondent 7, personal communication, June 17, 2022), while another interviewee stated that gentrification is something that happens spontaneously and therefore cannot be controlled (Respondent 3, personal communication, June 1, 2022). Moreover, one of the respondents did not necessarily think that in Amsterdam green-gentrification is taking place:

"I do think green space can have a result on the housing and rent prices. However, I do not think that this plays a role in Amsterdam. The districts with the most green space, such as North and Southeast, contain the cheapest homes. In Amsterdam, there are so many other factors that influence the housing prices so much more than green space. Green space barely has an effect on the prices" (Respondent 2, personal communication, May 25, 2022).

Thus, the municipality has no policies specifically made for the negative distributional outcomes of urban greening. However, there are policies that are not specifically for green space but do increase the affordable housing stock. In 2017, Amsterdam introduced the so-called 40-40-20 rule, where new housing projects have to consist of 40% social housing, 40% middleclass housing and 20% private sector housing (Municipality of Amsterdam, 2021b). Yet, with these rules it is the question if it contributes to counteracting green-gentrification, since not all greening projects are accompanied by the development of housing. In addition, such a rule for the existing housing stock does not exist. It is often even the opposite: over the last decade, a lot of social housing in the city has been transformed into private sector housing (Khaddari, 2021).

In short, decisions on the distribution of UGS, seems to be mostly made based on providing everyone with an equal amount of ecosystem services, thereby ignoring the place-specific needs and the potential negative distributional outcomes. The affordable housing policies that the municipality does have, are not specifically tied to urban greening.

4.1.2 Procedural justice

Decision-making processes surrounding UGS in the city of Amsterdam follow a couple of steps. To judge whether the planning process of the municipality is procedurally just, it is first necessary to give a rough overview of these steps. First, the city district, in which the greening project is located, takes up the project. This can be all kinds of projects such as the revitalization of an existing green space, but also the provision of a new park. The district then appoints the project to certain municipal officers, who take a look at what needs to happen and make a plan for it. Subsequently, this plan is shown to the stakeholders in multiple public participation sessions. The municipality then takes the suggestions from the stakeholders in consideration and adapts the plan to draw up the definite design (Respondent 1, personal communication, May 24, 2022).

As the different steps show, the municipality is allowing multiple rounds of participation during urban greening projects. In the Netherlands, communication and participation are essential elements of the current planning systems. The Netherlands is famously known for its 'polder model'. The polder model is a method of consensus decision-making, in which different stakeholders come together to share ideas and try to come up with a good plan or solution to a problem (Zonneveld & Evers, 2014). Participation and communication are therefore also rooted in the planning processes of Amsterdam. The city is working with the so-called participation-ladder, in which four levels of participation are distinguished: informing, consultation, co-decide and co-create. With each step up on the ladder, the stakeholders' influence on the project increases. For example, the first step, only informs the residents about a new plan, while the last step means that the residents actively work together with the municipality on a project. Which level is chosen, depends on a couple of factors. When many aspects have already been decided, the possibilities for co-decision are limited. If the municipality has more flexibility for a certain project, the possibilities for residents to have a say increase. However, if a decision or plan has major consequences for many residents, an extensive participation process is guaranteed (Municipality of Amsterdam, n.d.).

That Amsterdam sees participation as an essential part of a fair decision-making process, is also reflected in the city-wide policy documents. As mentioned in the last paragraph, the city is taking multiple principles in consideration when providing green space. Just as in the case of distributional justice, one of the principles is connected to procedural justice.

Principle 4. We work together on green space

We work together with residents, entrepreneurs, housing corporations, knowledge institutes and other organizations in the city and area to strengthen the urban green structure and the green element in neighbourhoods and districts (Municipality of Amsterdam, 2020d, p. 29)

With this principle the municipality expresses its goal to make a green and livable city together with different stakeholders. The city wants to encourage these stakeholders to participate in decision-making processes, but also to green their own properties, such as roofs and gardens. In the Environmental Vision this principle is discussed in greater detail. According to the Environmental Vision, the goal is to democratize urban development and ensure an equal information position. This is done through a couple of ways:

1. The municipality wants to be as transparent as possible. New plans that have an influence on the neighbourhood, are made public and can be found online. Interested people and stakeholders have the possibility to subscribe to the so-called alert-function that keeps them informed about the plans and how they can have an influence on them.
2. The municipality wants to work together based on an equal information position. Data and information that is available on the living environment is made public. This is beneficial for the residents, who have more information about what is happening, but also gain more insights on what is possible in the neighbourhood. The municipality here has the responsibility to not have an information advantage and respond as quickly as possible to the residents' question.
3. The tools that the municipality is working with are also available to the public. The municipality is working with different techniques and models to show the possibilities and the consequences of projects to the living environment. These tools are made available during participation sessions and be used by residents to substantiate their own plans and visions (Municipality of Amsterdam, 2021b).

For the participation process specifically, the municipality wants to improve the accessibility of the decision-making process. This means that the city wants to involve as many of the stakeholders as possible and that everyone who is interested is able to join. In order for this to take place, it is first necessary to reach out to the stakeholders. However, as also mentioned in literature, reaching out to all kinds of different groups and stakeholders in a neighbourhood can be challenging. For instance, not everyone can be interested in participating or language limitations can play a role (Langemeyer & Connolly, 2020). The municipality wants to address this by not only making use of the traditional methods to contact stakeholders such as sending emails or letters, but also by actively engaging with them. One of the ways that this is done is through the *werkateliers (working studio's)*. These are participation meetings that take place physically in the neighbourhood of the project, for example in a park itself, and therefore serve as an approachable way of participation. Residents that are passing by, can easily express their preferences and needs.

Finally, the city wants all stakeholders to work together on an equal basis. In participation sessions, equality of information is crucial. Language (e.g., low-literacy), time (participating effectively can be time consuming) or a lack of digital skills can all be a barrier to participate equally. The municipality is therefore aiming towards actively providing information, everyone can work with (Municipality of Amsterdam, 2021b)

4.1.3 Recognition justice

Just as with procedural justice, recognition justice is high on the agenda of the municipality in planning processes. For urban greening specifically, this means that the right design and management of UGS depends on the location and the needs of people, animals and plants in that location. In other words, green space must suit the people using it (Municipality of Amsterdam, 2020d). Over the last decades, the city has been changing, and this asks for a different approach to 'shaping' the city and also its green spaces.

"The city serves as a place to a wide variety of lifestyles cultures and other identities. An increasingly diverse population calls for greater diversity in the way we shape the city." (Municipality of Amsterdam, 2021b, p.241)

The municipality therefore wants to focus on diversity, inclusivity and participation in their decision-making processes (Municipality of Amsterdam, 2022d). This implies that participants from different backgrounds talk with each other in a participation process and that the municipality pays attention to dissenting voices and to the interests of stakeholders who are not present. For example, according to the Environmental Vision, the city has been shaped based on the needs of men, with too little attention for the female perspective. Additionally, the needs of people with disabilities, children and the elderly are not always taken into account. This does not mean that the city wants to be explicitly shaped based on needs and preferences of individuals or smaller or bigger groups. However, it does mean that it is necessary to recognize more values during the development of the city than that is done right now. If people recognize themselves in the city and in their own living environment, there is a greater sense of ownership and responsibility (Municipality of Amsterdam, 2021b).

