

Who dares to tackle our wickedly obesogenic food environment?

A comparative case study of policy approaches targeting the unhealthy food environment of municipalities in The Netherlands

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'Ensure healthy lives and promote well-being for all at all ages' (UN, SDG 3)

'It always seems impossible until it's done' (Nelson Mandela)

Summary

Nowadays, partly due to the increasingly abundant availability of unhealthy food in our environment, more and more people are suffering from obesity and obesity related diseases. Furthermore, municipalities are increasingly viewed as crucial actors within addressing contemporary food issues, since they can form the testing ground for new food policy. Over the years this has resulted in local governments attempting to implement public health policies to cope with this development, and to address modern obesogenic food environments. This was also manifested in the Dutch City Deal, Food on the urban agenda of 2017. In this deal 11 Dutch cities signed their commitments of working together towards solving several urban food related issues. Consequently, Dutch municipalities have also been focusing on the issue of obesogenic environments. Little research has yet been focusing on local public health policy addressing the food environment, and therefore this research has explored the question: *'How do Dutch municipalities' local food policies currently address altering the food environment to achieve healthier diets for citizens?'*

This study has used an ecological conceptual approach on food environments to review and compare the food environment policy approaches of the five Dutch municipalities: Amsterdam, Rotterdam, The Hague and Ede. Firstly, it addresses the goals and instruments used within the municipalities' food environment approaches. Secondly, it reviews the food environment support systems that characterise these food environment approaches. Conclusions that can be drawn from this research are that local actors do express a want to alter food environments to positively affects people's diets, however, municipalities possess limited resources to do so, and intend not to use coercive instruments. Additionally successful food environment implementation relies strongly on policy support systems, such as political commitment, integrated municipal support and participatory governance. To tackle systemically engrained food issues, potential lies therefore in a policy approach which is targeted, includes multiple-actors and is integrated within several policy levels and domains.

Key words: Food environment policy, Food environments, public policy, food policy, food system transformation, The Netherlands, obesogenic environments

Preface

This research report presents the results of a six month lasting research, written as thesis for the master International Development Studies at Wageningen University. The 1,5 years of my master have flown by and have formed a challenging but very inspiring part of my academic career. Never have I felt so in tune with the themes I was studying, and felt empowered by studying topics that I desire to work on in my future career as well. Therefore, I'm very thankful of all the lessons and possibilities handed to me by the Master of International Development Studies, and the bonus track of Sustainable Development Diplomacy. Especially my fellow SDD colleagues have been an inspiring group to be surrounded with, and have showed me that hard work and idealism will eventually always pay off. A last great source of motivation for finishing this thesis has been in the shape of an opportunity for an internship within the Sustainable Diets for all programme at Hivos in The Hague. This creates the chance to keep on advocating for food system transformation which strives for more sustainable, healthy and nutritious diets for every person on this planet.

When studying International Development Studies you realise that the world is confronted with many pressing issues that seem very challenging to solve. However, whilst studying there are also plenty of personal hurdles to overcome. To me this thesis formed the biggest daunting hurdle of the year. Eventually the hardest bit did not appear to be the thesis itself, but overcoming the challenges of self-doubt and insecurities along the way. The main lesson learned: keep calm and carry on, since a steady pace wins the race. Additionally while working on this thesis I've experienced that there is so much more to life than delivering projects or achieving the best results. In the end it's worldly adventures, health and the love for those around you which really matters.

First of all like to thank my supervisor Jeroen Candel for his continuous support and down to earth reflections on what was needed to be done. His supervision has enabled me to keep both feet on the ground and made every part of the process feel like an achievable logical step. Furthermore I would like to thank my amazing friends for being who they are, making me laugh and keeping life bright. Also I would like to thank my close family, Betty, Tseard, Jildou and Tim, I feel blessed having such inspirational, warm people around me that I can always rely on. Lastly, my greatest thanks goes to my most unconditional source of support, encouragement and love. Elliot, with you by my side I know I can climb the highest mountain.

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List of abbreviations:

AAG: Amsterdamse Aanpak Gezond gewicht

INFORMAS: International Network for Food and Obesity / Non-communicable Diseases (NCDs) Research, Monitoring and Action Support

FAO: Food and Agriculture Organisation

(Food)-EPI: Food Environment Policy Index

IPES-Food: International Panel of Experts on Sustainable Food Systems

RIVM: Rijksinstituut Voor gezondheid en Milieu

WRR: Wetenschappelijke Raad voor het Regeringsbeleid

WHO: World Health Organization

1. Introduction

Nowadays, in most developed countries ‘food is abundantly available and accessible in multiple settings throughout the day. Additionally, processed and convenience foods are available in larger portion sizes and at relatively low prices’ (Story et al., 2008, p. 254). These combined factors have had a major effect on global dietary patterns over the years and the ‘obesogenity of our modern environment has started to fuel a global obesity pandemic’ (Swinburnt et al., 1999, p.563). Numbers in 2016 stated that globally about 1,9 billion adults suffer from being overweight and 670 million are viewed as being severely obese (WHO, 2018, FAO, 2019). These high numbers of overweight and obesity are of great concern as they contribute to harmful physical health conditions like diabetes, heart disease or mental health problems like depression (Gatineau and Dent, 2011). Currently due to unhealthy diets, being overweight and obesity kills more people than underweight prevalence does in most countries in the world (WHO, 2018).

The question is how to succeed in obesity numbers to decrease and to ensure that all people have access to a healthy diet. Governments play a crucial role in promoting the public health of states and have the potential to design food policies that can change people’s eating habits and improve diets. In this light, these policies play a crucial role in addressing the global issue of obesity (Hawkes et al., 2015). However, the lack of consistent evidence to support food related health interventions has made changing unhealthy food systems very challenging. This is enforced by the fact that food systems comprise of many actors and complex systems in which different interactions between food and their food environments exist (Hawkes et al., 2015). The issue of unhealthy food systems could consequently be characterised as being ‘wicked’ as ‘it follows the simultaneous occurrence of high complexity and uncertainty’ and is surrounded by controversial debates throughout cross-scale dynamics (Candel, 2016, p. 270).

Within food system issues urban environments are increasingly seen as the “key transition spaces where new food governance is tested to work towards improved food systems” (Moragues-Faus and Morgan, 2015). Experts state that innovative food policies seem to be mostly emerging at a local level in industrialised countries, where “municipal governments are modifying themselves as food system innovators” (Sonnino, 2016, p. 191). This means that local governments might be potential actors in taking action to improve the health of their citizens. Recently, many different programmes and interventions have been employed to solve food related issues in urban areas. A prime example of this can be seen in the context of the Netherlands, where in 2017, twelve Dutch cities signed the ‘*City Deal, Voedsel op de stedelijke agenda*’. This stated that Dutch cities play important roles in developing and implementing food policy on a local scale. Also, the issue of obesity was put on this agenda since, approximately 50% of the Dutch citizens aged 18 years and older are suffering from being overweight, a 15% of which are categorised as being obese (CBS, 2018). Furthermore overweight rates of minors below 18 stand at 13,5% (RIVM, 2019).

Contemporary food environments are increasingly viewed as major contributors to the deterioration of people’s diets. Consequently attention of policy has also shifted towards addressing the food environment (Poelman, 2016, p. 11, Story et al., 2000). The FAO (2016), defines food environments as “the food available to people in their surroundings as they go about their everyday lives, and the nutritional quality, safety, price, convenience, labelling and promotion of these foods” (FAO,2016). Creating healthier food environments is

viewed to support improving people's food choices, and help reduce overweight and obesity prevalence (Hawkes et al., 2015). Story et al (2008) state that 'environmental and food policy interventions may be among the most effective strategies for creating population-wide improvements in eating' (Story et al. 2008. P. 253). However, since the centre of policy attention on food environment improvement has only just been developed, little is yet known about how local policy addresses food environments.

With the constant rising numbers of obesity threatening the health of people, it is important to look at examples of cases which demonstrate how food related policies intend to counter this rise. Furthermore, since local governments have appeared to be valuable new actors within food governance it is relevant to review what their role could be in battling the rising numbers of obesity on a local scale (Sibbing et al., 2019, Sonnino, 2009). Since so far no analysis of Dutch food environment policy exists, this research therefore intends to provide a review on how several Dutch local governments' policies address the food environment in order to solve the rising public health issue of obesity.

The main question that guides this study therefore is:

'How do Dutch municipalities' local food policies currently address altering the food environment to achieve healthier diets for citizens?'

This question has been examined by performing a comparative-case study of the current local policy affecting the food environment of selected municipalities in The Netherlands; Amsterdam, Rotterdam, The Hague, Utrecht and Ede. In the context of studying municipal policy approaches, local comparative research might be especially beneficial since it can analyse cases 'where socio-demographics and economic profiles are comparable' (Halliday et al. , 2019, p.15) According to (Sonino, 2009, p.433) applied researchers 'can support knowledge-building processes at the municipal level by providing data and in-depth case studies that help planners and policy-makers to understand the functioning of the urban food system, its potential and its limitations'. Therefore, the methodology this research has adopted is in the form of a comparative case-study with a two-fold approach. Firstly, it maps the interventions affecting the food environments of five municipalities of the Netherlands. To study these policy approaches municipalities' policy outputs have been evaluated according to specific policy goals, instruments of every case municipality. Secondly, to address the potential of policies and their limitations, the study reviews what enabling policy processes are in place as infrastructure support for local food environment policy. Both of these approaches are in place to answer the overarching aforementioned question, how do Dutch municipalities' local food policies currently address altering the food environment to achieve healthier diets for citizens.

This report will start by addressing the underlying theories of this study in chapter 2. In chapter 2.1 the concept of the food environment will first be analysed leading up to the conceptual scope of food environment that will guide this research. Subsequently in chapter 2.2, theories of public policy and food policy interventions will be discussed leading up to an conceptual configuration of the concept of food environment support systems which form the enabling or constraining governance context of food environment policy. Chapter 3 will hereafter explain the methodological approach of this research. In this

section the type of research is presented and paired with an explanation of the methods of data collection and analysis. Additionally it will go into the possible limitations of this methodological approach. In chapter 4 and 5 the results of the study will be presented. Chapter 4 will zoom in on the main policy goals and instruments of food environment policy of the Dutch municipalities. Hereafter in chapter 5 the enabling and constraining factors within food environment support systems of local food environment policy will be discussed. Subsequently, chapter 6 will discuss the main findings of this study and give a reflection on its implications for academical theory. Lastly chapter 7 will go into the concluding remarks of this study and provides recommendations for further research. A list of the annexes of the study is also provided with documents that are supplementary to this study.

2. Theoretical framework

2.1 What is the food environment?

The food environment and healthy diets

As aforementioned, a healthy diet can be described as “one that meets the nutritional needs of individuals by providing sufficient, safe, nutritious and diverse food to lead an active life and reduce the risk of disease” (FAO, 2019). Within existing theory the common factors that are recognised to influence people’s dietary choices are threefold. The first factor relates to the individual and personal traits such as genes, physiology of the body, emotions and attitudes. Secondly, there are the communal factors related to norms and values and the influence of eating culture and routines. Lastly, there is the environmental factor of food environments (Poelman 2016, p.3). Where previously health prevention debates were mostly centred around interventions on the individual psychological level or the socio-communal factors determining eating behaviours, attention on the food environment is gaining more ground. This approaches food choice and diet through an ecological framework which ‘sees human behaviour as an effect of multiple levels of interacting influences of the environments in which they live’ (Story et al., 2008). This model has been used by numerous different authors such as (Story et al., 2008., Sallis and Owen, 2002., Swinburn et al., 1999., Stokols, 1992). In order to know what these environments that influence dietary behaviour consist of, and how can environments be created to support healthy dietary choices, it is important to first explore the composition and definition of the food environment.

Over the years the concept of food environments has drawn more and more attention within academic research to shed light on the environmental determinants of obesity. “Numbers of studies have found correlations between the food environment and dietary intake” (Bodor, 2010, p. 778). See for instance (Bodor et al., 2008, Franco et al., 2009, Laraia et al., 2004, Morland, et al., 2002, Rose and Richards, 2004). The concept of food environments is used in many forms within literature. It, for example, appears as nutrition environments, eating environments or foodscapes. However, the most adopted term within academics and practice is ‘food environments’ and therefore, this study will refer to it as so. The recognition of the importance of the concept of ‘food environments’ has resulted in frequent use within policy and amongst academics. However, its conceptual application is not completely unitary. The first typology sets out to describe the food environment settings, which include ‘homes, child-care, schools, work sites’ (Story et al. 2008), and secondly attempts to define the different characteristics within these settings which affect food choice. In juxtaposition, the FAO for example describes food environments as “the food available to people in their surroundings as they go about their everyday lives and the nutritional quality, safety, price, convenience, labelling and promotion of these foods” (FAO, 2016). This definition encompasses many concrete characteristics, like prices or labelling, which determine what food environments can consist of, where Herforth and Ahmed (2015), state that the food environment is “the range of foods which are available, affordable, convenient and desirable to the people in a given context”. (Herforth and Ahmed, 2015,p. 505). They address the food environment in a slightly different way by using availability, affordability and

convenience which relates more to that of the relationship between the individual and contextual characteristics.

What does seem unitary is the main understanding that within the food environment the individual is placed as a central entity and the food environment is the context which influences an individual's food choices. Turner et al. (2018) follow this notion by describing the food environment as ‘the interface where people interact with the wider food system to acquire and consume foods’ (Turner et al.,2018). The food environment provides the choices people have when they make decisions on what they eat. Creating a healthy food environment therefore, is seen as creating the conditions that enable and encourage people to access and choose healthy diets.’ (FAO, 2016)

The aspect which is however not explicitly apparent from many definitions of the food environment is the relationship of food environments and diets. Only a few authors explicitly define the relationship of the food environment and its effects on people’s diets. Hawkes et al. (2015) do refer to this relationship with their definition that food environments are “the everyday prompts which nudge consumer’s food choices in particular directions and which contribute to dietary habits and preferences that can have long-term impacts”. This definition implies that if these ‘everyday prompts’ are altered nudging might steer consumer’s food choices in a different way than they did before. Additionally, they state that healthier food environments can not only influence diets but also improve regular physical activity and help reduce overweight and obesity prevalence (Hawkes et al., 2015). For the sake of scope on food, this study will however only go into direct nudges which affect food-related health choices of the individual.

This study approaches the individual with certain food choices that affect the nutritional quality and composition of their diet as being at the core of a certain food environment. Someone’s food choices are affected by person’s food environment which is the combination of physical availability, accessibility, convenience, and desirability of different foods (Herforth and Ahmed, 2015; Taylor et al, 2018). These dimensions determine people’s “physical access to food, their purchasing power, their knowledge about food, and their preferences, which affect an individual’s food choices and the diet they consume (Halliday et al., 2019.) For this study, a specialised conceptual visualisation of the urban food environment and its’ aspects will be introduced to be able to form a baseline for our eventual analytical framework to study policy success of food environment policies in urban contexts. In the following paragraph, the composition of this conceptual framework will be explained and its different dimensions will be outlined.

Within this study, the conceptual framework on food environments is inspired by other ecological frameworks such as seen in (Story et al. 2008, Dahlgren and Whitehead, 1991) These frameworks also display the individual at the centre, surrounded by the relevant factors that affect people’s health. Drawing on the work of Story et all. (2008), this study uses an adopted conceptual model, as shown in (figure I) which, demonstrates this studies conceptualisation of the food environment relevant for comparing policy approaches. In the following paragraph, this conceptual framework of the different dimension of food environments will be further explained.

The different conceptual spheres of the food environment

Within this study, the conceptual framework will approach the characteristics of the food environment as divided into three main conceptual spheres. The first sphere contains the characteristics of food when appearing in different physical environments. These characteristics are mainly determined by aspects of availability; which indicate the specific food offered in a certain location, the accessibility of food; which is determined by the distance to purchase food or if it can be consumed immediately, and lastly if there is accessibility of food options that are financially affordable (Halliday et al., 2019, p.12, Herforth and Ahmed, 2015; Taylor et al, 2018).

The second sphere is made up by the information and communication characteristics of a food environment which influences the informed choices, desirability and preferences of an individual's food choices. "Food-related messaging and presentation within the food environment have an impact on nutrition because they directly influence people's food choices, either consciously or unconsciously". (Halliday et al., 2019, p.12). The aspects of this sphere are compiled of the information and promotion of food in a certain space. Does the available food provide sufficient labelling and information on the nutritional quality of the food? What kind of food is promoted in the area? Are people nudged into choosing healthy or unhealthy options?

The last sphere is compiled of the social environment which for example is used by Story et al. (2008) in their ecological framework of the food environment. This environment 'includes interactions with family, friends and other people in the community and may impact food choices through role modelling, social support and social norms' (Story et al. 2008, p.254). This study will approach this sphere as a socio-cultural sphere in which for example communal or cultural elements of the neighbourhood are addressed which in turn could influence food environment behaviour.

The food environment lends itself especially well for local policy interventions as it bridges the context of individual consumer behaviour and the environment which influences their food choices (Halliday et al., 2019). 'By shaping the food environment through policies, programmes, regulatory instruments and other processes they can shape a person's interaction with the food environment and consequently directly impact dietary choices which affect people's health status' (Halliday et al., 2019, p. 13).

Hence to study policies aimed at improving food environments this research adopts the previously explained conceptual spheres of the food environment surrounding the individual within its core. The first sphere surrounding the individual in the food environment, is conceptualised as the physical geographical sphere composed of the elements of availability, accessibility, affordability. The second sphere is categorised as the information and communication sphere which affects the desirability of food through either information distribution, marketing, or labelling and promotion. Finally, the framework will take the contextual socio-cultural aspects in account in which social support, socio-cultural norms and role modelling is placed. See below in figure I the conceptual visualisation of how this study will approach the food environment.

