

How just are civil society nature initiatives?

Research on (spatial) injustice of Tiny Forests in the Netherlands



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‘He who plants a tree
Plants a hope’

~ Lucy Larcom (1824-1893)

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Preface

Dear reader,

Before you lies my bachelor thesis, which I have written during the past five months to complete my Bachelor's program Geography, Planning and Environment (GPE) at the Radboud University. In my four years of studying, I developed a passion for topics relating to sustainability and urban planning. As the world (hopefully) moves further into a more sustainable era, there will be greater needs for nature and green spaces in urban areas. During this research project, I dove into the Tiny Forest initiative and examined how just such a nature initiative is.

Although I feel relieved concluding my thesis, I did experience my working on my thesis as a pleasant and interesting process during which I learned a lot. Most things I learned during the Bachelor's are integrated into my thesis, as I even consulted several course books and my notes from some lectures that I followed. Due to Covid-19 I had to work from home, and some research methods became obsolete. However, this also provided me with the opportunity to spend many hours on my thesis working towards a result I am proud of in the end.

I would like to thank my supervisor Cebuan Bliss for her guidance and support during the thesis process. I also wish to thank Daan Bleichroth from 'Instituut voor Natuureducatie' (IVN, in English: Institute for Nature education) for helping me to gather the required data. This thesis could not be completed without the respondents that filled in my survey, of which I am thankful. Last but not least, I would like to thank my friends for their critical look at my thesis.

I hope you enjoy reading my thesis.

Joyce Haringa

24th of June 2020, Nijmegen

Executive summary

The Sixth National report on biodiversity shows that the number of populations of animal and plant species and their habitats have been declined rapidly over the years in the Netherlands, due to intensification of agriculture, climate change, pollution, overgrazing, and invasive alien species (Sanders, Henkens, & Slijkerman, 2019). Although the Dutch government has been taking measures to meet international goals on nature conservation and improvement, which resulted in reasonable progress, the path to sustainability is a long one. One of these measures formulated in the Dutch ‘Rijksnatuurvisie’ (in English: national vision on nature) is to enhance community involvement and strengthen citizen initiatives and civil society initiatives in nature, which are both an ends and a means to protect nature and biodiversity (Ministry of Economic Affairs, 2014). While citizen take the lead in citizen initiatives, a civil society organization guides the initiative in civil society initiatives. Recent studies show that the majority of people in the Netherlands are involved with nature in some way and that this involvement is even increasing (Bredenoord et al., 2020; Sanders et al., 2018). Sometimes initiatives create important natural values to even support international biodiversity targets (Sanders et al., 2018). However, most green citizen initiatives have social effects on the usage and experience of nature, but also increase social cohesion and nature-awareness (Vullings et al., 2018). Initiatives in neighborhoods contribute to the involvement of groups that otherwise would not participate, like elderly or immigrants, who generally are more socially isolated (Luttik, Aalbers, Donders, & Langers, 2014).

However, little attention is paid to more negative aspects of the socialization of nature and civil society initiatives in research (Mattijssen & Kamphorst, 2018). Participation and involvement of citizens could lead to the exclusion of certain groups and the reproduction of existing power inequalities (Turnhout & Van der Zouwen, 2010). Disadvantaged groups are usually less able to organize initiatives and connect to formal institutions like the municipality (De Wilde, Hurenkamp, & Tonkens, 2014). This might result in less accessible and attractive green spaces in socially deprived neighborhoods. A greater role for citizen initiatives might lead to growing inequality of available green spaces in neighborhoods, and also between communities with and without self-organizing power (Bredenoord et al., 2020). Access to green space often disproportionately benefits the white and more affluent communities (Wolch, Byrne, & Newell, 2014).

Terms like inclusion and inequality in nature initiatives are related to the concept of (spatial) justice, which is defined as ‘social arrangements that permit all (adult) members of society to interact with one another as peers’ (Fraser, 2013, p. 164), with the aim to achieve parity of participation (Fraser, 2010). The aim of this research was to discover what justice means in civil society nature initiatives for involved people and to find points of interest for municipalities to decrease injustice in nature initiatives. To reach this goal, this research aims to answer the following question: *How do citizens experience (spatial) justice in the Tiny Forest initiative and how can municipalities reduce injustice?* To answer this question, the analysis consists of three parts. First, the experienced justice of involved citizens in Tiny Forests was identified by conducting an online survey. Then, the role of Tiny Forests locations on justice was identified by a spatial analysis using GIS. Thirdly, the role of municipalities was

examined by conducting two email interviews. The justice theory of Fraser (2010) (including three dimensions of justice, namely recognition, redistribution, and representation) and the participation ladder of Arnstein (1969) were used to achieve the research aim.

While recent research suggests that not all social groups are taking part in participation processes, there is little research on social and spatial inequality or equal distribution of costs and benefits (Mattijsen & Kamphorst, 2018), as well as on justice in nature civil society initiatives and citizen initiatives in general (Mattijsen, Buijs, Elands, & Van Dam, 2015). Information on these topics, however, is needed to make civil society initiatives in nature more inclusive by providing some (policy) recommendations for municipalities. These local authorities should try to connect with more disadvantaged neighborhood citizens with less social capital and in this way play an important role to make active citizenship more inclusive (De Wilde et al., 2014).

Furthermore, by focusing on the civil society initiative called Tiny Forest, this research references the importance of small nature and forest areas (Valdés et al., 2020), and the lack of knowledge on the role of municipalities and civil society organizations. Especially nature- and environmental education is underrepresented in previous research (Mattijsen & Kamphorst, 2018). Tiny Forests are dense, native forests of approximately the size of a tennis court (circa two hundred square meters). The concept of Tiny Forests was introduced in the Netherlands by the 'Instituut voor Natuureducatie' (IVN, in English: Institute for Nature education) to bring nature closer to the people and teach children about nature. From 2015 onwards, around eighty Tiny Forests have been planted in the Netherlands.

In order to gain an overall insight into (spatial) justice in the Tiny Forest nature initiative on a national scale, this research used a quantitative analysis by conducting a survey, aimed at all involved citizens and a spatial analysis on the locations of Tiny Forests. Due to the poor response rate on the survey, no statistical relations could be drawn. However, the triangulation of different methods, including a survey, spatial analysis, and two email interviews, made reliable conclusions possible. For the spatial analysis and interviews, two municipalities, Zaanstad en Utrecht, were chosen because these locate multiple Tiny Forests. Because these municipalities may not represent all municipalities, the spatial analysis was also performed on the national scale and the interview answers were linked to questions in the survey about the role of the municipality. Combining different analysis methods was very useful in this research, but future research is on justice in nature initiatives is needed.

One interesting finding is that most citizens and the municipality officials may not be aware of, or fully take justice issues into account. This is deduced from the fact that many respondents answered 'no idea' or took up a neutral position on the questions concerning the recognition of the diversity of involved citizens. Furthermore, the dimension of representation indicates that Tiny Forests are not fully just, as mostly more highly educated, middle-aged Dutch citizens are involved. Respondents did acknowledge this overrepresentation. These results correspond with the findings of previous research (e.g. Bredenoord et al., 2020; Sanders et al., 2018). The third indicator of justice, redistribution, includes the allocation of opportunities and resources. Overall, respondents experience that the opportunities to become involved are equal, as there are no requirements for citizens to be part of the initiative. While most involved people stated that there are no conditions to become involved, some citizens did indicate also additional conditions. These are interpreted as preferences and not as hard requirements. However, for outsiders (citizens not involved), this might be unclear and even result in no participation.

Regarding the distribution of Tiny Forests locations in the Netherlands, the spatial analysis preliminary concludes that Tiny Forests are more often than not located in neighborhoods with lower incomes (assuming also lower educational levels), more non-Western migrants, and younger citizens (25 to 44 years). The latter contradicts with previous research suggesting green space is often being realized in neighborhoods with higher prosperity levels (Conway, Shakeel, & Atallah, 2011). The explanation for this rather contrary result is that only half of the respondents live in the same neighborhood as where the Tiny Forest is located. However, the latter statement must be examined with caution because for a significant share of the respondents was not possible to track down if they live in the same neighborhood as where the Tiny Forest is located. Additionally, the municipalities prefer to allocate Tiny Forests in neighborhoods with less (variety of) green spaces or with more paved surfaces. This finding, while preliminary, may imply that municipalities intend to proportionately implement green spaces in less and more wealthy neighborhoods alike (Wolch et al., 2014).

Although involved citizens took up a neutral position on whether the municipality should increase its influence in the Tiny Forest initiative, both citizens and municipalities state that conversation with involved people is relevant to identify justice issues and to seek to reduce injustice. This information can be used to develop a strategy for municipalities to increase justice in nature initiatives. Therefore, the first recommendation from this research on justice in the Tiny Forests initiative is to start and/or continue talking about (some of the dimensions) of justice to raise awareness among involved citizens and governmental parties. A second recommendation for municipalities is to encourage the organization of Tiny Forests in neighborhoods with schools where the socio-economic position is less strong than in other neighborhoods. As Tiny Forests have to meet some criteria (see Appendix 1 for an overview), it may be difficult to start an initiative for local citizens with less social capital and resources. The municipality may need to encourage these groups of citizens to make the possibility to be part of the initiative more attractive. However, this is easier said than done, and the local context with specific social relations and power dynamics needs to be taken into account (Blue, Rosol, & Fast, 2019). As a result, the municipality should be aware of the local context and provide custom-made solutions for each Tiny Forest.

Future research on justice in citizen and civil society nature initiatives is required to not only help municipalities find how they could assist in making these initiatives more just, but also to raise awareness among people involved. Further research should also focus on 'have-not citizens' or excluded citizens, since they were probably not reached with this survey, but might think differently about inclusion or involvement criteria than already involved citizens. Secondly, this research was less about the political decision-making process and representation, as a more general view was created on all three dimensions of justice. That is why further research could qualitatively examine this dimension of representation to gain a more in-depth view of the underlying institutionalized structures and patterns, that produce and sustain inequities of social status (recognition) and class inequalities (redistribution) (Blue et al., 2019). The last recommendation for future research is to focus on the position of civil society organizations like the IVN to study their influence on justice in nature initiatives. In general, if more research on justice will be conducted, this might lead to an awareness of any injustice concerning nature initiatives.

Samenvatting

De zesde nationale rapportage over biodiversiteit laat zien dat soortenpopulaties en leefgebieden enorm zijn afgenomen de laatste jaren in Nederland, als gevolg van intensivering van de landbouw, klimaatverandering, vervuiling en invasieve exoten (Sanders et al., 2019). Ondanks dat de overheid maatregelen heeft genomen om de internationale doelen rondom natuurbehoud en -verbetering alsnog te halen, is de weg naar duurzaamheid nog lang. Een van de maatregelen uit de Rijksnatuurvisie is om maatschappelijke betrokkenheid te versterken en burgerinitiatieven en maatschappelijke initiatieven in de natuur te stimuleren. Beide zijn zowel een doel als middelen om de natuur en biodiversiteit te beschermen (Ministry of Economic Affairs, 2014). Recente onderzoeken laten zien dat de meerderheid van alle inwoners van Nederland op een of andere manier betrokken zijn bij natuur. Bovendien neemt deze betrokkenheid zelfs toe (Bredenoord et al., 2020; Sanders et al., 2018). De meeste groene burgerinitiatieven bevorderen het gebruik en de beleving van natuur. Daarnaast vergroten ze ook de sociale cohesie en het natuurbewustzijn (Vullings et al., 2018), en realiseren deze initiatieven soms belangrijke natuurwaarden die aansluiten bij internationale biodiversiteitsdoelstellingen (Sanders et al., 2018). Initiatieven in buurten dragen vervolgens bij aan de betrokkenheid van groepen die anders niet participeren, zoals ouderen of immigranten die sociaal meer geïsoleerd zijn (Luttik et al., 2014).

Daarentegen is er weinig aandacht in onderzoeken voor de meer negatieve gevolgen van de vermaatschappelijking van natuur (Mattijsen & Kamphorst, 2018). Participatie en betrokkenheid van burgers kan bijvoorbeeld leiden tot uitsluiting van sommige groepen en de reproductie van bestaande machtsongelijkheden (Turnhout & Van der Zouwen, 2010). Achtergestelde groepen zijn namelijk vaak minder goed in staat initiatieven te organiseren en verbinding te maken met formele instituties zoals gemeenten (De Wilde et al., 2014). Dit kan leiden tot minder toegankelijke en aantrekkelijke groene gebieden in sociaal achtergestelde buurten. Een grotere rol voor burgerinitiatieven kan verder leiden tot een groeiende ongelijkheid van de beschikbaarheid van groen in de leefomgeving, zo ook tussen gemeenschappen met en zonder zelf-organiserend vermogen (Bredenoord et al., 2020). De meer welgestelde gemeenschappen zijn vaak bevoordeeld bij het zoeken van toegang tot groene gebieden (Wolch et al., 2014).

Ondanks dat er aanwijzingen zijn dat niet iedereen deel neemt in participatieprocessen, is er maar weinig onderzoek over de sociale en ruimtelijke ongelijkheid of de gelijke verdeling van kosten en voordelen (Mattijsen & Kamphorst, 2018). In het algemeen is er weinig onderzoek over rechtvaardigheid in burgerinitiatieven en maatschappelijk initiatieven in de natuur (Mattijsen et al., 2015). Deze kennis is wel nodig om maatschappelijke natuur initiatieven meer inclusief te maken door gemeenten te voorzien van een aantal (beleids)aanknopingspunten. Deze lokale autoriteiten zouden moeten proberen om aan te sluiten bij meer achtergestelde buurtbewoners met minder sociaal kapitaal om op deze manier een belangrijke rol te spelen in het meer inclusief maken van actief burgerschap (De Wilde et al., 2014).

Bovendien, door te focussen op het maatschappelijke initiatief genaamd Tiny Forest draagt dit onderzoek bij aan de relevantie van kleine natuur en bosgebieden (Valdés et al., 2020) en het tekort aan kennis over de rol van gemeenten en maatschappelijk organisaties bij natuurinitiatieven. Vooral natuur- en milieueducatie zijn ondergerepresenteerd in voorgaand onderzoek (Mattijsen & Kamphorst, 2018). Tiny Forests zijn dichtbegroeide, inheemse bossen met de grootte van ongeveer een

tennisveld (circa tweehonderd vierkante meter). Het concept Tiny Forest is geïntroduceerd door het Instituut van Natuureducatie (IVN) om mensen dichterbij de natuur te brengen en kinderen te leren in en over de natuur. Vanaf 2015 zijn er ongeveer tachtig Tiny Forests aangeplant in Nederland.

Termen zoals ‘erbij horen’ en ‘ongelijkheid’ in natuurinitiatieven zijn gerelateerd aan het concept ‘ruimtelijke rechtvaardigheid’ (ook wel ‘spatial justice’). Dit begrip is gedefinieerd in dit onderzoek als de sociale overeenstemmingen die het toestaan dat alle (volwassen) leden van een maatschappij met elkaar omgaan als gelijken, met het doel om gelijkheid in participatie te bereiken (Fraser, 2010, 2013). De theorie over rechtvaardigheid van Fraser (2010), die drie dimensies van rechtvaardigheid omvat (herkenning, herverdeling en representatie), naast de participatieladder van Arnstein (1969) zijn gebruikt om het onderzoek in te kaderen. Het onderzoeksdoel was om erachter te komen hoe betrokken burgers rechtvaardigheid ervaren in maatschappelijke initiatieven in de natuur. Aansluitend is getracht aanknopingspunten te vinden voor gemeenten, zodat zij natuurinitiatieven rechtvaardiger kunnen organiseren. Om dit doel te bereiken is de volgende onderzoeksvraag opgesteld: *Hoe ervaren burger (ruimtelijke) ongelijkheid in het Tiny Forest-initiatief en hoe kunnen gemeenten ongelijkheid verminderen?* Het Tiny Forest-initiatief is een typisch maatschappelijk natuurinitiatief in Nederland.

Om een gevarieerd inzicht te verkrijgen in de (ruimtelijke) rechtvaardigheid van het Tiny Forest-initiatief, zijn er een drietal methoden gehanteerd, waarvan de eerste twee van kwantitatieve aard zijn. Allereerst is een enquête voorgelegd aan alle betrokkenen bij Tiny Forests. Uiteindelijk hebben voldoende respondenten de enquête ingevuld voor beschrijvende statistische relaties. Als tweede is er een ruimtelijke analyse uitgevoerd voor de locaties van Tiny Forests. Ten slotte zijn twee interviews per email gehouden met de gemeente Zaanstad en Utrecht. Deze triangulatie, ofwel het gebruik van verschillende onderzoeksmethoden, verzorgde betrouwbare conclusies met betrekking tot de onderzoeksvraag. Voor de ruimtelijke analyse en interviews zijn de gemeenten Zaanstad en Utrecht geselecteerd omdat deze beide meerdere Tiny Forests hebben. De ruimtelijke analyse is bovendien op nationale schaal uitgevoerd, omdat deze twee gemeenten waarschijnlijk niet representatief zijn voor alle gemeenten. Daarnaast zijn de antwoorden uit de interviews gekoppeld aan de die uit de enquête over de rol van de gemeenten. Het combineren van analysemethoden bevorderde wederom de betrouwbaarheid van dit onderzoek.

Een interessante uitkomst is dat de meeste burgers en gemeentemedewerkers zich niet bewust zijn van rechtvaardigheid of er geen rekening mee houden. Dit is afgeleid van de neutrale of onwetende antwoorden van respondenten over de herkenning van diversiteit van betrokken burgers. Bovendien wijst de dimensie ‘herkenning’ erop dat burgers onevenredig betrokken zijn bij Tiny Forests. Vooral hoger opgeleide van middelbare leeftijd en Nederlandse komaf zijn oververtegenwoordigd bij dit initiatief, hetgeen zichzelf erkennen. Dit resultaat komt overeen met eerdere bevindingen uit onderzoeken (bijv. Bredenoord et al., 2020; Sanders et al., 2018). De derde dimensie van rechtvaardigheid, namelijk ‘herverdeling’, gaat over de verdeling van mogelijkheden en hulpbronnen. In het algemeen ervaren respondenten de kansen om betrokken te raken als gelijk. Er zijn dan ook geen harde eisen voor burgers om deel te nemen aan het Tiny Forest-initiatief. Ondanks dat de meesten aangaven dat er geen eisen zijn om betrokken te raken, hebben sommige respondenten wel aanvullende voorwaarden vermeld. Deze worden geïnterpreteerd als zachte in plaats van harde eisen. Deze onduidelijkheid kan voor buitenstaanders verwarrend en zelfs afschrikkend werken.

Wat betreft de verdeling van locaties van Tiny Forest in Nederland wijst de ruimtelijke analyse een aanvankelijke verdeling van Tiny Forests in buurten met lagere inkomens (en in de veronderstelling ook lagere opleidingsniveaus), hogere percentages niet-Westerse migranten, en jongere burgers (25 tot 44 jaar). Deze conclusie staat haaks op suggesties uit voorgaand onderzoek, waaruit bleek dat groen veelal wordt gerealiseerd in buurten met hogere welvaartsniveaus (Conway et al., 2011). De verklaring voor deze min of meer tegenstrijdige resultaten is dat maar de helft van de respondenten in dezelfde buurt woont als waar de betreffende Tiny Forest is gelegen. Bij deze bewering is voorzichtigheid geboden, omdat van een groot deel van de respondenten de woonplaats niet achterhaald kon worden. Bovendien geven gemeenten voorkeur aan buurten met minder (variatie van) groen, of waar meer verhard oppervlakte is, bij het plaatsen van een Tiny Forest. Hoewel de gegevens beperkt zijn, lijken gemeenten groene gebieden niet uitsluitend aan de meer welvarende burgers, doorgaans te wonen in de meer groene buurten, toe te bedelen (Wolch et al., 2014).

Terwijl betrokken burgers een neutrale positie innamen bij de vraag of gemeenten hun invloed moeten vergroten bij het Tiny Forest-initiatief, hebben zowel de burgers als de gemeenten aangegeven dat het voeren van onderlinge gesprekken belangrijk is. Deze informatie kan door gemeenten worden gebruikt om een strategie te ontwikkelen, waarmee de rechtvaardigheid bij natuurinitiatieven kan worden vergroot. De eerste aanbeveling vanuit dit onderzoek is dan ook om het gesprek te (blijven) starten over (een aantal dimensies van) rechtvaardigheid, om zo bewustwording te creëren bij betrokken burgers en overheidspartijen. Een tweede aanbeveling voor gemeenten is om de organisatie van Tiny Forests in buurten met scholen waar de sociaaleconomische positie minder sterk is dan in andere buurten te stimuleren. Tiny Forests moeten aan een aantal criteria voldoen (zie de bijlage in paragraaf 10.1 voor een overzicht), waardoor het moeilijk kan zijn om dit initiatief te starten voor lokale bewoners met minder sociaal kapitaal of beschikbare hulpbronnen. De gemeente zal deze groepen burgers wellicht moeten aanmoedigen om de betrokkenheid van deze groepen bij het initiatief aantrekkelijker te maken. Dit is echter makkelijker gezegd dan gedaan, aangezien de lokale context, naast de specifieke sociale relaties machtsdynamieken in overweging genomen moeten worden (Blue et al., 2019). Het gevolg is dat gemeenten zich bewuster zullen zijn van de specifiek context van een Tiny Forests op maat.

Toekomstig onderzoek naar rechtvaardigheid in burgerinitiatieven en maatschappelijke initiatieven in de natuur is nodig om niet alleen gemeenten te helpen bewuster met rechtvaardigheid om te springen, maar ook om bewustwording te creëren bij betrokkenen zelf. Vervolgonderzoek kan de niet-participerende burgers belichten, omdat deze groep waarschijnlijk niet bereikt is in dit onderzoek. Tegelijkertijd denkt deze groep misschien anders over het meedoen met initiatieven dan reeds betrokken burgers. Ten tweede ging dit onderzoek minder in op de politieke besluitvormingsprocessen en representatie, omdat er een meer algemeen beeld is geschetst van alle drie de dimensies van rechtvaardigheid. Dit is waarom vervolgonderzoek op een kwalitatieve manier de dimensie 'representatie' kan uitdiepen, en zodoende de onderliggende geïnstitutionaliseerde structuren en patronen die ongelijkheden van sociale status ('herkenning') en klassen ('herverdeling') kan blootleggen (Blue et al., 2019). Een laatste aanbeveling voor toekomstig onderzoek is om te focussen op de positie van maatschappelijke organisaties zoals het IVN. Dergelijke organisaties hebben mogelijk eveneens invloed op de rechtvaardigheid van natuurinitiatieven. In het algemeen zal meer

onderzoek naar rechtvaardigheid de bewustwording ervan in natuurinitiatieven hoogstwaarschijnlijk vergroten.

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List of abbreviations

IVN	Instituut voor Natuureducatie (in English: Institute for nature education)
NGO	Non-governmental organization
SDGs	Sustainable Development Goals
CBS	Centraal Bureau voor Statistiek (in English: Central Agency for Statistics)

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1. Introduction

This chapter begins by introducing the topic of justice in nature initiatives, and Tiny Forests as an example of such a nature initiative. Thereafter, the research questions and research objective of this study are formulated. The third paragraph of this chapter concerns the relevance of this research for society and the contribution it makes to the scientific development of justice in nature initiatives. At the end of this chapter, an outline is provided for the upcoming chapters.

1.1 Research background

In this first chapter of this research, the topic of justice in nature initiatives is introduced by laying out the current state of nature in the Netherlands, and by discussing the role of citizens and civil society initiatives within the domain of nature. It will then go on to identify different aspects of injustice in these nature initiatives. This section then narrows down to a nature initiative named Tiny Forests.

1.1.1 Nature in the Netherlands

Last year, a news item published in the Volkskrant stated that it is not going well with nature in the Netherlands (Van Dinther, 2019). Although some might have already felt this coming, it is confronting to read that 46 of the 52 Dutch ecosystems, which we should protect, are in an unfavorable or bad condition (Janssen et al., 2020). The most recent Living Planet Report from World Wildlife Fund (WWF) (2020) also disclosed some alarming facts. Many animal populations and species have declined, some by 50 percent on average. This is due to the intensification of agricultural production, climate change, destructive land use, unsustainable fishing, pollution, and invasive alien species (Sanders et al., 2019). As the Netherlands is one of the most densely populated countries in the world, nature areas have become smaller and more fragmented. However, these small areas are very important for biodiversity as they provide a living area for the greatest number of species and most rare species. That is why we should give priority to these areas (Janssen, in Van Dinther, 2019).