To achieve more equitable decision-making in which values of minorities are given a bigger voice, the municipality wants to experiment with new forms of involvement of residents in the form of continuous dialogue. One of these forms is the idea of citizens' assembly. Citizens' assembly is an advisory board existing of citizens that give advice on different themes to the city council. They can help to break through political deadlock and find support and solutions for very complex problems. Another new way of involving marginalized groups in planning process is the WomenMakeTheCity initiative. This is an advisory board consisting only of women coming from different backgrounds and from different city districts. They organize different working sessions where they speak about the future of the city and advice the municipality on themes such as the Just City Index. Lastly, the municipality wants to involve more children and young people in the planning process. Because young people under 18 are not allowed to vote, it is difficult for them to make their voices be heard. This is important, however, since they are the future 'users' of the city. To increase the influence of young people, Amsterdam has established a children's council who are actively involved in the city-making process (Municipality of Amsterdam, 2021b).

Development neighbourhoods

For other marginalized groups, the municipality has specific policies. As mentioned in the last chapter, Amsterdam is aiming towards becoming an inclusive city. This means that the city wants to ensure every (new) resident feels at home and that the city provides enough opportunities for residents to develop themselves. These opportunities should be available in every part of the city. However, this also means that Amsterdam wants to counteract the big differences between neighbourhoods in quality of life and social problems (Municipality of Amsterdam, 2021b). One important starting point here are the so-called development neighbourhoods. Development neighbourhoods are the neighbourhoods that are dealing with many different challenges at the same time. These are challenges such as poverty, crime, and unemployment. Furthermore, development neighbourhoods are characterized by the fact that they are mostly populated by

marginalized groups such as people with a lower income, mainly immigrants or the elderly, who have fewer opportunities than their fellow city dwellers in other districts. In these neighbourhoods, the municipality is working on a quality improvement of housing, the residential environment, and the amenities with the goal to improve the quality of life and the socio-economic position of these residents. In addition, the municipality is increasing its housing stock, mainly for average and higher-income groups to decrease segregation. According to the municipality, segregation is not the main cause for a difference between equality in opportunity, but it does strengthen this relationship. Segregation would result in higher chance of crime, worse educational performances and lower social cohesion. Therefore, by mixing members of from different social classes, the city hopes to decrease the equality in opportunity (Municipality of Amsterdam, 2021).

The municipality argues that it is possible to also let the original residents benefit from the urban development. An important principle for that to happen is reciprocity. New developments that take place in development neighbourhoods have to give something back to the neighbourhood (e.g., investing in public space or give priority for social housing to residents who are already living in the neighbourhood). Anyone who wants to develop something, must therefore show that the neighbourhood benefits from the project. Additionally, the new projects should take the values of the residents into consideration by involving them at an early stage, so they can help improve the plan from the perspective of the neighbourhood. Here, the municipality is also considering Community Benefits Agreements. With such an agreement, a project can only take place if there is enough consensus among residents about the project being a positive addition to the neighbourhood (Municipality of Amsterdam, 2021b).

In short, when it comes to recognition justice, the municipality is trying to actively involve minorities and marginalized groups through many different ways to find out their view on the city and its developments. There is, however, also a potential downside of the development neighbourhood approach. The municipality is actively changing the neighbourhood, while actively trying to draw in people from different social classes. As a result, the neighbourhood has a higher chance of gentrifying. While residents have expressed their worries about gentrification (Koops, 2020), these worries are not expressed in the policy documents. In summary, the question remains if the municipality takes gentrification for granted in order to increase the liveability of the city.

4.2 The Nelson Mandelapark

This paragraph discusses to what extent the municipality has taken environmental justice into consideration during the improvement of the Nelson Mandelapark. To do so, the results from the interviews are discussed and contrasted with the relevant policy documents.

4.2.1 Distributional justice

To get to know more about the distributional aspects of the Nelson Mandelapark, it is first necessary to shed light on the history of the park and its relation to the Bijlmer-neighbourhood. The Nelson Mandelapark used to be called the Bijlmerpark, which used to be a lot bigger. In the eighties, the park was marked by safety issues in and around the park (e.g., crime & violence) and this resulted in a redesign of the park to a sportpark. Since then, the park was not intensively used. Residents of the Bijlmer already had a lot of green space around their apartments (as can be seen in figure 13), while residents of the close neighbourhood Gaasperdam, would rather go to the bathing lake the Gaasperplas (Respondent 5, personal communication, June 14, 2022). In 2010, therefore, the park was redesigned, including plans to build residential housing around the park. However, due to the financial crisis of 2008, these were never built. This meant that in the end only the park itself was transformed, which according to resident complaints, made the park feel

a bit empty. Since 2015, the demand for housing started to come back up, which resulted in a new development plans for the 700 homes. The municipality did change the plan, so that only one side of the park would be covered (Respondent 2, personal communication, May 24, 2022). Figure 14 shows the new situation in the Nelson Mandelapark.



Figure 13. Impression of the green space surrounding the apartments in the Bijlmer (NOS, 2016).



Figure 14. The new residential housing on one side of the park (Municipality of Amsterdam, 2022a).

The construction of the 700 homes and the improvement of the Nelson Mandelapark are part of the Masterplan Southeast. The Masterplan Southeast is a twenty-year plan to improve Amsterdam-Southeast on themes such as poverty, unemployment and criminality and is therefore also part of the development neighbourhood approach. The goal of the Masterplan is to create a safe, diverse and strong neighbourhood to live and work in, where people have equal opportunities as people from other districts. The municipality therefore wants to focus on improving the different aspects of the districts such as increasing the socio-economic position of the residents, but also improving the liveability and amenities (Municipality of Amsterdam, 2021a).

At the same time, the district in which the Nelson Mandelapark is located, has been targeted by the municipality to address the housing shortage in the city. In Amsterdam-Southeast, the municipality is planning to build around 10.000 homes in Amstel III, a neighbourhood close to the park. This also has an effect on the park because a more populated neighbourhood, means that more people will make use of it. The park is therefore also being improved and adapted to accommodate the new number of residents visiting. This includes connecting the park better to the surrounding neighbourhoods, placing more sport facilities and providing more possibilities for events (Respondent 6, personal communication, June 16, 2022). In addition, the improvement of the park takes the four main greening goals from the Green Vision into consideration. The improvement of the Nelson Mandelapark should lead towards a coherent green structure and higher-quality green space in Southeast and should preserve and enhance the main green structure of the city. This means that both existing and new green space should add to climate adaptation and biodiversity, but also to social wellbeing and health (Municipality of Amsterdam, 2022a).

In the context of distributional justice, however, the park is not upgraded because the neighbourhood lacked green space. Multiple respondents stressed that the amount of green space is already very high and that it is therefore actually the other way around: the neighbourhood needs more residents for its green space instead of more green space for the residents (Respondent 5, personal communication, June 14, 2022). Moreover, the neighbourhood Amstel III, is one of the neighbourhood with the most green space in the city (Rekenkamer Metropool Amsterdam, 2021). The main goal therefore seems to be to improve the park to make the neighbourhood more attractive and to withstand the increased amount of visitors.

Gentrification

In addition to an equal distribution of UGS, distributional justice also contains the potential negative distributional outcomes of urban greening and how they are dealt with (Anguelovski et al., 2018b). At the moment, gentrification is in full swing in Southeast. As mentioned before, the Bijlmer is one of the development neighbourhoods, where the municipality has the goal to improve the socio-economic position of the residents. The municipality plans to achieve this, among other things, by keeping the wealthier residents in the neighbourhoods, while also attracting new ones (Municipality of Amsterdam, 2021b). Over the last few years, these policies in addition to the huge housing shortage have led to a change:

“When you look at Amsterdam-Southeast as a whole, it has been changing a lot. For years, the district was decaying and was looked down upon, but now that Amsterdam is struggling with a housing shortage, the district is suddenly not so scary anymore. Prices went up immensely in comparison to other neighbourhoods in the city.” (Respondent 7, personal communication, June 17, 2022).