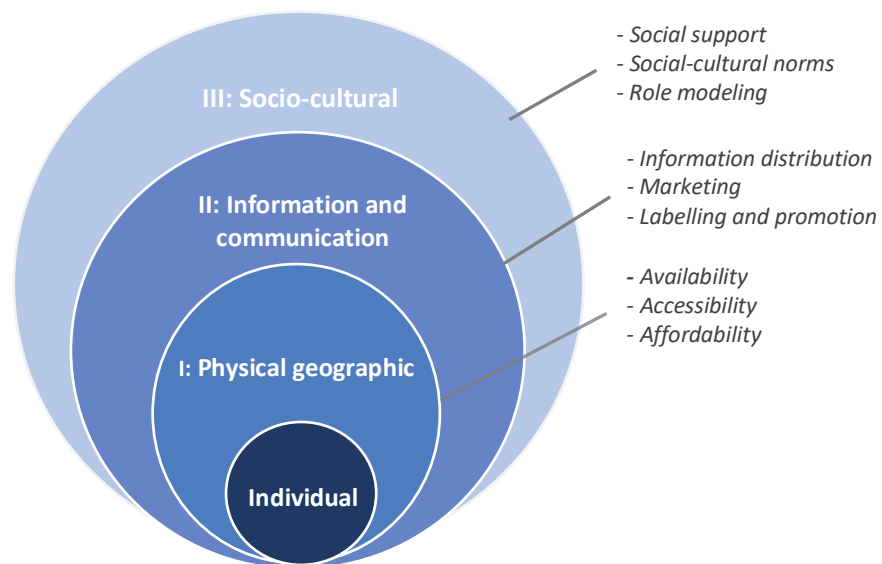


Figure 1: Conceptual visualisation of the Food Environment inspired by (Storey et al., 2008).

To go further into the urban food policies affecting the food environment, the next chapter will go into theories on public policy, specified on urban food policies. This chapter will explore the several conceptual aspects of food policy to work towards an analytical framework for the study on policy approaches which address improving people's diets.

2.2 What is food environment policy?

The following section will address the concept of food environment policy as local public policy interventions directed at adapting the food environment. It will start by reflecting on the concept of public policy within a local context. Furthermore, it will go into the conceptualisation of food policy that will be used for this study, and the relevant policy components which could aid comparative policy research like the scope, targeting and goals and instruments of food environment policy outputs.

When talking of Public policy, people speak of the output of political driven action ‘including laws, regulations, decisions, plans, programmes and strategies that are implemented’ (Knill and Tosun, 2012, p.15). Public policy is usually driven by a particular purpose, and serve as answers to societal problems, reasoning from the thought that it is supposed to allocate goods and services to serve public wellbeing of different target groups in society (Knill and Tosun, 2012 and Fitzgerald et. Al, 2019, Ingram et al., 2007). Public policy can be implemented for all kinds of societal issues related to, for example, social welfare, public safety or healthcare. Since food consumption has a large effect on public health, food policies can work as public policy to improve and secure public health. In relation to public policy directed at steering citizens towards a healthier diet, the question that can be asked is; how can local public policy steer food environments to effectively improve the health of citizens?

As aforementioned local environments are increasingly addressed as the ‘key transition spaces where new governance is tested’ (Moragues-Faus and Morgan, 2015). This might be attributable to local governments’ ability to quickly implement policies. This often leads them to be innovators in creating public policy. (Karbasy et al. , 2019, p.5). According to Karbasy et al. (2019) the importance of a local approach by municipal governments lies within their ‘mandate and flexibility to respond to local concerns and consider issues that directly affect specific interest of their electorate’ (Karbasy et al. 2019, p.5). Local governments might stand closer to the general public and social issues tied to local settings. Therefore they can respond to the specific local policy context and can function as testing grounds for bottom up initiatives. Nevertheless, compared to state or federal jurisdictions, local governments have often less ‘authority and resources at hand to do so (Karbasy et al. , 2019, p.5). This opens up the question of what role local governments can play within improving public health through the food environment. According to Karbasy (2019), local policy implementation plays a critical role in shaping the overall food environment. ‘Government policy lays a foundation for the food environment, by establishing regulations and priorities for investment of government funding and resources, providing a framework within which the food industry and the general public operate’ (Karbasy et al. 2019, p4.). This form the basis of the food environment landscape of municipalities.

The food environment policy landscape, which is built around local food environments, is constituted of the food policy, programmes, interventions, rules and regulation of a certain locality. The food environment policy landscapes that are reflected in the results of this study are particularly focused on the food policy scope of food policy affecting the consumption part of the food system. Examples of governmental interventions that regulate food environment elements such as availability of unhealthy food

retail are, for example, the prohibition for new fast-food restaurants to settle in neighbourhoods where there is a high density of schools or a high percentage of children. This is demonstrated in the United Kingdom, United States and Ireland, where “No fry zones” have been introduced in the proximity of schools, or promotional campaigns are initiated that promote healthy eating (Seidell and Halberstadt, 2019).

To be able to address food environment policy, it could be useful to firstly address food policy by itself, to be able to further define the scope of food policy this study focuses on. Therefore, what does the concept of food policy encompass? Lang (2009), defines food policy as ‘policymaking that determines and responds to the food system’. This however could hypothetically mean that the concept of food policy addresses ‘all the food efforts that affect the food system in some way’ (Candel, 2019, p.4). This broad approach towards the concept of food policy, means that an extensive record of food policy theory exists within academic literature. Candel and Daugbjerg, (2020, p.1), state that existing literature has mainly ‘conceptualised food policy as policy outputs, institutional orders and discursive constructs’. In order to study what governments intend to do they suggest a focus on food policy outputs since those are the ‘programs, plans, regulations and other (semi-)legal products that are the direct result of decision-making processes (Knill and Tosun, 2012). This approach to food policy creates a seemingly concrete conceptualisation to be able to study what governments decide and do when speaking of food related issues.

This study will therefore focus on food environment related outputs and adopts the definition of Candel and Daugbjerg (2020, p1). of food policy as a ‘set of policy outputs adopted to address one or more food system activities {...} with the explicit aim of affecting food system outcomes in a desired direction’. Where the authors name the different food system activities this study will focus only on the food system activity of consumption, since this has the closest relation to affecting people’s diets.

When food policy is focused on influencing consumption or dietary behaviour it logically researches how this food policy shapes food systems by influencing what people eat, who eats it and when they eat it (Lang, 2009, p.21). This could potentially mean that food policy could influence public health. This study will primarily focus on local policy which intends to address the public health issue of obesity. To be able to explore if and how this is currently being done in the Netherlands, this study will attempt to compare the different food environment policy outputs of local case studies in the Netherlands. However, Depuis and Biesbroek (2013), argue that comparative policy studies often suffer from ‘a dependent variable problem’. This means that there is not enough distinctness of the policy phenomenon which is studied and therefore prohibits comparability of policy approaches. They state ‘that to be able to perform a meaningful comparison the dependent variable, in our case food policy affecting the food environment, needs to be further characteristically explained to improve quality of comparative policy research’ (Depuis and Biesbroek, 2013). The following paragraph will therefore further outline how this study will approach comparing food policy outlets, in order to be able to eventually make a meaningful comparison of the local food environment policy cases in the Netherlands.

To be able to overcome the dependent variable problem in studying food policy outputs Candel and Daugbjerg (2020, p6.), suggest the use of four main concepts namely, ‘scope, targeting of policy efforts, type of policy instruments and lastly, substantiality and degree of integration’. This study’s comparative approach

on food environment outputs will mainly focus on policy scope, goals and instruments and lastly targeting and substantiality of food policy. It focuses mainly on the goals and instruments, since policy goals often address the essential ‘why’ of policy and instruments address the ‘how’. Furthermore, by keeping this approach in mind the comparison of different food environment approaches should be contextualised with substance to be able to provide a characteristically well-defined comparison of food policy outputs.

Firstly, the scope of a food policy refers to the food-related problems or challenges a food policy addresses (Candel 2019 in, Candel and Daugbjerg, 2017). The food-related policy scope that this study bounds, is the scope of local food policy approaches that address the issue of unhealthy food environments affecting dietary consumption, and policy approaches that focus on creating healthy food environments to benefit people’s diets.

Secondly, Knill and Tosun (2012, p.11) state that specific elements of public policy can be identified in two main categories; goals and instruments. These categories will form the two main dimensions along which this study researches local policy outputs. ‘The policy goals a municipality sets inform us about the course the municipality aims to follow and the issues that dominate its political agenda’ (Sibbing et al., 2019, p.3). Additionally policy instruments are the mechanisms in place to implement a certain policy and to achieve policy goals (Knill and Tosun, 2012). Within this study the types of policy instruments used are according to Hood’s (1989), classification of ‘informative, regulatory (rules and laws), economic and organisational instruments’ which have been proven useful within comparative policy studies (Hood, 1983, Sibbing et al., 2019, Candel and Daugbjerg, 2020).

Lastly is the concept of targeting and substantiality. Candel and Daugbjerg (2020, p.6) use the definition of targeting of Linder and Peters (1989) which states that targeting is ‘a multi-layered specification of intentionality linked to the desired outcomes of a policy strategy’. This study will approach the concept of targeting as being expressed in the goals and aims of policy outlets since here the policy strategy of governments mostly are expressed. It will reflect on the specificity of the targets and for instance if they are expressed to be time bound or if they are more vaguely addressed. Subsequently the research will try to go into the dimension of substantiality. Within this research substantiality will be reflected on by looking at how governments apply multiple types of instruments to actually reach the goals and aims that they have expressed in policy outputs. The combination of these instruments used, is a reflection on how substantial policy approaches really are (Candel and Daugbjerg, 2020, Dupuis and Biesbroek 2013).

Enabling and constraining factors within the local food environment policy approach

Urban food environment policy has the potential to ‘shape a person’s interaction with the food environment and consequently directly impacting food security and nutrition for the urban population (Hawkes et al., 2015). By implementing policies, using certain instruments or instrument mixes to pursue policy goals and targeting specific groups in society, food policy aims for an effective approach to tackle the current obesogenicity of food environments. Hawkes et al. (2015, p.2410) state that ‘effective policy actions are those that lead to positive changes to food, social and information environments and the systems that underpin them, and work through mechanisms through which they have greatest effect, and are implemented as part

of a combination of mutually reinforcing actions’.

Effectiveness of public health policy can be based on indicators that policy has a positive effect on health of citizens of a country. According to the Nuffield Council on Bioethics (2007) this effectiveness all seems related to the intrusiveness of the intervention. ‘In the intervention ladder (2007), kinds of interventions used to promote public health are displayed ‘from the least to the most coercive or intrusive measures. However the more intrusive the approach gets, the stronger the justification for the policy approach has to be’ (Nuffield Council of Bioethics, 2007, p. 6). This can be related to ‘the stewardship model’ of the role of the state in relation to public health. This model ‘recognises that the state should not coerce people or restrict their freedoms unnecessarily’ (Nuffield Council of Bioethics, 2007, p. 6). However, in addition to protecting its citizens from harm caused by others, the stewardship state views itself as having a particular responsibility for protecting the health of vulnerable groups such as children, and in closing the gap between the most and least healthy in society’ (Nuffield Council of Bioethics, 2007, p. 6).

Even though, there are no magic bullets for effective food environment policies since policy contexts differ, there are lessons to be drawn from previous studies on what potential factors could enable more effective policy and what factors could constrain effectiveness as seen in (Halliday et al., 2019, IPES Food, 2017, Hawkes et al., 2015). Enabling factors can be defined ‘as factors that make it possible, or easier for local governments to develop and deliver urban food policy’ (IPES food, 2017, p.17). Constraining factors can be in turn defined as ‘the barriers to developing and delivering policies’ (IPES Food, 2017). This study draws upon the enabling factors of urban food policy as brought forward by The International Panel of Sustainable Food Systems (IPES), to analyse enabling and constraining factors within the local food environment policy. It focuses therefore on political commitment of the municipal government, horizontal municipal governance support and lastly, network support by other actors in the field (IPES Food, 2017). The following paragraphs will subsequently further explain these factors, concluding with a visual representation of the policy infrastructure support of food environment policy contexts in figure II.

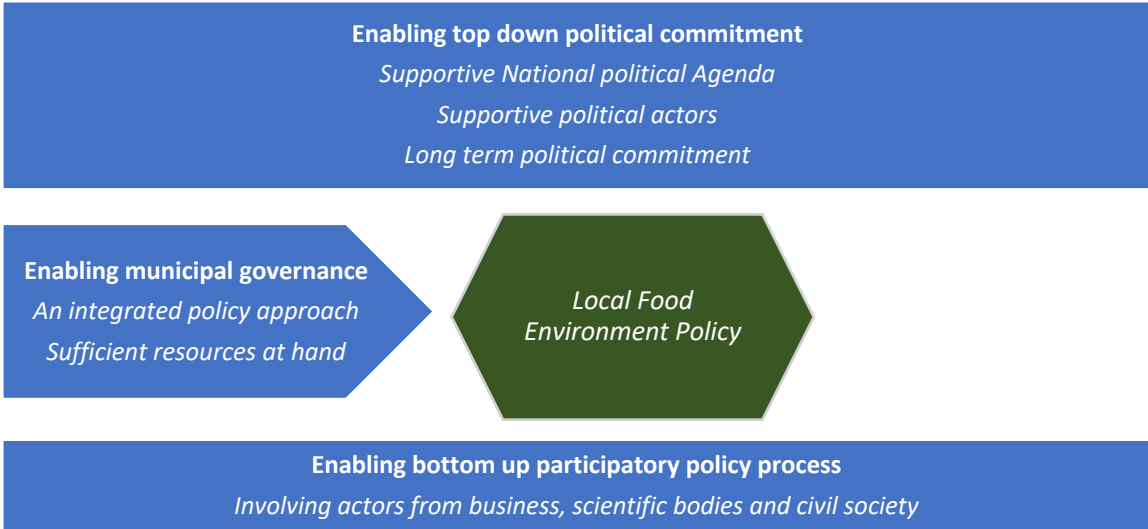
In this study the first enabling factor that will be analysed is the bottom up participatory policy process which enables food environment policy (IPES food, 2017). This notion is supported by Zahariadis (2007) who emphasizes that ‘policy is not arrived through comprehensive, rational decision-making, but rather through the efforts of individual actors, and networks of actors, who work to secure particular policy outcomes’ (Zahariadis, 2007 in Cohen, 2012). A participatory policy process can be shaped by a supportive network of actors that facilitate a certain policy approach. These networks can be comprised of for example, actors from scientific bodies, private sector actors or other communal actors. According to the IPES (2017), involving non-governmental actors (including civil society, businesses, and others), is useful for ensuring additional perspectives to create more capacity, and to leverage additional resources. ‘Furthermore, these networks can help to identify and reach target groups and leverage additional delivery channels’ (IPES food, 2017). Working together with scientific bodies can aid to ‘inform policy making since it firstly can support the development of appropriate and robust methodologies. Furthermore it can ensure that both successes and unintended consequences are measured by evaluation and monitoring process outcomes and impacts of an action throughout implementation (Halliday et al., 2019, p15).

The second enabling factor that will be reflected on in the analysis is a supportive municipal institutional context which can be a crucial factor within food environment policy. This implies for instance the resources that are available to a certain municipality, like economic resources, or regulatory or organizational mandate of a local authority. Additionally, cooperation within the municipality in the shape of ‘integrated action between several departments’ can also have a positive effect on the food environment (Halliday et al., 2019). Integrated action through new governance structures, can drive longer-lasting or more coordinated actions since it is secured within either more policy domains or through multiple actors (Tosun and Lang, 2017).

Lastly, an enabling top down political context in which policy is developed can be of major influence in facilitating suitable food policy programmes to be developed and implemented. However, multiple factors such as, ‘swings in national and local public opinion, changes of administration, or shifts in the ideology of political leaders’ (Kingdon, 2002), can constrain political commitment to a cause. This study will refer to this enabling factor as ‘political commitment’ that can influence successful food environment policy as brought forward by IPES food (2017)

To conclude, this study will explore the outputs of local public food policy. The comparative study will be bounded by the scope of local food policy outputs affecting consumption patterns of the public in order to reduce unhealthy diets and the issue of obesity. To be able to make a valuable comparison the policy characteristics that will be used to compare outputs will be categorised by the goals, instruments and targeting of the policy outputs. It will apply this approach bounded by the policy outputs that cut into the conceptual framework of the food environment that has been proposed in chapter 2. Lastly it will reflect on the enabling and constraining factors in the shape of policy infrastructure support that comes into play when food environment policy is being set out.

Figure II: Policy infrastructure support of Food Environment Policy contexts



3. Methodology

The following chapter sheds light on the methodology of this study. Therefore it will start with explaining the choice of a comparative qualitative case study research design. Secondly, it will go into methods of data collection, will thirdly explain methods of data analysis, and lastly will reflect on the methodological limitations of this study.

3.1 Research design

The study of public policy can follow several distinct paths including the ‘content of public policy, the causes and conditions surrounding policy as well as the outcomes and impact of governmental activities’ (Knill and Tosun, 2012, p.4). Public policy analysis often adopts a comparative research perspective and examines policy variety or similarity across different fields (Knill and Tosun, 2012, p.3). However, few comparative analyses of local food policies have been performed (Sonnino, 2009, Sibbing et al., 2019). Therefore this study aims to do so by performing a comparative and comprehensive study of local food policy outputs within the specific context of food environment policies. This research involves a comparative case study design of different policy approaches of local municipalities which has previously been seen in for instance (Sibbing et al., 2019, IPES food, 2017, Doernberg et al., 2019). In this comparative case study five different cases will be analysed within a two-step process. Step one being an assessment of what is currently being done by local municipalities addressing local food environments, and step two being the comprehensive evaluation of the local policy outputs, by speaking to experts and local officials to understand the policy support frameworks behind food environment policy.