This priority was partly examined in the Sixth National Report on Biodiversity of the Netherlands, which had the general goal to maintain and enhance ecosystems and their services (Sanders et al., 2019). However, no direct reference to the importance of small(er) areas of nature was made. In general, this report is compulsory for member states of the European Union to monitor whether the targets of the Convention on Biological Diversity will be met. The Netherlands has been taking measures to meet these targets, such as creating new habitats within a national ecological network or utilizing the self-organizing capacities of society by stimulating, facilitating, and financially supporting green initiatives. Nevertheless, research showed that insufficient progress towards biodiversity targets has been made (Sanders et al., 2019).

The ambition to improve biodiversity was also included in national policy documents on nature in the Netherlands (e.g. Ministry of Economic Affairs, 2014). Strengthening community involvement in nature is another ambition stated in this Dutch 'Natuurvisie' (in English: national vision on nature), (2014) in which citizens can contribute to improving biodiversity in turn. European citizens are

increasingly important in managing and protecting nature and biodiversity (Paloniemi et al., 2015). The majority of the Dutch inhabitants are in some way involved in nature by doing activities in and for nature (Sanders et al., 2018). A recent study showed that the involvement of citizens in nature has increased, which is both a means and an end to protect nature and biodiversity (Bredenoord et al., 2020). However, these results were difficult to measure and evaluate as the policy goals are not formulated in detail. The Dutch national government has many questions on how to stimulate societal involvement with nature and how this involvement should be connected to their ambitions.

1.1.2 Initiatives in nature

Meanwhile, the decentralization of (nature) policies led to a responsibility shift from the national government to the provinces from 2013 onwards (Ministry of Agriculture, 2013). In addition, more responsibility has been given to citizens, which resulted in a large variety of initiatives. The emergence of citizen-led initiatives is taking over governmental tasks by providing public services in various sectors, such as the domain of nature. From the viewpoint of a more participation-oriented society, this means nature is no longer an exclusive domain of ecological experts; participation of citizens in nature is of incremental importance. The concept of 'the government' is changed to the concept of '(multi-level) governance', which provides space for involvement and participation of civil society (Turnhout & Van der Zouwen, 2010). The term 'socialization of nature' describes this space as 'a movement where citizens, companies and civil society organizations take more initiative, participate in, and/or are partly responsible for realizing public values in the domain of nature' (Bredenoord et al., 2020, p. 12)

There are several terms used to refer to this development, such as civic engagement, grassroots initiatives, community initiatives, civic initiatives, and the participation society (Soares da Silva, Horlings, & Figueiredo, 2018, p. 1). Within the broad term of socialization, a distinction can be made between citizen initiatives and civil society initiatives. The former are initiatives of citizens that do not include volunteers commissioned by a third party, but rather are driven by what citizens think is important (Mattijsen, Buijs, & Elands, 2017). In other words, a citizen initiative provides 'voluntary services by citizens without remuneration, and [is] primarily aimed at social benefits for a society organized in a non-formal way' (Helsloot & Van Melick, 2015, p. 13). Citizens themselves define the goals and how to achieve them, independent from governmental or other external organizations (Soares da Silva et al., 2018). This does not necessarily mean that citizens initiate the activity, but more that they guide or lead the initiative (Sanders et al., 2018). Citizen initiatives differ from civil society initiatives in who takes the 'lead'. Concerning the latter initiative, this is a civil society actor like the 'Instituut voor Natuureducatie' (IVN, in English: Institute for Nature education).

Besides the definition, one can also distinguish groups of green citizen initiatives in the nature sector based on different ambitions (Mattijsen et al., 2017). The first group aims at protecting nature through physical (management)activities. The second group tries to influence policy and management, whereas the third group is focuses on the experience and usage of nature. Citizen initiatives mainly have social effects on the last group (usage and experience of nature), but also increase social cohesion and nature-awareness (Vullings et al., 2018). Sometimes important natural values are created that even support international biodiversity targets (Sanders et al., 2018). Initiatives in neighborhoods contribute to the involvement of groups that otherwise would not participate, like the elderly or immigrants who were generally more socially isolated (Luttik et al., 2014). The term 'social activation' is mentioned in

relation to this, which means that less involved groups are involved and integration between different cultural groups is established (Mattijssen et al., 2015). This possible effect of green initiatives is, nevertheless, not always present as it does not always work to involve everyone. Sometimes, involvement in nature results in being part of a group of citizens who already knew each other. Nonetheless, green initiatives have a positive effect on social cohesion on a local scale (Mattijssen et al., 2015). Overall, green initiatives have different ambitions, with sometimes also unintended consequences.

1.1.3 Injustice in initiatives

While much research focused on the benefits of nature initiatives and socialization, little attention is paid to the more negative aspects of the socialization of nature and civil society initiatives in research (Mattijssen & Kamphorst, 2018). Participation and involvement of citizens could lead to the exclusion of certain groups and the reproduction of existing power inequalities (Turnhout & Van der Zouwen, 2010). This is in line with the findings of Bredenoord et al. (2020), who found that a specific social class is predominantly involved in developing and managing nature. Although research on the relationship between citizen nature initiatives and the socio-economic class of involved citizens is limited, an international study on urban community forests showed that more green space is being realized in neighborhoods with higher prosperity levels (Conway et al., 2011). While research on the social differentiation of citizens in green initiatives is also limited in the Netherlands, existing research suggests that a specific class is involved, including more highly educated and middle-aged inhabitants (around 50 years old), who are not representative of Dutch society as a whole (Sanders et al., 2018). Although most of the citizen initiatives aim at involving (different) people and often also minorities and disadvantaged people, citizen initiatives can lead to exclusion because most of the time, these initiatives consist of closed clubs that are transparent for insiders, but not for outsiders (Salverda, Pleijte, & van Dam, 2014).

Inclusion and exclusion in nature initiatives are related to concepts of justice, equity, and equality. Justice is the most general concept and can be divided into the dimensions of distributive justice and procedural justice (De Haas, 2017). Equity and equality are two principles to assess whether a situation is just or not, where equity (also called fairness) means that the distribution is in proportion to the input, whereas equality means that everyone has the same output (Forsyth, 2010). Equity and equality on the one hand, and justice on the other, are interlinked (De Haas, 2017). Consequently, initiatives are sometimes unequal and just at the same time. In other words, justice is sometimes reached by a form of inequality, for example, when the resources are distributed unequally between different groups with the purpose to demand justice in the case of positive discrimination. In general, equality and equity as a distribution mechanism could be used as a goal or as a measure to increase justice (De Haas, 2017).

In green initiatives, procedural justice could concern the uneven representation of socio-economic groups in nature initiatives (Mattijssen, 2018), whereas distributive justice could be used to explain why not everyone has an equal amount of resources or social capital in citizen or civil society initiatives. Principles such as representation and equality show that new elements of distributive justice are involved in participatory democracy (Buijs et al., 2016). The difference in capital between people, such as knowledge, affects people's motivation and skills to take action (Sanders et al., 2018).

Accordingly, disadvantaged groups are usually less able to organize initiatives and connect to formal institutions like the municipality (De Wilde et al., 2014). This might result in less accessible and less attractive green spaces in socially deprived neighborhoods. A larger role for citizen initiatives might lead to the growing inequality of available green spaces in the neighborhood as well as between communities with and without self-organizing power (Bredenoord et al., 2020). Access to green space often disproportionately benefits the white and more affluent communities (Wolch et al., 2014). This makes access to green space an environmental justice issue. Based on these findings, this research suggests a positive relation between the location of an initiative and the socio-economic circumstances in the neighborhood.

Civil society organizations can furthermore play an important role by including the less powerful social groups into an initiative, and by offering them a political platform (Boje, 2017). 'The civil society organizations are in this context perceived as an 'intermediate body', representing the ordinary citizens, giving voice to different social groups in society, and revitalizing public participation in democratic institutions' (Boje, 2017, p. 352). Civil society can be seen as a form of counterbalance to individualism (Boje, 2017), and as a third body to establish a balance between the power of the state and the market forces (Edwards, 2014). 'Only civil society and its organizations seem to have the capability and resources required for representing specific social groups, and the time and energy to be involved in social networks among vulnerable social groups' (Boje, 2015, p. 27).

Although there is a marked shift towards governance, sub-national governments, like municipalities, still influence citizen nature initiatives. This can vary from actively providing public services to a more 'steering' role by facilitating these initiatives (Mattijssen, 2018). The exclusion of some citizen groups contrasts to some of the principles of the national government, such as representativeness and equality. A report from the Ministry of Internal Affairs (2013) showed that the government should only meet these principles or criteria by facilitating, and not by demanding these values from citizens. Salverda et al. (2014) suggested focussing on the involvement of citizens in initiatives rather than on equality, and that this involvement is also an important value of a democratic society. Moreover, self-organization solely has a positive impact on the principle of democracy, and therefore not on the other two concepts of Fainstein (2010), namely equity and diversity (Uitermark, 2012).

As a result, segregation and inequality could arise from self-organizing systems (Uitermark, 2012). Governmental bodies, like municipalities, can either aim at standardizing and equalizing, or acknowledge that self-organizing is tricky and unequal. The last option could be chosen to encourage self-organization, as it is difficult for some initiatives to take off. However, when self-organisation is regulated by a central government, it might reduce the positive effects of self-organization, like spontaneity and selection. This difficulty of self-organization is that selection is included, which implies that inequality and segregation are as well, which in the end should be embraced (Uitermark, 2012). In short, one could identify a tradeoff between spontaneity and equality of initiatives.

1.1.4 Tiny Forests

Tiny Forests are an example of a civil society nature initiative, and correspond to the relevance of small nature areas in the Netherlands. Tiny Forests are dense, native forests of approximately the size of a tennis court (circa 200 square meters). Regarding initiatives in forests, local citizens are especially actively involved in managing small forests, which is not strange, since 17% of the Dutch forest extent is smaller than 5 hectares (Lambregts & Wiersum, 2002), and 83% of the total amount of forest areas in the Netherlands are smaller than 5 hectares (Dirkse et al., 2007). It was expected that such small forests, due to fragmentation and forest loss, might not contribute much to biodiversity levels and ecosystem services. However, Valdés et al. (2020) concluded that small forests in proportion to large forests indeed contain fewer species, but produce proportionally more ecosystem services (including the absorption of carbon) per hectare. They argued for the policy-domain to ensure more adequate management and conservation of small forests. This is especially important in a country like the Netherlands with (direct and indirect) intensive usage of limited forest areas (Hoogstra & Verbij, 2000).

The concept of Tiny Forests was introduced in the Netherlands by the IVN in 2015, but was originally conceived by the Indian Shubhendu Scharma (Bleichrodt, Bruns, Teunissen, & Laine, 2017). He created a service called 'Afforestt' to create natural, wild, maintenance-free, native forests in India (Afforestt Eco Service Private Limited, 2017). Shubhendu based his concept on the forest management method of the Japanese forest-expert Akira Miyawaki (IVN, n.d.-b). The latter developed a method to recover natural, native forests in the 1970s. He set up over 1700 forests, of which 96.7% developed into a resilient ecosystem after ten years. Shubhendu applied this in the urban environment (IVN, n.d.-b). IVN collaborated with Shubhendu Scharma to implement Tiny Forests in the Netherlands, as this is in line with the mission promoted by the civil society nature organization IVN to bring nature closer to the people and connect people with nature again. IVN aims to create forests in easily accessible public locations, like schools or neighborhoods.

The first Tiny Forest in the Netherlands and Europe was planted in December 2015 in Zaanstad, together with school children, neighborhood citizens, and a garden company. By the end of 2019, sixty-two Tiny Forests had already been planted in forty-three different municipalities in the Netherlands, of which four forests were planted by individuals (IVN, 2020). In the first three months of 2020, around twenty Tiny Forests have been planted. This results in a total of eight-one Tiny Forests in April 2020 (see also Figure 1 for an overview of all Tiny Forests). Not every tiny forest is officially named 'Tiny Forest', which was explained in the open-source handbook (Bleichrodt et al., 2017). IVN created some criteria to distinguish when the official name 'Tiny Forest' can be used. The general definition of a Tiny Forest is 'a highly densely grown, native forest with a size of approximately two hundred square meters, which is around the size of a tennis court' (Bleichrodt et al., 2017). Besides the publicly accessible Tiny Forests, there are also private Tiny Forests planted in people's backyard, called 'Tuiny Forests', which comes from the Dutch word for garden: 'tuin'. However, it is more interesting to investigate the public Tiny Forests as justice is irrelevant to private ones. The reason for this is that these private forests are (usually) not managed by other neighborhood citizens, but rather by the owners themselves, whereas (public) Tiny Forests encourage to involve all (neighborhood) citizens.

There are many positive effects derived from planting Tiny Forests (IVN, n.d.-b). First of all, Tiny Forests provide a meeting place for local citizens. Besides the social effects, the initiative also benefits nature (Ottburg et al., 2018). Biodiversity increased in Tiny Forests compared to a nearby conventional

forest. One of the requirements for Tiny Forests is that only native species are planted (IVN, n.d.-a). This is in line with the biodiversity targets to conserve native species (Sanders et al., 2019). Although there is this one research from Ottburg et al. (2018) on how the Tiny Forests contribute to the ambition of the government to improve biodiversity levels, no study has yet investigated the social processes, including inequalities within the context of Tiny Forests. This is despite research suggesting there are justice issues involved regarding active citizenship in such nature initiatives (Mattijssen, 2018).



Figure 1 Map of the distribution of Tiny Forests in the Netherlands

1.2 Research objective and questions

This research is focused on justice in civil society initiatives in nature and forests, specifically Tiny Forests. Nature initiatives might not involve all groups of people in society and, are therefore not representative of the whole society. The distribution of resources, and especially the spatial just distribution of Tiny Forests, may also lead to injustice in such citizen initiatives. For instance, one might question whether Tiny Forests are located in neighborhoods with a higher socio-economic position or if the opportunities to become involved are equal for different groups of citizens.

The purpose of this research attempts to discover what justice means in civil society initiatives for nature for people involved, and to find points of interest for municipalities to decrease injustice in nature initiatives. This can be achieved by examining the experienced justice of citizens in Tiny Forests, identifying the spatial distribution of Tiny Forests in the Netherlands, and examining policy instruments of municipalities. This tries to bridge the gap between what citizens experience and what instruments the municipalities already use. More importantly, a greater understanding of justice in civil society and citizen initiatives is needed to make civil society initiatives in nature more inclusive by providing some (policy) recommendations for the municipality. These local authorities should try to connect with more disadvantaged neighborhood citizens with less social capital, and in this way play an important role in making active citizenship more inclusive (De Wilde et al., 2014). To reach this goal, this research aims to answer the following question:

How do citizens experience (spatial) justice in the Tiny Forest initiative, and how can municipalities reduce injustice?

The above-mentioned question will be approached by answering the following sub-questions:

1. How do citizens involved in Tiny Forests experience justice in terms of citizens representation, (re)distribution of resources and opportunities, and recognition cultural diversity?
2. In what way do the neighborhood locations of Tiny Forests contribute to spatial justice?
3. How do the municipalities currently help to reduce injustice?

In the research, justice will be generally defined as ‘social arrangements that permit all (adult) members of society to interact with one another as peers’ (Fraser, 2013, p. 164), with the aim to achieve parity of participation (Fraser, 2010). The latter concept is further elaborated in the theoretical framework in Chapter 2.

1.3 Societal relevance

In general, civil society and citizen initiatives in nature could be considered in the light of the Sustainable Development Goals (SDGs) adopted by the United Nations Member States in 2015. Two of the targets of goal 11, ‘Make cities and humans settlements inclusive, safe, resilient and sustainable’, are particularly relevant to this research. These include ‘to provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities’, and to strengthen inclusive and sustainable urbanization and capacity for participation (United Nations, n.d.). The concept of cities is interpreted in a broad sense by not only

referring to cities but also to villages, as Tiny Forests can also be initiated and located in the latter. The SDGs are in line with the goals of the national Dutch government to make nature inclusive and to strengthen community involvement (Ministry of Economic Affairs, 2014). This research contributes to living up to the SDGs targets because it focuses on Tiny Forests, which increase the amount of green public spaces within urban areas. In addition, it attempts to answer the question to what extent different groups of citizens are included in the Tiny Forest nature initiative. This knowledge is relevant to evaluate and meet the SDGs targets.

Additionally, nature in urban areas has many benefits. Besides environmental services, such as reducing flood risks and cooling down urban heat islands, green areas are crucial for the livability of cities and the well-being of urban inhabitants (Chiesura, 2004). Although Tiny Forests are just small forests of around 150 square meters, together hundred of these Tiny Forests provide an increase of 1.5 hectares of nature extent. In this way, they create a habitat for biodiversity and contribute to the goal of strengthening biodiversity in the Netherlands (Ministry of Economic Affairs, 2014). Research on the Tiny Forest initiative is essential for developing strategies to ensure more adequate management and conservation of small forests. This is especially important in a country like the Netherlands with (direct and indirect) intensive usage of limited forest areas (Hoogstra & Verbij, 2000)

The importance of nature in cities is evident, but access to these green urban areas is increasingly recognized as a justice issue (Wolch et al., 2014). In many cities, low-income neighborhoods often have less access to parks and other green spaces. Analyzing the locations of Tiny Forests by, for example, assessing whether or not Tiny Forests are in neighborhoods with a high percentage of paved surface, is important knowledge for planners to choose the location of Tiny Forests in a just way. The location of Tiny Forests can increase access to urban green spaces for citizens and involve citizens in less advantaged neighborhoods. The suggested relation between involvement in citizen initiatives and the socio-economic class of involved citizens together with the importance of nature and green spaces for health and social cohesion (Chiesura, 2004), makes it an important point of attention for research and policy (Kabisch & Haase, 2014).

Moreover, this research is in particular relevant to specific groups of stakeholders involved in nature initiatives, as it may provide suggestions for eliminating injustice. One of these stakeholders is the municipality. The recent shift of responsibilities from governments to citizens makes it important for municipalities to find points of interest on how to guide participation, as they do not know yet how to stimulate the involvement of different parties, such as citizens, NGOs, and companies. For now, there is enough diversity in nature initiatives with various goals (Mattijsen et al., 2015), but if more nature initiatives emerge, this might contribute to the growing inequality between communities with the capacity to participate and groups of people who do not (Bredenoord et al., 2020; Mattijssen, 2018). Following this research, municipalities might learn how they can guide participation in such a way that it is not leading to the exclusion of some social groups, yet strengthening the diversity of different groups of people within initiatives. Thus, policy recommendations on how to guide civil society nature initiatives in a more just way are needed to prevent these initiatives resulting in one-sided nature led by exclusive groups of people.

Additionally, research on justice in nature initiatives is relevant to citizens and civil society organizations, because it raises awareness about injustice in nature initiatives. Citizens involved in nature initiatives might not be aware of injustice, because they have not critically reflected on why and

how they end up with the same group of people they already knew when starting a nature initiative. This research attempts to tackle this problem by identifying different dimensions of justice in a civil society nature initiative and encourages citizens to think about different aspects of justice. Civil society organizations are a kind of mediator between the government and the citizens by providing access to resources and supporting local citizens' groups who start nature initiatives. In this way, these organizations can also play a role in decreasing injustice in these initiatives, because they might be more in direct contact with citizens compared to municipality officials. The civil society organization IVN can use this research to make Tiny Forests even more vital for society by involving people and distributing the benefits among people that otherwise would be less included or completely left out.

1.4 Scientific relevance

While research has been carried out on the socialization of nature and nature initiatives from society, there have been few (empirical) investigations on justice and inequality in nature initiatives. A study on literature revealed not a single study in the Netherlands that surveyed different dimensions of justice concerning civil society nature initiatives in particular. While some research mentions exclusion or issues of representation in nature initiatives (e.g. Sanders et al., 2018; Turnhout & Van der Zouwen, 2010), only a few studies use the concept of environmental justice to elaborate more on issues of equal distribution of costs and benefits and equal access to green areas (e.g. Mattijssen, 2018). Other studies with a Dutch scope only mention it shortly (e.g. Salverda et al., 2014; Sanders et al., 2018). While there are hints that not everyone is taking part in participation processes, there is little research on social and spatial inequality or equal distribution of costs and benefits (Mattijssen & Kamphorst, 2018). This research thus contributes to the lack of knowledge of justice in nature initiatives, by identifying different dimensions of injustice. These dimensions can later be used to analyze other citizen or civil society nature initiatives.

Particularly, researchers argued that empirical knowledge on the spatial consequences of the under-representation of relatively disadvantaged social groups is needed to contribute to the SDGs in making nature and participation more inclusive and accessible (Sanders et al., 2018; Vullings et al., 2018). Spatial differentiation of nature initiatives is not researched upon in detail, although the predominantly idea suggests not all groups are equally represented in green initiatives. The amount of capital in neighborhoods is likely a spatial factor in the development and success of initiatives, but further research is needed, as no convenient conclusions were drawn based on the small number of initiatives and large spreading of lower-income neighborhoods (Sanders et al., 2018). This research helps to identify the spatial consequences by providing knowledge on the spatial distribution of Tiny Forests and the amount of capital in terms of the socio-economic positions of citizens in neighborhoods. Describing and explaining the relation of different socio-spatial characteristics of stakeholders and spatial differentiating is needed to raise awareness about injustice and, eventually, find tools for policy improvement (Sanders et al., 2018).

This research also responds to the lack of knowledge on the role of civil society organizations and municipalities. Regarding the former, nature and environmental education is especially underrepresented in previous research (Mattijssen & Kamphorst, 2018). This is remarkable since around fifty percent of green initiatives in the Netherlands have active involvement of non-

governmental organizations (NGOs) (Mattijsen et al., 2015). The same goes for the role of municipalities in the socialization of nature (Mattijsen & Kamphorst, 2018). Societal involvement is important for municipalities by providing both a means and a goal for the national government (Brendenoord et al., 2020). Municipalities are viewed as the most important governmental partner in civil society initiatives, as they are predominately the owners of the ground, stimulate people to participate, and provide the grant (Vullings et al., 2018), but their role in engaging citizens in nature gets little attention.

One could argue that a Tiny Forest is not like a conventional forest, because it is only the size of a tennis court, which is why the initiative is classified into the category ‘parks, public gardens, gardens and city green areas’ (Mattijsen et al., 2015). On the other hand, it can also be classified into the category of forests as there are ecological benefits just like real forests. A third option is to define Tiny Forests as a combination of a forest and urban green space initiative. However, previously published studies did not include forest initiatives by citizens or civil society organizations in which a more conventional larger forest is planted. Arts (2019 in: Van Duinhoven, 2019) thinks it is remarkable that there has been so little research on participation-processes in forest-management in the Netherlands. This research on Tiny Forests tries to contribute to this empirical knowledge gap by looking at Tiny Forests as a nature initiative in the category of ‘forest’.

1.5 Outline of the thesis

The research framework in Figure 2 is a schematic overview of the steps needed to achieve the research objective (Verschuren, Doorewaard, & Mellion, 2010).