For the Nelson Mandelapark specifically, the negative distributional outcomes and the gentrification in the Bijlmer were not necessarily considered in the process. Neither the policy-documents nor the interviewees mentioned that the potential negative consequences of improving the park were taken into consideration. One interviewee emphasized this by stating that gentrification is never a starting point for greening projects (Respondent 2, personal communication, May 24, 2022). However, this does not mean that the urban planners and decision-makers did not realize gentrification could be a consequence:

“As for the Nelson Mandela Park, it is tricky. Of course, the improvement of the park can have a price-increasing effect. However, the goal is to improve the park for all residents, if the prices go up while doing so, this is more of a side effect. I find creating a nice park for the residents more important, than the fact that it might have an influence on the housing prices of homes around the park.” (Respondent 5, personal communication, June 14, 2022).

Some of the interviewees even stated that gentrification does not always have to be a bad thing because the development neighbourhood finally gets the attention it needs:

“I think that a little gentrification in Amsterdam-Southeast only improves the neighbourhoods. At the moment, there are a few neighbourhoods with very monotonous demographics and gentrification can have a positive influence of that.” (Respondent 3, personal communication, June 1, 2022)

“Gentrification is a good thing, that is my opinion. An area gets the attention it needs. You have to realize that gentrification also offers opportunities and is not only negative. Gentrification offers a better park and a better living environment to the neighbourhood. That houses are for sale at a certain price is a result of the market. That certain income groups are unable to live there is something you can do something about. It is up to the municipality to make sure that the original residents also benefit from that by finding ways to improve their personal situation, so they have the possibility to stay.” (Respondent 7, personal communication, June 17, 2022)

Thus, the respondents do see that the improvement of the park can result into gentrification, but this was not the municipality's overall goal. Yet, it becomes clear that they do not always see gentrification as something they can have an influence on or even describe them as something positive for the neighbourhood.

Affordable housing initiatives

According to Rigolon et al., (2020), to achieve environmentally just outcomes during greening projects, municipalities can use affordable housing initiatives. Even though distributional outcomes were not part of the decision-making process, the municipality does have some affordable housing initiatives in and around the park. As mentioned before, the city has implemented the 40-40-20 rule for new residential areas. This means that both the new housing in the Nelson Mandelapark and in the neighbourhoods surrounding the park consist of 40% social housing and 40% middleclass housing (Respondent 2, personal communication, May 25, 2022). Moreover, 25% of the social housing and middleclass housing in the Nelson Mandelapark is reserved for people already living in Amsterdam-Southeast. However, this rule only applies for the rental apartment and not for the owner-occupied housing (Municipality of Amsterdam, 2022a).

Lastly, residents have been calling for more housing for young people in the district. At the moment, it is difficult for the youth to find a house in Amsterdam-Southeast. Barriers include a lack of supply, lack of network, high service costs and strict eligibility requirements (Municipality of Amsterdam, 2021a). For that reason, the municipality has been looking into giving priority to the youth for housing project in the district. Around 25% of the social housing is intended for the youth in Amsterdam-Southeast (Respondent 3, personal communication, June 1, 2022). In other words, there are a couple of affordable housing initiatives in the district, also around the Nelson Mandelapark. Yet, these are not specifically tied to counteracting gentrification because of the improved Nelson Mandelapark.

4.2.2 Procedural justice

The participation process for the Nelson Mandelapark was very extensive. The municipality organized several participation sessions for different themes in the park to be as transparent as possible. These included participation for residents living around the Nelson Mandelapark, participation for users of the park, participation for the users of the sport facilities and participation for the new residential area. Approaching and involving residents for participation in the redesign of the Nelson Mandelapark was done in a couple of different ways to get people from different background to participate. According to one of the respondents, this was also necessary in Amsterdam-Southeast since more than 30% of the residents are low-literate. Traditional methods of involving people in participation sessions such as email or letters therefore do not always work (Respondent 5, personal communication, June 14, 2022). The following ways of participation were used:

- First of all, the municipality organized a few standard public participation meetings. Residents were invited through a couple of ways such as sending out email and letters, promoting the event on the site of the municipality and approaching residents in the park itself. In the end, the municipality spoke to around 300 people from different groups: young, old, but also residents that have been living in the Bijlmer for a long time and newer residents.
- Secondly, the municipality placed an information point in the park. In this case, the information point was a container (as can be seen in figure 14). The municipal officers working on the park visited the place for a couple of days to work from that container. This way residents that visited the location could walk in and discuss the projects while giving their opinions and thoughts. According to Respondent 2, this was a more approachable way of participation, where not just the same people showed up, such as in a regular participation process (Respondent 2, personal communication, May 24, 2022).
- Thirdly, multiple walking tours through the parks were organized. During the tours, the attendees were told about the plans and the new park design. Here, people could ask question and, at the same time, discuss their ideas with municipal officers.
- The municipality organized two workshops, in which the resident got more opportunities to discuss the plans more concretely. For instance, residents could give their ideas and these ideas were visualized through a computer program.
- Lastly, the municipality went to elementary schools located next to the park. With students from these schools a participation session was held, where the students could assign their preferences about facilities in the park such as playground and sport facilities.



Figure 14. Information point in the park (Bewoners H-buurt, 2019)

Furthermore, the municipality appointed a process manager and a district coordinator to the project. A process manager discusses the plan with different stakeholders to get a better overview of their interests and wishes. In the Nelson Mandelapark this were stakeholders such as the sport clubs, organizers of the yearly festival and the residents themselves. A district coordinator has an overview of the issues and challenges that are playing in the neighbourhood and serves as contact person for the residents and as an intermediary between the municipality and the residents. Thus, both tried to get a good overview of the stakeholders and their needs, provide them with information and tried to see if everyone who is impacted by the decisions, are part of the decision-making process. Consequently, the transparency of the process increased.

Challenges in the participation process

There were also some challenges during the participation processes. Even though the municipality tried to involve as many different groups and stakeholders as possible, this was not always easy to achieve. During the standard participation sessions, the municipality was struggling with the fact that mostly the same people would show up. In general, these were the elderly people because they had the most time and were invested in the neighbourhood because they had been living there for so long (Respondent 3, personal communication, June 1, 2022). On the other hand, the municipality also had problems including specific groups of people in the participation process:

“Everyone has an opinion. However, some residents feel the need to express this opinion more than others. Some think: you are the government; you can take care of the project. Then there are others that call you almost every day. It really differs from person to person. (...) You have to find the balance between people that you always hear and people that almost never let their voice be heard” (Respondent 7, personal communication, June 17, 2022).

In the case of the Nelson Mandelapark, it was especially hard to include younger people:

“I tried to involve many young people in the process myself. For example, we walked through the park and talked to young people there and asked if they wanted to come to the participation session. They all promised to come, but in the end, they did not show up. I got

mixed feelings about it. You cannot force people to participate.” (Respondent 2, personal communication, May 24, 2022).

Additionally, the COVID-19 made changes to the way participation sessions were being held. Because of the pandemic it was not possible to physically meet and therefore the participation sessions switched to an online environment. This had a positive and a negative side. On the one hand, it cost less effort for certain residents to join, since they only had to turn on their computers and could join from home, on the other hand it was difficult for people that were not skilled in operating computers (Respondent 3, personal communication, June 1, 2022).