This study will adopt this strategy by comparing five cases which provides a relatively small-n of (n=5). This small-n provides the possibility to have an in-depth qualitative analysis of the five cases and their comparison. The food environment policy cases this study analyses are five municipalities of the Netherlands; Amsterdam, Rotterdam, The Hague, Utrecht and additionally, Ede. These cases are particularly selected since previous research has shown that these cities have already committed to food policy outputs focusing on food related issues (Sibbing et al. 2019). This is supported by the fact that all these five municipalities all have signed the Dutch City Deal, food on the urban agenda (2017).

Secondly since urban food environments, as previously mentioned, have a larger chance of being obesogenic it could be that obesity related problematics are also more prevalent in these case cities and therefore more substantial examples of food environment policy can be distinguished. All municipalities have the common denominator of being included in the working group on food environment policy. Therefore it makes it further relevant to look at these cases and see how food environment policy has been formed, since these cases might be exemplary for food environment approaches within the context of the Netherlands. As stated before in case-oriented work cases are singular entities selected for their significance, and they are studied intensively and contextually. The end-goal of this approach is to advance knowledge on food environment policy approaches and to contextualise their theoretical understanding (Ragin, 1987). In light of policy research of different cities in depth understanding is important since cities differ majorly in

many different aspects. This can either be differences in demographics, differences in policy background and political structure within municipalities. Therefore a small n is preferable to be able to understand the individual cases better by themselves. To improve credibility, this research has combined desk-research of the urban food policy paired with qualitative interviews. Additionally, cross reference of data was performed by using interviews with both experts and policy makers.

3.2 Data collection

The data collection of this study is based on the qualitative methods of document analysis of policy, performing interviews and attendance of a thematic gathering.

Collection of relevant policy documents

The in-depth policy analysis was based on food environment related policy outputs of the five case municipalities. Firstly all policy outputs of each individual case collected by employing ‘*Het raadsinformatie systeem (RIS)*’ which is the Dutch municipality policy database that is accessible through the website of each municipality. ‘In the municipal information system, a municipality displays all its publicly available documents, such as adopted policies, press releases, letters from the municipal board to the council, and municipal council minutes (Sibbing et al. 2019, p. 4). The further document selection approach has also been inspired by the approach of Sibbing et al. (2019), however focusing on policy output collection related to food environment policy. With the underlying document selection through the municipal council’s information system it applied the assumption that ‘to be formally adopted (and thus qualify as policy output), any decision has to pass the municipal council and will subsequently be made publicly available (Sibbing et al. 2019, p. 4). The exact research query that was used for the selection of the documents was;

- ‘*Food*’ + ‘*Environment*’ OR
- ‘*Voedsel*’ + ‘*Omgeving*’ OR
- ‘*Voeding*’ + ‘*Omgeving*’ OR
- ‘*Food environment*’ OR
- ‘*Voedselomgeving*’ OR
- ‘*Healthy environment*’ OR
- ‘*Gezonde Omgeving*’.

To be selected outputs needed to be formally adopted by the municipal council in (policy outputs such as policies, strategies, or programmes) inspired by the approach of (Sibbing et al., 2019). Secondly, outputs needed to cut somehow into the previously mentioned conceptualization of the food environment (figure I). This means it should address at least one of the following food environment characteristics related to or, framing and promotion of food; food marketing, labelling and promotion, information distribution, or address the physical geographical elements of availability, convenience, accessibility/affordability. Additionally, during data collection period the policy experts of each city were asked to confirm the relevance and completeness of the list of policy outputs that were studied prior to the start of the interviews.

The time span of the studied policy outputs was outputs published within the timeframe of January 2009 – up to and including December 2019. The first reason to include outputs that were published from 2009 onwards, was that within the timeframe of 2009-2019 at least two municipal electoral cycles have passed. Therefore hypothetically a more comprehensive view of the policy course of a municipality could be studied. To check if all food policy outputs were included cross reference with the data-set of Sibbing et al (2019) was performed. This showed all food policy related outputs of the case municipalities up until the year 2017. Since this complete process was done manually some documents may have been excluded in first document collection. To check the relevance and possible missing documents the interviewees were asked to review the main policy documents to see if any particular documents were missing. A list of all analysed outputs can be found in the supplementary material as (Annex I)

Interviews, informal conversations and observations

The second step of the data collection process was in the shape of qualitative research's methods like interviews and observations in order to realise a contextualised in-dept view of the local food policy approaches of the five cases.

For the sampling of the main respondents the methodology of snowball sampling was used. 'Snowball sampling uses the social networks of identified respondents to provide an escalating set of potential contacts' (Lewis-Beck et al., 2004). This technique is particularly useful when reaching out to a research population who otherwise might be harder to contact, such as municipal employees or experts within unknown working groups. The first contacts were put out with scientific experts in the field and people with policy expertise and a relevant network. Informal conversations, experts (I:1, I:2, I:3), resulted in a list of relevant informants, such as policy makers, scientists and food environment related programme experts in the field. These conversations were chosen to be informal to benefit the explorative purpose of the conversations and to serve as building up the first rapport with people in the field. Hence the so-called 'snowball effect' was used to reach out to the network of these experts until data saturation. Data saturation meant having sufficient contextualized information, additional to the policy outputs to reflect on the policy aims and instruments of the different municipalities. Since the risks of sample bias is higher in a non-homogeneous sample, of which was the case since dealing with 5 different municipalities, most weight of research has eventually been put on collected policy outlets. In table (I) below, an overview can be found of the total amount of informants (N=18), the form of data collection, which is compiled of either informal conversation, semi-structured interview, unstructured interview or observation.

The first informal conversations were with experts (I:1, I:2, I:3), these interviews were guided by the initial theoretical knowledge of the topic and were explorative in nature to provide as an entry point to understanding the field and possible relevant informants. From this point onwards semi-structured interviews were conducted to provide the needed qualitative data on food environment approaches. These interviews were guided by the topic list which can be found as (Annex II). The topics were structured along the analytical framework of the food environment and thematic spheres to which eventually the socio-cultural was added. The socio-cultural sphere was added, since after first data analysis of policy outputs and interviews and

further theoretical exploration this proved an relevant sphere as in seen in (Story et al., 2008). Additionally it also addressed the topic of policy instruments and enabling and constraining factors that are inherent to policy approaches. See table I for an overview of informants, backgrounds and type of data collection.

Date	Informant	Background + type of data collection
25/11/2019	(I:1)	Erasmus Medical Centre and CEPHIR, Rotterdam <i>Informal conversation</i>
25/11/2019	(I:2)	CEPHIR: Centre for Effective Public Health in Larger Rotterdam Area <i>Informal conversation</i>
25/11/2019	(I:3)	Researcher Future Food Hub, Geosciences Utrecht University <i>Informal conversation</i>
12/11/2019	(I:4)	Schuttelaar and Partners coordinator Food Valley, The Hague <i>Semi-structured interview</i>
12/11/2019	(I:5)	Assistant professor Epidemiology VU Amsterdam expert Obesogenic Environments. <i>Semi-structured interview</i>
7/01/2020	(I:6)	Policy researcher policy maker municipality of Ede. <i>Semi-structured interview</i>
08/01/2020	(I:7)	Member political party ‘stadspartij Den Haag’ former Council member; food and sustainability, municipality of The Hague. <i>Semi-structured interview</i>
08/01/2020	(I:8)	Assistant professor Faculty of youth Science and Lifestyle and Amsterdam Public Health- Health Behaviours and Chronic Diseases, Amsterdam. <i>Semi-structured interview</i>
09/01/2020	(I:9)	Senior policy advisor Health wellbeing and participation municipality of Rotterdam. <i>Semi-structured interview</i>
09/01/2020	(I:10)	Coördinator JOGG Amsterdam. <i>Semi-structured interview</i>
09/01/2020	(I:11)	Internal project manager food environment GGD Municipality of Amsterdam. <i>Semi-structured interview</i>
10/01/2020	(I:12)	Coördinator ‘Diagnose Voeding en Gezondheid programme’, Utrecht. <i>Semi-structured interview</i>
10/01/2020	(I:13)	Policy law expert, Research Healthy Primary School of the Future, Maastricht University. <i>Semi-structured interview</i>
13/01/2020	(I:14)	Policy advisor healthy and sustainable food environment, municipality of Utrecht. <i>Semi-structured interview</i>
15/01/2020	(I:15)	Policy advisor Health improvement municipality of Rotterdam, member of ‘Student en leefstijl Erasmus University’. <i>Semi-structured interview</i>
16/02/2020	(I:16)	Senior Researcher sociologist of consumption Wageningen University. <i>Semi-structured interview</i>
17/01/2020	(I:17)	Food environment cluster manager, Transitiecoalitie Voedsel. <i>Semi-structured interview</i>
19/01/2020	(I:18)	PHD researcher food environment and social norms Wageningen University. <i>Semi-structured interview</i>
20/01/2020	(I:19)	Projectleader Platform 31, Expert juridical possibilities ‘Omgevingswet’. <i>Semi-structured interview</i>
30/01/2020	Multiple	Observation ‘Bijeenkomst Visie op een Voedselomgeving. Meeting with multiple policy experts, scientific experts, food industry expert on developing a vision for ‘the healthy food environment of 2040’. <i>Informal conversations</i>

Table I: Overview of informants, backgrounds and type of data collection

For the Amsterdam case, scientific experts were consulted, experienced with working with the municipality. (I:3, I:5, I:8). Additionally a local civil servant (I:11) and a programme expert that has worked in collaboration with the municipality on the topic of healthy food environments was interviewed (I:10). For the Rotterdam case two policy makers were interviewed (I:13, I:19). For the municipality of the Hague no policy makers were interviewed, instead The Hague's a former City Council Member and current politician of one of the local political parties of the Hague was interviewed (I:7). For Utrecht, a policy maker (I:14) and programme related experts were interviewed. (I:12, I:17). Lastly for the Ede case study, a local policy expert was interviewed (I:6) with an additional interview with a programme related expert (I:4). Furthermore some scientific experts were interviewed on the topic of socio-cultural norms within the food environment (I:16, I:18) as well as legal experts related to the possibilities of regulatory instruments concerning the food environment (I:13, I:19). Additionally, within a last thematic meeting observations served for extra informal conversations with food environment experts, which made data saturation possible. All interviews were performed between the end of November 2019 and the end of January 2020, recorded and transcribed for data analysis.

3.3 Data analysis

For data analysis the programme 'Atlas.ti' was used to be able to upload all policy outlets and transcribed interviews after which coding could be applied. The original amount of selected policy documents of the policy scan started at approximately 75 documents, but ended up being (n=50) after a more thorough screening on relevance of the types of documents.

Coding strategy was inspired by the INFORMAS Food-Environment Policy Index, (Food EPI), which tries to benchmark strong policy regarding the food environment. The framework operates a long list of indicators which consists of policy evaluation indicators and policy Infrastructure indicators (Food-EPI, 2019). This framework is mostly used to analyse national food environment policy approaches, however in Toronto it had recently also been applied to a local governance scale (Karbasy et al., 2019). This framework analyses policy along contextualized food environment indicators within two main domains. This consisted of 8 indicators within the policy domain and 21 indicators within the policy support domain.

Instruments were coded along the subcategories of (Hood,1983), policy goals were mainly analysed according the food-EPI framework indicators and the conceptual spheres of the food environment. The first subset of policy domains could be therefore eventually related to the conceptual themes of the food environment. Secondly, the policy infrastructure support indicators could be related to the enabling and constraining factors within food environment policy. Hereafter in the second round of coding, axial coding was applied to organise the eventual overarching domains into the main policy goals, instruments, and enabling and constraining factors underlying the food environment policy approaches of the five case study municipalities. A list of the applied codes, with applied indicators can be found as Annex IV Additionally, a coded list of all (Dutch) quotations is provided as Annex V.

3.4 Limitations

This methodological approach however does entail some limitations. The first limitation of this study lies in the fact that the types of policy outputs differed majorly, and content of different municipalities was spread out over a timespan of ten years. This makes the policy comparison more complex since the data is less homogenous, and could have made older policy outlets out of date. Limiting the amount and types of outputs by for instance only focusing on comprehensive food policy programmes, and excluding budgetary plans or zoning plans, could lead to a more specific in-depth policy scan. However, this also could have led to a too narrow scope since only very little explicit policy plans regarding the food environment programmes have yet been set out by municipalities. Furthermore, since all collecting was done by selection through databases, there can always be a chance of certain policy outlets being left out. To minimise this risk, this study has used a wide query for policy output selection. Additionally, this limitation has tried to be overcome by cross referencing with the data sets of (Sibbing et al., 2019), and inquiring the correctness of the collected outputs through the respondents within every city.

A second limitation can be that the types of respondents selected for every case city were not completely homogenous. This could have resulted in overrepresentation in terms of respondents from one city compared to another. However the overrepresentation of respondents of certain cities could hypothetically also be indicators of the amount of policy attention in a certain municipality.

Local policy approaches could differ because of the demographics within each city, with different sizes of localities having different problematics and socio-economic disparities. Therefore in further research it might be valuable to dive more deeply into specific city characteristics to see the correlation of certain demographics and policy.

Additionally this study has only focused on policy outputs by certain municipalities so therefore does not represent the food environment policy approach of all municipalities in the Netherlands. Furthermore, the research hasn't evaluated actual policy implementation. Since most policy has only just been developed, this kind of research would be valuable to take place retrospectively after policy has been implemented fully for a good period of time.

Lastly, this research's ecological approach towards studying the food environment has been found well suited to guiding food environment policy research. Similar ecological approaches have previously been utilized and proved valuable by other studies as in (Story et al., 2008., Sallis and Owen, 2002., Swinburn et al., 1999., Stokols, 1992). The utilised ecological approach for this study however has included a limited amount of environmental factors of the food environments. Several informants mentioned for instance, the increasing importance of the digital food environment which emergingly seems to be of effect on people's eating habits as well. Studying this aspect would give the ecological approach of food environments another dimension and therefore might also be valuable for future research.

Results

4. The local food environment policy of Amsterdam, Rotterdam, The Hague, Utrecht and Ede

Within this chapter an overview will be given of the food policy of five different Dutch municipalities resulting from policy document analysis and interviews with local policy makers, politicians, programme managers and scientific experts. First an overview will be given about important statistics of each city, and insights of the studied policy outputs per city. Secondly, an overview will be given of the overarching policy goals and instruments of the case municipalities. The rest of the chapter will be structured along the main policy domains that are addressed, starting with the policy domains that address the physical geographic policy sphere of the food environment by addressing food availability, affordability and accessibility. Hereafter it will go into the domains that address the information and communication sphere of the food environment, relating to information distribution, marketing and labelling. Lastly, it will go into the food policy domains within the socio-cultural sphere of the food environment by addressing, sociocultural norms, social support and role modelling. Each section will reflect on the specific policy goals, instruments of the municipalities and will provide a comparative analysis of the municipalities policy approaches.

4.1 Analysis of the policy environment outputs per municipality

The first measurement of food environment policy analysis is to look at the amount of comprehensive implementation plans brought forward by municipalities (INFORMAS, 2019). Figure III below, displays the amounts of food environment related policy and the types of outputs collected per municipality. Additionally it also shows the types of policy outputs per municipality. The overview shows that all five municipalities have addressed certain aspects of the food environment in some way since 2009. The extent to which they have addressed aspects, and through what kind of policy outlets, does however differ greatly. Therefore the report will first reflect on what the main policy programmes of each municipality were and the amount of comprehensive policy plans that came forward within every case study.

Amsterdam as the city with the biggest citizen population of this study also has been the city with the highest number of food environment related policy outputs with (n=14). The main food environment related programme of Amsterdam is the '*Aanpak Gezond Gewicht*' (AGG), (Approach healthy weight) programme. Over the years (n=6) AGG policy programmes were set out by the municipality starting in 2013 with vision of pursuing the main goal of 'all children being on a healthy weight in 2033' (AGG, 2013). Therefore the main targeting focus of Amsterdam's food environment policy has been directed to reduce obesity rates among children of Amsterdam.

Rotterdam as the second largest city of the Netherlands came forward with a total of (n=9) food environment related policy outputs. Out of these 9 outputs, 3 consisted of comprehensive policy programmes related to food and public health. According to policy experts of Rotterdam 'the City Deal Food on the urban agenda' (2017) might have accelerated a more specific policy focus on food and health related public policy

(I:9, I:15). The main relevant implemented programme of Rotterdam being, ‘Gezond 010: het akkoord’ which only recently in December 2019 was published by the municipality.

Policy outputs of Utrecht that were collected and studied came to a total of (n=12), with (n=3) comprehensive public health programmes being; Healthy weight programme of Utrecht ‘Gezond Gewicht Utrecht’ (2012), Public Health Policy, Building a healthy future (2016) and the municipality’s food policy plan ‘Voedselbeleid gemeente Utrecht’ (2019). Apparent was that over the years the food environment topic has quite constantly had attention with a wide range of different types of policy outputs as result. The Hague over the years seems to have had several health related food policy outlets (n=10), but resulting in the main two comprehensive policy programmes ‘Natuurlijk gezond’ (Naturally healthy) (2009), ‘Gezond Gewicht, De Haagse aanpak’ (Healthy weight The Hague’s approach)(2011). In which targeting health in schools and urban health through community gardening seemed mainly prioritised.