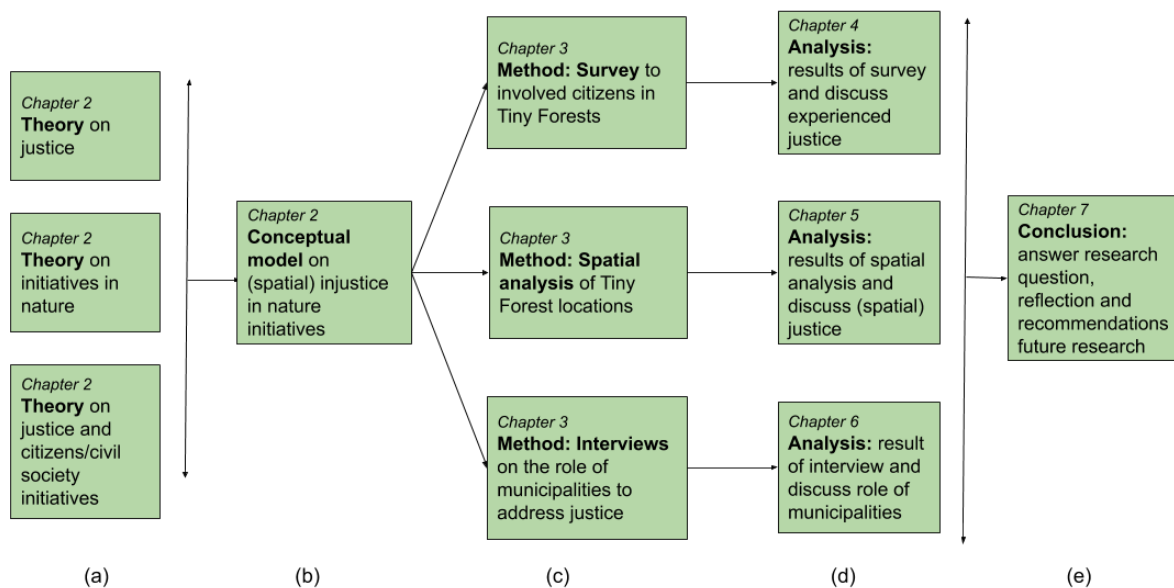


Figure 2 Research framework (based on Verschuren et al., 2010)

Now that it is clear what this research is about, the next step is to outline the literature on the theories of justice, citizen and civil society nature initiatives, and injustice issues in these nature initiatives (step a). This is included in Chapter 2, which gives a theoretical overview, and results in a conceptual model with indicators for injustice in nature initiatives (step b). The methodology follows in Chapter 3, which highlights three research methods. Thereafter, the analysis of injustice is conducted by describing and discussing the results of these three methods (step c and d). First, the results of the survey about how just citizens experience the Tiny Forests initiative are presented and discussed (Chapter 4). With the second research method, a spatial analysis, it was tested how the locations of Tiny Forests contribute to a just distribution (Chapter 5). Lastly, two interviews with officials from the municipality of Zaanstad and Utrecht were analyzed to look at the role of municipalities in Tiny Forests (Chapter 6). Chapter 7 concludes on how the three different dimensions of justice are evaluated, and what recommendations for municipalities can be made for reducing injustice at the end (step e). These recommendations include to converse about justice and to encourage citizens to start initiatives with schools in neighborhoods with less socio-economic strong positions. Besides, the municipality should be aware of the local context and provide custom-made solutions for each Tiny Forest. In the concluding Chapter 7, also a critical reflection and suggestions for future research are provided.

2. Theory of (spatial) justice

This chapter is composed of two parts. The first section discusses the theoretical framework and the second part provides the conceptual model. This model gives an overview of the concepts used in this research, which are further operationalized in the final section to provide measurable indicators.

2.1 Theoretical framework

This section starts by considering the concepts of justice and space, followed by examining the different dimensions of justice. Subsequently, the relation between justice and participation is discussed. Participation is further addressed by laying out different types of initiatives and examining justice in these initiatives. There is a lot of interesting research on concepts like the socialization of nature and participatory governance, and analysis using the Policy Arrangement Approach (e.g. Mattijssen, Buijs, Elands, & Arts, 2018). In order to stay within the limits of its focus on justice in Tiny Forest initiatives, this research, however, does not go into detail on these topics.

2.1.1 Justice and space

Justice has been a topic of research for social scientists for centuries and there is a large number of papers and materials on this subject. This means limiting the scope for this research is important, and this section will therefore mainly focus on spatial justice in urban areas, as the Tiny Forests are located in cities and villages. Williams (2013) argued that spatial justice as an analytical framework is in line with environmental justice. Environmental justice was also used in research on public participation of citizens in biodiversity governance (Paloniemi et al., 2015), but spatial justice exceeds the former by emphasizing the role of space in the production of (in)justice (Williams, 2013). Including space makes for more robust theories of justice and helps researchers to analyze the socio-spatial phenomenon. To be able to operationalize spatial justice, one must consider the theory of space and the theory of justice (Williams, 2013).

First, the theory of space is shortly examined. Cresswell (2014) defined both space and place in his book. When humans give meaning in a space, they become attached to it and a space becomes a place (Cresswell, 2014). One can distinguish natural space, or absolute space, and social space (Lefebvre, 1991). Social space takes into account social hierarchies and power relations within a society (Cresswell, 2014). Soja (1999) elaborated on this distinction of Lefebvre through a critical point on the duality of spatiality. He tried to overcome this by the concept of 'thirdspace' or live space, which means places are social products of historical and natural elements, and these places in turn modify people (Soja, 1999). Places reflect power, but also apply social and political power. On the other hand, space is made of a set of social, material, and ideological relations (Lefebvre, 1991). This relationship implies that all social processes are spatially produced, which means that justice relationships are also spatially produced (Williams, 2013). Therefore, the concept of space is important to theories of justice.

Secondly, the theory of justice is briefly introduced. Rawls is seen as one of the key thinkers in the debate on the definition of justice. He defined two principles of justice. The first principle includes

that each person must have an equal right to the total system of equal basic liberties (Rawls, 2001). The second principle states that social and economic inequalities are to satisfy two conditions. The first condition is that these inequalities are to be attached to offices and positions open to all under conditions of fair equality of opportunity. The second condition includes that inequalities are to be to the greatest benefit to the least-advantaged members of society (the distributive principle) (Rawls, 2001, p. 42).

Although Rawls wanted to change the basic structure of society with ideal schemes and processes of justice, he was also criticized by some thinkers. One of these thinkers is Young, who was critical on Rawls' distributive perspective of justice. She saw goods not as something static and materialistic, but as caused by social relations and institutional rules and procedures, including power in decision making (Young, 2011). If one only focuses on material distribution, one fails to bring social structures, institutional context, and class relation under evaluation (p.20). For Young (2011), social justice means 'institutions that promote the reproduction of and respect for group differences without oppression and without melting away these differences' (p.47). Recognizing the social differences between groups is an important element to examine injustice.

By combining the theory of space and justice, a spatial perspective in social justice is created. Spatial justice includes issues on justice that are concerned with how space is used and how decisions about the use and design of particular places are determined (Soja, 2009). 'Spatial justice refers to an intentional and focused emphasis on the spatial or geographical aspects of justice and injustice. As a starting point, this involves the fair and equitable distribution in space of socially valued resources and the opportunities to use them' (Soja, 2009, p. 2). Soja further elaborated by saying that spatial justice is not only an outcome but also a process. It is also not a substitute or an alternative for social or environmental justice, but rather a new theoretical perspective on how to look at justice (Soja, 2010, p. 5)

2.1.2 Dimensions of justice

Fraser (1998) also argued that only looking at the distributive aspect of justice is not enough and therefore defined justice according to two separate but interrelated aspects: distributive justice and justice of recognition. The former is defined as the redistribution of material resources that must ensure participants' interdependence and 'voice', whereas justice of recognition is described as equal respect for all participants and equal opportunities for achieving social esteem (Fraser, 1998, p. 5). The first concept refers more to economic justice and the latter to cultural justice. Fraser (1998) later added the third dimension called representation, which is more related to political justice and participation (see also Table 1). Representation tells us something about who is included and who is excluded from decisions on a just distribution and reciprocal recognition (Fraser, 2010, p. 17).

Both Young and Fraser moved beyond the distributive justice perspective into recognition, group difference, and political participation. In this way, they not only looked at the outcomes but also at the causes and processes underlying justice. Democratic and participatory decision-making procedures are both an element of, and a condition for, social justice (Young, 2011, p. 23). Whereas Fraser focused on both distribution and recognition, Young argued that a lack of recognition inflicts damage to the oppressed communities, hence being the foundation of distributive injustice (Paavola & Lowe, 2005).

Fainstein (2010) identified dimensions of justice in a similar way to Fraser and applied these theoretical concepts to the problems faced by urban planners and policymakers at the local level of the city. In this way, she looked at the distributive effects of urban development policies and decisions. She outlined three central concepts based on the work of Rawls and Young (see also Table 1). These concepts are democracy (everyone is represented in the decision-making process and information is understandable for everyone), equity (equal treatment and opportunities), and diversity (involvement of all societal groups). The combination of equity and material well-being with considerations of diversity and participation will encourage a better quality of urban life (Fainstein, 2010).

Low (2013) criticized Fainstein on too narrow a definition of justice, and consequently, on her utopian aims to produce a better city for all citizens, which are only partially fulfilled. Low argued that three dimensions of justice are essential to address the multiple kinds of perceived injustice: procedural, distributive and interactional justice (Low, 2013, p. 5) (see also Table 1). Distributive justice based on equity was already discussed by Rawls, to which the dimensions of procedural and interactional justice were added. 'Procedural justice refers to the way that the processes of negotiation and decision-making influence perceived fairness by individuals' (Low, 2013, p. 6). This suggests it is more about the process than about the outcome. The interactional dimension is about 'the quality of interpersonal interaction in a specific situation or place' (p.7). Low (2013) researched fairness in public spaces like parks and posed questions on these three different types of justice like: is there a fair allocation of public space resources? (distributive justice); is there a fair system for applying to use the park? (procedural justice), and; does the public space allow for all individuals to interact safely? (interactional justice).

To conclude, the differences between Fraser, Fainstein and Low are discussed. The three dimensions of justice (distributive, procedural, and interactional) focus more on fairness and organizational justice (Low, 2013), whereas Fraser's (2013) three concepts (recognition, representation, and redistribution) are more into social justice and the social status of communities. That is why the latter three concepts of Fraser are chosen because this research focuses on neighborhoods and citizens, rather than the management of an organization or initiative itself. Another difference between the thinkers is that Fainstein (2010) approached justice more in the field of spatial planning, whereas Fraser operated in the field of political philosophy and sociology. Furthermore, Fraser is concerned with participatory democracy and parity of participation, making it more relevant to answering the research question. Fraser's three concepts are also more or less in line with Schlosberg (2009), who developed a broad framework based on three key elements: equity in distributive justice, recognition of the diversity of participants and experiences in communities, and procedural justice including participation in the political process (Schlosberg, 2009). This shows the relevance of Fraser's framework of justice for participation processes in particular.

Fraser	Fainstein	Low
Recognition	Diversity	Interactional
Redistribution	Equity	Distributive
Representation	Democracy	Procedural

Table 1 Different thinkers and their dimensions of justice

2.1.3 Justice and participation

Justice is often related to participation processes, as shown in the section above, with concepts like representation. Arnstein (1969) argued that citizen participation is actually citizen power. 'It is the redistribution of power that enables the have-not citizens, presently excluded from the political and economic processes, to be deliberately included in the future' (Arnstein, 1969, p. 216). Enabling less powerful citizens to represent themselves gives them a share in the benefits of society.

Arnstein (1969) conceptualized citizens' participation in her ladder framework to distinguish eight levels of participation (shown in Figure 3). The bottom rungs of the ladder are conceptualized as 'non-participation', which means that the already powerful people 'educate' and 'cure' the participants (p.25). The next three rungs are described as degrees of tokenism, which means that it allows the have-nots (excluded citizens) to hear and to have a voice, but there is no follow-through or assurance of changing the status quo. The upper three levels are all degrees of citizen power, meaning, respectively, to engage in trade-offs with traditional powerholders, to enable citizens to obtain the majority of decision-making seats, and to have full managerial power (p.25).

Although one might argue that the ladder of Arnstein (1969) is outdated and static, and that we should move beyond this framework (e.g. Collins & Ison, 2009; Titter & McCallum, 2006), Blue et al. (2019) added the ladder to their research and combined it with Fraser's model of justice in which parity of participation is the aim. Parity of participation requires social arrangements that permit all to participate as peers in social life (Fraser, 2008, p.16). This is achieved by combining three dimensions of justice: recognition (who is included and heard), redistribution (who gets what) and representation (how to decide who gets what, and where does it take place) (Fraser, 2013) (as shown in Figure 4). Linking Arnstein's participation ladder and Fraser's framework for justice highlights the interconnection between the economic (redistribution), cultural (recognition), and political (representation) domains of justice (Blue et al., 2019). This means participatory initiatives are not evaluated against the static image of participation that only includes aspects of inequality and inequity, but multiple explicit and simultaneous injustices are recognized.

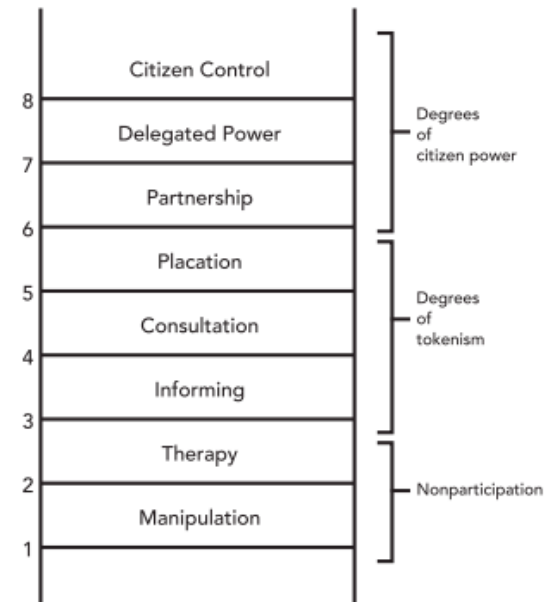


Figure 3 Ladder of participation (Arnstein, 1969)

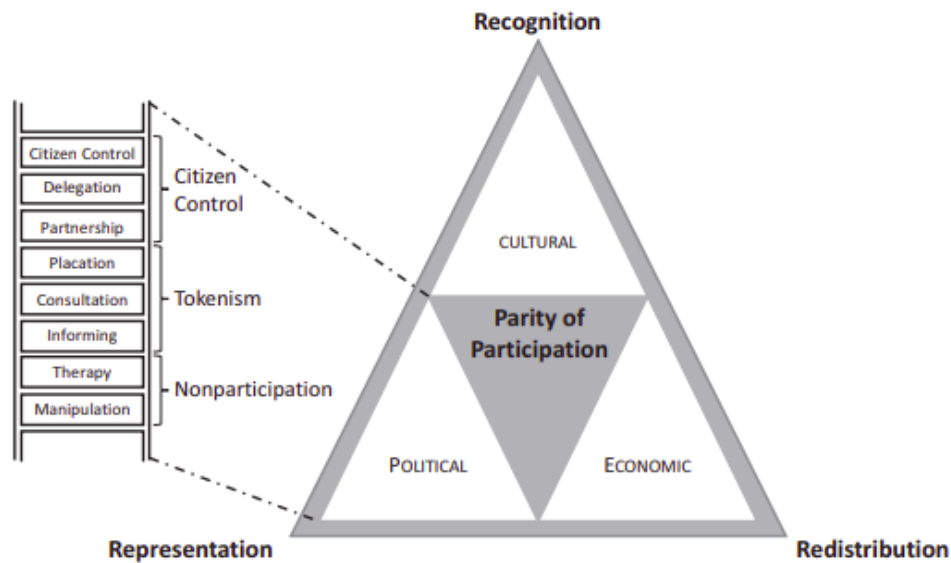


Figure 4 Parity of participation: combining Fraser's justice framework with Arnstein's ladder of participation (Blue, Rosol & Fast, 2019)

The advantage of Fraser's theory is that it is quite practical in the sense that it gives principles for participatory initiatives that could be used by planners. These can be used for municipalities to guide initiatives, such as Tiny Forests, by determining what is just and what is unjust based on these three dimensions. The triangle of Figure 4 implies that the three dimensions of justice can be addressed separately, but only by paying attention to all three realms planners can address injustice and make meaningful participation possible. They can do this in practice by ensuring that all relevant people and perspectives are represented at appropriate scales (representation), by ensuring that all perspectives – not just the dominant ones – are recognized and valued (recognition), and by responding to and mitigating the inequitable distribution of wealth and resources (redistribution) (Blue et al., 2019).

2.1.4 Nature initiatives in terms of justice

The application of justice as a theory, especially Fraser's justice model and Arnstein's participation ladder, to nature initiatives like the Tiny Forest initiative, is limited in previous studies. Combining these two theories in this context is not found in previous research. However, Van Dam, Salverda, During, and Duineveld (2014) applied Arnstein's ladder of participation to citizen and civil society initiatives in the Netherlands. They used seven steps to define the roles of citizens: no role, target group of research or information, consultant, adviser, co-decision-maker, co-operation partner, and initiator. In the Tiny Forest initiative, six of these roles were similarly applied, as shown in Figure 5. 'No role' was not adopted as this research focuses on involved citizens meaning they have some kind of role in the Tiny Forest initiative.

Initiator
Maintaining
Coordinating
Advising
Teaching/informing
Only visiting

Figure 5 Ladder of participation in the Tiny Forest initiative

Relating to Fraser's justice model, Paloniemi et al. (2015) explored public participation in biodiversity governance by focusing on distributive and procedural justice. The former

includes the spread of conservation costs and the latter refers to the degree of involvement and representation. The term recognition was also used, meaning the acknowledgment of diverse knowledge systems, cultures, values, identities, livelihoods, and rights. This relates to the different degrees of participation in Arnstein's (1969) participation ladder, as all perspectives, also those of less active participants, should be recognized. Participants were asked questions about how various actors have been recognized and invited to participate, how their abilities to participate have been ensured and how emerging participatory arrangements have influenced the distribution of costs and benefits (Paloniemi et al., 2015, p. 333). These questions can also be asked similarly to participants in the Tiny Forest initiative.

As a side-note, Blue et al. (2019) mentioned that injustice should be addressed and resolved in practice by taking the context of specific social relations and power dynamics into account. 'What enhances the redistribution of power in one context, can easily become a new form of oppression in another' (Blue et al., 2019, p. 372). This is important to consider when assessing injustice in Tiny Forest initiatives, because the social relations and different tasks and functions of people might resolve in unequal power dynamics. This depends on who is involved and how people interact with each other. What is relevant in one Tiny Forest or municipality, might not be the case in other places.

2.2 Conceptual model

Based on the literature study in this theoretical section, the conceptual model that has been established is shown in Figure 6. It shows that redistribution, recognition, and representation have an influence on (spatial) justice in the Tiny Forests. The location of the Tiny Forest is specified as a variable, because it is expected that the location has a significant influence on the redistribution of resources and opportunities. It is also expected, based on suggestions in the literature, that locations of initiatives are related to the socio-economic circumstances in neighborhoods (e.g. Sanders et al., 2018).

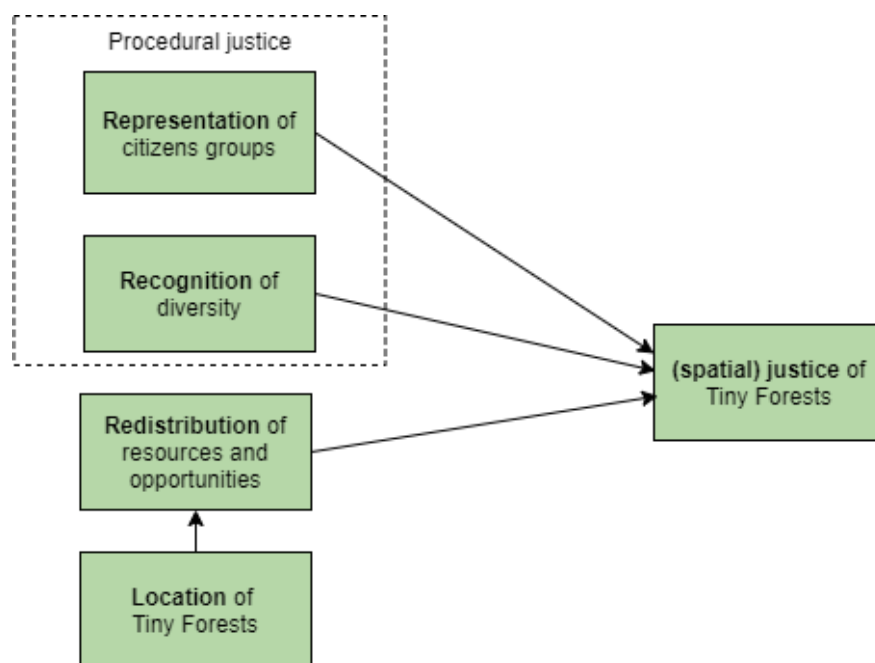


Figure 6 Conceptual model

Operationalizing the rather abstract concept of justice into dimensions and indicators is needed to observe or measure justice (Verschuren et al., 2010). For this research, justice is defined using three dimensions of Fraser as indicated in Figure 7. These dimensions are further operationalized in indicators that can be translated into the survey and interview questions, and spatial data layers in the spatial analysis. More about these methods can be read in the next chapter about research methods.

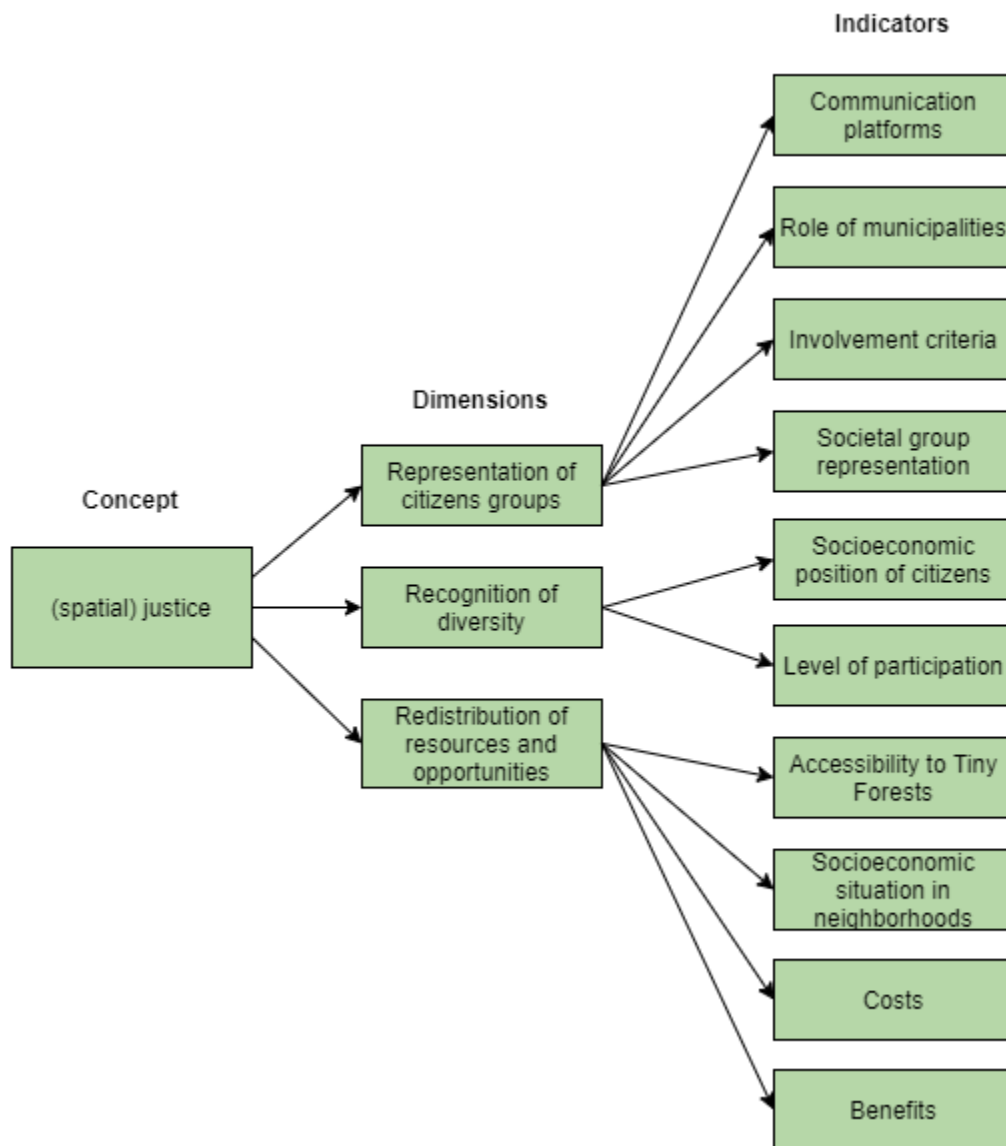


Figure 7 Operationalizing the research concept of justice based on Fraser (2013)

3. Methodology

In this chapter, the methodology of this thesis is outlined. First, the research design and strategy are discussed. The second part of this section focuses on the three different research methods that were used in this research: a survey, spatial analysis, and interviews.

3.1 Research design and strategy

The research strategy describes the decisions concerning how this research was carried out (Verschuren et al., 2010). This empirical research was of a deductive kind, as the theory of justice was applied and tested on the Tiny Forest concept. This practice-oriented research aimed to use the knowledge of injustice in the Tiny Forest initiatives to contribute to a change or intervention in the existing situation of how municipalities deal with injustice in nature civil society initiatives. There are different types of practice-oriented research identified by Verschuren et al. (2010). The first part of this research was mainly problem-orientated, because it identified the ‘problem’ of injustice by discovering to what extent injustice plays a role in the Tiny Forest initiatives. Additionally, describing justice issues more broadly lent itself to carry out quantitative research, including a survey and a spatial analysis on national scale, since it was tried to gain an overall picture of justice instead of an in-depth view on a specific dimension of justice

The second part of this research was evaluative and design-oriented, because it evaluated how municipalities deal with injustice through their current practices. It formulated recommendations for a design to decrease injustice in nature initiatives. The question of how injustice can be decreased was approached qualitatively by interviews with municipalities. In the end, both a broad view on the justice issues and a more in-depth view on how to improve justice was given in a triangulated way (see also Figure 8). Triangulation involves gaining evidence from different sources to shed light on the theme of justice and to provide corroborating evidence (Creswell & Poth, 2016). If different data sources provide similar results, then this strengthens the conclusions (Vennix, 2016).