However, even though not every single group was always reached in every participation process, the respondents felt like they had a good view of all the stakeholders and their wishes and opinions due to the fact that participation was carried out in so many different forms. Every form of participation reached other kinds of people, and therefore was one part of the big ‘puzzle’. Thus, the participation processes for the Nelson Mandelapark were broadly participatory and representative of diverse interests. The municipality put a lot of effort into identifying the stakeholders and finding out how they would like to see the new park.

4.2.3 Recognition justice

Recognition justice refers to the acknowledgement of different social and cultural values. In the Nelson Mandelapark, the acknowledgement of different values was complex because there were many stakeholders with many different interests. In the park, there is the improvement the park itself, the changing sport park, the development of the residential neighbourhood and the annual festival, Kwaku, that takes place. For recognition justice, it is first important to zoom in on the festival, since it has played such a big role in the project.

The Kwaku Summer Festival

The Nelson Mandelapark is the location of the annual Kwaku Summer Festival. The festival was established in the 1970s and originates from a football tournament of the Surinamese community in the Bijlmer. Over the years, it has become an annual event in the Nelson Mandelapark from and for the different population groups of Amsterdam-Southeast. The festival includes music, dance, food and more and is very important to the residents. It takes place in July and August on four weekends and is visited by over 150.000 people. Moreover, it is seen as important cultural heritage and adds to the identity of Amsterdam as a multicultural and tolerant city (Municipality of Amsterdam, 2022a). That the festival is important for the residents was also expressed by respondent 2:

“Everyone used to live in Amsterdam-Southeast, still comes back to the neighbourhood in the summer for the festival. There they see their old friends. My Surinamese colleagues say things as: I finally see my old neighbour from Paramaribo again. It is for them as if they reunite with family. When you talk about gentrification, it is of importance that the festival is maintained.” (Respondent 2, personal communication, May 24, 2022)

However, due the developments in the park, it was the question what would happen to the festival. This was for two reasons: first, the new residential area was partly placed on the location where the festival used to be held. Therefore, a new location for the festival would have to be found or the festival would have to be a lot smaller. Second, the new residential areas would experience too much noise nuisance from the festival, which would have consequences:

“You can make an agreement with the new residents in the way of: you are going to live near a festival, you will have to accept the noise nuisance on those weekends. However, when they experience nuisance, they will still complain anyway. If they go to court, you also have all

kinds of other work to deal with. So, you do want to make sure that at the front-end things have gone according to the policies of the municipality. That you are in a strong position to repeat the festival in the future.” (Respondent 2, personal communication, May 24, 2022).

Because the call for the festival in participation sessions was so great, and the festival was so important to the residents, especially for the large Surinamese community, the municipality stated that the festival is the heart of Amsterdam-Southeast and is part of the district culture. Therefore, the municipality argued, the park should remain the same size and has to take place in the Nelson Mandelapark. To solve this problem, the process manager started talking to all parties to find a solution. In the end, the skate park was relocated so the festival could be moved to a different place in the park, where the new houses would only experience little noise nuisance. Moreover, due to the relocation of the skatepark, it was suddenly used more by the youth. It was therefore considered a win-win (Respondent 6, personal communication, June 16, 2022). Thus, the municipality did everything to keep the festival in the Nelson Mandelapark and therefore really focused on the social and cultural values of existing residents.

Making a park for the neighbourhood

However, that the project was recognitional just, also shows in the other developments. For example, a lot of attention has been paid to making the park suitable for children and teenagers. In the Masterplan Southeast, the municipality discusses how they want the youth from Southeast to have equal opportunities compared to the youth in different neighbourhoods in Amsterdam, while also increasing the liveability and safety for them. The quality of public space has an essential part in that due to the facilities it offers for sports and games (Municipality of Amsterdam, 2021a). The municipality is therefore planning to change the current sports park, in order for it to become more accessible for the youth. At the moment, the sport park consists of a athletics track and a football field that are surrounded by fences and is therefore not accessible to non-members of these clubs. The new plan removes these fences and places an urban sports facility. Thereby, the youth is offered a possibility for sports and leisure (Respondent 2, personal communication, May 24, 2022).

In summary, the municipality is making the park mainly for the people that are living in neighbourhood. However, as respondent 7 mentioned, in relation to gentrification, this does not mean that the park is not for new residents or other users:

“You are there for the existing resident, but also for the newer ones. For the existing residents it important to bring them along in the change of the park and show them that there is still a place for them, even though gentrification is taking place. At the same time, you have to let the newer residents know, that the neighbourhood and the park are a place with existing structures and values. The new residents have to respect these values, be a part of them and potentially even contribute to them.” (Respondent 7, personal communication, June 17, 2022).

4.3 The Noorderpark

This paragraph discusses to what extent the municipality has taken environmental justice into consideration during the improvement of the Noorderpark. To do so, the results from the interviews are discussed and contrasted with the relevant policy documents.

4.3.1 Distributional justice

As mentioned in the last chapter, Amsterdam-North once was the location of shipbuilding and other heavy industries. The industrialization led to the gradual construction of workers' housing in the middle of the district. An important precedent was the 1901 Dutch housing law obliging the provision of decent housing for the working classes. Prompted by the urgent need to house the industrial workers, the municipality built seven garden villages, known in Dutch as Tuindorpen, between 1914 and 1934. These garden villages were rent-controlled social housing in a village-like neighbourhood consisting of low-rise, single-family units with a lot of light, fresh air and green surroundings (Del Pulgar, 2021). Figure 15 shows what the Tuindorpen look like today. During the industrial crisis between the 1970s and the 1980s, the major shipyards started to close, and the seaport moved further to the west of the city. As a result of that, the area was seen as less important and experienced political neglect for a long time (Savini & Dempski, 2016). Since then, the Tuindorpen, but also the other parts of Amsterdam-North were seen as a district that was lagging behind in comparison to the other part of the city. Many of the Tuindorpen neighbourhoods are therefore also categorized as development neighbourhood. Furthermore, until 2017, there was no metro line, pedestrian, or bicycle connection to the city centre apart from the ferry.



Figure 15. Tuindorpen in Amsterdam-North (De Nijl Architecten, n.d.)

The Noorderpark itself is located in the middle of the Tuindorpen was built in 1921 to provide the shipbuilding workers with green space. It used to be one big park, but in the 1960s it was split up due to the construction of the Nieuwe Leeuwarderweg, a road that connects Amsterdam-North to the rest of the city. This also meant that there was no longer a connection between the two sides

of the park. Around the 2000s, the municipality wanted to improve the connections between neighbourhoods and make one big park again. According to respondent 8, this was also done because they wanted to show the people living around the park, who were part of low socio-economic classes, that they are worth it and deserve good green space (Respondent 8, personal communication, June 22, 2022). Since then, the park has been improved in parts. This included the connection of the two parks with multiple bridges over the Nieuwe Leewardeweg, the improvement of the park itself and the construction of its own metro station, which made it the only metropolitan park directly accessibly by metro in the city.

In the context of distributional justice, therefore, the park was first constructed with the idea to provide people from lower socio-economic classes with enough and good quality green space because the park was outdated and old. However, over the years, this has changed. The part of the park that is upgraded in 2022 is mostly upgraded to accommodate the new residents coming in and make the park more climate resilient (Respondent 4, personal communication, June 3, 2022). In Amsterdam-North, around 4.000 new homes are being built. Moreover, the city wants the development neighbourhood to benefit from the urban development around it, by creating green and economic connections between Volewijck and the new neighbourhoods surrounding it (Municipality of Amsterdam, 2020a).