The last evaluated policy documents were policy outputs of the municipality of Ede with a small (n=5). Ede has been collaborating with the other big 4 cities, the so called ‘G4’ municipalities, on the topic of the food environment in a food environment policy working group. Ede has also come with an integrated food strategy for their city; ‘Visie Food; in Uitvoering 2015-2020’ (2015).

Below in (figure III) a representation of the build-up of food environment related policy outputs per municipality in the timeframe of (January 2009 - December 2019). It has to be noted that within this graph no distinction has been given to the types of policy documents that have been published, but further reflection on the types of policy documents can be found in figure IV on the next page.

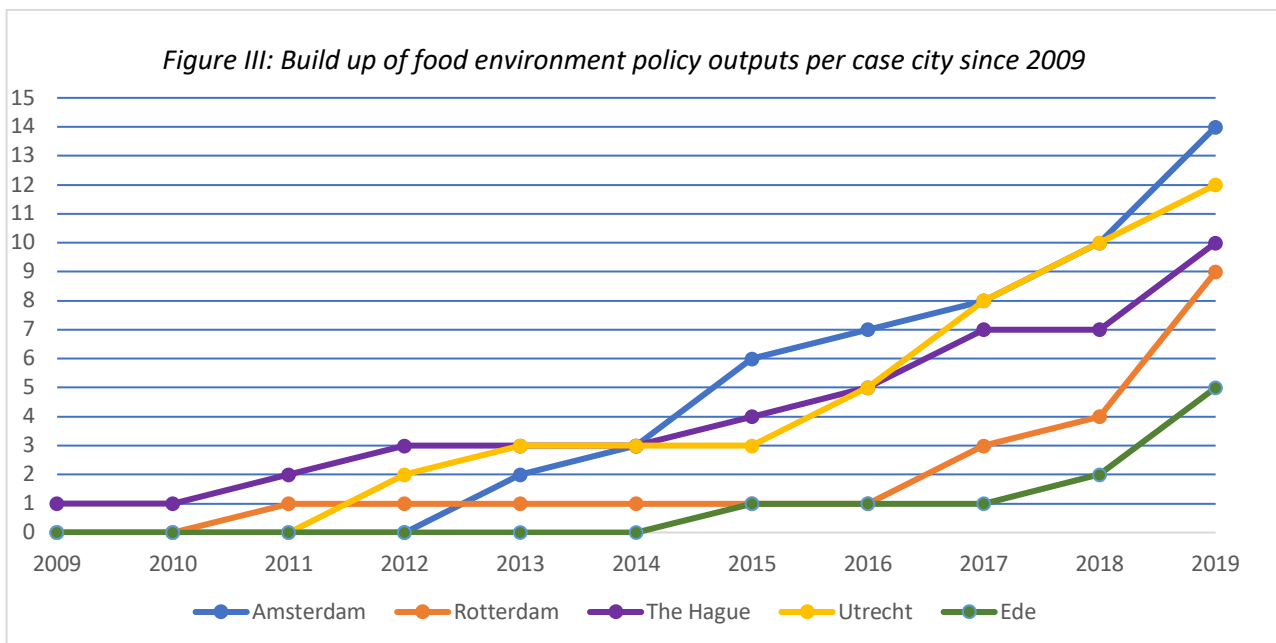
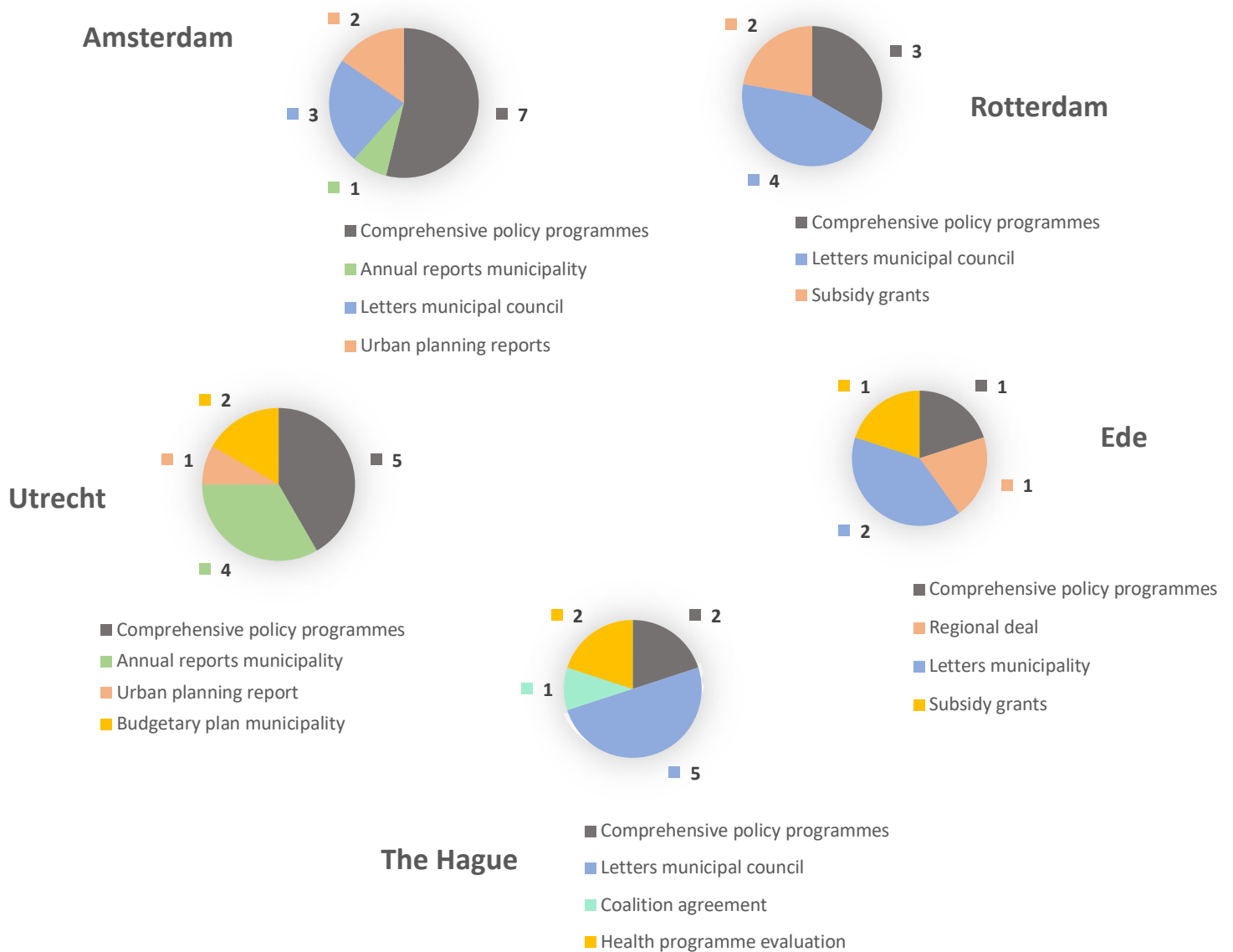


Figure IV: Overview of case cities, analysed policy outputs, and types of outputs per city

City	Population ¹ (CBS, 2020)	Municipality rank to size (Population size)	Amount of analysed policy outputs per city
Amsterdam	872.680	1 st	14
Rotterdam	651.446	2 nd	9
The Hague	545.339	3 rd	10
Utrecht	357.669	4 th	12
Ede	117.159	25 th	5



4.2 Food environment policy goals and instruments of the different municipalities

In this section an outline of the policy goals and instruments will be presented according to the different aims and instruments that came forward in the study. The results are structured according to the overarching policy goals identified in the food environment policy. The different kinds of instruments used within the policy outputs of the different municipalities are derived from the four overarching instruments of Informative, organisational, regulatory and economic instruments according to the instrument types of Hoods (1983). The different sections will also address what different instruments have been used to affect food environments with examples of some of the particular measures used within the municipalities. Below in table (II) a representation of the overarching goals sorted according to the different food environment policy spheres, are paired with the characterising instruments and actions of the food environment policy of the different municipalities.

Overarching policy goals	Instruments/actions	Municipality
4.3 Physical geographic	<i>Facilitation, subsidies for projects, spatial planning and permits</i>	
4.3.1 Increase the availability of accessible and affordable healthy food	Offering free water supply in the city	RM, AM, TH, UT, ED
	Supporting the creation of community vegetable gardens	RM, TH, UT, ED
	Offering edible greenery in the city	RM, AM, UT, ED
	Spatial planning and zoning laws directed at reducing unhealthy foods	AM, UT
4.3.2 Creating healthy food availability in targeted spaces	<i>Facilitation of programmes, organising networks of actors</i>	
	Supporting schools/pre-schools in food environment transition	AM, RM, TH, UT, ED
	Supporting health-care facilities in food environment transition	AM, RM, ED
	Supporting retail and food service outlets in food environment transition	AM, RM
	Supporting making the workplace food environment healthier	RM
4.4 Information and communication	<i>Information distribution, subsidies for programmes</i>	
4.4.1 Creating awareness and knowledge on healthy food choices	Creating knowledge among children -18 on healthy food choices	AM, RM, TH, UT, ED
	Creating awareness among parents about healthy food choices for their children	AM, RM, UT
	Offer trainings for health professionals about the importance of dietary advice for patients	AM, RM
	Creating supporting guidelines on possibilities of healthy food availability for entrepreneurs	AM, RM
4.4.2 Reducing marketing of unhealthy foods	<i>Rules and regulations</i>	
	Reducing marketing unhealthy food for children	AM, RM
	Reducing marketing unhealthy foods in public places	AM
4.5 Socio-cultural	<i>Organising, information distribution</i>	
4.5.1 Reducing obesity and overweight among specific socio-cultural target groups in society	Targeting specific socio-cultural groups	AM, RM, UT, TH, ED
	Targeting disadvantaged socio-economic neighbourhoods	AM, RM, UT, TH

Table III: Overview of the overarching policy goals, instruments and actions of municipalities

4.3 Policy approaches within the physical geographic sphere of the food environment

Addressing food availability, affordability, accessibility.

As can be seen within table (III) the overarching policy goals of municipalities concerning the physical geographic sphere of the food environment portrayed ‘increasing the availability of accessible, affordable healthy food’, and furthermore, ‘creating healthy food availability in targeted spaces’. The following paragraph will therefore go into what goals and aims came forward in relation to addressing food availability, affordability, accessibility. Hereafter it will go into the instruments and mechanisms of the municipalities to address these goals.

‘We increasingly know more and more about the importance of the food environment for the dietary consumption of people. Nowadays food is constantly available and around everywhere and at every time of the day. That’s why we increasingly try to focus on creating an environment in which it’s easier for people to make healthy and sustainable food choices.’

(Utrecht, *Jaarstukken 2017, 2018*, p.186).

The main reason why municipalities address the availability, affordability and accessibility of food within the local food environment is to address the issue of unhealthy food environments that currently stimulate citizens to make unhealthy food choices. According to several informants in this study, the main problem in the Netherlands is not that the Dutch food environment is characterised by a lack of accessibility, availability or affordability of healthy food options, but that it is the excessive availability of unhealthy foods which overpowers healthy food availability (I:5, I15, I:17). According to one of the scientific experts, in an average Dutch supermarket, 70% of the available options can be classified as ‘unhealthy’ in light of the guidelines of the Dutch food institute ‘*het Voedingscentrum*’ (I:8). Additionally, there is also an imbalance in the affordability of healthy food in comparison to unhealthy food options. As the citation below quotes:

‘If you look at how people make food choices, then we know that it will be influenced by certain behavioural factors. People will first look at the price, then at convenience, can I eat this straight away or do I need to prepare it first? Can I just take it away from a food outlet? Only after considering all these aspects they will look at aspects like health. So if you want people to make different food choices, then you will have to take those factors in consideration. That ideally means, that healthier food is cheaper than the unhealthy foods, but that’s now the other way around’ (I:5).

The municipality of the Hague came forward in their food strategy policy proposal ‘that according to research by the GGD The Hague and the LUMC Campus, a quarter of The Hague’s the citizens from lower-socioeconomic neighbourhoods have too little money to buy healthy foods. (The Hague, *Initiatiefvoorstel Voedsel*, 2019). For this reason the food policy proposal appealed for:

‘Policy that supports a healthier food environment which facilitates a more varied plant-based, a processed diet which is healthy, sustainable and affordable’

(The Hague, *Initiatiefvoorstel Voedsel*, 2019, p.3).

The municipality of Rotterdam addressed the same matter by stating that:

'Healthy food should be as accessible and affordable as unhealthy food. We want an honest chance for healthy foods' (Rotterdam, *Gezond 010*, 2019, p.1).

And Ede expressed their intentions by saying:

'In Ede we are realising a healthier food environment to make the choice for healthy foods as easy as possible' (Ede, *Subsidieregeling Food*, 2019-202, p.1).

These results showed that the food environment policy goals and aims of the different municipalities all explicitly acknowledged wanting to alter the food environment, and to make healthier choices easier for their citizens. This can be summarised as an overarching goal of 'making the healthy choice the easier choice', as expressed by Utrecht and Ede.

'Overweight and obesity among children is a substantial societal issue, we are currently living in a obesogenic society in which the living environment of children (and parents) is overflowing with food seductions: for example, the food outlets in the city-centre, kebab-restaurants on the way to school and the candy- and soda machines in school canteens' (Gemeente Amsterdam, AGG, 2013, p.3)

Compared to the other municipalities, Amsterdam and Rotterdam most explicitly referred to food environment as being obesogenic. Research on food availability in the shape of food outlets in Rotterdam, even classified the city as a possibly being a '*fastfood paradise*'. This resulted in Rotterdam's Council member of health and sports, expressing his desire to tackle the issue and called out a metaphorical 'hamburger war' (Mölenberg et al., 2019).

The past section has demonstrated the 'policy analysis results which show that all municipalities' policy outputs expressed to struggle with the abundant availability of unhealthy food in their cities. The following section will go into the instruments and mechanisms that municipalities expressed to want to use to cope with this issue.

4.3.1 Increase the availability of accessible and affordable healthy food

'We want to make the healthy choice available, accessible and logical at places where substantial amounts of Rotterdam citizens, live, study, recreate and stay'

(Rotterdam, *Gezond 010: het akkoord*, 2019, p. 30).

Directly changing the accessibility and affordability of food and water in public places.

The five case municipalities all appeared to aim to directly increase the physically availability of accessible and affordable food in their municipalities. Improving affordability by directly influencing food prices is not included in the mandate of municipalities, since food, taxes and subsidies are centrally regulated by the Dutch national government. However there are still ways through which municipalities intended to influence the availability of affordable and healthy food within the municipality. The most direct approaches towards doing so, were for example, the 'facilitation of community vegetable gardens through which access to healthy food directly would be supported, the supply of free water taps in public spaces, and lastly, municipalities 'planting edible greenery in the city (I:6, I11). This was mainly done by the instrumental approaches of facilitation by for instance offering locations for community gardens, subsidies for projects or spatial planning by integrating edible greenery through the municipalities' urban zoning plans.

'Improving the health of the residents of our city by facilitating more community gardens people can get more 'personally involved in growing vegetables, city dwellers with low incomes can eat more healthier food at a low price' (Rotterdam, 2012, p.13).

Water fountains were distributed in all five municipalities. This approach comes from the thought that people can always access free water, when being in the city, which hypothetically could reduce the consumption of unhealthier drinks. The support of community gardens was mainly focused on in The Hague. This can be explained by the fact this city has a focus on increasing urban food production as stated in the City Deal (2017). Also in Utrecht, Rotterdam and Ede urban food production was put forward multiple times within their food environment approach. In Ede for example, subsidised vegetable garden grids were offered to citizens, and school-vegetable gardening was promoted and subsidised.

Lastly, the introduction of food landscapes should provide people with a more physical surrounding of edible greenery. In Utrecht a whole new neighbourhood was used as a test ground to become 'an edible neighbourhood (*Voedselbeleid Utrecht*, 2019, p.8). Also in Ede, Rotterdam and Amsterdam the idea of edible greenery was introduced as stated below:

*'Food landscapes with edible elements can create a nature inclusive city with contributes to a healthy food environment' (Amsterdam, *Stand van zaken voedselstrategie 2019*, p.4)*

Impacting the availability of accessible and affordable healthy food in food outlets and stores.

Cities are also starting to look into increasing the availability of accessible and affordable food by attempts to reduce the growing unhealthy supply of foods in food outlets. Whilst in a preliminary stage, this is attempted through regulatory approaches of spatial planning and zoning laws directed at reducing unhealthy food.

'In 2019 we're working on making the food environment healthier and more sustainable in different ways.

We are searching for possibilities in zoning plans and visions to integrate food in policy and spatial planning. We are also searching for (regulatory) possibilities to steer more in the availability of healthy and sustainable food, for instance by influencing the availability of fastfood outlets'

(Utrecht, *Programmabegroting 2019*, 2018)

In Amsterdam, healthy food availability was addressed by policy aims of literally reducing the amount of unhealthy food outputs in the shape of limits in creation of permits of new 'touristshops' in which unhealthy food is sold (AGG, 2017, p.22). Another goal has been to improve the availability of healthy food in food banks in the city by making agreements on offering healthy foods in their services (*Amsterdam, Uitvoeringsplan AGG 2015-2018*, 2015, p.30).

When it is about regulatory instruments, concerning permits and urban planning, we are still exploring and researching what our possibilities are. There do not seem to be many juridical possibilities to include healthy food in regulation. What does healthy availability in food outputs or restaurants mean exactly?