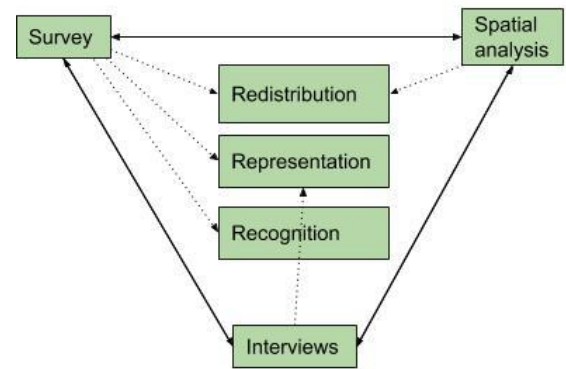


Figure 8 Overview of research strategies and on which dimension of justice they focus

3.2 Survey

The survey delivered information for answering the first sub-question about how the three different dimensions of justice (redistribution, recognition, and representation) are experienced by citizens. A quantitative survey was chosen to create an overall picture of the justice issues in all Tiny Forests in the Netherlands. A relatively large number of research units enable the researcher to gain a representative picture of the whole population (Verschuren et al., 2010), in this case, a picture of the most common

justice issues of Tiny Forests. This advantage is also a limit of using a survey in general: there is a trade-off between gaining a complete overview and an in-depth view. This was mitigated by conducting two interviews with municipality officials. The second reason for choosing a survey was that justice consists of several dimensions and indicators, as set out in Figure 7 (Paragraph 2.2). The survey as a research strategy was a reductionist one, meaning that reality was reduced to a set of research units and a set of variables (Verschuren et al., 2010). With a survey, various relationships between these variables could be tested, for example, the relationship between the accessibility to the Tiny Forest and the educational level of the respondent. Lastly, the dimensions and indicators that define justice in this research could easily be transformed into closed questions by presenting statements on which respondents can give their opinions. Closed questions have a lower validity but higher reliability than open questions, because the answers of the respondents have to be translated to pre-defined categories. On the other hand, coding the answers afterward is easier than categorizing open questions afterwards, which therefore increases the reliability (Vennix, 2016). To increase the internal validity, the survey questions were sent beforehand to the IVN to check whether the survey corresponds with the context in which Tiny Forests emerge and are maintained.

There are several variants of a survey (Verschuren et al., 2010). This research gathered materials at a certain moment in time from one and the same group, making it a cross-sectional research (Vennix, 2016). The Tiny Forest initiative is rather new (also in the research world), which makes it in the first place important to gain initial insight at only one point in time. Furthermore, this variant was chosen because of the time limit of this research. Secondly, a web survey was chosen because it was not possible to do face-to-face surveys, due to the Coronavirus pandemic at the time of writing this research. The advantage is that citizens can fill in the survey at any time or continue later and the data is automatically collected in a digital database (Vennix, 2016). A disadvantage is that the response rate is usually lower if the survey is online.

Data collection

The research objects for the online survey were citizens involved in a Tiny Forest in the Netherlands. This involvement varied from being the initiator to only being a visitor of a Tiny Forest, referring to the ladder of participation of Arnstein (1969). The survey was created using the software program Qualtrics, which is a free web tool to create online surveys. One of the benefits was that the data could be easily saved in Excel or SPSS. The survey questions per dimension of justice can be found in Appendix 1.

To be able to reach respondents, the IVN distributed the survey to all the initiators of the Tiny Forests in the Netherlands by email, as they already had their email addresses in a database. The initiators are likely to have the most information on and contacts within their Tiny Forest. They filled in the survey and they were also asked to send it to other involved people to create a snowball effect. The survey was also added to the newsletter about Tiny Forests in the Netherlands, which was sent to all people who were subscribed. These two ways of distributing the survey did not make it possible to distinguish between people with a private Tiny Forest in their backyards or people involved in public Tiny Forests. However, during the analysis, it was possible to identify respondents with private Tiny Forests by their answers, and therefore, these five respondents were deleted. The reason for this is

that private Tuiny Forests are not accessible for the public and are organized more individually, whereas (public) Tiny Forests encourage to involve all (neighborhood) citizens.

There are also a few limitations of using a survey to collect data in this way. First, collecting data from those citizens who do not participate was probably not very likely to happen using these channels to collect the data. This is an important limitation of this research, because these citizens may have a different perspective on the Tiny Forest initiative. Second, the question is if everyone in the sample (citizens involved in Tiny Forests) had an equal chance of being included in the survey regardless of their characteristics. This is called a random survey sample (Vennix, 2016; Verschuren et al., 2010). Due to the indirect method of reaching survey respondents via initiators of Tiny Forests, there is a possibility that not everyone had an equal chance, and some groups of citizens might have been left out. This was important to notice beforehand, in order to assess the representativeness of the survey more critically afterward.

Data analysis

By the end of the survey period, data had been collected from fifty citizens, which resulted in forty-five respondents after deleting the five respondents that owned a private Tuiny Forest. This number was lower than the minimum of sixty to eighty respondents required to make the results of the statistical analysis valid (Verschuren et al., 2010). Consequently, it was chosen to not distinguish the data between the different Tiny Forest locations, because the overall response to the survey was lower than expected. The survey data was initially planned to be analyzed with ArcGIS Pro, as there were spatial components embedded in the survey: the location of the respondent's local Tiny Forest, the distance from the forest, and the neighborhood in which respondents lived. ArcGIS Pro could perform similar analyses to IBM SPSS, such as regression analysis for relationships among features or variables, or graphs for descriptive analysis. The added value of ArcGIS Pro would have been the linkage of the survey data with the locations of the Tiny Forests, so it was unfortunate that the number of respondents was too low to be able to do this. Nevertheless, the data was useful for drawing some general conclusions, although it may not be wholly representative of all citizens involved in Tiny Forests.

The first step in the analysis of the survey was to process the data in a table. This was done in Excel instead of ArcGIS Pro, because the results did not include data on all Tiny Forest locations, or only had one or two respondents from the same Tiny Forest. Excel was chosen because the data from Qualtrics could be easily converted into Excel. When all the data was converted into a table, it was checked for accuracy and internal consistency. Some people did not answer all the thirty-five questions, which resulted in a maximum of five missing data for one question. These few respondents were not deleted because they completed most of the survey. Furthermore, descriptive analysis becomes more representative the greater the number of respondents. To give insight into the number of citizens that answered a specific question, this number was included in the corresponding graph with 'N=...'.

Hence, an extra category was made after identifying which answers were given when the category 'other' was chosen. For instance, the answer category 'Nobody, started it myself' was added to the question about who encourages citizens to become involved (question 8 in Appendix 1). Also, the category 'I teach in Tiny Forests' was broadened by changing it into 'I am involved through the school with a Tiny Forest', because most answers in the 'other' category were related to schools (question 6 in Appendix 1). The next step was to make a first analysis of the data distribution and total

numbers for each variable to find out if the respondents formed a representative sample of the overall population in terms of age, gender, and educational level. Thereafter, the other variables were analyzed by creating bar graphs in Excel for each category of the survey. The results of this analysis can be found in Chapter 4.

3.3 Spatial analysis

The spatial analysis focused on the second sub-question about how the location of Tiny Forests influences justice. It is important to gain insight into whether the Tiny Forests are located in neighborhoods where citizens have a higher or lower socio-economic position, or whether there is no significant relationship, because involved citizens can influence justice based on the decision of locations for the initiative. There are different indicators, as shown in Table 2, that define the socio-economic characteristics in a neighborhood and these indicators were tested separately to get a better understanding of the underlying reasons for the location of a Tiny Forest. The software program ArcGIS Pro was not used for analyzing the survey results, but it was used for spatial analysis.

Data collection

Two datasets were collected. The first included the locations of the Tiny Forests in the Netherlands, which could be found on the website of the IVN (IVN, 2020). Later, an updated list of the locations was received from the IVN by email. These locations are depicted in Figure 1 in Paragraph 1.1.4. The second dataset included the socio-economic characteristics of the neighborhoods. The Dutch organization 'Centraal Bureau voor Statistiek' (CBS) had a map available of the districts and neighborhoods, including variables of the inhabitants like gender, age, and nationality. This dataset is called 'district- and neighborhood map' (Wijk- en Buurtkaart) and is from the year 2019 (Centraal Bureau voor Statistiek (CBS), 2019c). It was chosen to focus on neighborhoods (in Dutch 'buurten') because this is the smallest unit of analysis and most involved people lived close (less than one kilometer) to Tiny Forests (see also Paragraph 4.2).

The municipalities without a Tiny Forest were deleted from the dataset because they are not the object of analysis. As one could derive from Figure 1 in Paragraph 1.1.4, the Tiny Forests are quite evenly distributed over the Netherlands, but only two forests are currently located in the far north. Tiny Forests are located within both smaller municipalities, like Schiedam, and larger ones like Apeldoorn. In the end, the dataset contained 2933 neighborhoods in 46 municipalities. Polygons located in the water were deleted because no people live there. Additionally, polygons with a shape area of sixty-seven square meters or less were deleted because they will not be visible on the maps, and were most of the time elongated paths irrelevant to analyze at neighborhood levels.

Additionally, the variables 'income' and 'education' were chosen because it was assumed that more highly educated people often participate in nature initiatives (Sanders et al., 2018). Higher educational attainment might result in higher incomes, or vice versa, but no one to one relationship was expected (Tolley & Olson, 1971). However, the first dataset from CBS did not include these two variables, and therefore another dataset from CBS was used (Centraal Bureau voor Statistiek (CBS), 2019b). This dataset separated the educational level into three categories of percentages: low, middle, and high. Unfortunately, this dataset had no spatial components for ArcGIS yet, which made it necessary to link the neighborhoods-codes with the dataset 'district and neighborhood map' in Excel

first, and then join it with the spatial polygons of ‘district and neighborhood map’ in ArcGIS Pro. This process was carried out similarly for the income dataset, which was also retrieved from Centraal Bureau voor Statistiek (CBS) (2020). As shown in Table 2, income and education were measured in the year 2017, and the other variables, age and nationality, were measured in 2019. This was because more recent data was not available for income and education. It was chosen to have the most recent numbers for all indicators because the Tiny Forests were planted from 2015 onwards, with more forests planted in the year 2019 than in the previous years.

The number of missing values varied among the variables, but most remarkable was the number of missing data for the variable education, totaling 60% missing (all numbers of missing data are included in Appendix 2). This meant extra attention needed to be paid when analyzing this variable. This was done by making clear on the map where the missing data is located, and by calculating the percentage of missing data and adding this to the legend of the map. For income, the indicator with the least missing data was selected, which was the average income per inhabitant. Each indicator of a variable required a single map. Therefore, to limit the number of maps, the indicator non-Western migrants was chosen for the variable nationality, as it was expected that their culture differs to a greater extent from the Dutch culture than the Western migrant culture does. Furthermore, the percentage of more highly educated people was chosen for the education variable, but this is interchangeable with low education as the same relationship was expected. Secondary education was not selected for this analysis, because it was expected that there is no strong relation with the locations of Tiny Forests.

Furthermore, as already stated, green space was recognized as an aspect of justice (Mattijssen et al., 2015), and having green space nearby often disproportionately benefits the white and more affluent communities (Wolch et al., 2014). Moreover, if Tiny Forests are located within more paved surface areas, they contribute relatively more to the amount of green than when located in an already relatively green neighborhood. Whether Tiny Forests are located within neighborhoods with a high or low amount of paved surface is also relevant to municipalities when deciding on the location for Tiny Forests in the future, because more green spaces increase the livability of a neighborhood (Chiesura, 2004).

Variable	Indicator	Measurement scale	Year	Source
Age	<ul style="list-style-type: none"> percentage 24-45 years old 	Interval	2019	CBS
Ethnicity	<ul style="list-style-type: none"> percentage non-Western migrants 	Interval	2019	CBS
Income	<ul style="list-style-type: none"> average income per citizen 	Ratio	2017	Statline
Education	<ul style="list-style-type: none"> percentage of highly educated people 	Interval	2017	CBS
Green space	<ul style="list-style-type: none"> percentage paved surface 	Interval	2019	Klimaatatlas

Table 2 Variables and their indicators to measure socio-economic characteristics in the neighborhoods

Data analysis

The first step was to map the locations of the Tiny Forests in ArcGIS Pro, which was done by creating a feature class in a geodatabase. This is a collection of geographic features (in this case Tiny Forests) with the same geometry type (in this case point), with the same attributes (also called variables), and the same spatial reference. The second step was to analyze whether there are high or low socio-economic characteristics in the neighborhood where Tiny Forests are located compared to surrounding neighborhoods. The dependent variable (the one that should be explained) was whether or not there is a Tiny Forest in the neighborhood which made the variable of nominal data. The independent variables are represented in Table 2.

The consequence of the nominal measurement scale was that statistical analysis like regression analysis was not applicable, also because the indicators in Table 2 were not chosen to explain why a Tiny Forest is located in a certain area, but were chosen based on the justice issues this research investigates. For example, the indicator 'schools' would have been a better indicator for explaining the location of a Tiny Forest, as Tiny Forests are required to have a school involved (see also Appendix 3 for all characteristics of Tiny Forests). However, 'having schools nearby' was not suggested as an indicator to contribute to injustice of Tiny Forests. To underpin this argument, a binary linear regression analysis was performed using the tool Generalized Linear Regression in ArcGIS Pro. This tool was selected because the dependent variable is binary (Tiny Forest or not) and the independent variables have an interval measurement scale (see also Table 2). The result was that the indicators from Table 2 explained less than one percent of whether there is a Tiny Forest located in a neighborhood or not (see also Figure 32 in Appendix 4).

In conclusion, a descriptive analysis fits this research because the chosen indicators explain injustice of Tiny Forests, rather than the location of Tiny Forests. The analysis was performed by visually analyzing each variable and the Tiny Forest locations. Also, the mean values of each indicator were calculated for the neighborhoods where Tiny Forests are located, and compared with the mean values of the total amount of neighborhoods within the municipalities. To make the number of maps manageable for this research, the two cities with the most Tiny Forests were selected. These are Utrecht (four Tiny Forests) and Zaanstad (two Tiny Forests), as depicted in Figure 9. Although Almere would also have been suitable because it has more Tiny Forests than Zaanstad, the municipality was not able to answer the interview questions, hence Almere was not included in the analysis as a specific case. After Utrecht and Almere, several municipalities have the third most forests, but Zaanstad was



Figure 9 Locations of municipalities Utrecht and Zaanstad

chosen because this was the municipality that had the first Tiny Forests planted in the Netherlands. Having more than one Tiny Forest in a city makes more reliable results possible as different locations can be compared in one city. It was chosen to analyze the data per city because data of different cities in the Netherlands might vary too much (see also Appendix 5 for the data distribution), which means taking the averages of all the cities was not appropriate.

One must keep in mind during the visual analysis that maps are social constructions, meaning that knowledge is constructed and power relations are involved in cartography (Crampton, 2001). It is not an objective form of communication as the mapmaker applies certain restrictive choices. One of these choices has to do with the classification procedures to make the map interpretable. Different classifications are possible depending on the data distribution, but each gives a different view on the map. Five data classes were chosen in this research because more classes would make it more difficult to distinguish the colors of the classes, although it might represent the data in a better way. The classification method 'natural breaks' was used, which determines the class breaks based on clusters or gaps in the data. This method was applied because the data for the different variables were unevenly distributed (see Appendix 5 for the data distribution). A possible disadvantage of this method is that it can have widely varying ranges of numbers. This was limited in this research because the range of income was €50,000 and of the percentages was 50-60%. Dividing this into five classes should result in sufficient variance per class. To demonstrate this, the underlying distribution is provided by the histograms of the data distribution in Appendix 5.

3.4 Interviews

To answer the third sub-question, 'how do the municipalities currently help to improve justice?', two interviews were conducted with officials from different municipalities. This method was chosen because the context in which the Tiny Forests are situated is important and requires an assertion concerning the object as a whole (Verschuren et al., 2010). The same two municipalities were chosen as in the spatial analysis, in order to compare the results of the two. The interviews thus elaborate on the knowledge found in the spatial analysis. A comparative case study made it possible to compare the policies and rules of different municipalities and to find similarities and differences.

Data collection

The data were collected by a structured email interview. This way of collecting has several benefits and limitations. The major benefit was the time reduction in this research. The spatial analysis and survey formed the major part of this research, and the time limit for this project impeded conducting and transcribing (online) face-to-face interviews. Although textual answers might be shorter than face-to-face answers, the email answers might be more concrete because the respondent has more time to reflect and think about the answers. Furthermore, the inability to probe further might be seen as a limit of textual email interviews, but it was still possible to send some following-up questions after receiving an answer. This was done but without a reaction in return. Structured interviews allowed systematic analysis and comparison of the answers because the interviewees were asked the same questions.

The interviews were conducted with two representatives of the two municipalities, who are involved in the Tiny Forest initiative in their city. The interview guide focused on the role of the municipality in Tiny Forests, justice in terms of representation and redistribution, instruments (rules

and policies) municipalities used to decrease injustice, and how they chose locations for Tiny Forests. The questions can be found in Appendix 6. The collected data mainly focused on the representational part of justice, because the municipalities can support initiatives to make them more inclusive. The respondents from the municipalities were Jos Koppen (vision specialist Green, Playing and cemeteries from the municipality Zaanstad), and Jeroen Schenkels (Senior Adviser/Program manager multi-year green program from the municipality Utrecht). They were contacted via IVN.

Data analysis

First, the interviews were summarized to make sure the data was well understood (see Appendix 7 for the summaries). The email interviews were coded with the program ATLAS.ti to help understand the data and to answer the research questions. The first phase of coding was 'open coding', in which the data was coded into categories (Creswell & Poth, 2016). Some similar codes were merged to reduce the number of codes and to make a comparison between the interviews easier. The categories mainly represented the questions and general themes identified in the answers (see also Appendix 8 for the codes). The next phase was axial coding in which the categories were related to the central phenomena (justice) (Creswell & Poth, 2016). Subsequently, the different codes with the related short quotations were summarized in a table to make an overview of the similarities and differences between the two municipalities.

4. Analysis: Experienced justice

To identify how (in)justice is experienced by involved citizens in Tiny Forests, a survey was created (shown in Appendix 1). The survey results are summarized and discussed in this section by first examining how representative the respondents are for society as a whole. Second, some general data relating to involvement in Tiny Forests is given. Thereafter, the results are presented and analyzed per dimension of justice (representation, recognition, and redistribution). In the end, the questions from the survey about the role of the municipality are examined.

4.1 Respondents

First, the personal characteristics of the respondents are examined. The number of people that answered a specific question is displayed by the 'N=' in all the graphs. More women than men responded to the survey. Figure 10 shows that the age of the largest share of men is 50 to 60 years and most women respondents were 30 to 40 years. The average age of men was 56 years and of women was 47 years. The average age of all respondents was 51 years. This is in line with previous research suggesting mostly middle-age citizens are involved in nature initiatives (e.g. Bredenoord et al., 2020). The majority of the respondents (81%) were more highly educated, with a diploma from a university of applied science (hbo) or a university (wo). Additionally, the relative majority (or plurality) of the respondents (33%) fell in the income category of €2,500 to €5,000 per month (as shown in Figure 11). The average income in the Netherlands lies also within this range (Centraal Bureau voor Statistiek (CBS), 2019a), meaning that the average income of involved citizens did not differ much from society as a whole. Another variable is the origin of the citizens, which showed that all respondents involved were born in the Netherlands except for four respondents. Two of them were Western migrants and two were non-Western migrants. This means that mostly highly educated, respondents with higher incomes and born in the Netherlands were represented in the survey, and therefore were not completely representative of society as a whole.

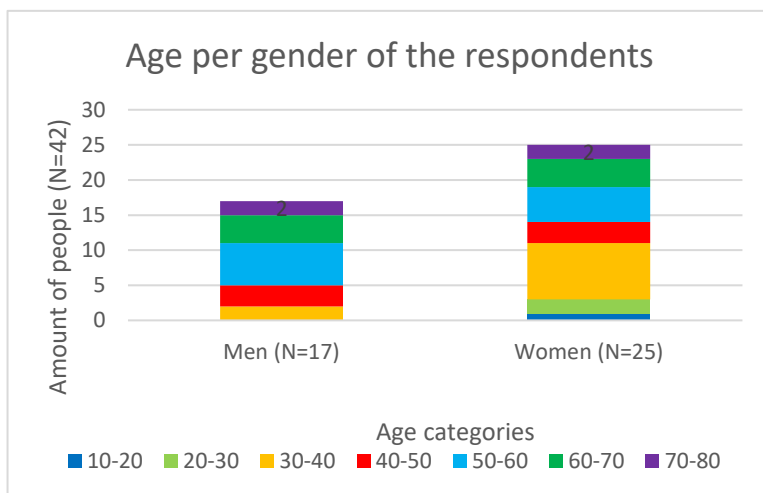


Figure 10 Respondents' age and gender

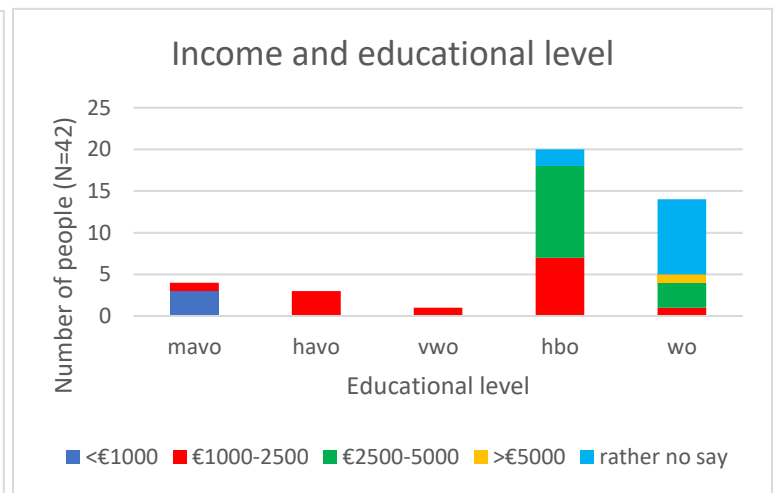


Figure 11 Respondents' income and education

4.2 General information

The next section of the survey was concerned with information about respondents' involvement. From Figure 12, it can be seen that the plurality of the citizens (52%) lived one or less than one kilometer from Tiny Forests, and, depending on the mode of transport, the plurality of the respondents (25%) lived within one minute from the Tiny Forest. However, the data on distance in minutes shows more variation. 40% of the respondents lived more than five minutes more from Tiny Forests. Although multiple explanations may apply, one, in particular, stands out: the mode of transport. Cycling is faster than walking, for example. Additionally, sixteen respondents lived in the same neighborhood as where the Tiny Forest is located and fourteen did not. The rest of the fifteen respondents did not submit their postal code, or the location of the Tiny Forests was not in the database used for this research. According to these results, it could be said that only half of the respondents lived in the same neighborhood as the Tiny Forest, but the small sample size requires that caution must be applied, as the findings should not be generalized for all involved citizens. Nevertheless, the majority lived less than one kilometer from Tiny Forests, which indicated that most respondents lived close to Tiny Forests and could access the forests easily based on these two criteria of distance.