Gentrification

Amsterdam-North is undergoing significant changes. More affluent residents and young families from other parts of the city are increasingly drawn into the area, mostly attracted by the lower prices, green areas, and new cultural scene where the docks used to be. On the other end of the spectrum, the residents from lower-income groups are struggling to pay their rents or to find a (new) home in the district (Del Pulgar, 2021). Local residents fear the negative consequences of gentrification linked to the plans of the municipality for urban renewal in Amsterdam-North. As a result, multiple action groups have been established such as Red Amsterdam-Noord (Save Amsterdam-North) and Verdedig Noord (Defend North), who are fighting for a halt to the sell-off of the social housing stock, less new housing, and more attention to facilities for low-income residents. Moreover, the organizations critique the development neighbourhood approach, in which the municipality is planning on mixing different kind of resident groups (Meershoek, 2021). Respondent 8 also confirmed that residents are expressing their worries:

“There are residents that say: I do not have much money and when I look at those residential towers that are being built, I think, I do not belong there.” (Respondent 8, personal communication, June 22, 2022)

That gentrification is happening was also noticed by the respondents themselves:

“In the neighbourhoods around the park, you could, for example, find washing machines or other pieces of junk in the front gardens. Now, some of these gardens are slowly transforming and being used by young people drinking wine in the sun.” (Respondent 8, personal communication, June 22, 2022)

However, in the interviews, it became clear that the distributional outcomes were not considered in the process. The respondents emphasized redesigning the park to accommodate the increasing amount of people was the main goal and that gentrification did not play a role here. The respondents gave several reasons for this, that were similar to the reasons given in the Nelson Mandelapark. For example, respondent 4 stated that there were other factors involved such as the housing shortage that had way more of an influence of the gentrification in the neighbourhood than UGS. Moreover, respondent 8 argued that gentrification also has a positive side and questioned if gentrification is something you can have an influence on:

"I find it a difficult topic because on the one hand gentrification has its positives, on the other hand I also see that for the old residents, it is very difficult. Then I always ask myself, is it always negative and can you do something about it or is it just the way things go. If a place is popular and the demand is high, while the supply is low, naturally prices rise." (Respondent 9, personal communication, June 24, 2022).

Moreover, respondent 4 questioned if the municipality should sometimes leave green space as it is and not improve it:

"I do not take gentrification into account in the provision of better green space. If better or more green space leads to gentrification, should we then leave the park as it is in order to counteract it? That is, of course, a bit of a weird way of thinking. Then you let your assets get worse because you are afraid gentrification might occur." (Respondent 4, personal communication, June 3, 2022).

In respect to distributional justice, therefore, also no specific measures have been taken in relation to affordable housing. On the contrary, the number of social housing has been sharply declining since 1995. In comparison to the 64% social housing stock in the city in 1995, Noord now only has a social housing stock percentage of 30%. This is even lower than the standard inclusionary zoning requirement of 40-40-20 (Del Pulgar, 2021). In summary, although gentrification in Noord is definitely taking place, no specific measures were taken around the Noordpark to counteract this. UGS was not necessarily associated with gentrification.

4.3.2 Procedural justice

Even though the participation sessions in the Noorderpark were not so extensive as the ones in the Nelson Mandelapark, the municipality has spent quite some time on participation throughout the years. As mentioned before, the municipality has been working on the park since the 2000s. At that time, a design was made for the entirety of the park, however, due to financial reasons this plan has been split up into different parts. Some of these parts have already been carried out and some are still being planned. For each part that has already been carried out or is being developed, public participation sessions have taken place. According to respondent 9, splitting the developments in the park and, thus, also splitting the participation sessions, brought along some difficulties. Because the parts of the park were carried out in the timespan of 15 years, for each project, different municipal officers were in charge. This meant that every time a new project was carried out, the residents had to deal with new project managers, landscape architects and urban planners, with whom trust had to be built again. Secondly, the residents and other stakeholders were less interested as the project carried on into a new phase:

"I think it would have been better if the park to redesign the park in one go. Now, in every different phase of the project, the residents can participate again. You notice that they are a bit tired of it and ask themselves if they want to put a lot of effort into the project again." (Respondent 9, personal communication, June 24, 2022)

Another challenge of the municipality was to engage as many people as possible in the participation processes. In contrast to the Nelson Mandelapark, in the Noorderpark, only standard participation sessions were held. The stakeholders were invited through email, letters, social media, the website of the municipality, newsletters and the local newspaper. However, as respondent 9 mentioned, even though it is the aim to involve as many different groups as possible, this did not always work out that way. In most participation processes, people from the same groups showed up:

"The people that show up most of the time are 80 years or older. These people are quite well-off highly educated people living on the dike close to the park. They see the park as their

backyard, but actually the park is for everyone. For us, it is therefore a struggle to get a good overview of all wishes and values of the entire neighbourhood and not just create a park for the people that live on the dike.” (Respondent 9, personal communication, June 24, 2022)

Additionally, other residents were simply not interested to join or missed the invitation. The respondents stated that it is mainly hard to include the marginalized groups around the park. This led to a situation where members of few different social groups, who were really invested in the outcomes of the project and had time to attend the meetings, were overrepresented, while other marginalized groups became or remained unheard. The issue here is that the municipality cannot fill in the gap or determine if the new developments are appreciated by the people that do not show up. While the higher-income residents prefer rest and are invested in the ecological values, a family from a garden village might prefer a place for recreational activities such as having a picnic. Because both of these uses are entirely different, it is particularly hard for the municipality to meet all the wishes of different groups, especially when some of them are not even voiced.

On the other hand, the people that do always get involved, are really invested in the park, and know everything about it. This knowledge is therefore very valuable to the decision-makers and landscape architects to make the right calls:

“I always get inspired by talked to residents, because they know every little corner of the park. We want to build the park together and it is therefore important to listen to them. This also strengthens the design. I would rather want that than having to argue.” (Respondent 8, June 22, 2022)

In summary, even though there was a quite extensive participation process, the municipality did not always manage to reach out to all social groups living around the Noorderpark. A limitation of the participation process in the Noorderpark was therefore that only traditional methods of inviting local residents were used.

4.3.3 Recognition justice

From the last paragraph, it has become clear that the municipality had difficulties including marginalized groups in the participation process of the Noorderpark. Because of this, it was more difficult for municipal decision-makers to consider the different social and cultural values and try to apply them to the Noorderpark. As respondent 9 mentioned:

“In general, it is just difficult to get an overview of all values and of proponents and opponents of a plan.” (Respondent 9, personal communication, June 24, 2022).

However, this does not mean that the municipality has not tried to do so. According to respondent 8, one of the main goals of improving the Noorderpark was to strengthen the connection between the Noorderpark and the IJ-banks, the former harbour area that is currently also being transformed. Residents that have lived around the Noorderpark for a very long time, feel a really strong connection to the IJ-banks, since many of them are quite old and have worked on the shipyards before it shut down. Now, the area has been changed from an industrial park to a modern residential area. This includes the construction of many high-rise apartment buildings close to the water:

“Suddenly there is this barrier of high-rise buildings for them, where people are starting to live that they do not have a connection with, mostly young urban professionals.” (Respondent 8, June 22, 2022).

The municipality is therefore looking for a way to get this connection back and make it possible to reach the IJ-banks through a continuous public green route from the Noorderpark and make

the residents feel more at home again. Thereby, Respondent 8 also emphasized that the municipality is the representative of the residents. This means that even though the municipality can have a plan, it does not always mean that they can carry it out the way they want to since they need to include the values of the different stakeholders. On the other hand, not all wishes can be met if they pose a problem for the public.