What does it contain? There is not just one specific definition on that yet'

(I: 14)

As the quote of a policy maker of Utrecht above shows, municipalities have been starting to explore their possibilities of using their current instrumental resources to enforce rules concerning the food environment. In the case of Amsterdam informants expressed that licensing could possibly be used to prohibit further establishment of unhealthy food outputs, however when outputs already have received a license they can't be withdrawn (I:11). The municipality of Amsterdam also has been able to set requirements on the food availability of local events such as sports events. This is something that the municipality of Rotterdam and Utrecht have also attempted to do. (Utrecht, *Voedselbeleid gemeente Utrecht*, 2019, p. 10)

In Ede policy makers expressed that the municipality is exploring the possibilities of making a fast-food free zone around the new station that will be built in near the future, but research is now investigating the opportunities for doing so. The major barrier is if this can be realised through regulation without risking legal opposition (I:6).

‘Currently everything that concerns the food environment can be derived from the APV, but the APV is meant for order and safety issues and not directly for issues that concern health. Juridically those are complicated constructions. You can for instance say, there is a food stand that sells fries which causes nuisance, or its situated at a dangerous location. That’s a reason to prohibit it from being there. But you can’t say the fries food stand is unhealthy and that’s why we Do not want it here. Currently we can’t do much about that’ (I:15)

Currently local ordinance is based around what is called the ‘*Algemene Plaatselijke Verordening (APV)*’, which are local regulations of a municipality to regulate safety and order within the municipality. Topics within the APV cover for example rules on public order concerning events, the food service industry in a city, regulations concerning environment, and for instance opening times of bars, restaurants and shops. (Gemeente Amsterdam, 2019).

The Environment and Planning Act ‘*omgevingswet*’, is a new act that will be most probably implemented in 2021 by the national government of the Netherlands in which ‘the government wants to simplify the regulation for spatial projects’ (Government of the Netherlands, 2017). One of the elements of the act is ‘to achieve and maintain a safe and healthy physical environment and good environmental quality’ (Government of the Netherlands, 2017). This way health is more explicitly integrated in the Environment and Planning Act which also creates new possibilities for municipalities (I:19). All municipalities have expressed their hopes on the ‘*omgevingswet*’ in 2021, and currently are composing their own visionary statements on specific regulations that will be put down in the act (I:4, I:9, I:11, I:13, I:14, I:15, I:19). A downside is that every municipality still has to compose and decide if, and how, they want to implement the health aspect within their visionary statements. This might lead to municipalities not taking action to do so (I:19).

According to experts, it is vital that rules or law have efficacy and effectiveness. Municipalities have to be able to justify why regulation can for example limit food outputs in their operations. ‘Is the fact that snacks are offered in a specific place harmful enough in relation to the perspective of limiting entrepreneurs? Are there enough provable health benefits when these snacks wouldn’t be available in this particular place?’ (I:18). According to one informant it is always a matter of juggling between different interests; sometimes in the interest of economic gains and sometimes in the interest of health (I:9).

‘In Rotterdam health is one of the five aims of local ordinance, and therefore the “omgevingswet” is an important instrument for our ambitions to create a healthy and balanced food environment (Rotterdam, 2019, p.3)

There are some cases in which municipalities have already used their regulatory instruments in innovative ways. Since October 2017, Amsterdam has stopped distributing permits for new ‘touristic shops’. This concerns ‘touristic shops like souvenir shops, mini supermarkets or outputs which focus on direct consumption of for instance waffles, crêpes, Nutella’ (Gemeente Amsterdam, 2017). The report ‘Drukte en

leefbaarheid in de stad of the ‘Rekenkamer Amsterdam’ (2016) (Livability in the city), showed a strong increase of these kinds of shops in the centre of Amsterdam, and in order to preserve ‘the liveability in the city’, the municipality was able to put a halt to new shops like this opening. These interventions do have an impact on the availability of unhealthy food in the city and therefore can be possibly used in the future to further develop regulatory instruments for cities. So far these regulations have been able to hold up in court, which is seen as positive development (I:8, I:11, I:13).

According to both law experts and other respondents it is also a case of being brave enough as municipality to try out new regulations and to see if it will hold up in court (I:13, I:19). Often municipalities fear of lawsuits and are therefore hesitant in implementing more coercive instruments, but when the margins of law are not very clear they have also been seen to try out new things and challenge tackling food environmental issues (I:13,I:19). The question therefore is, who dares to tackle the food environment through regulatory approach, and if local politics offer the possibilities to do so?

4.3.2 Creating healthy food availability in targeted spaces

By targeting as many local organisations and institutions as possible municipalities try to use a ‘network’ approach to slowly adapt food environments. For governments its easiest to target spaces that serve semi-public functions such as educational institutions and health care facilities. Through financing parts of the projects, subsidies or connecting parties together, municipalities aim to target different spaces. The targeted areas that were most addressed within local governance were mainly schools, the sports-environment, the work-place, public environments and retail.

Targeting schools/pre-schools

The AGG of the municipality of Amsterdam is renowned for its targeted approach towards children that are suffering from being overweight, and the substantiality of its approach is represented in the amount of policy outputs (n=6). The target group of their policy specifically addresses children that live in specific neighbourhoods that are known to be confronted with higher percentages of obesity. This approach is hoped to be slowly expanded to eventually target all children in Amsterdam.

In Amsterdam about 23% of the five to nineteen year old youngster are overweight, while country-wide the average percentages lies around 15%. Also known is that poorer Amsterdam youth, with parents from a disadvantaged educational background and lower incomes, are more often overweight then their peers who have highly educated parents with higher incomes (AGG, 2013, p.1).

Interviews reflected that a targeted approach towards children often is a more easily accepted approach and therefore explains why it is often a sought for approach.

'Starting young will give life-long benefits to children. Targeted approaches through schools is easier approach since all children until 18 years old have to go to school and there is a certain goodwill and understanding for these specific approaches' (I:8).

By addressing the food environments within pre-schools, primary schools, secondary schools and also higher education, educational organisations were targeted in all municipalities. Children in the Netherlands go to school until they are 18 years old and therefore a school targeted approach can reach a wide demographic. Schools can obtain 'healthy school certificates' which give schools the right to promote themselves as supplying a healthy environment for children which can be beneficial for the image of schools. The 'healthy school certificate' programme is a nation-wide agenda, but different municipalities, such as The Hague and Utrecht, have explicitly attempted to individually promote the certificates amongst their own local schools (Utrecht, *Jaarstukken 2016, 2017*, p.552).

School canteens are also often targeted. In Amsterdam, the municipality is aiming for 'a healthy, sustainable, mostly plant based food availability in school canteens (Amsterdam, *Preadvies 2020, 2019*, p.33). A much sought for approach was advising educational institutions on their internal school policy. By implementing specific school food policy it is easier for schools to regulate what children eat. This even extends to regulation of the types of foods children are permitted to bring in for birthday celebrations. In childcare facilities in Rotterdam agreements are made on: food policy according to guidelines of '*het Voedingscentrum*' (the knowledge system of food) (Gemeentebled 2019 nr. 146, 2019, p. 19). Where in Utrecht, eating fruit and drinking water is incorporated in school food policy (Utrecht, *Jaarstukken 2017, 2018*, p.183). The municipality of Ede has set a very concrete goal 'that by 2020, 50% of all schools in Ede should partake in educational projects on food (Ede, *Visie Food, 2017*, p.28)

Going from no school food policy towards a strict policy can be hard at first, but as noted by experts it can be normalised step by step, and children learn and adapt quickly (I:8). The downside of this approach can be that this has to come mostly intrinsically from schools themselves, where in other countries such as Scotland school food policy is standard (I:13). The fact that this is voluntary in the Netherlands, means that there can be a lot of difference in schools which take the steps to be healthy and which do not. This means that a continuous approach is not always ensured (I:8, and I:13).

Also neighbourhoods around schools are often targeted. Schools themselves can be healthy environments, but unhealthy food outputs in the vicinity of schools can affect children's food behaviour during breaks or outside schooltime since unhealthy food is abundantly available. The municipality of Amsterdam therefore explicitly advises schools to consider keeping children within school grounds also during breaks (AGG, 2017, p.18). The municipality also addresses food trucks and small outputs close to playgrounds to target healthier environments for children (Amsterdam, *Stand van zaken voedselstrategie 2019, 2019*, p.4). This approach not only ensures improved conditions within the schools themselves, but also helps to minimise the risk and potency that neighbouring external environments have on school children.

Other targeted institutions

Semi-public sports institutions and their canteens are also targeted. This includes for instance sports-grounds, municipality pools or sports events (Rotterdam, 2017, p. 2, and I:9). ‘This makes places where people work-out not only healthy because people do sports, but also because healthy food is available’ (Uitvoeringsplan Aanpak op Gezond Gewicht 2015-2018, 2015, p.30). Municipalities facilitate support through programmes and initiatives to aid these institutions in making their canteens and food availability healthier in accordance to the guidelines of the Dutch healthy food institutions ‘*het voedingscentrum*’ (Rotterdam, *Gezond 010: het akkoord*, 2019, p.32). Mainly cities of Rotterdam and Utrecht addressed this approach in their policy outlets.

Nudging is seen as an intervention in which with small targeted changes can steer people into choosing healthier options. Small interventions are less radical for entrepreneurs and therefore easier to implement, by for example, putting healthier snacks instead of chocolate bars near the cash register in shops and changing the architecture of how food is placed in stores (I:5, I:8). The question however is, how impactful are these interventions really in the context of the entire food environment which is mainly composed of unhealthy products? How this was attempted in Amsterdam can be seen in the citation below:

‘We had real good connections with the Albert Heijn and did six pilots in which we changed the physical food environment of the supermarket by creating a healthier availability. This was really successful, and then you see that with a lot of effort, you can replace an article near the cash register. The idea is a healthier food environment, but the impact that a cash register has on the entire food behaviour of people in a supermarket is next to nothing. Then we’ve got a successful intervention and it seems that people are buying healthier food, but to really make impact on the food environment you need much more. Currently it is a lot of small mini interventions that make very little impact on the food behaviour of people’ (I:8).

By experimenting with nudging researchers intend to discover how the environment can be adapted with small interventions which would make it easier for people to make a healthier food choice’ (Rotterdam *Vitale stad 2016-2020*, 2017, p.18)

4.4 Policy approaches within Information and communication sphere of the food environment

‘Governments love choosing for information distribution, it is a safe strategy and it is something they can do well {...} it is just facilitate funding and sending the information out’ (I:16)

4.4.1 Food promotion: creating awareness and knowledge on healthy food choices

Within the information and communication sphere of the food environment, governments can play a steering role in deciding where information is distributed and for instance how much money will be put in informative campaigns. However, in the context of the Netherlands, food labelling and menu labelling can’t be influenced by municipalities. Nevertheless an important aim of all five municipalities has been to create more awareness

and supply knowledge to citizens on healthy food choices. As stated for example by the coalition agreement of the municipality of The Hague (2019);

'We want clear and accessible education and information about food and healthy lifestyles so all citizens of The Hague can make healthier choices for themselves' (The Hague, *Samen voor de stad*.

Coalitieakkoord 2019-2022, 2019, p.22).

According to interviewed researchers cities choose this aim mostly with the motivation to support people's agency of making healthier food choices (I:5). Among the different cities different sub-goals became apparent when looking to whom this information should be distributed. One of the primary focuses was creating knowledge among children under 18 on healthy food choices, which was focused on in all municipalities policy outputs.

Creating knowledge among children on healthy food choices

In all policies a strong educational was put on creating knowledge among children about food and healthy choices. Locally it is not possible for municipalities to permanently implement the food education in the curriculum since this is regulated nation-wide (I:6). However, with 'youth at healthy weight' (JOGG) programmes, all municipalities seems to have been focusing on getting children to grow up with knowledge of food, and to provide as many schools as possible with educative projects (*AGG: Beleids- en uitvoeringsprogramma*, 2013). The policy scan showed that food-education projects vary in how extensive they are represented within different types of schools. The municipality of Ede for instance aims on facilitating food education in all schools in the municipality (I:6). They support pre-school education projects where youngest children learn about vegetables through school vegetable gardens, cooking and taste classes at primary schools and secondary school children learn about healthy choices through educational projects (Visie Food; In uitvoering 2015-2020, 2015, p.3).

In The Hague a more focused programme called '*Gezond Bezig!*', was developed by the municipality health organization (GGD), which focused on creating awareness amongst children at specific lower levels of secondary schools with food education and cooking classes. This aims to target specific pupils, under which obesity problematic is more prevalent (*Gezond Gewicht, De Haagse aanpak 2010-2014*, 2012, p.12). Also they applied a focus on teaching children through school-vegetable gardens which not only teaches children about health, but also sustainability with topics like food-waste and local food production (*Programmabrief Duurzaamheid 2020*, 2019, p.12). In Rotterdam petting-zoos and school gardens were used to teach young people about food, whilst at the same time educating their caregivers during their visits (Rotterdam, *Gezond 010: het akkoord*, 2019, p.33).

‘I do not want that schools, that currently already are functioning as institutions where all our societal issues need to be addressed, also need to solve this issue. The working pressure at schools is already very high, and is only increasing, and that’s something you want to be careful with. Schools are of course already talking about food and eventually through children it is also easier to influence parents. It is also a possibility to show adds on the television that sat, “you shall eat differently”, but that doesn’t work. People should be able to consume affordable and healthy food, but how do you get there, when in supermarkets you see how easily you end up with the cheap and mostly unhealthy food? (I:7).

Creating awareness among parents about healthy food choices for their children

A significant amount of outputs showed that policy aims were not only directed at children but also focused on creating awareness amongst parents about healthy food choices for their children. The municipality of Amsterdam has centred children and their parents in their AGG approach by reaching out to them through professionals and the community (AGG Programmaplan 2005-2018, 2015, p.23). In Amsterdam, Rotterdam and Utrecht there is also a focus on soon to be parents, mothers and babies. In Rotterdam this aim is pursued through the project called ‘*Stevige Start*’ (Solid Start):

‘With the Solid Start programme we strive for a healthy start to life and a safe place full of opportunities for all kids in Rotterdam to grow up. We do this by focusing on (single) parents during the period before and after pregnancy, and focus on their young children within the ages of 0 - 4 years old’

(Rotterdam, *Gezond 010: het akkoord*, 2019, p.56)

In Utrecht groups of mothers are assisted by dieticians to learn about cooking and eating with children. (Utrecht, *Programmabegroting 2018*, 2017, p.449). Additionally they aim to educate parents with lower food skills about healthy upbringing especially through youth healthcare (Utrecht, *Programmabegroting 2019*, 2018,p.170).

Creating awareness among health professionals about the importance of dietary advice for patients

According to interviewees, information distribution about healthy eating from the government has the tendency to become viewed as being paternalistic, since people do not like being lectured by authorities on what food choices they should and shouldn’t make (I:6, I:15, I:16). Doctors and health workers often have a certain kind of respect and authority in advising on health related issues. Therefore creating awareness among health professionals about the importance of dietary advice for patients is an returning aim in municipalities policy. By making sure health professionals become better educated to be able to give food advice to patients, hypothetically diet-based remedies will be more sought for instead of medicine based, which can reduce health costs in the long run’ (I:15, I:11, I:7).

The municipality of Ede has for this reason joined the ‘*Alliantie Voeding in de Zorg*’ (Alliance Food in Healthcare), among other parties which include the local hospital ‘*de Gelderse Vallei*’ and Wageningen University, to work on putting food on the agenda in healthcare. Furthermore, they translate this to local care

networks in the municipality. They, for example, organise thematic evenings during community food gatherings where citizens can come and have a low-cost meal, while a dietician educates people on healthy food (Citydealvoedsel, 2020). Also ‘food education’ is being integrated within medical or healthcare related degrees within the region (Ede, Regio Deal Foodvalley, 2019, p.12). In Rotterdam the Erasmus Medical Centre and ‘*stichting Arts en Voeding*’ (The foundation of doctors and food) is aiming to see how food can become a set element in the curriculum of medical degrees (*Rotterdam Vitale stad 2016-2020*, 2017, p.6). In Amsterdam there is a policy approach aiming on ‘excellent professionals’ who aims to educate General Practitioners and dieticians about information for families regarding food themes (I:11).

4.4.2 Reducing marketing of unhealthy foods

‘That people buy responsible and healthy food, and that they know what is healthy? I do not think that you can tackle such a problem just from one direction. Governments always prefer the informative approach, and yes it helps but not just that, you really have to be able to influence food choices. And then people say; “influence?” That’s so patronizing. But in practice people are being influenced every day, but then by the food industry; food marketing, that food is cheap and that it smells nice, that its quick and fast. The food industry already has known for years how to influence people, but as a municipality you just do not have as much money as the big companies in the food industry so in the end regulations would help, but those are currently really scarce ’ (I:7)

As shown in the previous section information distribution attempts to promote on what healthy food behaviour looks like. However, unhealthy environments also are promoted by marketing of unhealthy food. In the light of this municipalities have set up aims to reduce marketing of unhealthy food for children, and also attempt to reduce marketing in public places. In 2015 the ‘Alliantie stop kindermarketing ongezonde voeding’ (Alliance to stop marketing unhealthy foods to children), was created by scientists and other organisations to strive for regulations on unhealthy marketing for foods on children. The municipality of Amsterdam was the first municipality to join the alliance in October 2015. In 2016 the municipality of Amsterdam set the goal to prohibit ‘unhealthy food marketing at sports events, public sport facilities and public pools, with the overarching goal of having all sports events free of child marketing by 2020’ (Alliantie Stop kindermarketing, 2016). They have succeeded in prohibiting child marketing in the Amsterdam metro system, and the marketing of unhealthy foods within activities or institutions for children from 0-17 years, where at least 25% of visitors are children, marketing is prohibited ‘ (AGG, 2017, p.18). Currently policy is also being formulated on unhealthy food marketing in general public environment of Amsterdam (Amsterdam, I:11, I:12).