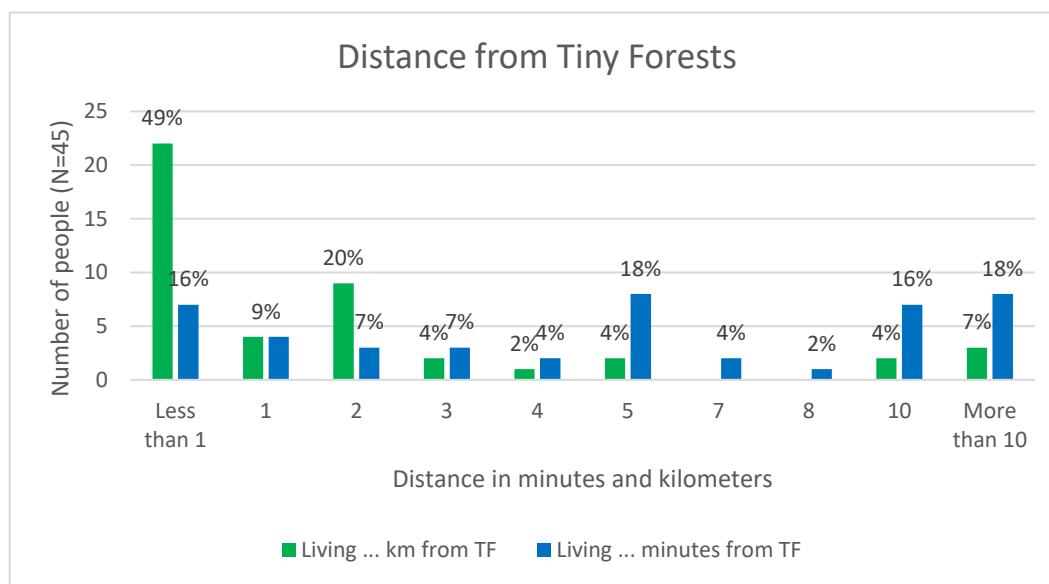


Figure 12 The relative and absolute distance from Tiny Forests

While looking at the questions about the duration of involvement and how citizens became involved, the results showed that the majority of the citizens (59%) have been involved for six months to one and a half years. Figure 13 illustrates how citizens became involved in the Tiny Forest initiative. The plurality of the respondents were personally approached (29%) or became involved via social media (16%). Respondents that used the category 'other' to answer this question, primarily became involved following meetings organized by IVN or through their job. When asked who encouraged respondents to become involved, 34% of the respondents answered with 'nobody' because they started the initiative themselves. 27% were contacted (directly or indirectly) by the IVN and 22% by the municipality. Citizens who chose the category 'other', usually mentioned that they became involved by some local organizations or interest groups in their neighborhood. These questions helped to answer

the question of how involved citizens experienced justice, because knowing how citizens became involved is an indicator of the political process that enables the opportunity to be part of the initiative. The preliminary conclusion that almost one-third of the respondents were personally approached by, for example, the IVN, municipality, or a local citizen, implies that one's social network is important in determining whether citizens are approached or not.

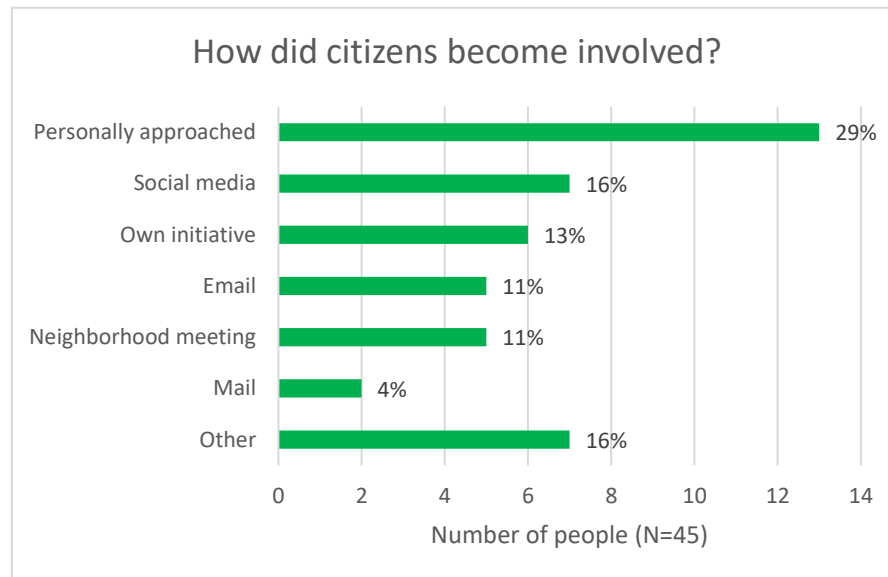


Figure 13 How citizens became involved in the Tiny Forest initiative

4.3 Recognition

The next questions related to recognition as one of the dimensions of justice. In response to the question to what extent citizens were involved in Tiny Forests, most of those surveyed (56%) indicated that they were the initiator of a Tiny Forest (as shown in Figure 14). Referring to Arnstein's ladder of participation (1969), these citizens are on the highest step of the ladder. No respondent said their role was mainly to give advice about the Tiny Forest, whereas 4% maintains the Tiny Forest and 4% coordinated others in Tiny Forests. The category 'teaching in Tiny Forests' was broadened by including the word 'school', meaning that people who were involved through the school do not necessarily have to teach in the Tiny Forests, but can also take part in activities related to the school and the Tiny Forests, for example greening the schoolyard. Respondents who answered with the category 'other', explained they were, for example, a researcher in Tiny Forests. Next to this, citizens indicated that they combined or used Tiny Forests for activities in or management of their neighborhoods. These answers imply that there are many types of involvement, but that most respondents were the initiator of the initiative.

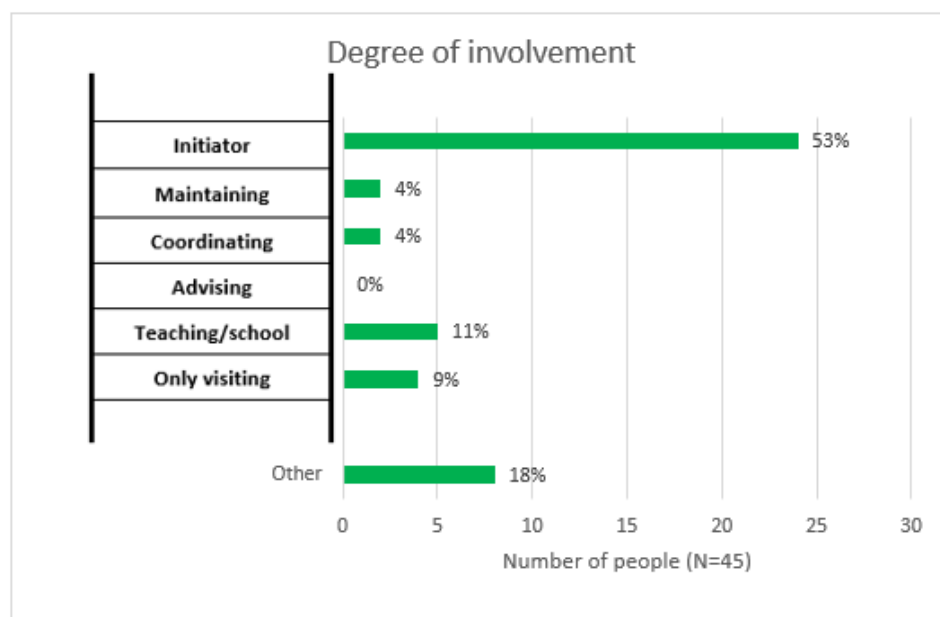


Figure 14 Degree of involvement

Another indicator used to measure a dimension of justice was to what extent the respondents and other involved citizens recognized differences among people. Three different questions were asked on recognition, of which the results are shown in Figure 15, Figure 15 and Figure 17. What stands out in these three figures is that almost all respondents (completely) agreed with the statements on recognition. These figures show that the option 'neutral' is frequently chosen. This might indicate that citizens may not have thought about it before, or that they had no opinion/idea on the topic of recognition. In particular, statements about the behavior of other citizens were more often answered with 'neutral'. This might be because some respondents just did not know how others treat other citizens in their Tiny Forest. The second interesting aspect of these graphs is that fewer respondents (completely) agreed that they were aware of the cultural differences than the number that (completely) agreed to treat others equally or respectfully. The majority answered the questions about themselves

with '(completely) agree' for cultural differences (70%), respectful treatment (89%), and equal treatment (86%). Additionally, more citizens (26%) remained neutral on the former statement about cultural differences than on the statements about treating others equally (14%) and respectfully (12%). The reasoning behind this remains unclear, but it might be related to the fact that a treatment is more visible than a thought. Whether you are aware of something or not, might be difficult to notice personally. Regarding the experience of justice, one can preliminary draw the conclusion that citizens treat each other in a just way but on other hand, they are not always aware of cultural differences, which might unconsciously result in unjust situations.

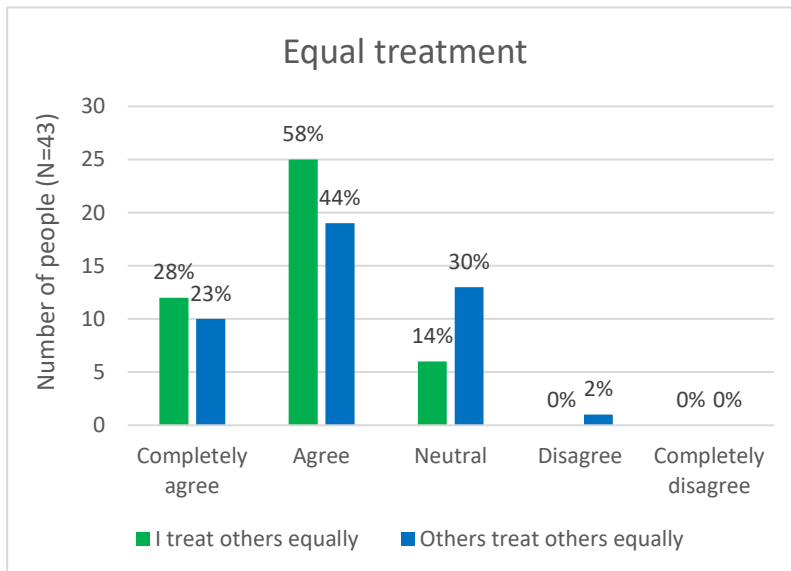


Figure 15 Treating others equally in Tiny Forests

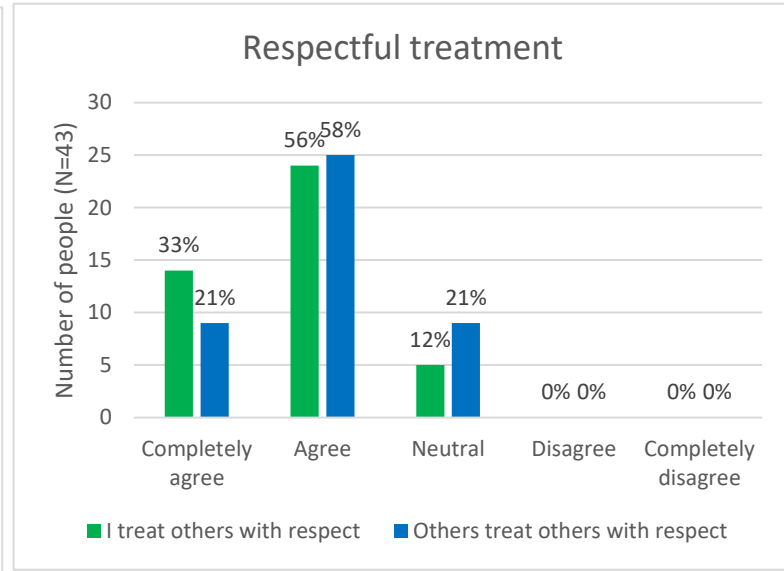


Figure 16 Treating others with respect within the Tiny Forest initiative

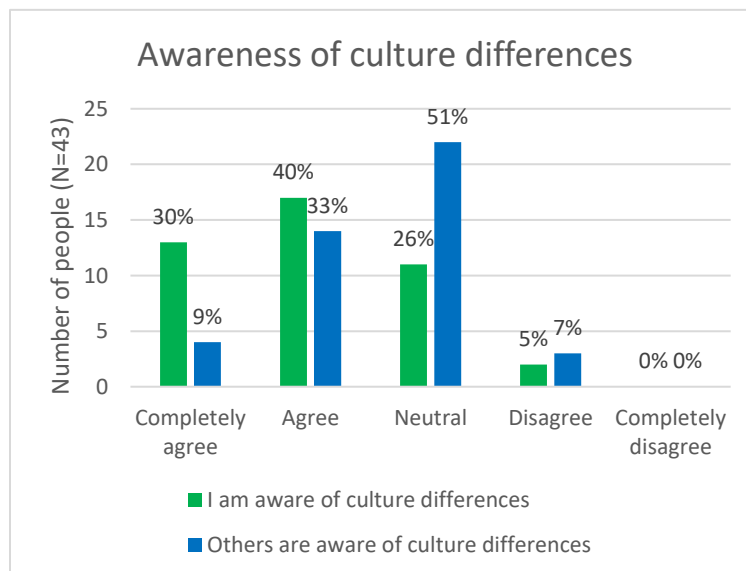


Figure 17 Awareness of cultural differences within Tiny Forests

4.4 Redistribution

The second identified dimension of justice is redistribution. The first question on this topic in the survey related to the conditions to become involved in the initiative. The result of this question is presented in Figure 18, which shows that the majority (71%) answered that there are no conditions to become involved. This implies that the possibility for everyone to participate in Tiny Forests is the same, because there are no requirements to become involved. However, respondents could choose multiple conditions, which resulted in some citizens choosing both 'no conditions' and some other conditions. This is interpreted to mean that there are no hard conditions or requirements, but rather preferable conditions. Involved citizens identified various conditions to become involved, which showed that the requirements are not clear, or that people expect different things of citizens involved. If the latter is the case, the group of involved citizens meets different criteria, which might lead to a diverse group of people in terms of commitment and contribution to Tiny Forests. The category 'other' included answers indicating that you must have an affinity with the goal of Tiny Forests, or that you must like it to be involved. Overall, the fact that the majority stated that no conditions are required to participate has a positive impact on the level of justice, because the opportunities therefore seem the same for all citizens.

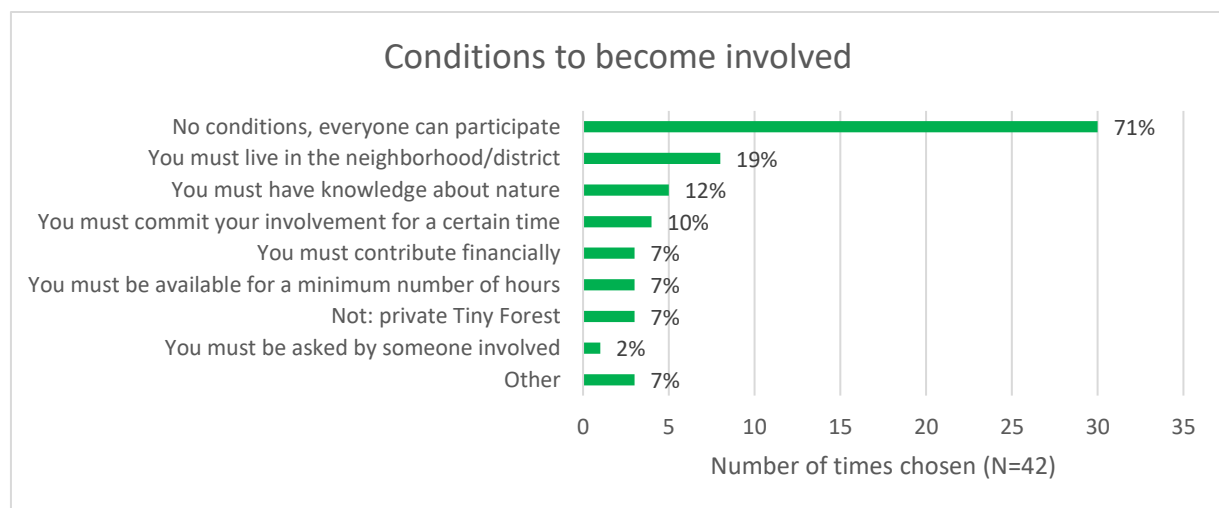


Figure 18 Different conditions to become involved in Tiny Forests

After identifying these conditions, a statement was provided on whether the possibilities to become involved are equal (as shown in Figure 19). Most respondents (63%) (completely) agreed with the statement and (28%) (completely) disagreed. This showed that the majority of the citizens experienced the possibilities to become involved equal, but there was also a significant part (almost one third) that disagreed. The remainder of the respondents (11%) had no opinion or took up a neutral position. Although the majority stated that the opportunities are equal, this result should be interpreted with caution because the respondents are already participating in the initiative, which makes it possible they think differently than an outsider about the opportunity to become involved. This reason may apply similarly to the previous results of the conditions to become involved, where 'insiders' might think there are no hard requirements, whereas 'outsiders' feel one must have certain conditions, as indicated in Figure 18, to become part of the initiative.

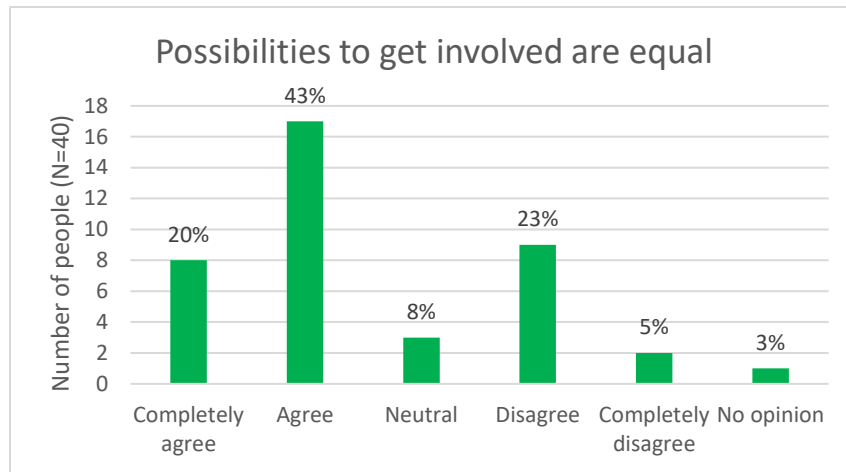


Figure 19 Statement on equal possibilities to become involved

Besides the possibility to become involved, the distribution of the costs and benefits is an important indicator of redistribution. Most respondents (60%) indicated that the benefit of Tiny Forests was the education for children about nature. Surprisingly, only a few respondents (7%) answered that a strong social connection in the neighborhood was a benefit of Tiny Forests, while some research found that green citizen initiatives have, among other things, strong effects on social cohesion (Vullings et al., 2018). Respondents who replied with 'other', stipulated that the Tiny Forest is a good addition to the surrounding nature or function of the area. Two citizens were not sure yet, because the Tiny Forest was only recently planted. After identifying the different benefits, 45% of the respondents (completely) agreed that everyone benefits equally. What also stands out in Figure 20, is the number of respondents that filled in the option 'neutral' or had no opinion (38%). This might indicate that they have not thought about the allocation of benefits before, and in this way were not aware of the distribution of the benefits.

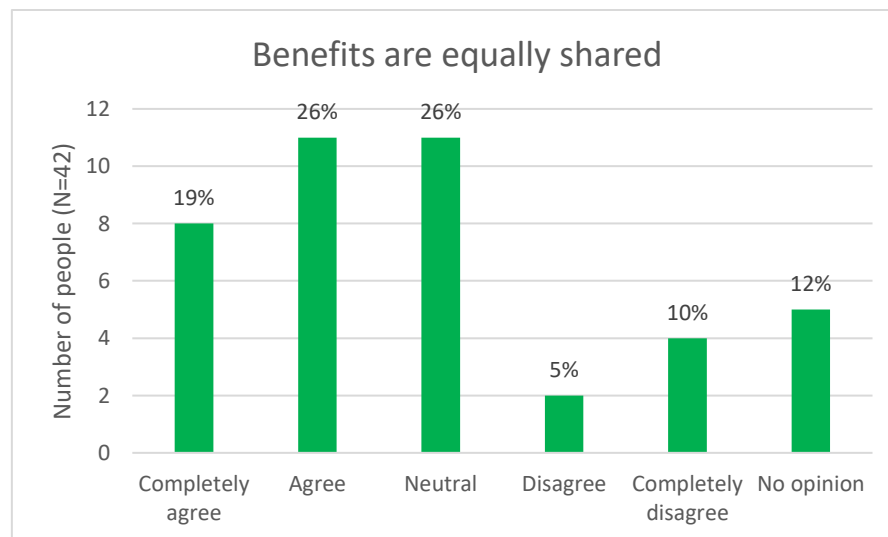


Figure 20 Distribution of benefits

In addition to the benefits, costs are also part of a nature initiative. The question on who pays the greatest share in financial costs resulted in answers pointing to co-financing for the public Tiny Forests of the IVN, municipality, and the national government. The former received a donation from the Nationale Postcode Loterij (national lottery) to plant more Tiny Forests. The municipality is responsible for the financials regarding the public Tiny Forests. This means that municipalities could reserve some money for the realization of Tiny Forests in the Netherlands. On the other hand, not all municipalities can do this when, for example, they are already finding it difficult to meet other financial commitments.

4.5 Representation

The third and last dimension of justice is representation, relating to the inclusion or exclusion of citizens in the participation process. One question asked how citizens were being informed on the developments in and updates of Tiny Forests. The mode of communication may exclude some people who have no access to the platform. Figure 21 shows the different ways that citizens were informed. The relative majority of the respondents were informed by social media (31%) or email (29%). This suggests that people were more likely to be updated if they used a digital platform. A third way to stay informed was by the local newspaper (14%). This means you must be involved or live in a certain neighborhood to receive this information. The few respondents who answered 'other', stay informed through an association near the Tiny Forest or the involved school. The many different modes of communication assumed that everyone was able to receive information about Tiny Forests, which has a positive impact on the distribution of information, and thus on justice. However, 7% of the respondents said there was not much or any information about Tiny Forests, meaning the information was not there or did not reach the respondents. If they wanted to stay informed, but did not receive the information they deemed necessary, this may contribute to an unjust distribution of information.

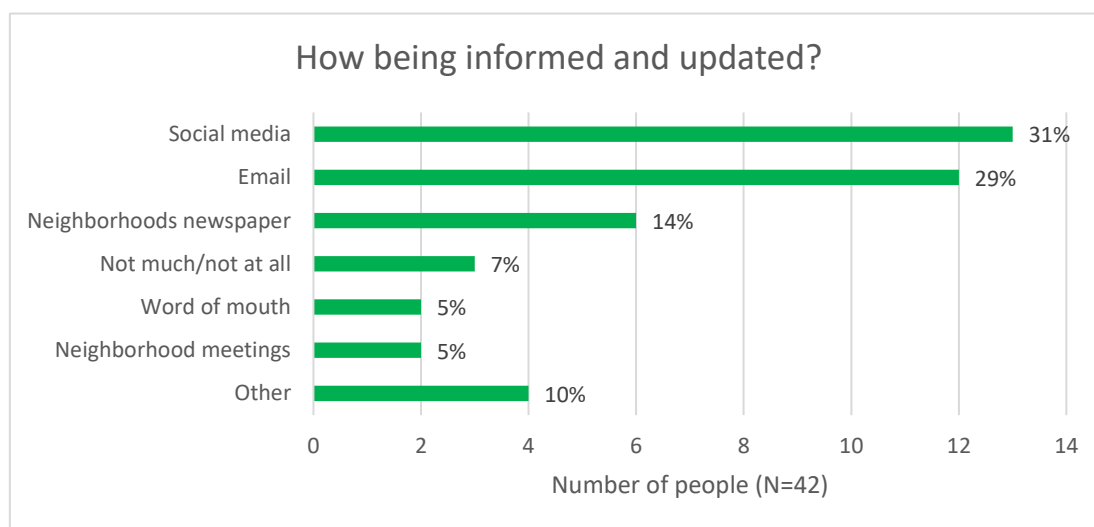


Figure 21 Ways to stay informed and updated about Tiny Forests

The result of the question about overrepresentation is indicated in Figure 22, which shows that the plurality of the respondents (29%) had no idea whether certain groups are overrepresented in the Tiny Forest initiative. This might imply that most respondents did not know (many) others who are involved, or they were not aware of the backgrounds of involved people. Regarding overrepresentation, 21% of the respondents said that more highly educated people were more involved. This is in line with the expectation from literature (e.g. Sanders et al., 2018). 10% of the respondents thought no groups of people were overrepresented. The categories 'parents of school children' and 'children and/or youths' were added after examining answers for the category 'other'. This resulted in having more overlap between the categories, but was done to categorize answers that were in the category 'other'. Overall, the results showed that most respondents (62%) thought there was an overrepresentation of certain groups, but on the other hand, almost one-third of the respondents were not aware of any overrepresentation.