“As a government, you always have to make a trade-off. You can be for something, but your neighbor is against it. (...) A park must have good paths, lighting, enough benches, trash cans. So, if someone says I'm against garbage cans. Then we as a government can't say we won't do any garbage cans. So, you always try to balance what is the public interest and how can you meet people if they still have wishes.” (Respondent 4, personal communication, June 3, 2022).

In the case of the Noorderpark, for example, it is not possible to ‘undo’ the transformations happening on the IJ-banks. Instead, the municipality hopes to reach both old and new residents and their values with the development of the park. Lastly, respondent 9 emphasized this conflict:

“The only thing we do is try to renovate the park in such a way that as many people as possible can use it. But we don't consciously distinguish between different groups in that respect.” (Respondent 9, personal communication, June 24, 2022).

In respect to recognition justice, the willingness of the municipality to make the park suitable for all groups of residents becomes clear. However, mainly due to problems arising when it comes to the inclusion of marginalized groups, there is no ‘full picture’ of all the social and cultural values, which creates a danger of only creating a park for the people that show up to the participation processes.

5. Discussion

In this chapter the main outcomes of the empirical research are discussed further and expanded on by linking them to the studied literature. It does so by going over the four sub-questions posed in the introduction.

5.1 Urban greening and injustices

The first section of this research discussed that urban greening does not always result in equitable outcomes and focused on the sub-question:

1. How does urban greening create environmental injustices?

UGSs are increasingly promoted and used in urban planning and decision-making due to the ecological, social and economic benefits they provide. Consequently, cities around the world have been developing greening strategies to deal with challenges as climate change and urbanisation (Anguelovski et al., 2018b). Yet, the discourses promoting the benefits of UGS such as ecosystem services, raise issues of justice. Ecosystem services are argued to portray green space as a win-win solution while not paying enough attention to the negative spatial and social outcomes (Langemeyer & Connolly, 2020). To analyse the sociospatial inequities that are intertwined with and produced by urban greening, this research has used the environmental justice framework, in which a distinction is made between three types of injustices: distributional, procedural and recognition justice.

Distributional justice concerns the fair distribution of benefits and burdens to different groups of a society. It focuses on the objects to be distributed, the process of distribution, and the distributive consequences for various groups (Chaudhary et al., 2018). Thus, in regard to green spaces and ecosystem services, studies of distributional justice assess whether the placement of green spaces addresses existing inequities and whether the placement does not create new ones. Urban greening can therefore create injustices in two ways. First, distributional justice studies have revealed that within cities, ecosystem services are not always equitably distributed. The amount of ecosystem services in a neighbourhood is often stratified based on aspects as income, race and age (Wolch et al., 2014). Consequently, these neighbourhoods, for example, shoulder a disproportionate burden of environmental harm because they are denied access to the benefits of UGS (Connolly, 2019). Second, distributional injustices can also appear due to the placement of UGS. Many scholars have found the placement of UGS can have green-gentrification as a consequence. Due to the improved or increased green space, the neighbourhood becomes more attractive. Housing prices and rents in the neighbourhood go up, with, as a result, the displacement of mostly marginalized groups that cannot afford the new prices (Checker, 2011).

Second, urban greening can create procedural injustices. For urban planning specifically, procedural justice is concerned with how to include the diversity of all potentially impacted groups in the planning process so they may actively express their demands (Enssle & Kabisch, 2020). Procedural injustice can occur once a planning process is not inclusive and fair. This is the case if the people, who are impacted by the decision, are not part of the decision-making process or if these people have not gained access to relevant information (Langemeyer & Connolly, 2020). In relation to urban greening, therefore, a process can result in injustices if urban greening takes place without communicative engagement across a wide set of stakeholders and is not transparent enough. Participation is theorized to lead to more just outcomes because it strengthens social rights and increases equity in decision-making (Sikor, 2013).

Thirdly, urban greening can result into recognition injustices. Recognition justice refers to the acknowledgement of different social and cultural values, including the specific understanding of what is just and the needs and preferences of different social groups. When values of a group are systematically excluded from a decision-making process, you speak of recognition injustice (Langemeyer & Connolly, 2020). In relation to urban greening and ecosystem services, recognition justice is connected to the lack of attention to the values, identities and preferences different groups assign to green space (Anguelovski et al., 2020). A greening project can therefore create environmental injustices by not including social and cultural values in the project and only creating it to serve a specific group in society.

5.2 Addressing environmental injustices

This paragraph discusses the second sub-question. The second sub-question has focused on the strategies that the municipality of Amsterdam is employing to combat green-gentrification:

2. To what extent does the municipality of Amsterdam address environmental injustices arising through urban greening interventions?

The findings from this research reveal that Amsterdam's overall greening strategies are founded with the idea that urban greening only provides win-win benefits for all urban residents. In the Green Vision and the Environmental Vision, the municipality speaks of greening rigorously in the city and emphasizes the ecosystem services UGS can provide, such as the increase the health and social wellbeing of its residents, the climate adaptation benefits and the improvement of the biodiversity. In these documents, however, the municipality does not address who will potentially *not* benefit from the big urban greening plans. In not one of the analyzed policy documents, the municipality has mentioned words such as gentrification and displacement, and therefore also does not take any specific strategies to prevent it from happening such as affordable housing initiatives. In 2017, the municipality did implement the 40-40-20 rule, where new housing project have to consist of 40% social housing, 40% middleclass housing and 20% private sector housing. However, this measure was taken for the municipality as a whole and not just for green space. In addition, not every urban greening project is accompanied by new housing development.

The outcomes of the policy document analysis are also reflected in the two sub-units. In the Nelson Mandelapark, the municipality is improving the park to accommodate the expected increased amount of visitors in the park and to make it more attractive in general. Thereby, the park is part of the development neighbourhood approach, where the municipality wants to improve neighbourhoods that lag behind on themes as quality of dwellings, liveability and the socioeconomic position of its residents. Yet, while the municipality is actively upgrading the neighbourhood, with gentrification as a potential consequence, through the interviews it became clear that it is not considered, and that the municipality is not taking any specific measures to counteract negative distributional outcomes. A possible reason for that was that the municipal officers did not associate urban greening with gentrification. Gentrification was seen as a process that happens spontaneously or as something that is a result of the free-market. Moreover, some of the respondents even stated that gentrification does not have to be a bad thing because it would counteract the segregation in the neighbourhood. Thus, if gentrification is not associated with better or more green space, it is logical that municipal officers do not take it into consideration. However, when it comes to affordable housing initiatives, the municipality is building many new dwellings in the district including 700 dwellings in the Nelson Mandelapark. For these new dwellings, the 40-40-20 rule applies, meaning that people from the district itself have the opportunity to keep living there. In addition, the municipality has implemented a rule that young people from the district itself have priority towards 25% of the social housing. This means that,

even though these measures are not specifically put into place to counteract the potential negative distributional outcomes, they can to a certain extent prevent resident from being displaced.

In the Noorderpark, the situation was very similar to the Nelson Mandelapark. The park is mainly being upgraded to withstand the increasing amount of visitors coming in due to the new developments in the district. Even though the neighbourhood shows signs of gentrification, the probability that the improved of the park could lead to the displacement of marginalized residents was not considered. According to the interviewees, gentrification was mostly the result of the housing shortage in city, and they questioned whether green space had an influence on that. When it comes to affordable housing initiatives, also no specific measures have been taken in relation to affordable housing. On the contrary, the number of social housing has been sharply declining since 1995.