The municipality of Rotterdam is also a partner of the alliance and research if they could prohibit child marketing through permits for events where at least 25% of visitors are younger than 12 years old. (*Rotterdam Vitale stad 2016-2020*, 2017, p.6) The municipality also has addressed to steer towards prohibiting child marketing in sports facilities and swimming pools (Rotterdam, 2017, p.1). The main

difficulties for Rotterdam however, lie within the fact that many brands have long-standing add contracts, which sometimes need to expire before this can be done (Rotterdam, 2017, p.2). The other municipalities have not expressed any particular standpoint towards marketing of unhealthy foods or policy directed to this theme.

4.5 Policy approaches within the socio-cultural sphere of the food environment

'In Ede, churches and other religious institutions have been invited to help with informing people about healthy cooking, organising communal dinners and organizing cooking workshop for children'

(Ede, Visie Food; In uitvoering 2015-2020, 2015, p.3).

'Priorities for reducing inequalities (socio-cultural) government priorities have been established to reduce inequalities or protect vulnerable populations in relation to diet, nutrition, obesity and NCDs' (Karbasy et al., 2019). Not all groups in society are being affected by unhealthy food environments equally. Some groups within society are more vulnerable than others in making unhealthy choices within unhealthy food environment and therefore also are more consciously addressed within policy aims of the municipalities.

Even though specific locations were targeted not all municipalities expressed specific target groups within their policy, for example in the municipality of Ede, where was expressed that no specific target groups are intentionally aimed for in policy (I:6). Within the policy outputs of the other case cities, several groups were mainly put forward as target for health policy, like children and teenagers, people from educationally disadvantaged backgrounds and people with specific cultural backgrounds.

Targeting specific socio-cultural groups

According to the municipality of Amsterdam (AGG, 2015, p.28), the socio-economic, cultural, and environmental factors within food behaviour improvement are very hard to influence and target for local governments. Research does appear to show that social norms on food do affect food behaviour(L:18). In policy it is also reflected that local governments try to address socio-cultural norms and environments to affect positive food behaviour. In Amsterdam, for example, community centres are approached to think about their food policy to influence the community (Amsterdam, *Gebiedsplan West*, 2016). Within neighbourhoods in Utrecht citizens could obtain a health-ambassador certificate to be able to positively influence the communal sphere (Utrecht, *Uitvoeringsplan Aanpak op Gezond Gewicht 2015-2018*). In

Ede this socio-cultural approach has sought to reach out to religious institutions to help with promotion of healthy cooking. In interviews with experts it was noted that cultural approaches to changing diets can be very helpful to be able to make a more cultural translation to specific target groups such as different ethnicities or religious groups within society, with an example of two Moroccan health bloggers in the Netherlands trying to make a translation of a healthy lifestyle that fits within Moroccan cultural norms (I:12). Within Utrecht the socio-cultural translation was made through supporting health-days in community centres and mosques in different neighbourhoods of Utrecht (Utrecht, *Jaarstukken 2017*, 2018, p.183).

Targeting low-socio economic neighbourhoods

In other cities specific target groups were intentionally addressed, an example being in Utrecht's policy.

'Elderly people, people from educationally disadvantaged backgrounds and people from non-western decent are addressed to target and reduce inequalities, and to keep healthy people healthy'

(Actualisatie aanvullend MER stationsgebied Utrecht, 2017, p.126).

The municipality of Utrecht therefore has been targeting specific neighbourhoods since 2005 (Gezond Gewicht Utrecht, 2012, p.4), with an additional focus on poverty related themes in connection to food (Programmabegroting 2018, 2017, p.467). Reducing inequalities is not only one of the main goals of Utrecht, but also of other cities.

In Amsterdam apart from focusing on children between 0-12 years old, focus has been put on targeting policy towards the 'lage-ses' lower socio-economic neighbourhoods of Amsterdam where obesity rates are significantly higher than in wealthier suburbs (AGG, 2013, p.1). Their approach aims not only to support families that suffer from obesity problematics, but additionally also help with financial issues which often are also are apparent within these families (I:10). In the 'Gezond 010' policy agreement specifically was stated that the environment should be shaped in a way which aides to reduce health inequalities by facilitating the healthy choice as the easy choice' (Gezond 010: het akkoord,, 2019, p. 30). In Rotterdam has also been identified that in the so called 'lage-ses' lower socio-economic neighbourhoods obesity rates are higher. Furthermore food availability of unhealthy food outputs is higher than in other neighbourhoods (I:9)

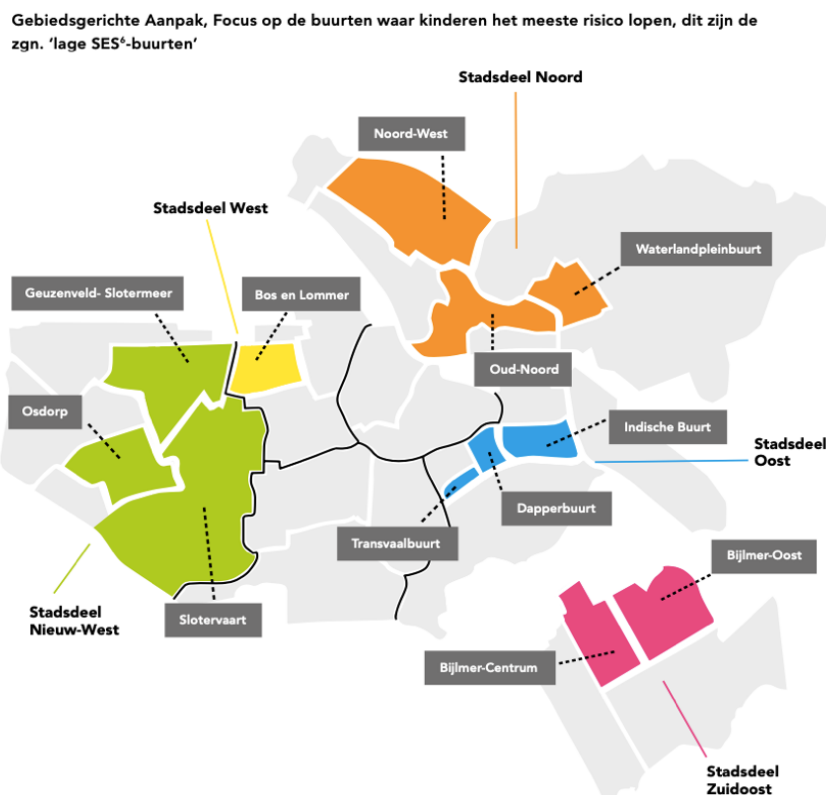


Figure V: Targeting Amsterdam's lower socio-economic demographic neighbourhoods (AAG, 2017)

The report '*Rotterdam fast-food paradisijs*' (Rotterdam fast-food paradise) has stated 'that in the lower socio-economic neighbourhoods fast-food-outlet availability had grown with 57% in five years' time which is much higher compared to the wealthiest neighbourhoods where the availability only rose 5% (Mölenberg et al., 2018, p.6). In the municipality of The Hague, reducing inequalities is one of their main priorities for 2030 (Voortgangsrapportage nota volksgezondheid 2015-2016, p1). They state that this asks for a long-term integrated approach which looks at physical, social and environmental factors that will be able to reduce socio-economic health inequalities (Voortgangsrapportage Natuurlijk: gezond, 2009, p.1).

Summary: *The current state of local food environment policy approaches of the five case municipalities*

The past chapter has aimed to give an outline of the main overarching goals that the municipalities pursue, and what instruments and mechanisms they use to do so. A comparison of the different case studies shows the following:

Since Amsterdam has used a highly targeted approach with a mix of different types of instruments, their approach can be seen as quite substantial compared to the other case cities. Since 2012, up until now, the AGG has gradually been expanded and is characterised by its explicit acknowledgement and aims to tackle the obesogenicity of the food environments within the city. Additionally, the municipality has taken concrete steps in prohibiting child marketing in subways, and has started to experiment using regulations to limit specific types of outlets to influence food availability.

The municipality of Rotterdam, even though still exploring the possibilities of a more grounded approach, still finds itself in its preliminary phase of developing substantial food environment related policy. Over the years the municipality has already been focusing on making targeted spaces such as schools healthier, and reaching out to entrepreneurs to support improving healthy food availability in retail. Backed by evidence on the increasing presence of unhealthy food outlets in the city and the council member's declaration of a 'hamburger war', the new policy agreement '*Gezond 010: het akkoord, 2019*', shows serious potential in addressing the food environment.

Ede, being the smallest municipality of this study, over the last few years has put itself on the map by facilitating a more integrated food focus within their policy. This is shown from their seat at the table within the G4 municipal collaborative food environment working group. Ede is focusing, less than other municipalities, on reducing socio-economic differences. This might be related to the municipality's demographic characteristics. The features of Ede's approach can be found in improving children diets with an informative approach, and increasing availability of healthy food by facilitation of vegetable gardens. However, a further explicit food environment policy approach seems still in its infancy within the municipality of Ede.

The municipalities of Utrecht and the Hague are characterised with a similar approach. Over the years Utrecht has been working towards improving the food environment mostly through facilitation of community vegetable gardens and experimenting with edible greenery. Besides targeting schools and certain neighbourhoods one of the main goals within Utrecht is reducing health inequalities. This makes the approaches of Utrecht and The Hague comparable, since reducing socio-economic health related differences

also seems one of the major goals of their municipality. Furthermore, the municipality of the Hague has mostly been focusing on the sustainable aspects of diets. This means that they have been focusing less on the health aspects and address food availability mostly by focusing on urban farming and creation of community gardens.

Chapter 4 has aimed to reflect on how over the years the five case municipalities have been addressing multiple aspects within the physical, informational and socio-cultural spheres of the food environment. Local food environment policy by itself is also bounded by contextual factors that outline the possibilities of local governments, as can be seen in the quote below:

'We are looking how at the same time we can regulate the availability of food, but that's so incredibly complicated. There are more hurdles than possibilities. To start off, there are hurdles within creating support, within societal support in the sense of, why is the municipality interfering politically, the notion of freedom and being able to be autonomous. And also within the municipality itself, there are more than only health interests. Economy and employment for instance, then you notice that interest do clash, within the political coalition you need to be able to figure out how to deal with these interests and also that you will make decisions based on the instruments that you have to your disposal' (I:9).

The following chapter will go further into the policy infrastructure support systems of food environment policy. It will do so by reflecting on the enabling and constraining factors that define the current context of food environment policy approaches of the local governments.

5. Municipalities' enabling infrastructure support for food environment policy

This chapter will reflect on the infrastructure support that characterises the food environment policy approach of each municipality. It will do so by addressing the enabling factors of participatory policy processes, supportive municipal governance, and political commitment underlying the food environment approaches of each case municipality

5.1 Multi-actor participation as enabling infrastructure for food environment policy

'What we are mostly good at is stimulating parties, getting organisation together at the table, distributing knowledge {...} Apart from schools there are of course so many parties that you want to include, like for instance our municipal health network. That's very important since you can reach out to a lot of people through these networks. Also because the debate is always if the government should interfere with what people eat, and then it soon becomes a moralistic, top down, unwanted approach. It can be done easier from the bottom up, but that needs some investment to get all these parties together. You want to make sure that you hand them the right tools by facilitating an attractive offer'.

(I:7)

The strength of municipalities is that they are local governing bodies which have a close proximity and working relationship with the public and organisations in their region. Their ability is to respond flexibly to local concerns and issues of citizens in their municipality (Karbasy et al. 2019, p.5). Municipalities seem to find a natural role in creating and maintaining local networks of different kinds of organisations. This can be comprised of educational institutions, communal centres in the cities, scientific institutions or, for instance, local entrepreneurs. All municipalities seem to have played a certain role in either bringing players in the field together, directing certain programmes to the right people to facilitate targeted help, or interventions where needed. This helps stimulate bottom up processes and creates an approach that is supported by the local community.

'To be able to grow up healthy, children need the effort of everybody. Firstly effort from parents themselves but also the efforts of professionals at schools, in healthcare, social-welfare institutions, neighbourhood communities, sports clubs, and in companies'

(Amsterdam, AGG, 2013, p.2, I:11).

As the quote demonstrates, to be able make the transition towards healthy food environments supportive networks of municipalities, research-institutions, schools, healthcare institutions, retail and entrepreneurs are needed, and created to make the transition towards healthy food environments.

To do so the Amsterdam approach was made very concrete:

'We expand the societal movement and therefore have the following ambitions: include 20 parties to work with us with a high participation degree, 50 parties provide extra supportive aid, and an extra 100 parties facilitate with small incentives. We expand the use of municipal services and suburbs and connect other policy domains to our approach' (Amsterdam, AGG, 2013, p.7).

Here a network of health organisations works together to monitor aid and guides supporting children when facing health problems. This way children get the support they need for the time they need it the most.

In Rotterdam there is also a major focus on healthy food in healthcare institutions with a public-private partnership with five hospitals in the region who are investigating how to improve the availability of healthy food in hospitals (I:9). In Ede this is facilitated by the 'Alliantie Voeding in de Zorg' (Healthy food in healthcare alliance) (I:6).

To include the community within the policy process, in Ede the municipality is working on a local Food Council in which citizens, entrepreneurs and food experts can work on expanding the support base for improvement of the food policy of Ede where 'healthy and sustainable food for all' is being centralised (Municipality Ede, 2018). In The Hague a 'gezondheidsmakelaar' (health supervisor) was assigned to connect parties, and manage new networks of health initiatives. This way communication between organisations and the municipality could be improved. Furthermore new initiatives could be invited to become more involved in aiding the different target-neighbourhoods in the city (Gemeente Den Haag, Rapportage Natuurlijk gezond, 2009, p2)

To try to change the availability in food outputs and restaurants, locally municipalities also intent to connect with entrepreneurs and to facilitate and stimulate them in changing their food availability towards more healthy supply. Examples of these were the 'Gezond010' network in Rotterdam, where transition towards a healthier city was being targeted by working with local cinema's, swimming pools and supermarkets such as the Albert Heijn.

'We're really looking at processes of attraction. Just like through the network 'Gezond010', you try to be interesting and trendy and start a movement that entrepreneurs want to join by initiating the process, but it is a process that needs a long-term attention span' (I:9)

Similar networks were created in Ede (NEON, I:6), and Amsterdam (Gezonde ondernemers Amsterdam, I:8). However, changing the supply within food outputs requires entrepreneurs to have the intrinsic motivation to change their food availability, and secondly, to recognise it as suitable for their own long-term business model without suffering from economic competition of other entrepreneurs. From a business point of view, having a predominantly healthy offering is not always seen as the most profitable route, which furthermore highlights the systemic problems that municipalities face.

‘Caterers fear that if they change the availability of their food towards only healthy and fresh foods they risk their revenue model. They see all the other food outputs in the neighbourhood where unhealthy food still is sold and marketed, and therefore not always want to join the transition’ (Amsterdam, 2019, p.2).

Changing food availability can also be hampered by the fact that institutions like schools or governments often also are still tied to standing contracts. When schools for example have a contract with vending machine companies, they would need financial support to pay off the contracts in order to end them (I:5). This also counts for marketing related contracts. The municipality of Rotterdam for example had intentions to stop marketing of unhealthy foods in the Rotterdam metro, but since standing contracts still lasted until 2020 immediate action wasn’t possible (Rotterdam, 2017, p.2). Here also the financial limits of municipalities appear. Setting up networks or distributing subsidies, costs money and a limited amount of projects and incentives can only be financed for a set time or at once. How much money is available for a certain topic also depends on the motives of municipalities and how much current municipality coalitions are willing to spend on certain topics (I:6,I:9, I:14).

‘It is possible to unite stakeholders who want to transition towards a healthier food supply and availability, however firstly, often budget is needed from governments to organise a network and if possible facilitate subsidies for support. But for entrepreneurs much of their operations are from a mindset of making profit.

You can’t expect them to do this just out of their own motivation, since this just will cost them money, maybe not in the long run, but this transition needs to be supported or facilitated by someone. This makes that governments put a lot of money in these networks, but in the end it is not the way to change the entire food system of a city we need more for that’ (I:8).

Creating and setting a healthy norm as municipality is seen to be used to encourage and inspire citizens, organisations and other parties in the city. Additionally broadcasting these norms is also seen as a way to put cities on the map, or to be an exemplary municipality for others. However, the previous citation shows that including new parties in governance towards food environment transformation can be challenging when economic and health interests clash. To attract others to follow municipalities intend to market and promote themselves as champions of healthy living. This encourages not only community actors but also those within the municipality to unite under one cause. How this is achieved is discussed in the following section.

5.2 Enabling municipal governance as support for local food environment policy

'From our perspective standardly 'a healthy weight' is the norm. Healthy (exemplary) behaviour and a healthy environment are the normalized standards in Amsterdam. We Do not accept non-commitment within this topic because in the end it is about the health of our Amsterdam youth. The municipality formulates relevant terrains for 'the healthy norm', implements these norms where the municipality is directly responsible ("practice what you preach"), it addresses other parties to use the same norm and even enforces these norms when needed.' (AGG, Programmaplan 2015-2018, 2015, p.18)

As the citation above shows, the municipality of Amsterdam intended to portray one strong narrative by priming and healthy promotion of food. For a credible health approach and the support of others, municipalities attempt to set the right example. This means that citizens are aware of the healthy norm that municipalities intend to promote. The municipality of Ede expressed this very clearly in one of their Food vision goals. Their aim was to stimulate that in 2020 at least ninety percent of all citizens of Ede would be aware of the fact that Ede promotes and characterizes itself within the field of food (Visie Food!, 2017, p.25). To also broadcast these norms within the municipal organisation itself, municipalities attempt to portray an healthy example as the citation below shows.