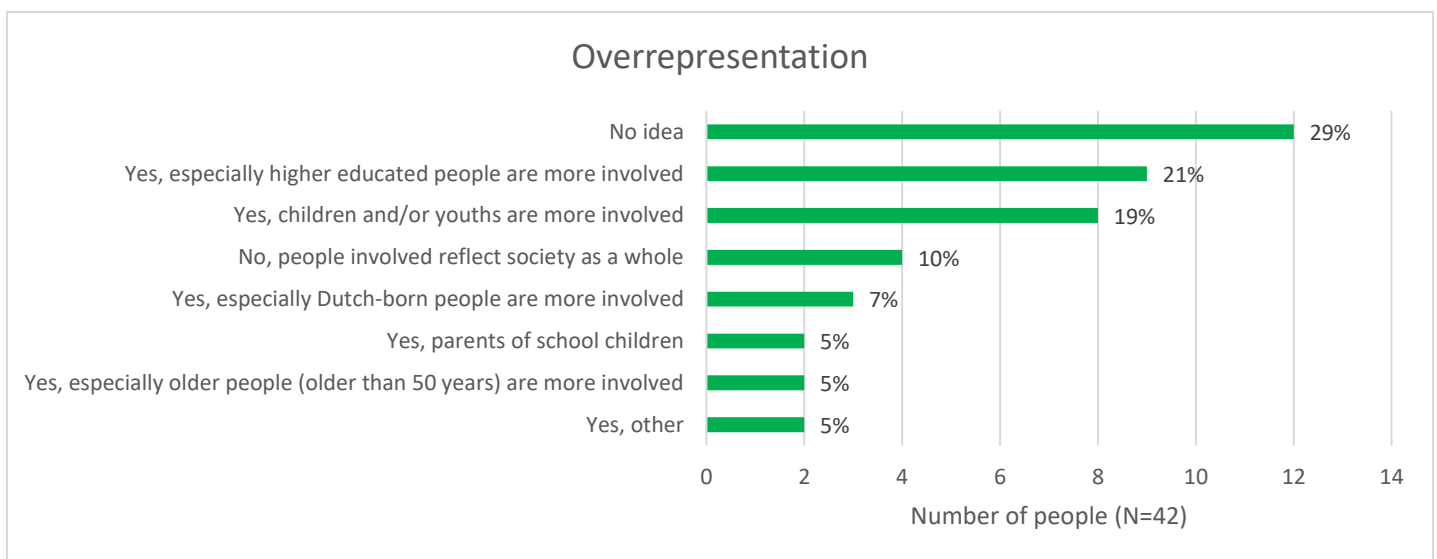


Figure 22 Overrepresentation in Tiny Forests

As the dimension of representation is a political concept, a few questions in this section were asked on the role of the municipality on justice of Tiny Forests. The first question was whether the municipality has an influence to address justice. The majority of the respondents (53%) (completely) agreed on the municipality influencing justice, while 17% (completely) disagreed with this statement. Almost one third (29%) took a neutral position on this question. This result preliminary confirmed that the municipality is an important stakeholder, given its ability to increase justice in nature initiatives. The follow-up question on how the municipality has influenced justice, was answered by the relative majority of the respondents (44%) with 'contact with the initiator(s)'. The second most chosen option also included contact or communication with involved citizens (see also Figure 23). Answers in the category 'other' were about the municipality (partly) organizing or (financially) facilitating the maintenance of Tiny Forests.

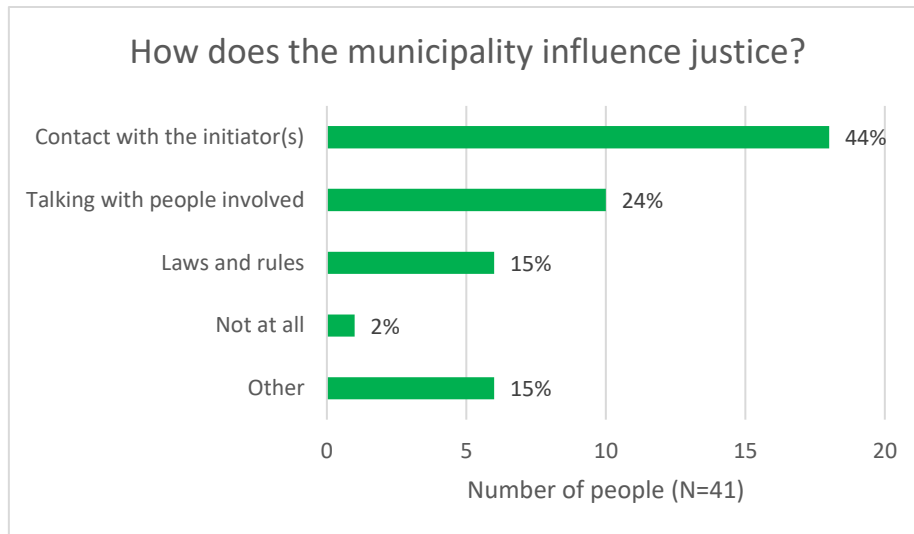


Figure 23 Ways in which the municipality has influence on justice

The third question asked whether the municipality should increase its influence on justice. The majority (61%) was neutral concerning this statement. This can be interpreted to mean that this group had no preference whether or not the municipality increases their influence, or they had not thought about it, or they could not imagine what the situation would look like if the municipality increased their influence. Besides, more respondents (27%) (completely) disagreed than (completely) agreed (12%) with this statement. These numbers might indicate that they do not want the municipality to increase its control or influence on Tiny Forests.

Combining the results of these three questions about the role of the municipality, the municipality does have influence to address justice by providing information for citizens and by conversating with involved citizens. On the other hand, most respondents hold aloof about increasing the municipalities' influence as most remained neutral on this statement. On the other hand, almost one-third of the respondents, did not necessarily want the municipality to increase its influence. However, with a small sample size of only forty respondents, caution must be applied, as the finding may not apply for all involved citizens in Tiny Forests.

4.6 Summary of survey results

The purpose of the survey was to identify justice issues in Tiny Forests by asking involved citizens about the three different dimensions of justice: recognition, redistribution, and representation. Although no hard conclusions can be drawn, because 45 respondents may not be representative of all citizens involved in Tiny Forests, some brief conclusions can be drawn.

Results on representation indicate that there was inequality of social status as most respondents were more highly educated, Dutch-born, and middle-aged. This was strengthened by the result that respondents themselves indicated that highly educated citizens were more involved in the process, although most citizens had limited knowledge about over- or underrepresentation of some groups in Tiny Forests. Regarding the dimension of recognition, most respondents were aware of cultural differences between people involved and treated others equally and with respect. An explanation is that it is unlikely that people are going to acknowledge if they do not treat other citizens

equally or with respect. Furthermore, the majority of the respondents were initiators of Tiny Forests and were personally approached, or found the initiative on social media. Results on the third and last dimension, 'redistribution', showed that most respondents thought there is an equal possibility to become involved and there are no conditions to participate. However, respondents also might have additional preferences for citizens to become involved as most chose multiple conditions. The information on Tiny Forests was mostly distributed via social media or email, which showed people are more likely to be updated if they use these platforms.

Overall, the results of this chapter showed that citizens involved in Tiny Forest did not represent society as a whole. Besides, many respondents took a neutral position in statements, which might indicate that they were not aware of some aspects of justice, or had not yet thought about it beforehand. Regarding the last part of the survey, citizens thought that the municipality has influence, mainly by contacting initiators of citizens involved, but on the other hand, respondents took up a neutral position on increasing the influence of the municipality to address injustices. This conclusion links to Chapter 6, on the role of the municipality in the Tiny Forest initiative.

5. Analysis: Spatial justice

The purpose of the spatial analysis was to find out the relation between the location of Tiny Forests and the socio-economic characteristics of the neighborhoods, and as a result, to assess how the location of Tiny Forests relates to (in)justice. Disadvantaged groups are usually less able to organize initiatives (De Wilde et al., 2014), which may result in less green spaces in socially deprived neighborhoods, and inequality of available green spaces between communities with and without self-organizing power (Bredenoord et al., 2020). Based on these suggestions from literature, a positive relation was suggested in this research between the location of a Tiny Forest initiative and the socio-economic circumstances in a neighborhood.

The produced maps were examined and discussed per variable by describing in which data class (shown in the corresponding legend) most Tiny Forests are located. This was supported by the mean values for each variable. The average values for neighborhoods with Tiny Forests were compared with the average of all neighborhoods of the municipality. The difference between these values is expressed in percentage point, which is the absolute differences in percentage (for example, 4% minus 1% results in 3 percentage point). As discussed in the method section 3.3, two municipalities were chosen to make the maps fit within this thesis. Additionally, a web map was created containing all variables and all Tiny Forests in the Netherlands (see Appendix 9 for details on how to access this web map).

An important implication of the spatial analysis of the two municipalities was that the data of the different variables is unevenly and widely distributed among the neighborhoods of Utrecht and Zaanstad, which makes it harder to draw conclusions. The same difficulty was identified for the analysis of the spatial distribution of initiatives in the research by Sanders et al. (2018). Hence, a hotspot analysis was performed in ArcGIS Pro where clusters of high values (hot spots) and low values (cold spots) were calculated for each variable. The output of this analysis is attached in Appendix 10, and was used as support to the conclusions in this section.

5.1 Zaanstad and Utrecht

First, the variable income was examined. Figure 24 shows that the Tiny Forests are located in low and middle-class neighborhoods for both municipalities. This means that the forests were not in neighborhoods with extremely high incomes. Looking at Figure 25 depicting the averages of the neighborhoods with Tiny Forests and the total average of the municipalities, both Zaanstad and Utrecht had a lower average income for neighborhoods with Tiny Forests compared to the total average of these municipalities. This was on average €3,600 less in Zaanstad and €3,800 less in Utrecht. This outcome was not to be expected, as more highly educated people are generally overrepresented in nature initiatives (e.g. Bredenoord et al., 2020), together with the assumption that a higher educational level often leads to a higher income. This rather contradictory result may be due to the fact that only half of the respondents from the survey lived in the same neighborhood as where the Tiny Forests is located in which they are involved. This implies that the characteristics of the neighborhood in which

the Tiny Forests are located did not necessarily represent the involved citizens but, on the other hand, the location of this initiative may influence the likelihood for citizens to become involved.

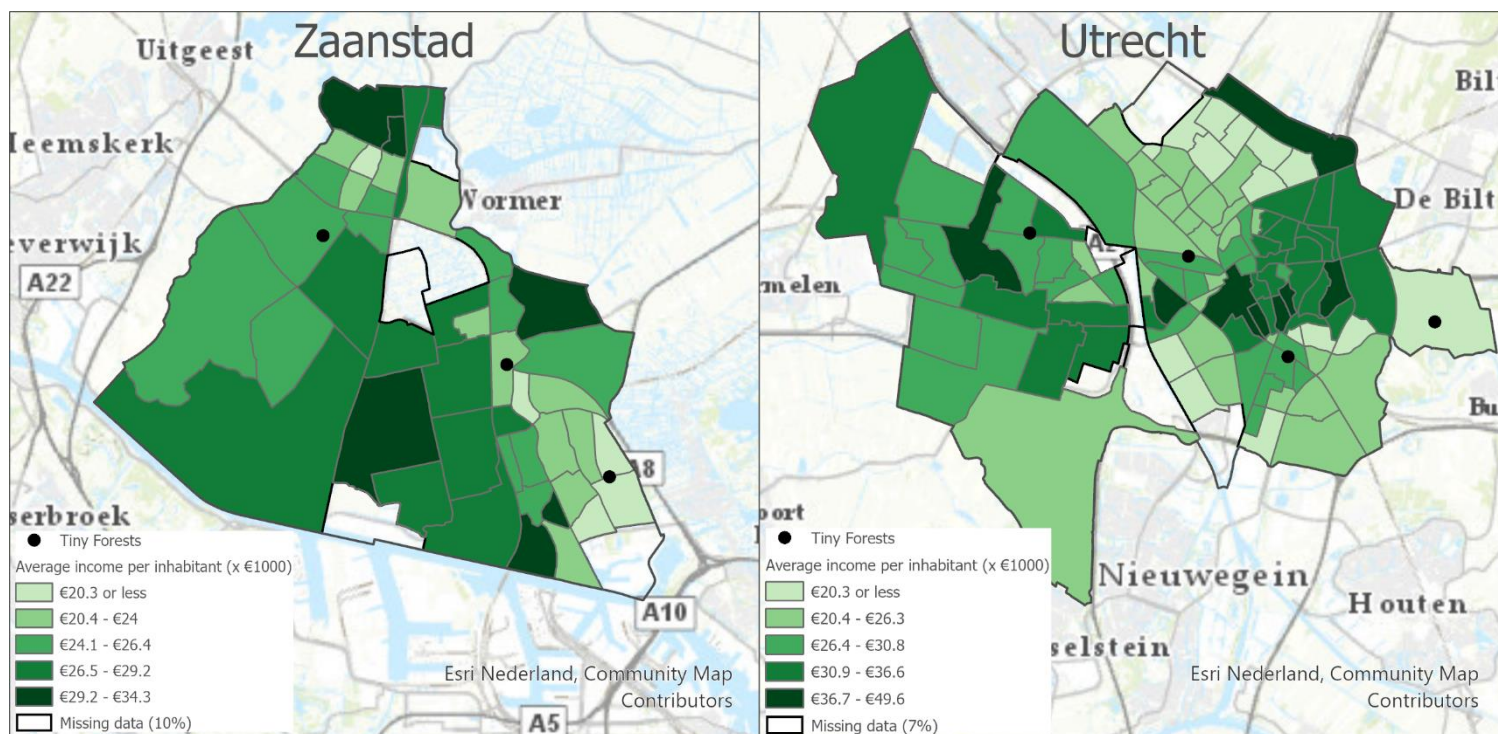


Figure 24 Map of Tiny Forests and average incomes of the neighborhoods

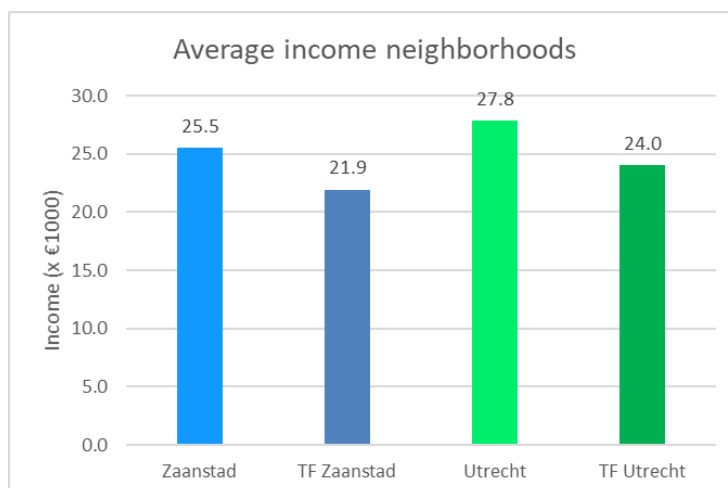


Figure 25 Average income in neighborhoods with Tiny Forests and of all neighborhoods

The second variable of the spatial analysis was age. Tiny Forests were located in neighborhoods with a larger share of young people (25 to 44 years old). As shown on the map in Figure 26, there were Tiny Forests located in neighborhoods with the highest percentage of young people in Utrecht. In Zaanstad, all Tiny Forests were within the second-highest data class. Examining the averages in Figure 27, these results were supported as Tiny Forests were located in neighborhoods where there were 6.1 percentage point more young people in Zaanstad and 3.4 percentage point more young people in Utrecht. This result can be explained by taking into account the fact that Tiny Forests are near schools and have the explicit goal of educating children about nature. People aged between 25 and 44 years usually have young children and possibly live in neighborhoods with a school nearby. Another reason for Utrecht specifically, is that Utrecht hosts many students studying at the university. This explains the higher average percentage of younger people in Utrecht compared to Zaanstad.

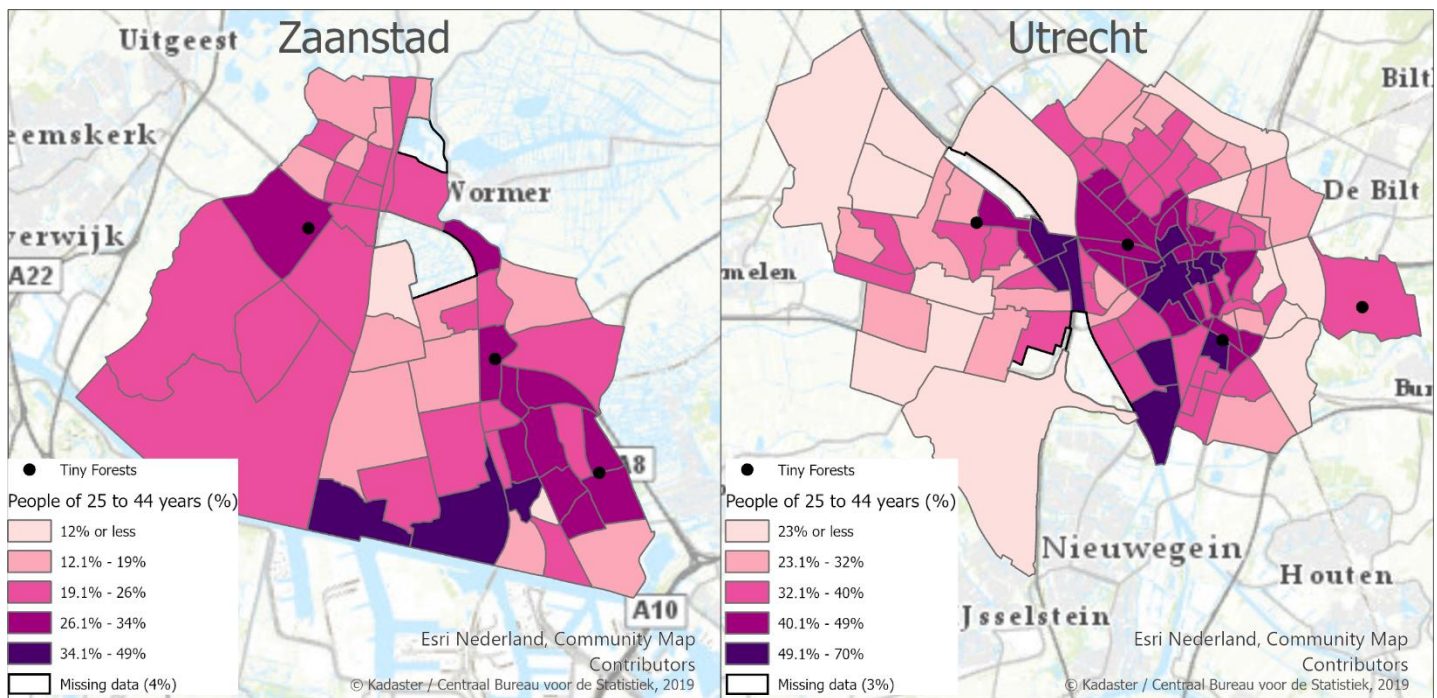


Figure 26 Map of Tiny Forests and young people in the neighborhoods

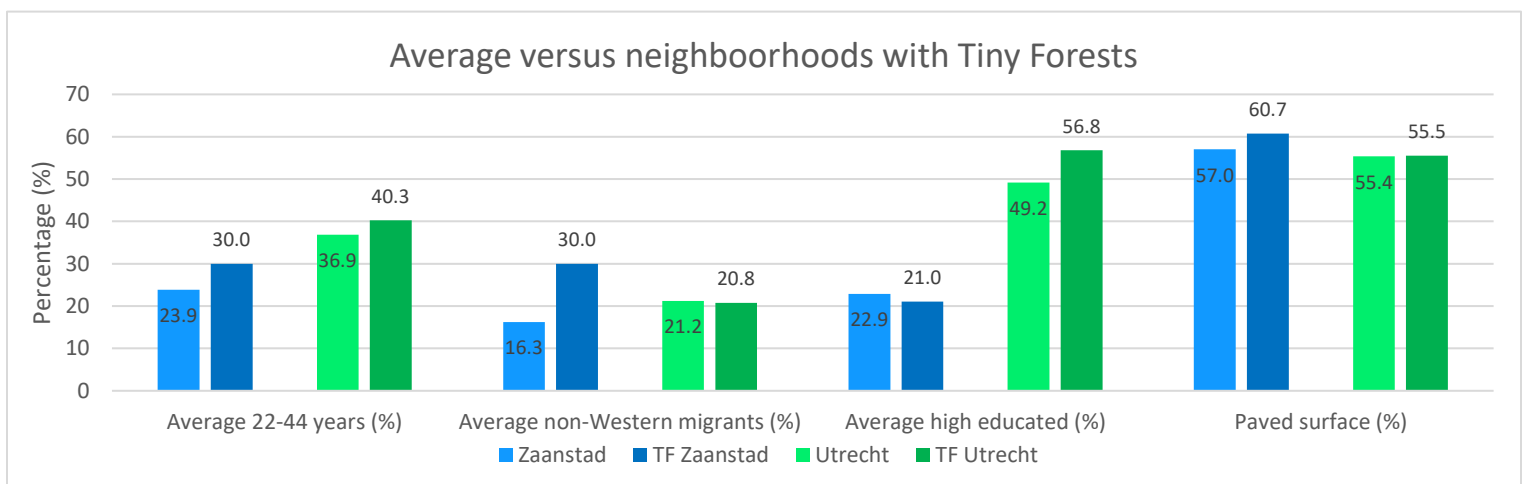


Figure 27 Average of different variables in neighborhoods with Tiny Forests and of all the neighborhoods

Identifying whether Tiny Forests were in neighborhoods with a larger or smaller share of non-Western migrants than average, was more difficult to calculate. Both Zaanstad and Utrecht have a higher average of non-Western migrants than the average of all municipalities with Tiny Forests. As one can see in Figure 28, Tiny Forests tended to be located in areas where the share of non-Western migrants was larger (13.7 percentage point more non-Western migrants than the municipality-wide average) in Zaanstad. This was contrary to what was expected, namely that access to green space often disproportionately benefits the white and more affluent communities (Wolch et al., 2014). When examining the averages in Figure 27 and the map in Figure 28, Utrecht had Tiny Forests within neighborhoods with both high and low numbers of non-Western migrants, which resulted in the average of neighborhoods with Tiny Forests not differing much from the average in total (only 0.4 percentage point).

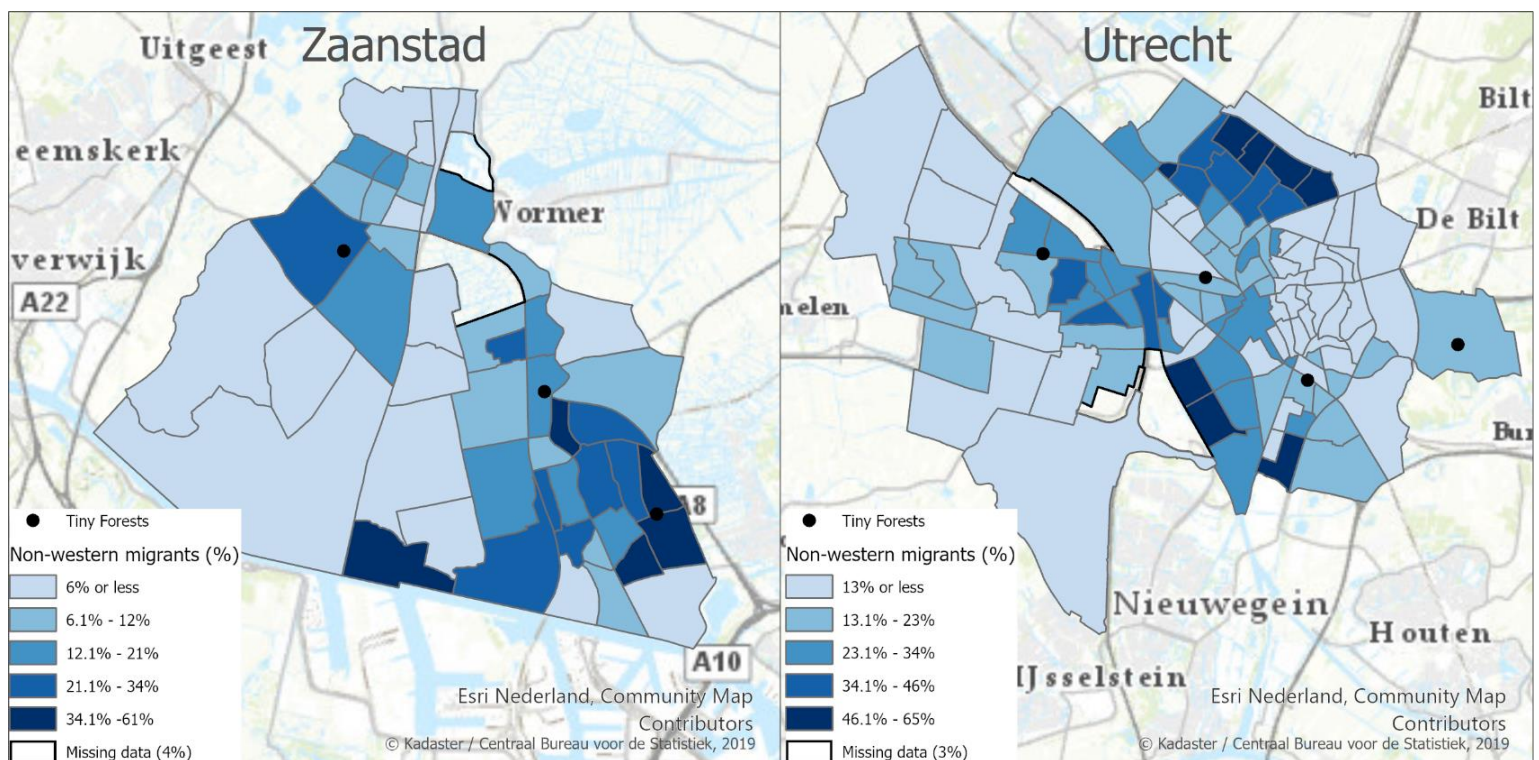


Figure 28 Map of Tiny Forests and non-Western migrants in the neighborhoods

The map about education levels showed that Tiny Forests were located in neighborhoods with lower levels (1.9 percentage point lower) than the average levels of Zaanstad (see also Figure 29). The opposite was true in Utrecht, with 7.6 percentage point more highly educated citizens where Tiny Forests were located (see also Figure 27 for the percentages). Having more nature initiatives in neighborhoods with higher education levels, as was true for Utrecht, was expected because this corroborates the idea that highly educated people are overrepresented in nature initiatives (Sanders et al., 2018). Although the difference in percentage was not very high in Zaanstad, this result differed from the expected result of education level being higher than the average of the total municipality. It is difficult to explain these results, but it might be related to Utrecht being a city with a university which contributes to a higher educational level of citizens.