In sum, the municipality does not address environmental injustices arising through urban greening interventions. The city has big greening ambitions, that only seem to focus on the benefits of urban greening interventions. The placement of greening in Amsterdam thereby seems to be similar to the 'urban greening orthodoxy' as discussed by Anguelovski et al. (2018b), where the academic and political discourses promoting urban greening are generating justifications for greening projects such as parks while neglecting the sociospatial outcomes. The municipality does try to also stay affordable to lower-income groups by implementing some affordable housing initiatives, however, these do not seem to be specifically related to UGS.

5.3 Decision-making and urban greening

The rationales of how and why municipalities place ecosystem services are essential for uncovering why a greening project resulted in injustices. The third sub-question has therefore focused on the decision-making process on UGS:

3. What does the decision-making process on urban greening of the municipality of Amsterdam look like?

Decision-making processes surrounding UGS in the city of Amsterdam follow a couple of steps. First, the city district, in which the greening project is located, takes up the project. This can be all kinds of projects such as the revitalization of an existing green space, but also the provision of a new park. The district then appoints the project to certain municipal officers, who take a look at what needs to happen and make a plan for it. Subsequently, this plan is shown to the stakeholders in multiple public participation sessions. The municipality then takes the suggestions from the stakeholders in consideration and adapts the plan to draw up the definite design.

A big part of the planning process for urban greening in the municipality of Amsterdam is thus the participation process. For urban greening projects a decision-making process can result in injustices if urban greening takes place without communicative engagement across a wide set of stakeholders and is not transparent enough (Chu & Cannon, 2021). Participation is theorized to lead to more just outcomes because it strengthens social rights and increases equity in decision-making (Langemeyer & Connolly, 2020). Decision-making processes in the city of Amsterdam seem to be broadly participatory and give plenty of opportunities to the residents to express their thoughts on the new urban greening project. From the policy documents, it becomes clear that every project has a participation process based on the participation ladder, in which four levels of participation are distinguished: informing, consultation, co-decide and co-create. If a decision or plan has major consequences for many residents, an extensive participation process is guaranteed. Furthermore, the municipality stated that it wants to be as transparent as possible.

This means that new plans that have an influence on the neighbourhood, are made public and can be found online. This way residents have an equal information position in the project, which allows to have more information about what is happening in the project, but also gain more insights on what is possible. Finally, the city wants all stakeholders to work together on an equal basis. In participation sessions, equality of information is crucial. Lack of language proficiency (e.g., low-literacy), time (participating effectively can be time consuming) or digital skills can all be barriers to participate equally.

The Nelson Mandelapark confirms that the municipality is putting a lot of effort into involving as many of the stakeholders as possible in the decision-making process. Through extensive participation sessions of different kinds, such as an information point in the park itself, actively engaging with the youth by visiting schools, and giving workshops, the municipality tried to get a broad overview of the wishes and opinions of different groups in the neighbourhood. As one of the respondents stated, this was also necessary since around 30% of the residents of the neighbourhood is dealing with low-literacy, which makes it hard to involve them through standard ways of inviting such as email and letters. Yet, even though the participation processes were so extensive, the municipality still was dealing with some challenges in the decision-making process. The municipal officers struggled involving certain groups (mainly young people), while on the other hand the same people would show up (mainly elderly). In the Noorderpark, the municipality has also spent quite some time on participation throughout the years, however, this was not as extensively as in the Nelson Mandelapark. Residents were given a voice through standard participation sessions, in which they could ask question and give suggestions about the plan for the park. However, even more than in the Nelson Mandelapark, the municipality struggled with involving marginalized groups. Usually, mainly the affluent communities surrounding the park would show up, which let to them having more influence in the decision-making process. As the respondents stated: *the municipality cannot fill in the gap or determine if the new developments are appreciated by the people that do not show up*. This corresponds with findings of Matulis (2014). The more wealthy, more highly educated groups in a society are frequently better positioned to take part in a participation process and thus to take advantage of the opportunity than marginalized groups.

In short, the decision-making process of the municipality of Amsterdam is inclusive and fair. During greening projects, the people, who are impacted by the urban greening interventions, are part of the decision-making process and have gained access to relevant information. Even though the Nelson Mandelapark has shown that multiple ways of participation can help involving more groups into the process, it remains hard for the municipality to involve all parties impacted by the project since participation is voluntary.

5.4 Acknowledgement of marginalized groups

The last section of this chapter discusses how urban planners and decision-makers identify and consider the values of marginalized groups in UGS planning processes and what this means for their participation and therefore gives an answer to the question:

4. How are marginalized groups acknowledged in planning processes surrounding urban greening in Amsterdam?

As the last sub-question has shown, the municipality had trouble involving marginalized groups in the planning processes. However, this does not mean that the municipality has not tried to acknowledge them. The policy document analysis has pointed out that Amsterdam is actively

focusing on diversity, inclusivity and participation. In the Environmental Vision, the municipality discusses how the city wants to recognize and strive to rectify systemic and entrenched inequalities attributed to discrimination based on race, ethnicity, gender, ability and sexuality. This implies that participants from different backgrounds talk with each other in a participation process and that the municipality pays attention to dissenting voices and to the interests of stakeholders who are not present. To achieve more equitable decision-making in which values of minorities are given a bigger voice, the municipality wants to experiment with new forms of involvement of residents such as an advisory board for the city only consisting of women from different backgrounds or children through a children's council. In addition, for neighbourhoods that lag behind the municipality has implemented the development neighbourhoods. An important principle in these neighbourhoods is reciprocity. New developments that take place in development neighbourhoods have to give something back to the neighbourhood (e.g., investing in public space or give priority for social housing to residents who are already living in the neighbourhood). Anyone who wants to develop something, must therefore show that the neighbourhood benefits from the project. These new projects should take the values of the residents into consideration by involving them at an early stage, so they can help improve the plan from the perspective of the neighbourhood.

That the municipality is clearly acknowledging different social and cultural values is reflected in the Nelson Mandelapark. In the park, a yearly festival is being held that is very important to the residents. However, due to the new developments in the park, if this festival could continue being held in the park was in question. Because the park was so important to the residents, the municipality did everything to make sure the festival did not have to move location and thereby acknowledged the values of the Surinamese community in the neighbourhood, but also the other residents. In the Noorderpark, this was more difficult since there were more troubles involving different marginalized groups, mainly of low-income, in the project. Recently, the IJ banks are being transformed to a modern residential area, and the former shipyards are now characterized by high-rise buildings. While this created room for new residents, people that had been living and working in this neighbourhood for a long time felt increasingly disconnected. In order to give something back to long-established residents, the municipality tried to include their values in the changes to the Noorderpark.

In conclusion, the municipality specifically addresses that it wants to include marginalized groups and their values in the decision-making processes around UGS. In the two projects laid out here, this is clearly shown. It thereby does needs to be mentioned that, when projects are being carried out, the level of acknowledgement also depends on the extent the marginalized groups participate. This shows the interrelatedness of recognition and procedural justice.

6. Conclusion

As greening is increasingly promoted and placed in urban centres, it becomes essential for urban planners to consider what the consequences of these greening interventions are and how to then make them 'just'. This research has therefore focused on contributing to developing knowledge of how social priorities are currently articulated in urban planning for ecosystem services. It has done so by looking into the following research question:

To what extent are environmental justice concerns included in the urban greening strategies of the city of Amsterdam?

This chapter provides an answer to the main research question, while also giving policy recommendations and discussing the limitations of this research.