'We promote that healthy and sustainable food is offered in canteens and restaurants in the city and start setting the right example in their own municipal canteen, not by reducing options but by offering more healthy and sustainable options' (Utrecht, 2018, p.170).

Another step further is trying to engrain an integrated food policy approach within multiple departments since a holistic food approach within the municipality can result in a more systemic unified answer to food issues. The municipality of Ede has already been trying to implement an integrated food strategy and also has appointed a special Council member for food for this same reason (I:6). In Rotterdam different departments within the municipality are sitting together at the table (I:9, I:15). Likewise Amsterdam and Utrecht are working towards a more integrative food vision (AAG, 2018, p.19, I:14).

'We are working on an integrated food policy, which means we are seeing how we can use different clusters within the municipality to tackle food issues, and not just at health issues, but also how things can become more sustainable, what we can do for the food economy of the city, and how to include entrepreneurs. Furthermore we also try to address the social function of food, people can come together through food and to battle loneliness for instance (I:15)

Integrating a food policy or health approach within all clusters of the municipality might be an answer, however such processes do need time. Furthermore 'you need to have a balance between strategically addressing a problem, for which you have to rebuild your own infrastructure, and at the same time achieving

concrete results in practice and showing what's being done' (I:6). However a long term integrated food approach does mean that a topic might have a better survival rate since it has been able to be grounded within municipality and several policy domains.

'An approach can be less visible in concrete practices, but at the same time be a long term strategic approach, so it turns into a policy domain which will remain on the agenda, instead of being just a project.

(I:6)

Some informants stated that it can be challenging to keep a certain topics on the municipal agenda for a long enough amount of time for it to be properly implemented. Health related issues especially need a long term attention span to be able to have a long lasting positive effect. This is due to the fact they are up against already established cultural norms on food, and a overwhelmingly established obesogenic environment.

'You need a long term approach. As a municipality you can do a lot as long as you work multi-sector and multidisciplinary, that's when you can put the health topic on the agenda, often Council members say it is too complex or impossible, but it is possible as long as you make health a priority. (I:8)

In order to make health a priority, sometimes it is needed to show evidence that an issue has scientific grounding, in order to be put on the agenda. 'Research has the ability to keep issues on the political agenda and keeping it on the agenda' (Gemeente Rotterdam, 2019, p.2). Furthermore, continuing evaluation, monitoring and research can support a clear reflection on what policy is doing and if it is effective. Additionally, monitoring interventions from beginning to end, informs municipalities to see if interventions work and if it might be necessary to redirect an intervention. In Amsterdam the GGD, municipal health institution, monitors and researches to influence new approaches.

'The AGG is a learning approach: learning by doing and by doing learning more. We strive to implement recognised interventions and stimulate and facilitate this approach. This can be "evidence-based", "practice based" and "context-based interventions". Since not yet enough proven interventions exist we also make use of 'eminence' (best practices)' (AGG, 2017, p.12).

Within all the municipalities collaboration with either research institutes or universities are used to monitor possibilities for food environment innovation. Municipalities do also have the choice to offer their city as 'field labs' for research and experiments to improve on the ground research on food environments and health-related topics. The municipality of Ede for instance has close bonds with the University of Wageningen and Research to explore food related issues. The Sarphati Institute in Amsterdam is an example of an institute created from a network between scientific institutions, companies and governmental organisations which focuses on obesity. Their approach is to iteratively research, learn and act (Uitvoeringsplan Aanpak op Gezond Gewicht 2015-2018, 2015, p. 16). The municipality of Utrecht provides field labs for experiments

(I:14), and works together with research institution Future Food' (Gemeente Utrecht, Jaarstukken 2017, 2018, p.186).

Research performed, with, and for the municipality can lead to 'evidence based policy making', in the sense that context based research can influence governments to see the necessity of taking action on a specific topic. In Amsterdam and Rotterdam research for example inspired a map of food availability in the city which showed the overwhelming growth of unhealthy food outlets in the city and in what neighbourhoods unhealthy food availability might have a harmful effect (Mölenberg et al., 2019). These maps have inspired the need for a targeted approach within specific neighbourhoods such as low-socioeconomic areas where health issues often are already more prevalent.

'In Rotterdam we're working from a scientific fundament. We want to do what works and where we still do not know what works we perform research. Additionally, we monitor the impact of our work'
(Vaststelling Gezond010: het akkoord – nota Publieke Gezondheid 2020-2024, 2019, p.2).

As the citation above shows, research, evaluation and monitoring can be of valuable support to address certain issues and to push topics on the agenda. However this doesn't mean that conflicting interests still are at play within the municipality. The citation below shows how interests within municipalities can exist.

'A new Burger king in the city is a really positive development for labour participation and employment, but from our health perspective we obviously do not like it. So therefore first you have to go and talk internally with colleagues to see if there aren't other optional parties, but those are just different interests. I might have a negative outlook on fast-food outputs, but they are real great employers for young people, we can't complain about that, there you see how interests clash' (I:15).

To address the importance of political backing when tackling an issue that has implications for multiple domains, the next section will go further into the importance of strong political support for creating and maintaining a certain course in food environment policy.

5.3 Strong visible political support for food environment policy

'It helps of course when you have a Council Member who thinks the topic is important, its actually essential. That's an important hurdle within municipalities, in the end you still are dependent of the seated commission within the municipality, the political priorities that are present. Policy can completely change within four years. The long-term approach that you need for an intervention? Will you get it? (I:9)

When you want to accomplish lasting health benefits, a long term approach is needed; 'health issues are something a municipality needs to address, however results might only be visible after a very long time' (I:8). The political climate and decisions from the municipal government commission make up the context in which interventions have to be set up. It can be that if the political coalition of a city changes, different priorities are set and interventions are cut off (I:9, I:14, I:7).

'Policy makers work for the commission, the mayor and the Council members, and together they have made certain agreements with a political colour and that influences what policy makers can do. When there is enough liberty within that political frame, and enough demand for action on certain topics from citizens in the city, than there is a chance of things happening, but you have to find your way within that context' (I:14).

The previous citation shows that municipal governments are bounded by the political framework that is set by the municipal council. This also means that sometimes strategic timing is needed to implement certain issues and to ground policy before political momentum can change again; as displayed in the citation below.

'In the period up until may 2014, (new municipal elections) we try to push for setting up the first building blocks of the programme, so the first foundation has been laid out' (AGG, 2013, p4.).

The citation above also demonstrates that putting building blocks of programmes down is very important to ground an approach. As previously noted grounding a programme within networks can be a vital way of keeping an issue supported by a large group of actors. This not only takes the shape of bottom-up networks but also horizontal political networks, when municipalities group together to try to address specific topics. As stated before, in the Netherlands 'there are various networks that gather municipalities of equal size, the "Big 4", also named 'G4' is compiled of the four largest cities in the Netherlands: Amsterdam, Rotterdam, The Hague and Utrecht who run an informal cooperation network that organises joint approaches to central government and sometimes also towards parliament on specific urban problems' (VNG, 2019, p.19). The G4 and VNG (joined group of Dutch municipalities) lobby towards the national government' (I:7).

An overarching example of even more cities gathering is the aforementioned Dutch *City Deal ;Food on the urban Agenda (2017)*, in which the nation-wide network of cities dedicated to finding solutions to food related issues in the city. This shows that politically municipalities are working together, but also that

the national government is part of such a network. Overarching ministries also have signed the deal, which potentially could mean that a more systemic approach would be facilitated by the national level of governance joining in. Many municipalities have expressed that within systemically engrained topics such as food issues, national support is vital, since the mandate of local governments is limited. This can be observed in the quote below.

'The G4 cities have said now, we've used the entire span of what we can do, and now it is also up to the national government to do something. So local governments can lobby and pressurize the national government. They did this through 'the healthy letter' in the newspaper NRC, in which they have called for a sugar tax. Also in Amsterdam a very systematic approach within the city had been going on for almost ten years, and we saw obesity rates go down. So then they say; as a municipality we did everything we can, now it is up to the national government, but they are still stuck in the soft approach.' (I:8)

Summary: *The enabling infrastructure support for local food environment policy*

To conclude this chapter, this section will briefly reflect on the different enabling layers within food environmental approaches that can affect successful implementation. Firstly, came forward how local governments can do much to try to facilitate and enable a grounded bottom-up approach towards improving food environments. This feature makes local approaches very valuable, but to be able to eventually tackle the obesogenic food environment a systemic integrated approach is needed that can be implemented in the long run. However, the results also show that there are many limitations to what municipalities can do, since they have a limited amount of resources and ultimately always stay partly dependent on the course of national politics. Top-down action in some cases can be much more substantial in a short amount of time, since national regulations can more easily tackle multiple scales and locations at the same time. Therefore collaborative partnerships between municipalities and the national government could be vital.

In the following chapter the findings of this research will be more in-depth discussed. Firstly, going into what gaps this research has intended to address. Thereafter it will go into the lessons that can be drawn from this study, and how these can be related to the existing state of knowledge.

6. Discussion

Over the years obesity has become a global concern driven by unhealthy food systems (Swinburnt et al., 1999). The obesogenicity of modern food environments seems engrained in our current society and therefore poses a sizable challenge for governments (Dagevos and Munnichs, 2007). Even though more public health policies have been set in motion to develop solutions to the problem of obesogenic environments (Hawkes et al, 2015), little is known on concrete context based food policy approaches, and enablers of policy action in relation to food issues (Doernberg et al, 2019). Therefore, this research firstly has intended to addresses the vacuum of necessary reflections on emerging local food environment policy approaches in relation to targeting obesity problematics. Secondly, it has intended to expand the knowledge on how Dutch local governments currently are approaching obesogenic environments by reviewing the food environment policy of the five municipalities of: Amsterdam, Rotterdam, The Hague, Utrecht and Ede. Through the comparative analysis of the five municipality's approaches it has mainly found the following five discussion points.

The first main finding of this study is that all five case municipalities addressed the issue of obesogenic food environments to some extent (see table III). This affirms the notion that the issue of obesogenic food environments is emergingly appearing on the policy agenda of governance actors (Poelman, 2016, Storey et al., 2000). Secondly, it shows that local urban governments are increasingly operating as potential actors in improving food system problematics (Sonino, 2016). This has been embodied in the signing of the Dutch, City Deal food on the urban agenda of 2017, signed by all five case cities of this study (City Deal, 2017). Since all municipalities of this study have signed this City Deal, and therefore engage in food policy networks, it might be that 'the case cities are examples of early adopters' (Sibbing et al 2019, p.11) and not representational of all municipalities in the Netherlands. Therefore, to confirm if other municipalities also are increasingly focusing on the topic of food environment policy, more research should be directed to studying the food environment approaches of other municipalities in the Netherlands. Moreover, while this research has confirmed an increased attention on the food environment issue of obesity, it has not evaluated if the policies have also been effectively implemented. This could be an valuable addition to the results of this study by, for example, using the approach of Doernberg et al., (2019), of comparing policy evaluation procedures to examine actual implementation and effectiveness of policy.

Secondly, even though the first attempts to address the issue of obesogenic food environment have been made by municipalities, the amount of substantial policy programmes explicitly targeting food environments are still scarce (see figure II). Nevertheless, some substantial approaches have emerged over the years. For example, the AAG (2012), Amsterdam Healthy Weight programme which was one of the first to explicitly and continuously incorporate a food environment approach in the shape of multiple concrete policy programmes. The fact that these programmes are more substantial than others can be reflected by the concreteness of their goals, the constantly expanding nature of the programme, and the amount of years that the programme has been running. As previous research has shown the distinctiveness of policy is hard to measure (Depuis and Biesbroek 2013, Candel and Daugbjerg, 2020). Comparing and evaluating policy is often

flawed by its very nature as they are indistinct phenomenon that are a product of a certain contextual location, adapted to the required needs of a specific locality and, the result of a political mechanism. While comparative research intends to map out the policy contributions of each municipality in order to contrast them, it is imperative that the analysis of food policy is not boiled down to simplistic categorisation of policy traits. This study has tried to overcome this by firstly attempting to use clear defined categorisations of policy goals, instruments, targets and substantiality, as proposed by (Depuis and Biesbroek 2013, Candel and Daugbjerg, 2020) as well as using interviews to contextualise the analysis to create a more embodied understanding of the policy context and phenomenon by looking at ‘policy support systems’ as proposed by (Karbasy et al., 2019). Therefore, in future research it might be valuable not only to solely look at the policy programmes by themselves, but also to integrate qualitative analysis on the contextualised political support systems that drive policy.

‘People are often just looking for quick fixes. Creating vegetable gardens, setting up an informative campaign, nudging. But they shouldn’t think that just nudging can be the solution. When you look at the whole food system as it is now, and that an enormous amount of money is gained with selling unhealthy food, it is a systemic problem’ (I:5.)

Thirdly, the findings of this study support the notion that local governments have often less ‘authority and resources at hand to improve health through the food environment’ (Karbasy et al.,2019). Therefore they are mostly confined to a specific range of tools and instruments to improve the food environments of their city. As previous research confirms, the informative instrumental approach seems mostly favoured to improve people’s knowledge and agency in choosing healthy food options (Doernberg et al., 2019, Sibbing et al., 2019, WRR, 2014). Furthermore, governments are most likely to use approaches such as organising, facilitating, and financially supporting projects related to the food environment. Apart from the municipality of Amsterdam, municipalities make little use of coercive measures to improve healthy availability. The lack of regulatory and economic resources might be since local governments have less authority and jurisdictions than national governments, and therefore do not have sufficient instrumental power to alter food environments (Karbasy et al., 2019, p.5, Sibbing et al., 2019). Additionally, another explanation of the sparse use of coercive instruments is the fear of paternalistic accusations by society, and possible lawsuits when speaking of regulatory approaches, as also previously noted by (Nuffield Council on Bioethics, 2007, Sibbing et al., 2019). Additionally, this is enhanced by political notions that still follow the reasoning that making the healthy choice is peoples’ own responsibility (WRR, 2014). This opens up a research gap to analysing societal values of individuals about food, and their opinion of intervention on food consumption in their daily lives. This would provide much needed contextual understanding for political implementation to establish where the line exist for the general acceptance of governmental intervention within food issues, as well as helping institutions better understand their role as being democratic governing bodies.

Obesity might be a highly complex, wicked problem, but that is no reason to presume government regulation won't have any effect'

(Municipality of Amsterdam, Bureau Onderzoek en statistiek, 2014, p.5)

Fourthly, this research's findings have supported the notion that naturally local governments can find an easier way towards grounding policy by making use of a participatory governance network. They stand close to their electorate, and find their strengths in organizing and creating networks of stakeholders which support and embody local food environment adaptation (Karbasy et al., 2019). By incorporating different stakeholders, municipalities try to use organisational and economical instruments to facilitate a more systematic food environment transition, however often this is bound to a certain time and also bound to voluntary interest of stakeholders (Halliday et al., 2019, p.15). To integrate the community even further, there is also the potential for public food policy councils, as is being attempted in Ede, and has proven useful in other countries such as Canada (Doernberg et al., 2019, Karbasy et al, 2019). Since these new types of governance arrangements seem to have a great potential in supporting food policy it could be valuable to look further into the potential of different types of new governance arrangements and how they could potentially further support food environment policy.

Lastly, due to complex dynamics underlying the food system, and the multiplicity of actors involved, the obesogenicity of food environments currently could be considered a 'wicked problem' to public governance (Candel, 2016, p. 270). The magnitude and systemic complexness of the issue is related to the fact that the obesogenic character of food environments is not bound to certain people or areas. Presently most municipalities primarily focus on making sure that targeted groups, such as children and those from low socio-economic backgrounds, can make informed choices on food. Additionally, they facilitate in supporting targeted spaces in the transition to healthier food environments. This could be explained by the fact that it is politically easier to justify improving the food availability for specific groups which seem more vulnerable (Nuffield Council of Bioethics, 2017). The narrow targeting of policies, plus the fact that food policy is not yet systemically integrated within multiple policy domains of the municipality, means that politically the issue does not seem to be approached from a holistic perspective yet (Swinburn et al., 2019, Sibbing et al., 2019). 'A systemic approach however requires an institutional design which approaches the whole of all dimensions involved' (Lee et al., 2017). This implies the need for a more coordinated and broader formulated policy approach which can facilitate the substantial, long-term health interventions, which are needed to tackle overweight and obesity problematics (Lee et al., 2017, WRR, 2014). 'In addition to integration between policy areas, there is also a need for more interconnected food policymaking between the local, national and international levels (Hawkes and Halliday (2017, p. 95). Therefore, a valuable opening for new research is investigating what exactly a suitable and integrated policy approach towards tackling obesogenic environments would entail.

7. Conclusion

This research has aimed to answer the question; *'How do Dutch municipalities' local food policies currently address altering the food environment to achieve healthier diets for citizens?'* It has approached answering this question by performing a comparative case study of food environment policy of five Dutch municipalities: Amsterdam, Rotterdam, The Hague, Utrecht and Ede. The study has made use of an ecological approach of the food environment to study the aims and instruments used within the policy outputs of the different municipalities, and has reviewed enabling support systems of local food environment policy.

Even though Dutch food environment policy approaches seem in their infancy, it does appear that municipal governments see the 'urgency and momentum' to act upon addressing unhealthy food environment problematics. The most substantial, and first example of a written commitment to this cause was the collaborative signing of the Dutch City Deal, Food on the Urban agenda (2017). This deal marked a new wave of initiative from local governments in committing to solving urban food issues. Furthermore the research showed the appearance of some substantial policy programmes specifically directed at making local food environments healthier. This was most prevalent in the municipalities of Amsterdam and Rotterdam.