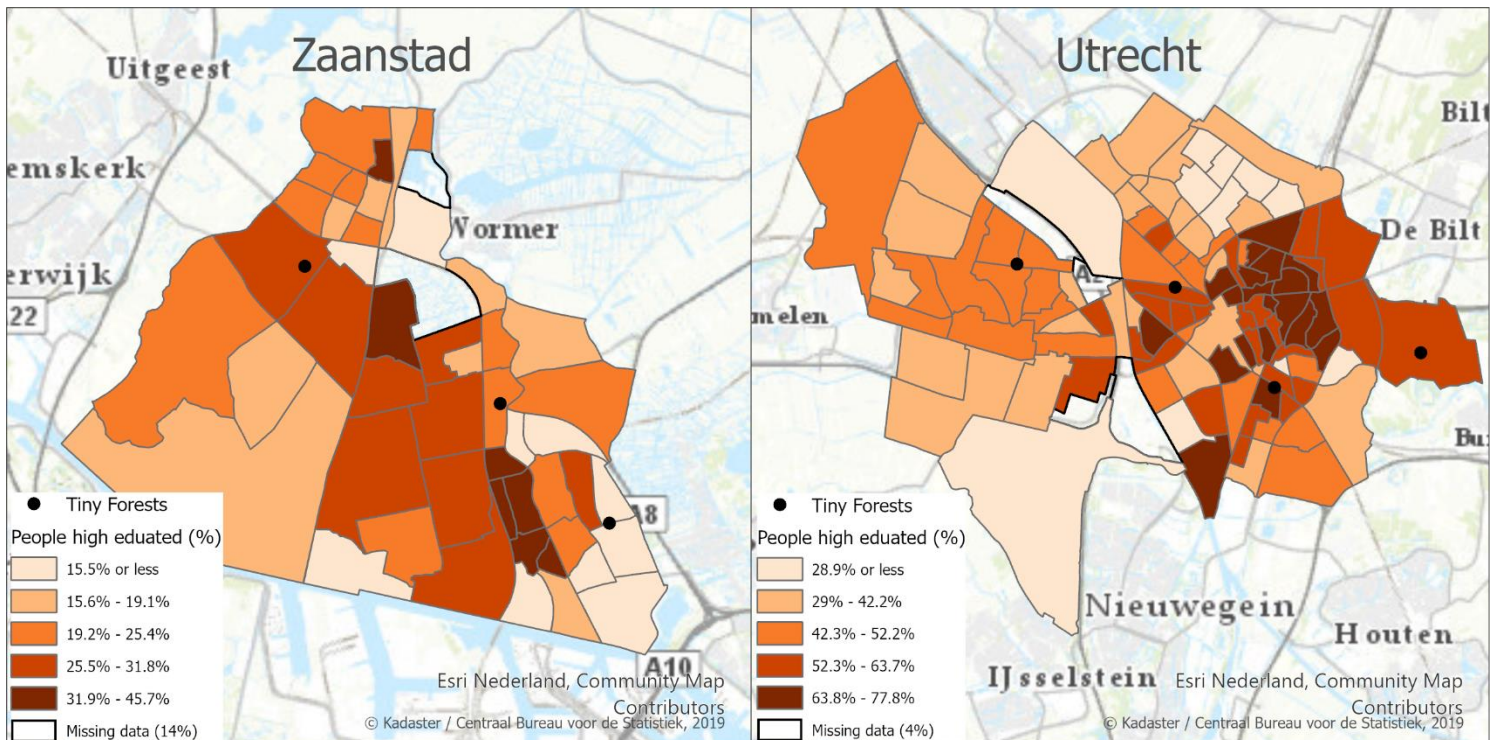


Figure 29 Map of Tiny Forests and more highly educated people in the neighborhoods

The last variable was the relative amount of paved surface within the area. Examining the calculated averages in Figure 27, Zaanstad had a notable difference, with Tiny Forests being located in neighborhoods with on average 3.7 percentage point more paved surface than the municipality-wide average. However, one must keep in mind that Zaanstad also has a lot of missing data, and if more data were available, the values and conclusion might be different. In Utrecht, there was more data available, which made it possible to draw more reliable conclusions. There was an indication that Tiny Forests were located in neighborhoods with a 5.2 percentage point less paved surface. However, as shown on the map in Figure 30, most data is missing at the edges of the municipality, which are usually greener than inner-city areas with more densely building areas. That is why, in the end, no hard conclusion can be drawn on the variable paved surface.

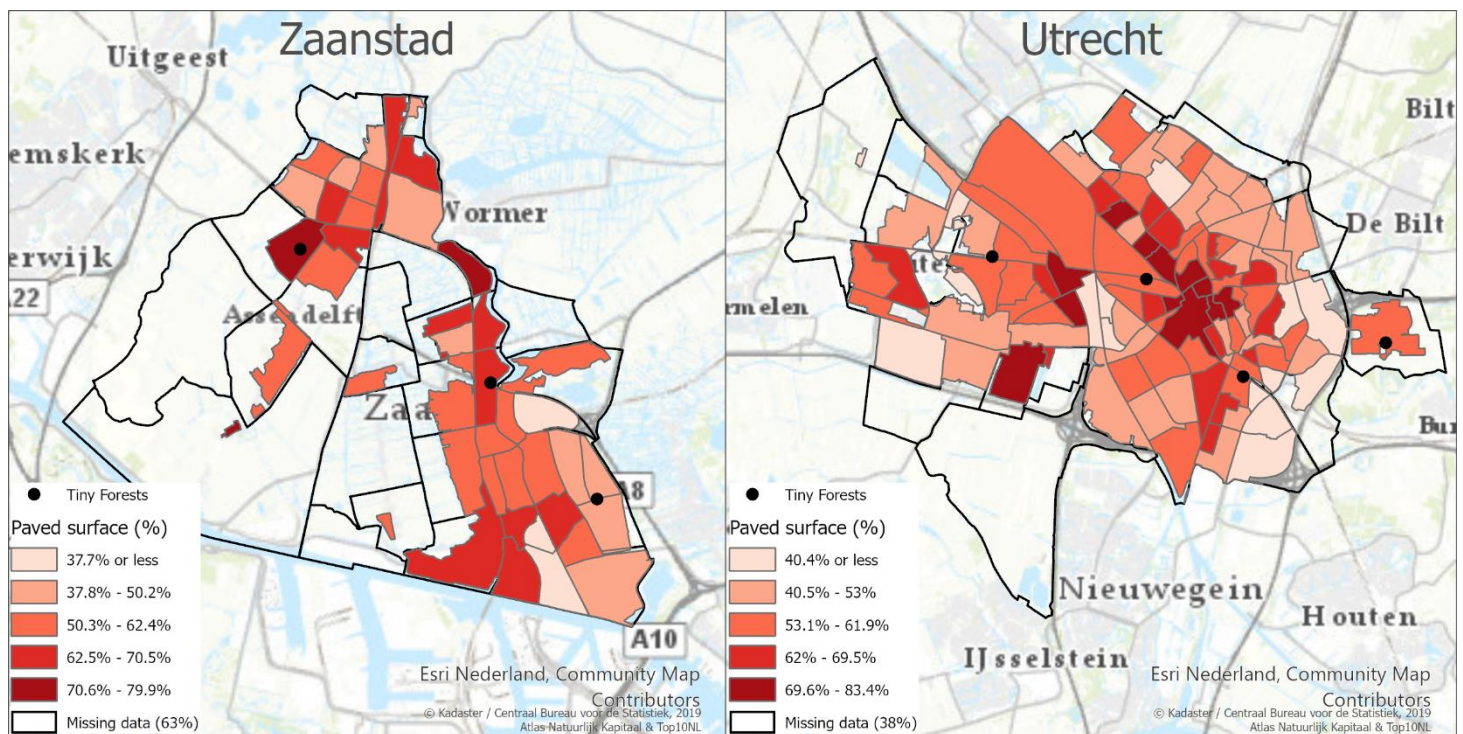


Figure 30 Map of Tiny Forests and paved surface in the neighborhoods

In conclusion, the spatial analysis showed that Tiny Forests are often located in neighborhoods with a higher share of young people in both Zaanstad and Utrecht, a higher share of non-Western migrants in Zaanstad, and a higher share of highly educated people in Utrecht. Utrecht and Zaanstad show almost no difference from the average of non-Western migrants and highly educated people. For the variable income, there is an opposite relation: Tiny Forests are often located where there is a lower average income for both Zaanstad and Utrecht.

However, with a small sample size of only two municipalities, caution must be applied, as the findings might not represent all municipalities with Tiny Forests, and one must keep in mind that not all involved citizens lived in the same neighborhood as where the Tiny Forests is located. As Blue et al. (2019) mentioned, injustice should be addressed and resolved in practice by taking the context of specific social relations and power dynamics into account. With this rather top-down spatial analysis,

the specific context is not examined ‘on the ground’. However, this context was minimally taken into account by analyzing the values per municipality instead of values for all municipalities together. The next section zooms out to the national scale to see if the results of Zaanstad and Utrecht are also found on this broader level.

5.2 All municipalities

To analyze the locations of Tiny Forests on a national scale, the variables of education and paved surface were removed from the calculations, because they had a large number of missing values (see Appendix 2 for an overview). For each municipality, the averages were calculated including the percentages of non-Western migrants and people aged between 25 and 44 years and the average income. The same was done for the different neighborhoods where Tiny Forests are located. Thereafter, the averages of these outcomes were calculated to compare all the neighborhoods with the vicinity of the Tiny Forests. The results, which are shown in Figure 31, indicate that there is a higher percentage of citizens aged 25 to 44 years and a higher percentage of non-Western migrants in neighborhoods with Tiny Forests.

Furthermore, there was a negative relation for the income variable, as Tiny Forests were more likely to be located where the average income per inhabitant is lower. This was in line with the conclusion of the previous paragraph, except that there was no significant relation in Utrecht for the variable of non-Western migrants. The spatial distribution of the three different variables of Figure 31 and the variables of education and paved surface for all Dutch neighborhoods was provided in the web map (see also Appendix 9). In this web map, it was decided to include the latter two variables because a map makes visible how many neighborhoods there are with no data and where they are located. This web map is publicly available and could be used in the decision-making process on future locations of Tiny Forests.

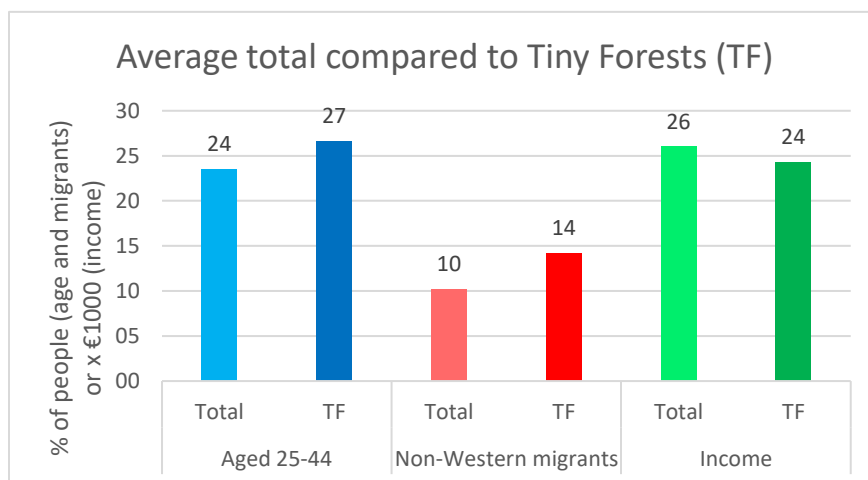


Figure 31 Averages of all the neighborhoods compared with the neighborhoods of Tiny Forests

6. Analysis: Role of municipalities for enhancing justice

This section of the analysis focused on the third sub-question of how the role of the municipalities currently helps to improve justice of Tiny Forests. As discussed in Paragraph 4.1, most respondents were initiators with a higher social status. This might indicate that governments focus (unintentionally) on stimulating green initiatives of a certain social group, and do not fully live up to the diversity of all citizens' needs and preferences (Bredenoord et al., 2020). Municipalities could anticipate these issues by encouraging less socially advantaged groups to participate in an initiative or to start an initiative. Two municipalities, Zaanstad and Utrecht, were asked about their role concerning justice in initiatives to identify what municipalities do to increase justice. The results of the interviews are provided and discussed in this section. A summary of the interviews is attached in Appendix 7. But first, the partnership contract between the IVN and the municipality is shortly examined to understand the role of IVN and the municipality (IVN, n.d.-c).

The role of the municipality consists of multiple tasks as stated in the partnership contract (IVN, n.d.-c). First, it must have a project leader available as the first point of contact. Besides, the municipality must have the requisite people and money available for realizing Tiny Forests, which also includes the communication, legislation, management of green spaces and the neighborhood. The municipality should meet the conditions for Tiny Forests regarding, for example, legislation, policy, maintenance, and land use plans. It should also help to find suitable locations and to plant the forests. Additionally, the role includes co-financing the realization of Tiny Forests, and being responsible in the end for maintaining Tiny Forests. Regarding the communication, the municipality uses its network for recruiting volunteers and schools, communicates via multiple channels, and shares knowledge and experiences with the community. Lastly, the Tiny Forests must be included in the (forest)policy.

What is interesting in the context of this research on justice, is that one of the common goals of the municipality and IVN, included in the partnership contract, is to team up to contact target groups effectively (IVN, n.d.-c). This means the municipality shares the task to contact initiators and other citizens to become involved. In this way, the municipality can have a say in who or which groups are involved. On the other side, the municipality also expects something from the involved citizens. The answers to the interview questions from the municipalities are summarized in Table 3. The most interesting aspect of this table is that municipalities had not thought extensively or considered how representative involved citizens are for society as a whole, but the municipality Zaanstad suggested there may be more highly educated citizens involved. This relates to the cultural dimension of recognition in which the diversity of socio-economic positions of citizens is included, but which was not examined in this case.

Concerning the dimensions of redistribution, the information on Tiny Forests is distributed via many channels, which makes the opportunity to become involved with Tiny Forests larger since there is a higher chance of noting or becoming aware of the initiative. The location of Tiny Forests also influences the distribution of their benefits. Both municipalities stated that Tiny Forests are preferably planted in neighborhoods with less green space, therefore possibly increasing justice as more green urban areas will be available for all citizens. The spatial analysis in the previous section did not allow to

draw conclusions on the relation between the amount of paved surface and the locations of Tiny Forests, because there was too much missing data. Of course, the location also depends on where schools are located, because they must be involved with the Tiny Forests. However, justice is expected to increase if municipalities prefer to have Tiny Forests located with more paved surfaces or fewer green space, because more nature becomes available for citizens who have relatively less green in their neighborhoods.

The political dimension of representation is to some extent included in the answers and the partnership contract by stating that there is one project leader as a point of contact from the municipality and one from IVN. This implies that this person is an important intermediary between the citizens and the municipality. Another aspect of this political dimension is that support from local citizens is important as there are several codes about involving local citizens and getting support from them. This suggests that citizens within the neighborhood or living close to Tiny Forests are encouraged to be involved, or at least informed about Tiny Forests. This has a positive impact on justice because all citizens in the neighborhood are informed and could decide to be part of the initiative.

Lastly, both municipalities mention a policy document about participation, but it is beyond the scope of this research to include these documents in the analysis.

	Municipality Zaanstad	Municipality Utrecht
Conditions of involvement	<ul style="list-style-type: none"> - Awareness of green spaces - Maintenance - Involved with environment and concerned with nature in the city 	<ul style="list-style-type: none"> - 'Greening' neighborhoods - Find support and help - Initiators are from Utrecht
Communication	<ul style="list-style-type: none"> - Neighborhood manager - Website, local newspaper, and social media - Nature- and environmental organization 	<ul style="list-style-type: none"> - Website, local newspaper, and social media - Neighborhood message
Location of Tiny Forests	<ul style="list-style-type: none"> - Neighborhoods with less (variation of) green and lower sociodemographic standards - Schools who are interested 	<ul style="list-style-type: none"> - Initiator suggests location - Fits within the land-use plan - No soil remediation needed - Neighborhoods with less green and lower life expectancy - Sufficient quality of the ground for children - Paved surface
Representation people involved	<ul style="list-style-type: none"> - Difficult to answer - More highly educated people - More people not born and raised in Zaanstad 	<ul style="list-style-type: none"> - Not researched - People involved represent the neighborhood of the Tiny Forests
Tools of municipality	<ul style="list-style-type: none"> - Integral spatial managers crucial role by talking with citizens - Policy nota 	<ul style="list-style-type: none"> - Bottom-up participation policy

Table 3 Summary of the interview answers from the two municipalities Zaanstad and Utrecht

7. Conclusion

This research was designed to identify any (in)justice issues citizens experienced in Tiny Forests, beside the role of municipalities to increase justice. To achieve this aim, the following research question was formulated: *How do citizens experience (spatial) justice in the Tiny Forest initiative and how can municipalities reduce injustice?* This section will provide an answer to this research question, but first, the three sub-questions will be addressed. In addition, recommendations are provided to municipalities on how they can improve justice in the Tiny Forests initiative, and in civil society and citizen nature initiatives in general. Thereafter, a critical reflection on this research is given, and the final section is concerned with the recommendations for future research.

7.1 Answering sub-questions

This paragraph briefly answers the three sub-questions of this research. The first question about how just involved citizens experienced Tiny Forests was analyzed by a survey in Chapter 4. The second question about the location of Tiny Forests and justice was approached in the spatial analysis in Chapter 5. The last question about the role of the municipalities was covered in two interviews, as discussed in chapter 6.

7.1.1 Three dimensions of experienced justice

The first question in this study aimed to identify how involved citizens experienced the three different dimensions of justice: recognition, representation, and redistribution. Results on the first dimension showed that many respondents took a neutral position on statements about recognizing the cultural difference of other involved people and whether respectful and equal treatment of others occurs. This may imply that respondents were not aware of this dimension of justice in Tiny Forest initiatives. The rest of the respondents agreed that they recognized the diversity of other people and treat others equally and respectfully. These findings, while preliminary, suggest that most people were not aware of, or had thought about the inequalities of social status or the diverse perspectives of groups involved in Tiny Forests.

Regarding the dimension of representation, this research found that involved citizens were mostly middle-aged, rather highly educated, have higher incomes, and were born in the Netherlands. These results collaborate with the findings of previous research (e.g. Bredenoord et al., 2020; Sanders et al., 2018), in which the results suggested that more highly educated and older than middle-aged citizens are overrepresented in citizen and civil society nature initiatives. The third indicator in this direction was that respondents themselves thought there is an overrepresentation of more highly educated people, born in the Netherlands and older people (50 years or older).

Although the dimension of representation was not examined from a political perspective focusing on participation processes, this research showed that in order to take part in the Tiny Forest initiative, having contacts with IVN, the municipality or local citizens encourages involvement. This was derived from the fact that these were the different parties who encouraged citizens to become

involved, and from previous research stating that the amount of social capital influences people's motivation and skills to take action (Sanders et al., 2018). Most communication happened via personally approaching citizens or digitally via social media or email.

The third dimension of justice, redistribution, included the allocation of opportunities and resources. Overall, respondents indicated that the opportunities to become involved are equal, as there are no requirements for citizens to be part of the initiative. While most involved people stated that there were no conditions to become involved, some citizens did indicate additional conditions. These were interpreted as preferences and not as hard requirements. However, for outsiders (citizens not involved), this might be unclear and even result in no participation. Furthermore, most involved people had access to the Tiny Forest within one kilometer, or less and lived one minute or less from the forest most of the time. However, only half of the people lived in a neighborhood where the Tiny Forest was located. This rather contradictory result may be due to one of the requirements that a school needs to be involved in Tiny Forests. This explanation relates to the fact that most respondents indicated that education for children about nature is the most important benefit of Tiny Forests. Although this might imply that opportunities were benefiting people involved in schools or parents of school children more, most respondents indicated that benefits from Tiny Forests were equally distributed.

Overall, the recognition of inequities of social status suggested that people were not aware of this dimension of justice. Conversely, people did know what groups were represented (and which are not). Regarding the distribution of opportunities to be involved, citizens did not identify requirements to become involved, but having contacts, for example, in your neighborhood and being active on social media might encourage an individual to be part of the initiative.

7.1.2 Spatial justice of Tiny Forests locations

The second sub-question questioned how the locations of Tiny Forests influence (spatial) justice. One interesting finding that emerged from the spatial analysis was that Tiny Forests were more often located within neighborhoods with a higher share of young people (aged 25 to 44 years), a higher share of non-Western migrants, and higher income levels. This was somewhat surprising because the survey showed that mostly middle-aged Dutch citizens who fall into higher income categories were involved in Tiny Forests. This can be explained by the fact that citizens who were involved did not necessarily need to live within the neighborhood in which the Tiny Forest was located. Also, this result may partly be explained by the possibility that the survey did not reach everyone involved, as already mentioned in the method section in Paragraph 3.2. When Tiny Forests are located within neighborhoods with a higher share of young people and non-Western migrants, this might be an instrument to improve (spatial) justice, as these two groups of people are usually less involved in Tiny Forests (see also Chapter 6) and nature initiatives in general (Sanders et al., 2018).

The two variables of non-Western migrants and age were related to the dimension of recognition, because they were connected to the social status of citizens, whereas the variable income was related to distribution as income can be seen as a characteristic of a certain class. Although the dimension of representation was not examined in this spatial analysis, one can still say something about justice based on the other two dimensions. The spatial distribution of Tiny Forests influences justice, because the locations were more often within neighborhoods with citizen characteristics that were less often involved in Tiny Forests and nature initiatives. These characteristics included being young, non-

Dutch, and with lower education. The assumption was made that education is closely related to income, which is why the variable income was used when there was more missing data for the variable education.

7.1.3 Role of municipalities for enhancing justice

The question of how the municipalities currently help to improve justice in the Tiny Forest initiative, was briefly answered by conducting two email interviews. First of all, the municipalities Zaanstad and Utrecht did not consider or research how representative involved citizens are for society as a whole. However, both have the preference to allocate Tiny Forests in neighborhoods with less (variety of) green spaces or with more paved surfaces. This finding, while preliminary, may imply that municipalities may intend to proportionally implement green spaces in less and more wealthy neighborhoods alike, fighting against the fact that access to urban green spaces disproportionately benefits the white more wealthy people (Wolch et al., 2014). On the dimension of distribution regarding access to green space, the municipality had a positive influence.