6.1 Answering the main question

Today, many cities around the world are increasingly 'going green' due to the numerous ecological, social and economic benefits UGS provides (Anguelovski et al., 2018b). Concepts as ecosystem services are used to show the 'true' value of green space and try to make sure it is provided sufficiently throughout the city. Consequently, the pressure on municipalities to place enough green space in order to become more sustainable and resilient is rising (Langemeyer & Connolly, 2020). Because of the promotion of ecosystem services, scholars argue that green space is seen as a win-win solution, while not taking the potential negative sociospatial outcomes into consideration. To analyse the sociospatial inequities that are intertwined with and produced by urban greening, this research has used the environmental justice framework. Environmental justice is concerned with inclusive decision-making (procedural justice), acknowledgement of different social and cultural values in the process (recognition justice) and recognising that benefits and burdens should be equally distributed across the population irrespective of social and economic differences (distributional justice) (Byrne, 2020).

When it comes to distributional justice, the empirical part of this research has shown that the city of Amsterdam is not considering the potential negative distributional outcomes of their urban greening projects. In the analysed policy document, urban greening is indeed being portrayed as something that only provides benefits to the city. Furthermore, the distribution of UGS, seems to be mostly made based on providing everyone with an equal amount of ecosystem services, thereby ignoring the place-specific needs and the potential negative distributional outcomes. The potential chance that urban greening can result in the so-called green-gentrification is therefore also not considered. This also becomes clear from the interviews. Municipal officers did not necessarily associate the provision of UGS with gentrification. A potential reason for that is that gentrification was seen as something that happens spontaneously or even as a result of market forces and therefore cannot be influenced. Thus, if gentrification is not associated with better or more green space, it is logical that municipal officers do not take it into consideration when deciding about UGS. In the context of procedural justice, the municipality is striving to be as inclusive and transparent as possible. Participation is an important part of the Dutch, and also of Amsterdam's planning culture, which also showed in the empirical research. Both researched projects had an extensive participation process, in which the residents definitely had an influence on the outcome. However, where in the Nelson Mandelapark multiple methods were used to involve the different stakeholders, in the Noorderpark this was only done through the standard way of participation; the municipality invited residents to a location to discuss the new plan. The findings show that in the Noorderpark, municipal officers therefore had a harder time involving

specific marginalized groups, while in the Nelson Mandelapark, the municipal officers argued that they had a good picture of all the relevant stakeholders and their wishes and opinions due to the extensive participation sessions. Lastly, the municipality also had a focus on acknowledging different social and cultural values. From the policy documents, it became clear that the municipality wants to focus on diversity, inclusivity and participation in their decision-making processes. This implies that participants from different backgrounds talk with each other in a participation process and that the municipality pays attention to dissenting voices and to the interests of stakeholders who are not present. In both researched sub-units, the municipality changed the outcome of the original plan to make the plans align more to the values of the residents surrounding the park.

To conclude and give a definitive answer to the main question: two out of the three notions of environmental justice (procedural and recognition justice) are definitely considered in the process. The municipality has an inclusive and fair decision-making process, while different social and cultural values are acknowledged during urban greening interventions. However, when it comes to distributional justice, the findings from this research show that the municipality of Amsterdam does not seem to realize the impact a greening project can have on the neighbourhood. In order to be fully environmentally just, therefore, the city needs to first take into account that better or more UGS can lead to gentrification and, second, implement strategies to counteract the negative distributional outcomes. However, this research would like to emphasize that this does not mean putting a stop to greening low-income neighbourhood. Such decisions would only widen the gap between neighbourhoods of different socioeconomic classes and concentrate urban greening only in richer neighbourhoods.

6.2 Recommendations and limitations

This thesis has provided new information and research on the how the municipality of Amsterdam has integrated environmental justice into their greening strategies and projects. This can provide valuable information for integrating environmentally just strategies for urban greening, but also provides new opportunities for further research. The following paragraph therefore provides recommendations on the integration of environmental justice, but first discusses its limitations.

First, it is important to reflect on the writing and research process of this research and acknowledge that it had its limitations. There are three main limitations in this research. The first limitation is related to the perspective of residents themselves. This research has only looked at how municipal officers consider environmental justice during the provision of UGS. However, where municipal officers can experience something as procedural or recognition justice, residents may experience this completely different. It could be the case that the residents around the Noorderpark or Nelson Mandelapark felt like they were not included in the process enough or that their values were not recognized. Further research should therefore focus on the perspectives of residents when it comes to the three notions of environmental justice. A second limitation is that it is difficult to say to what extent green-gentrification was playing a role in the two researched parks. In Amsterdam, housing has gotten extremely expensive over the last decade and is already becoming less affordable for people with lower-incomes. It is therefore the question whether or not UGS had a role in that. Especially, since neighbourhoods with a lower-economic status tend to have more green space in Amsterdam than neighbourhoods with a higher socioeconomic status. Lastly, this research has solely focused on the city of Amsterdam. Because of this, it becomes difficult to explicitly state that the findings are also applicable to other cities. Other cities in the Netherlands may have a completely different view on UGS, while cities around the world have very different planning systems. It is therefore important to acknowledge one last

time that this research can serve as lessons learned or best practices for implementing UGS in other cities in the future.

Despite the limitations, this research has thus also provided new and interesting information on the lessons that can be learned and best practices in the city of Amsterdam. First, it becomes clear that an extensive participation process, with multiple sorts of participation can have a positive influence on the involvement of different stakeholders and social groups in a planning process. As the differences between the Nelson Mandelapark and Noorderpark have shown, through different kinds of participation, the municipality can reach out to different people, improving the inclusiveness of the project. Secondly, recognizing different social values in urban greening projects can help creating more support from the residents for the new plans. As the project in the Nelson Mandelapark has shown, the opposition for the plans decreased once the festival was acknowledged. Lastly, it becomes clear that the knowledge of urban planners and decision-makers on possible green-gentrification is lacking or is even seen as something positive. It is therefore important that the knowledge of municipal decision-makers and urban planners on the potential distributional outcomes is strengthened, in order for a project to be more environmentally just.

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Appendix 1 – Topic list

1. Personal information
 - Could you shortly introduce yourself? (role at the municipality, years of experience, projects)
 - How do you see green space in the city? – Why is green space important?
 - Could you tell me a little bit about the [project]? Why does the municipality want to improve the park?
2. Decision-making
 - Could you tell me a little bit about the decision-making process of the [project]
 - How are decisions about green space being made? (ecosystem services, using standards, financials)
 - How does the municipality decide about the kind of green space or recreational activities in the park?
 - What was the biggest challenge in the decision-making process in the [project]?
3. Distributional justice
 - Research indicates that the benefits from green amenities in cities often are unevenly distributed, and that urban greening projects tend to disproportionately benefit affluent communities. Is that something you have thought of as an issue in Amsterdam? Do you in some way address such effects in the planning?
 - Other studies are indicating that urban greening can contribute to gentrification as green areas often are considered more attractive which increases their value. Is that something you have thought of as an issue in Amsterdam? Do you in some way address such effects in the planning?
4. Procedural justice
 - Could you tell me something about the participation process around the [project]?
 - How do you reach out to the stakeholders?
 - Do you always manage to involve everyone in the process?
 - What is the reason for that?
 - Are there stakeholders that have more influence than others?
5. Recognition justice
 - How are the social and cultural values included in the end project?
 - How does the municipality deal with different values, wishes or worries from different resident groups or other actors?
6. Conclusion
 - When do you see the [project] as a success?
 - What could the municipality have done better in the process?
 - Do you have any questions or something you would like to add?
 - Snowballmethod – mentions different participant

Appendix 2 – Transcripts

To ensure the privacy of the respondents, the transcripts are only made available to the supervisors at Utrecht University.