The representative of the municipality Zaanstad and the partnership contract with IVN (IVN, n.d.-c) mentioned that a point of contact from the municipality, such as a neighborhood manager or integral spatial manager, is provided for Tiny Forests. One can say that this person, on the one hand, improves justice regarding the dimension of representation, because there is one clear point of contact whom citizens can approach. On the other hand, if citizens with lower social capital in terms of a social network are not approached by, or contact this contact person, this may result in a decrease of justice. However, both municipalities mentioned that support and help from local citizens are essential, indicating that they encouraged citizens to become involved. If municipalities are not aware of possible justice issues, they might connect with citizens that have more opportunities to become involved and end up with the same group.

7.2 Answering the research question

Although no extensive research has been conducted on citizen (nature) initiatives using a theoretical framework of justice, the operationalization and analysis of the three dimensions of justice of Tiny Forests provided us with preliminary conclusions on justice in nature initiatives. The analytical framework of (spatial) justice used in this research, shed light on places or spaces of Tiny Forests in which justice is socially produced. The combination of findings from the survey, spatial analysis, and interviews provided some support for the fact that the involved citizens experienced the Tiny Forests initiative as just and participate as peers. However, most citizens, including the municipality officials, may not be aware or fully take into account justice issues. This was deduced from the respondents answering 'no idea' or taking a neutral position on the questions concerning the recognition of diversity. The dimension of recognition was not so just with mostly more highly educated, middle-aged Dutch citizens involved, but involved citizens did acknowledge this overrepresentation.

Although the triangulation of different methods generally provides stronger evidence, because results from these different methods and sources point to the same direction of conclusions, this was not exactly the case in this research. The survey results were in line with the expectation that more highly educated, Dutch-born people with an average age of 51 years are more often represented in

nature initiatives (e.g. Bredenoord et al., 2020; Sanders et al., 2018), whereas the spatial analysis tentatively concluded that Tiny Forests were more often in neighborhoods with lower incomes (assuming also lower educational levels), more non-Western migrants and younger citizens (25 to 44 years). The latter conclusion was contrary to the fact that previous research suggested that more green space is being realized in neighborhoods with higher prosperity levels (Conway et al., 2011). The explanation for this rather contrary result is that only half of the respondents lived in the same neighborhood as the Tiny Forest location. However, the latter statement must be examined with caution because for a significant share of the individuals, it was not possible to track down if they lived in the neighborhood where the Tiny Forest was located.

Although involved citizens took up a neutral position on whether the municipality should increase its influence in the Tiny Forest initiative, both citizens and municipalities stated that conversation with involved people is relevant to identify justice issues and to seek to reduce injustice. This information can be used to develop a strategy for municipalities to increase justice in nature initiatives. Therefore, the first recommendation from this research on justice in the Tiny Forests initiative is to start a dialogue about the aspects of justice, or to continue the conversation when citizens and municipalities are already acknowledging possible justice issues. Many involved citizens and municipalities may be unaware of aspects relating to the different dimensions of justice (distribution, recognition, and representation), but if municipalities start by acknowledging the inequalities and injustice in initiatives, this may positively affect the awareness of citizens. However, as already stated in the introduction in the first chapter, the government should only facilitate and not demand equality and justice, and should rather focus on the involvement of all citizens instead of equality and justice (Ministry of Internal Affairs, 2013; Salverda et al., 2014). On the other hand, the theoretical section of this research showed that the question of who is involved was embedded in the dimension 'recognition' of justice. This means that previous research, suggesting to focus on the involvement of underrepresented groups, can be placed within the broader picture of justice. The suggestion is therefore made for municipalities to start conversating about justice with involved citizens.

A second recommendation for municipalities is to further encourage the organization of Tiny Forests in neighborhoods with schools where the socio-economic position is less strong than elsewhere. A tool, such as the web map created in this research, may help to have an overview of the different socio-economic positions in neighborhoods. As Tiny Forests have to meet certain criteria (see Appendix 3 for an overview), it may be difficult to start an initiative for local citizens with less social capital and resources. The municipality may need to encourage these groups of citizens more extensively by making the possibility to be part of the initiative more attractive. The municipality can show enthusiasm via a neighborhood manager and identify whether there is some willingness to participate within that neighborhood. The next step is to have a conversation about how the municipality should help these groups of citizens with the Tiny Forest initiative. While municipalities might not be aware of injustice issues, it is important to make sure that all perspectives – not only the dominant ones – are represented and recognized. However, this is easier said than done and the local context with specific social relations and power dynamics needs to be taken into account (Blue et al., 2019). As a result, the municipality should be aware of the local context and provide custom-made solutions for each Tiny Forest.

7.3 Reflection

The most important limitation lies in the fact that the small sample size did not allow me to calculate statistically significant relations on the survey data and to link the survey data to the spatial data of the Tiny Forests. This reduced the external validity as the possibility of generalizing the research results to greater domains, such as all citizens involved in Tiny Forests or nature initiatives, is reduced (Verschuren et al., 2010). It was expected that mainly actively involved citizens are included in this research, because most of the citizens indicated they are the initiator of the Tiny Forest. Due to the Coronavirus, it was not allowed to conduct surveys in neighborhoods, and therefore the citizens who do not actively participate in Tiny Forests were less likely to be reached in this research. In addition, the number of missing data for the spatial analysis affected the results of the two municipalities, and therefore, only general conclusions were drawn. This was partly solved by upscaling the data to the national level to see if the results are in line with those of the two municipalities. Overall, this research could still be improved if more citizens filled in the survey, or if other variables for the spatial analysis are used with less missing data.

Regarding the internal validity, the empirical evidence that was obtained based on the survey, spatial analysis, and two interviews, has been used to formulate answers to the research question and sub-questions. With a rather extensive operationalization scheme containing ten indicators, the chance of measuring the right concepts was increased (content validity). Although the internal validity will be more under pressure in a quantitative study than a qualitative one due to the limited depth (Verschuren et al., 2010), the different methods together sufficiently answered the question about the experience of the different dimensions of justice. The reliability increased because of the triangulation, as different methods could nuance or complement the results. Although only two interviews were conducted with two municipality officials, some recommendations could be provided when the interviews were combined with the experiences of involved citizens from the survey results.

Another limitation is that the study did not evaluate the role of a civil society organization in nature initiatives, thus IVN in the case of Tiny Forests. Although previous research suggested further investigation of the role of both the municipality and civil society organizations (Mattijsen & Kamphorst, 2018), it has been chosen to focus on citizens and the spatial analysis instead, as these objects of study are more approachable regarding data collection. Later, it was decided to conduct two email interview with municipalities instead of the IVN, because it was expected that the former would play a more important role in initiatives, as municipalities have been identified as one of the important governmental actors in civil society initiatives (Vullings et al., 2018). However, the question on the role of civil society organization, like IVN, on justice in the Tiny Forests initiative remains unanswered.

Lastly, some improvements could be made during the data collection in the survey. One of them is that the category 'mbo' (intermediate vocational school) was not included in the answer possibilities of the question on education. Furthermore, some people might have misinterpreted the question about how long they are already involved because a few people wrote down a number higher than 12 months instead of (adding) one year. Respondents who wrote down '1 year' and '12 months' were interpreted as 1 year. In the program Qualtrics, there was no option to add the word 'and' in the answer between the box for adding a number for the year(s) and month(s). Another small mistake was to add both a question on underrepresentation and overrepresentation because they provide similar

but opposite results. However, there was the possibility to check whether the respondents answered the opposite between the two questions.

7.4 Recommendations for future research

Further studies, which take different dimensions of justice into account when examining societal nature initiatives, should provide new insights on the matter at hand. More information on justice in nature initiatives would help relevant stakeholders to establish a greater degree of justice in these initiatives. Although this research contributes to the knowledge gap, more research should be conducted to further understand which aspects of justice are experienced as just and which are not. Future research should also include 'have-not citizens' because they may think differently about aspects of justice, such as inclusion or experience involvement criteria, compared to already involved citizens. The former group was not reached with this study, but could provide helpful insight into the reasons why citizens do not participate.

Secondly, this research provided limited results on representation, including the political decision-making processes, since a more general view was created based also on the other two dimensions of justice. Future research could qualitatively examine this dimension of representation to gain a more in-depth view about the underlying institutionalized structures and patterns, that produce and sustain inequities of social status (recognition) and class inequalities (redistribution) (Blue et al., 2019). The reasons behind (the lack of) recognition are relevant to solve injustice issues regarding this dimension. In the context of this research on Tiny Forests, the spatial analysis did not include the political decision-making process on how to allocate Tiny Forests in urban areas. It also did not evaluate policy documents on participation. However, if the decision-making process will be examined, it may give insight into the power dynamics and social relations between citizens, civil society organizations and governmental parties in such a process. Eventually, these insights may be used to make nature initiatives more just.

Thirdly, future research could also be conducted to investigate the position of civil society organizations, such as the IVN in Tiny Forests and companies in the private sector, and their influence regarding justice in nature initiatives. More information on this would help to establish (better) policy recommendations for municipalities on how to guide civil society nature initiatives in general, but also regarding possible justice issues. As identified in the introduction, civil society organizations can play an important role by including the less powerful social groups into the initiative, and by giving them a political voice, because they have the time and energy to be involved in the social network of citizen groups (Boje, 2017).

8. Bibliography

- Afforestt Eco Service Private Limited. (2017). *Methodology*. Retrieved from <https://www.afforestt.com/methodology>
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of planners*, 35(4), 216-224. doi:10.1080/01944366908977225
- Bleichrodt, D., Bruns, M., Teunissen, W., & Laine, E. (Producer). (2017). *Handboek: Tiny Forest – iedere buurt plant zijn eigen bos*.
- Blue, G., Rosol, M., & Fast, V. (2019). Justice as Parity of Participation: Enhancing Arnstein's Ladder Through Fraser's Justice Framework. *Journal of the American Planning Association*, 85(3), 363-376. doi:10.1080/01944363.2019.1619476
- Boje, T. (2015). Citizenship, democratic participation, and civil society. *Cursiv*, 15(2015), 27-44.
- Boje, T. (2017). Concluding Essay: Social Activism Against Austerity – The Conditions for Participatory and Deliberative Forms of Democracy. *Journal of Civil Society*, 13(3), 349-356. doi:10.1080/17448689.2017.1362100
- Bredenoord, H., van Broekhoven, S., van Doren, D., Goossen, M., van Oorschot, M., & Vugteveen, P. (2020). *Maatschappelijke betrokkenheid bij natuur in beleid en praktijk: verkennende studie onder burgers en bedrijven*. Planbureau voor de Leefomgeving (PBL)
- Buijs, A., Elands, B., Havik, G., Ambrose-Oji, B., Gerőházi, E., van der Jagt, A., . . . Vierikko, K. (2016). *Innovative governance of urban green spaces - Learning from 18 innovative examples across Europe*. (Project Green Surge; No. ENV.2013.6.2-5-603567; 2013-2017): University of Copenhagen.
- Centraal Bureau voor Statistiek (CBS). (2019a, 13th of November 2019). *Inkomensverdeling*. Retrieved from <https://www.cbs.nl/nl-nl/visualisaties/inkomensverdeling>
- Centraal Bureau voor Statistiek (CBS). (2019b). *Opleidingsniveau naar wijk en buurt, 1 oktober 2017*. Retrieved from <https://www.cbs.nl/nl-nl/maatwerk/2019/30/opleidingsniveau-naar-wijk-en-buurt-1-oktober-2017>
- Centraal Bureau voor Statistiek (CBS). (2019c). *Wijk- en buurtkaart 2019*. Retrieved from <https://www.cbs.nl/nl-nl/dossier/nederland-regionaal/geografische-data/wijk-en-buurtkaart-2019>
- Centraal Bureau voor Statistiek (CBS). (2020, 26th of February 2020). *Kerncijfers wijken en buurten 2017*. Retrieved from <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/83765NED/table?fromstatweb>
- Chiesura, A. (2004). The role of urban parks for the sustainable city. *Landscape and Urban Planning*, 68(1), 129-138. doi:10.1016/j.landurbplan.2003.08.003
- Collins, K., & Ison, R. (2009). Jumping off Arnstein's ladder: social learning as a new policy paradigm for climate change adaptation. *Environmental Policy and Governance*, 19(6), 358-373. doi:10.1002/eet.523
- Conway, T., Shakeel, T., & Atallah, J. (2011). Community groups and urban forestry activity: Drivers of uneven canopy cover? *Landscape and Urban Planning - LANDSCAPE URBAN PLAN*, 101, 321-329. doi:10.1016/j.landurbplan.2011.02.037
- Crampton, J. W. (2001). Maps as social constructions: power, communication and visualization. *Progress in human Geography*, 25(2), 235-252. doi:10.1191/030913201678580494
- Cresswell, T. (2014). *Place: an introduction*. New York, United States: John Wiley & Sons.

- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches* (Fourth ed.). California: Sage publications, Inc.
- De Haas, W. (2017). *Groen, Gelijk en Eerlijk: Verkenning naar de relatie tussen sociale uitsluiting en de natuurlijke omgeving*. Wageningen: Wageningen Environmental Research.
- De Wilde, M., Hurenkamp, M., & Tonkens, E. (2014). Flexible relations, frail contacts and failing demands: How community groups and local institutions interact in local governance in the Netherlands. *Urban Studies*, 51(16), 3365-3382. doi:10.1177/0042098013519832
- Dirkse, G., Daamen, W., Schoonderwoerd, H., Japink, M., Van Jole, M., Van Moorsel, R., . . . Vocks, M. (2007). *Meetnet Functievervulling bos 2001-2005: vijfde Nederlandse bosstatistiek*. Retrieved from <https://edepot.wur.nl/98841>
- Edwards, M. (2014). *Civil society* (Third ed.). Cambridge, UK: Polity Press.
- Fainstein, S. S. (2010). *The just city*. Ithaca: Cornell University Press.
- Forsyth, D. R. (2010). *Group dynamics* (Fifth ed.). Belmont, CA: Wadsworth Cengage Learning.
- Fraser, N. (1998). Social justice in the age of identity politics: redistribution, recognition, participation. *Discussion Papers, Research Unit: Organization and Employment, FS*, 98-108.
- Fraser, N. (2010). *Scales of justice: reimagining political space in a globalizing world*. Cambridge: Polity Press.
- Fraser, N. (2013). *Fortunes of feminism: From state-managed capitalism to neoliberal crisis*. London, UK: Verso Books.
- Helsloot, I., & Van Melick, G. (2015). *Een derde weg ter bevordering van burgerinitiatieven? Een verkenning naar een aparte juridische positie voor burgerinitiatieven om veiligheidsbelemmeringen op te heffen*. Crisislab, Renswoude.
- Hoogstra, M. A., & Verbij, E. E. M. (2000). Community forestry - participatie in beheer. *Nederlands Bosbouw tijdschrift*, 72(2), 63-67. Retrieved from <https://edepot.wur.nl/114118>
- IVN. (2020). *Onze bossen*. Retrieved from <https://www.ivn.nl/tinyforest/onze-bossen>
- IVN. (n.d.-a). Checklist: is mijn bos een Tiny Forest®? Retrieved from <https://www.ivn.nl/tinyforest/over-tiny-forestr>
- IVN. (n.d.-b). *Over Tiny Forest®*. Retrieved from <https://www.ivn.nl/tinyforest/over-tiny-forestr>
- IVN. (n.d.-c). Samenwerkingsovereenkomst. Retrieved from <https://www.ivn.nl/file/68464/download?token=PF6-wscj>
- Janssen, J., Bijlsma, R.-J., Arts, G., Baptist, M., Hennekens, S., de Knegt, B., . . . Wijnhoven, S. (2020). *Habitatrichtlijnrapportage 2019: Annex D Habitattypen: Achtergrond document* (WOT-technical report 171). Wageningen: Wettelijke Onderzoekstaken Natuur & Milieu, Wageningen UR.
- Kabisch, N., & Haase, D. (2014). Green justice or just green? Provision of urban green spaces in Berlin, Germany. *Landscape and Urban Planning*, 122, 129-139. doi:10.1016/j.landurbplan.2013.11.016
- Lambregts, L., & Wiersum, K. F. (2002). Community forestry in Nederland. *Nederlands Bosbouw tijdschrift*, 74, 5-6. Retrieved from <https://edepot.wur.nl/114314>
- Lefebvre, H. (1991). *The Production of Space*. Cambridge, USA, Oxford; UK: Backwell Oxford.
- Low, S. (2013). Public space and diversity: Distributive, procedural and interactional justice for parks. *The Ashgate research companion to planning and culture*. Ashgate Publishing, Surrey, 295-310. doi:10.4324/9781315613390.ch17
- Luttik, J., Aalbers, C. B. E. M., Donders, J., & Langers, F. (2014). *Groen dichterbij : Wat maakt groene buurtprojecten tot een succes?* Wageningen: Alterra Wageningen Universiteit & Research centre.
- Mattijssen, T. J. M. (2018). *Active citizenship in green space governance*. (PhD thesis). Wageningen University, Wageningen.

- Mattijssen, T. J. M., Buijs, A. E., & Elands, B. H. M. (2017). Wat kunnen we verwachten van burgerinitiatieven voor natuur en landschap? *Vakblad Natuur Bos Landschap*, 135, 12-15.
- Mattijssen, T. J. M., Buijs, A. E., Elands, B. H. M., & Arts, B. (2018). The 'green' and 'self' in green self-governance – a study of 264 green space initiatives by citizens. *Journal of Environmental Policy & Planning*, 20(1), 96-113. doi:10.1080/1523908X.2017.1322945
- Mattijssen, T. J. M., Buijs, A. E., Elands, B. H. M., & Van Dam, R. I. (2015). *De betekenis van groene burgerinitiatieven: analyse van kenmerken en effecten van 264 initiatieven in Nederland* (WOT-rapport 127). Wageningen: Wettelijke Onderzoekstaken Natuur & Milieu, Wageningen UR.
- Mattijssen, T. J. M., & Kamphorst, D. (2018). *Vermaatschappelijking van natuur in onderzoek: overzicht van de kennisontwikkeling bij Wageningen Universiteit en Research, 2014-2018* (1879-4688). Wageningen: Wettelijke Onderzoekstaken Natuur & Milieu, Wageningen UR.
- Ministry of Agriculture, Nature and Food Quality. (2013). *Natuurpact ontwikkeling en beheer van natuur in Nederland*. Den Haag
- Ministry of Economic Affairs. (2014). *Natuurlijk verder - Rijksnatuurvisie 2014*. Den Haag
- Ministry of Internal Affairs. (2013). *De Doe-democratie, kabinetsnota ter stimulering van een vitale samenleving*. Den Haag
- Ottburg, F., Lammertsma, D., Bloem, J., Dimmers, W., Jansman, H., & Wegman, R. (2018). *Tiny Forest Zaanstad: Citizen Science and determining biodiversity in Tiny Forest Zaanstad*. Wageningen: Wageningen Environmental Research, Rapport 2870.
- Paavola, J., & Lowe, I. (2005). *Environmental values in a globalising world: Nature, justice and governance*. Abingdon, Oxon: Routledge.
- Paloniemi, R., Apostolopoulou, E., Cent, J., Bormpoudakis, D., Scott, A., Grodzińska-Jurczak, M., . . . Pantis, J. D. (2015). Public participation and environmental justice in biodiversity governance in Finland, Greece, Poland and the UK. *Environmental Policy and Governance*, 25(5), 330-342.
- Rawls, J. (2001). *Justice as fairness: A restatement* (Second ed.). Cambridge: Harvard University Press.
- Salverda, I., Pleijte, M., & van Dam, R. (2014). *Meervoudige democratie: Meer ruimte voor burgerinitiatieven in het natuurdomein*. Wageningen: Alterra Wageningen Universiteit & Research centre.
- Sanders, M. E., Henkens, R. J. H. G., & Slijkerman, D. M. E. (2019). *Convention on biological diversity: Sixth national report of the Kingdom of the Netherlands* (2352-2739). Wageningen: Statutory Research Tasks Unit for Nature & the Environment (WOT Natuur & Milieu). WOT-technical report 156.
- Sanders, M. E., Langers, F., Henkens, R. H. G., Donders, J. L. M., van Dam, R. I., Mattijssen, T. J. M., & Buijs, A. E. (2018). *Maatschappelijke initiatieven voor natuur en biodiversiteit: een schets van de reikwijdte en ecologische effecten en potenties van maatschappelijke initiatieven voor natuur in feiten en cijfers*. Wageningen: Wettelijke Onderzoekstaken Natuur & Milieu, WUR. WOT-technical report 120.
- Schlosberg, D. (2009). *Defining environmental justice: theories, movements, and nature*. Oxford University Press.
- Soares da Silva, D., Horlings, L. G., & Figueiredo, E. (2018). Citizen Initiatives in the Post-Welfare State. *Social Sciences*, 7(12), 1-21. doi:10.3390/socsci7120252
- Soja, E. W. (1999). Thirdspace: Expanding the scope of the geographical imagination. In D. Massey, J. Allen, & P. Sarre (Eds.), *Human Geography Today* (pp. 260-278). London: Routledge.
- Soja, E. W. (2009). The city and spatial justice. *Justice spatiale/Spatial justice*, 1(1), 1-5.
- Soja, E. W. (2010). *Seeking spatial justice*. Minneapolis: University of Minnesota Press.
- Tolley, G. S., & Olson, E. (1971). The interdependence between income and education. *Journal of Political Economy*, 79(3), 460-480.

- Tritter, J. Q., & McCallum, A. (2006). The snakes and ladders of user involvement: moving beyond Arnstein. *Health policy*, 76(2), 156-168.
- Turnhout, E., & Van der Zouwen, M. (2010). 'Governance without governance': how nature policy was democratized in the Netherlands. *Critical Policy Studies*, 4(4), 344-361.
- Uitermark, J. (2012). De zelforganiserende stad. In *Essays Toekomst van de stad* (pp. 5-9). Den Haag: Raad voor de Leefomgeving en Infrastructuur.
- United Nations. (n.d.). *Sustainable Development Goal 11*. Retrieved from <https://sustainabledevelopment.un.org/sdg11>
- Valdés, A., Lenoir, J., De Frenne, P., Andrieu, E., Brunet, J., Chabrierie, O., . . . Decocq, G. (2020). High ecosystem service delivery potential of small woodlands in agricultural landscapes. *Journal of Applied Ecology*, 57(1), 4-16. doi:10.1111/1365-2664.13537
- Van Dam, R., Salverda, I., During, R., & Duineveld, M. (2014). *Burgers en hun landschap: burgerparticipatie en maatschappelijk initiatief*. Wageningen: Alterra, Wageningen Universiteit & Research centre.
- Van Dinther, M. (2019). Het gaat niet goed met de natuur in Nederland. Als het zo doorgaat 'is het tegen de klippen op werken'. *De Volkskrant*. Retrieved from <https://www.volkskrant.nl/nieuws-achtergrond/het-gaat-niet-goed-met-de-natuur-in-nederland-als-het-zo-doorgaat-is-het-tegen-de-klippen-op-werken~bf1c9127/>
- Van Duinhoven, G. (2019). Scheidend hoogleraar Bos- en natuurbeleid Bas Arts. *Vakblad Natuur Bos Landschap*, juni, 12-14.
- Vennix, J. A. M. (2016). *Onderzoeks-en interventiemethodologie* (Sixth ed.). Amsterdam: Pearson.
- Verschuren, P., Doorewaard, H., & Mellion, M. (2010). *Designing a research project* (Second ed.). The Hague: Eleven International Publishing.
- Vullings, L., Buijs, A., Donders, J., Kamphorst, D., Kramer, H., & de Vries, S. (2018). *Monitoring van groene burgerinitiatieven: analyse van de resultaten van een pilot en nulmeting in vier gemeenten*. Wageningen: Wettelijke Onderzoekstaken Natuur & Milieu, Wageningen UR. WOt-technical report 123.
- Williams, J. (2013). *Toward a theory of spatial justice*. Paper presented at the Annual Meeting of the Western Political Science Association, "Theorizing Green Urban Communities" Panel Thursday, Los Angeles. Retrieved from <http://www.wpsanet.org/papers/docs/Williams,%20Spatial%20Justice,%20WPSA%202013.pdf>.
- Wolch, J. R., Byrne, J., & Newell, J. P. (2014). Urban green space, public health, and environmental justice: The challenge of making cities 'just green enough'. *Landscape and Urban Planning*, 125, 234-244. doi:10.1016/j.landurbplan.2014.01.017
- World Wildlife Fund (WWF). (2020). *Living Planet Report Nederland: Natuur en landbouw verbonden*. Zeist: WNF.
- Young, I. M. (2011). *Justice and the Politics of Difference*. Princeton, New Jersey: Princeton University Press.