Even though cities do function as field labs for putting food on the urban agenda, not much instrumental capacity or resources seem available to governments to experiment unique and innovative instruments. The results of this study suggest that municipalities in the Netherlands are hesitant in using coercive instruments within their policy, and 'predominantly employ informative and organizational instruments' which has also been shown in previous research (Sibbing et al., 2019). This means within municipalities only select options of regulatory instruments are available for regulating food environments. According to local policy experts, spatial planning through zoning plans and licencing and provision of permits, are the strongest lawful instruments municipalities can use to enforce rules within the municipality (I:7, I:9, I:11, I:13, I:14, I:15, I:19). This means that they struggle to address the problem from a substantial approach, and are limited in freedom of what they can actually implement.

Additionally a more systemic approach is advised by implementing food environment policy through multiple policy domains within the municipality, and focusing on a broader approach with a mix of informative, organisation, economic and regulatory instruments. However, as previously discussed this is hard to exercise within the limitations of their local regulatory mandate, and in the light of external factors such as dependency of a national food policy approach. However, while local municipalities are constrained by limitations in achieving a systemic approach, they are not helpless. The nature of local governments, as bodies that are able to stand close to their electorate and organisations in their region, means that they can act as strong change agents in incentivising bottom up change in collaboration with local parties, such as schools, health care organisations, entrepreneurs and local businesses. Furthermore, by working together with local research institutes, a more informed and evidence based way of policy making can be realised. This allows a grounded and more inclusive approach towards influencing unhealthy food environments that are part of our current food system.

Because our food system is intrinsically linked to elements of global food production, trade by

international conglomerates, and international forces, the issue of obesity is part of a multi-actor, multi-level disputed playing field. Food environments can therefore be distinguished as being ‘wickedly’ obesogenic. As these consequential food system problematics are not limited to local borders, but are part of a wider global arrangement, a more multi-levelled approach in which a networked regional or national approach is sought for, would therefore be beneficial.

This could for instance be done by using the network of the aforementioned City Deal. This way cities can learn more from each other’s approaches, and a unitary voice or lobby towards the national government can be sought after when municipalities are confronted with the boundaries of their own local resources. Furthermore, while literature and ecological frameworks suggest that there are innate disparities between different localities due to their political landscapes, demographics and socio-economic factors, there is a good chance that discussion between regional municipalities can serve as a platform for sharing best practices and can initiate new courses of action.

To conclude, the tackling of the wicked health issue of obesity faced by governments, still encounters many hurdles. However, much potential lies within a bottom up grounded approach that is inclusive of communities and distils the notion that combatting this matter is solely a political issue, and not that of a wider societal effort. If the political agenda removes the individual from the process of change, then they remove the power of self-autonomy and individual responsibility in the light of the situation. Food is such a personal engrained topic that personal commitment is fundamental for embodied change. However, in an environment which is systematically and wickedly influenced by unhealthy food options, and the healthy choice is not the most available, accessible or affordable option, this autonomy cannot flourish. Since obesity problematics are increasingly affecting the lives and health of populations around the globe, facilitating healthy food environments is therefore more than ever a pressing matter.

7.1 Practical recommendations for municipalities.

The results of this study have inspired several recommendations for local policy makers in addressing the issue of obesogenic environments within municipalities of the Netherlands.

First off, since unhealthy food choices are often strongest influenced by the abundance of unhealthy options in current food environments, it would be advised to focus on improving availability of healthy affordable food in the food environment. Reaching out to targeted places and slowly expanding this reach can systemically address the multiple types of environments that should be tackled. This would be for instance, schools, work-places, hospitals, train stations. This means substantial action in reducing the ‘abundance of’ unhealthy food options and making the healthy option the default option (Nuffield council of bioethics, 2007). Making ‘heat’ maps of the abundance of unhealthy food in cities can provide as leverage to instigate actions such as that which has been done in Amsterdam and Rotterdam. Furthermore, including health-professionals in either researching possibilities, advising people who are facing obesity related problems, or even to campaign for the issue could be helpful. The authority of health professionals would help as a leverage to reduce paternalistic accusations towards government bodies in lecturing people on healthier lifestyles.

Additionally, besides information distribution on healthy diets, more coercive regulatory instruments are advised as, for example, banning marketing of unhealthy foods, strong limits of unhealthy food outlets by using permits and zoning plans, and limiting the amount of food outlets in for instance school neighbourhoods. ‘Het voedingscentrum’ already has published clear guidelines on what ‘healthy food environments’ look like in certain places can therefore guide as a clear reference point for policy. Since the terrain of regulations on food environments has yet been little explored in the context of the Netherlands, just trying out new bold ways as exemplary in Amsterdam with limitations of ‘tourist shops’ is advised. The upcoming new ‘omgevingswet’ momentum could especially justify more coercive approaches within municipalities in order to reduce the obesogenicity of the local food environment. Using a mix of policy instruments is a more substantial approach that can be sought after. This, combined with a targeted network approach, could hypothetically guide the way for a long-term food environment approach which is needed to be able to influence people’s dietary habits.

Furthermore, the City Deal food on the urban agenda (2017) has instigated the coming together of new municipalities at the table that are all committed towards improving the food environment. This makes room for a more unified systematic approach of food environmental policy. Since the resources and mandate of local governments is limited, local lobby towards political commitment within other municipal domains and national government could provide a more supportive enabling policy context. Lobbying could try to influence the direct action of National government on the availability of healthy and affordable food in food outlets by imposing a sugar tax, stricter labelling of products, and influencing the subsidies for unhealthy foods. For further bottom-up support, which is not as much influenced by political cycles, a rooted approach using participatory processes within food environment policy making could be of great use. Including schools, health organisations, entrepreneurs and other parties a broadly supported approach would be invaluable for tackling the current wickedly obesogenic food environment.

8. References

- Bodor, J.N., Riche, J.C., Farley, T.A. et al. (2010). The relationship between Obesity and Urban Food Environments. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 87(5), 771-781
- Bodor, J.N., Rose, D., Farley, T.A., Swalm, C., Scott, S.K. (2008). Neighbourhood fruit and vegetable availability and consumption: the role of small food stores in an urban environment. *Public Health Nutrition*. 11(4), 413–420.
- Bovens, M., and 't Hart, P. (2016). Revisiting the study of policy failures. *Journal of European Public Policy*, 23(5), 653-666.
- Candel, J. (2016). *Putting food on the table: the European Union governance of the wicked problem of food security* (Doctoral dissertation, Wageningen University).
- Candel, J. (2019). “What’s on the Menu? A Global Assessment of MUFPP Signatory Cities’ Food Strategies.” *Agroecology and Sustainable Food Systems*: 1–28.
- Candel, J., & Daugbjerg, C. (2020). Overcoming the dependent variable problem in studying food policy. *Food Security*, 12(1), 169-178
- Candel, J. J. L., & Daugbjerg, C. (2017). Food policy strategies: how to categorize and compare them? In *3rd International Conference on Public Policy*.
- Cohen, N. (2012) Planning for urban agriculture: problem recognition, policy formation, and politics. *Sustainable Food Planning: Evolving Theory and Practice*. Wageningen: Wageningen Academic Publishers
- CBS open data (2019) Retrieved from:
<https://opendata.cbs.nl/statline/#/CBS/nl/dataset/37230ned/table?ts=1578685738191> (February, 2020).
- CBS. (2016). Overgewicht regionaal in Nederland. Retrieved from
<https://www.volksgezondheidenzorg.info/onderwerp/overgewicht/regionaal-internationaal/regionaal#!node-overgewicht-ggd-regio>
- City Deal (2017) City Deal Voedsel op de stedelijke agenda
- Dahlgren, G., & Whitehead, M. (1991). Policies and strategies to promote social equity in health. *Stockholm: Institute for future studies*, 27(1), 4-41
- Dagevos, H., and Munnichs, G. (Eds.) (2007). *De obesogene samenleving. Maatschappelijke perspectieven op overgewicht*. Amsterdam: Amsterdam University Press
- Doernberg, A., Horn, P., Zasada, I., Piorr, A. (2019). Urban food policies in German city regions: An overview of key players and policy instruments, *Food Policy*, 89.
- Depuis, J., and Biesbroek, G.R. (2010) Comparing apples and oranges: the dependent variable problem in comparing and evaluating climate change adaptation policies. *Global environmental change: human and policy dimensions*. 23(6), 1476 – 1478.
- Diagnose Voeding en Gezondheid (2018). Een gezondere voedselomgeving door een gezonder voedselaanbod. Retrieved from <https://www.economicboardutrecht.nl/uploads/media/5a8d4f54e1b7d/dvg-een-gezondere-voedselomgeving-door-een-gezonder-voedselaanbod.pdf>

EPI (2019) The Healthy Food Environment Policy Index (Food-EPI). Retrieved from <https://www.informas.org/food-epi/>

FAO. (2018). Strengthening sector policies for better food security and nutrition results. Food systems for healthy diets. Retrieved from <http://www.fao.org/3/CA2797EN/ca2797en.pdf>

FAO. (2018). Enabling policy, legal and institutional environment. Retrieved from <http://www.fao.org/school-food/areas-work/enabling-policy>

FitzGerald, C., O'Malley, E., and Broin, D. Ó. (2019). Policy success/policy failure: A framework for understanding policy choices. *Administration*, 67(2), 1-24.

Fischer, M., and Maggetti, M. (2016). Qualitative Comparative Analysis and the Study of Policy Processes. *Journal of Comparative Policy Analysis: Research and Practice*, 19(4), 345-361

Franco, M., Diez-Roux, A.V., Nettleton, J.A., et al, (2009). Availability of healthy foods and dietary patterns: the Multi-Ethnic Study of Atherosclerosis. *American Journal of Clinical Nutrition*. 89(3), 897– 904.

Gatineau, M., and Dent, M. (2011). Obesity and mental health. *National Obesity Observatory*. Oxford.

Government of the Netherlands (2017) Environment and Planning Act Retrieved from: <https://www.government.nl/topics/spatial-planning-and-infrastructure/documents/reports/2017/02/28/environment-and-planning-act>

Gemeente Amsterdam (2017). Geen nieuwe winkels. Retrieved from. <https://www.amsterdam.nl/ondernemen/detailhandel/geennieuwewinkels/>

Halliday, J., Platenkamp, L., Nicolarea, Y. (2019) A menu of actions to shape urban food environments for improved nutrition, GAIN, MUFPP and RUA. Retrieved from <https://www.gainhealth.org/sites/default/files/publications/documents/gain-mufpp-ruaf-a-menu-of-actions-to-shape-urban-food-environments-for-improved-nutrition-2019.pdf>

Hawkes, C., Smith, T. G., Jewell, J., Wardle, J., Hammond, R. A., Friel, S., ... and Kain, J. (2015). Smart food policies for obesity prevention. *The Lancet*, 385(9985), 2410-2421.

Herforth, A., and Ahmed, S. (2015). The food environment, its effects on dietary consumption, and potential for measurement within agriculture-nutrition interventions. *Food Security*, 7(3), 505-520.

Hood, C. C. (1983). *The Tools of Government*. London: Macmillan.

Ingram, H., Schneider, A. L., & DeLeon, P. (2007). Social construction and policy design. *Theories of the policy process*, 2, 93-126

Karbasy K, Vanderlee L, L'Abbe M. Supporting healthier food environments in the City of Toronto: Current policies and priority actions. 2019. Available at: www.labbelab.utoronto.ca/Local-Food-EPI-2019

Knill, C., and Tosun, J. (2012). *Public policy: A New Introduction*. London, Palgrave Macmillan.

Lang, T. (2009). Reshaping the Food System for Ecological Public Health. *Journal of Hunger & Environmental Nutrition*, 4, 315-335.

Lewis-Beck, M. S., Bryman, A., and Futing Liao, T. (2004). *The SAGE encyclopedia of social science research methods*. Thousand Oaks, CA: Sage Publications.

Lee, B. Y., Bartsch, S. M., Mui, Y., Haidari, L. A., Spiker, M. L., & Gittelsohn, J. (2017). A systems approach to obesity. *Nutrition reviews*, 75(suppl 1), 94–106.

- IPES-Food (2017). What makes urban food policy happen? Insights from five case studies. International Panel of Experts on Sustainable Food Systems. Retrieved from: http://www.ipes-food.org/_img/upload/files/Cities_full.pdf
- Moragues-Faus, A., and Morgan, K. (2015). Reframing the foodscape: the emergent world of urban food policy. *Environment and Planning A: Economy and Space*, 47(7), 1558-1573
- McConnel, A. (2010). *Understanding Policy Success, Rethinking Public Policy*. London: Palgrave Macmillan.
- McConnel, A.(2010). "Policy Success, Policy Failure and Grey Areas In-Between." *Journal of Public Policy*, vol. 30(3), 345–362.
- Mölenberg FJM, Beenackers MA, Mackenbach JD, Burdorf A, van Lenthe FJ. (2019) Is Rotterdam een fastfoodparadijs? De voedselomgeving van 2004 tot 2018. Rotterdam: Erasmus MC
- Morland K, Wing S, Diez Roux A. (2002) The contextual effect of the local food environment on residents' diets: the atherosclerosis risk in communities study. *Am J Public Health*. 92(11), 1761–1767.
- Nuffield Council on Bioethics (2007) *Public health: ethical issues*. London: Nuffield Council on Bioethics.
- PBL (2019), Dagelijkse kost. Hoe overheden, bedrijven en consumenten kunnen bijdragen aan een duurzaam voedselsysteem, Den Haag: Planbureau voor de Leefomgeving. Retrieved from: <https://www.pbl.nl/sites/default/files/downloads/PBL-2019-dagelijkse-kost-bijdragen-aan-duurzaam-voedselsysteem-2638.pdf>
- Poelman, M. (2016). De stad als verleidelijke voedselomgeving. *AGORA Magazine*. 32(10). Retrieved from <http://www.agora-magazine.nl/wp-content/uploads/2016/10/2016-3-Poelman.pdf>
- Ragin, C.(1994). Introduction to Qualitative comparative analysis 'in' Janoski, T and., Hick, A.M., *The comparative Political Economy of the Welfare State*. New York: Cambridge University Press, 298-317.
- (RIVM, 2019) Quickscan mogelijke impact preventieakkoord. Retrieved from: <https://www.rivm.nl/documenten/quickscan-mogelijke-impact-nationaal-preventieakkoord>
- Rose D, Richards R. (2004). Food store access and household fruit and vegetable use among participants in the US Food Stamp Program. *Public Health Nutrition*, 7(8), 1081–1088.
- Sallis, JF, Owen N. (2002) Ecological models of health behavior. In *Health Behavior and Health Education*, ed. K Glanz, BK Rimer, FM Lewis, San Francisco, CA: Jossey-Bass, 462–84.
- Sanigorski, A. M., Bell, A. C., Kremer, P. J., Cuttler, R., and Swinburn, B. A. (2008). Reducing unhealthy weight gain in children through community capacity-building: results of a quasi-experimental intervention program, *Be Active Eat Well. International journal of obesity*, 32(7), 1060-7
- Saldaña, J. (2013). *The Coding Manual for Qualitative Researchers*. London: Sage Publications
- Seidell, J and Halberstad,J. (2019, October) Wie stopt de snelle hap? *Het Parool*. Retrieved from <https://www.parool.nl/amsterdam/wie-stopt-de-snelle-hap>
- Sibbing, L., Candel, J., & Termeer, K. (2019). A comparative assessment of local municipal food policy integration in the Netherlands. *International Planning Studies*, 1-14
- Stokols D. (1992). Establishing and maintaining healthy environments. Toward a social ecology of health promotion. *Am. Psychol.* 47, 6–22

Story et al. Story, M., Kaphingst, K. M., Robinson-O'Brien, R., and Glanz, K. (2008). Creating healthy food and eating environments: policy and environmental approaches. *Annu Rev Public Health*, 29, 253-272.

Sonnino, R. (2016). The new geography of food security: exploring the potential of urban food strategies. *The Geographical Journal*, 182(2), 190-200

Sonnino, R (2009) Feeding the City: Towards a New Research and Planning Agenda, *International Planning Studies*, 14(4), 425-435

Swinburn B, Vandevijvere S, Kraak V, Sacks G, Snowdon W, Hawkes C, et al.; INFORMAS. (2013). Monitoring and benchmarking government policies and actions to improve the healthiness of food environments: a proposed Government healthy food environment policy index. *Obesity review*, 14(1), 24-37.

Swinburn B, Egger G, Raza, F. (1999). Dissecting obesogenic environments: the development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Prev. Med.* 29, 563–70

Tosun, Jale & Lang, Achim. (2017). Policy integration: mapping the different concepts. *Policy Studies*, 1-18.

Turner, C., Aggarwal, A., Walls, H., Herforth, A., Drewnowski, A., Coates, J., Kalamianou, S., Kadiyala, S. (2018). 'Concepts and critical perspectives for food environment research: a global framework with implications for action in low-and-middle-income countries.' *Global Food Security*, 18, 93-101.

VNG Association of Netherlands Municipalities (2019) Local Government in the Netherlands. Retrieved from: <https://www.publieksdiensten.nl/wp-content/uploads/2018/04/DENMARK-4-LocalGovernment-in-the-Netherlands.pdf>

WHO (2018). Obesity and Overweight factsheet. Retrieved from <https://www.who.int/news-room/factsheets/detail/obesity-and-overweight>

Policy documents for policy analysis

Gemeente Amsterdam (2013). Sport- en Bewegingplan stadsdeel Oost 2013-2016.

Gemeente Amsterdam (2013). Amsterdamse Aanpak Gezond Gewicht: Beleids- en uitvoeringsprogramma. Retrieved from: <https://omoooc.nl/wpcontent/uploads/2016/11/>

Gemeente Amsterdam, Bureau Onderzoek en Statistiek (2014). Factsheet, Staat van Gezond Gewicht 2014. Retrieved from: <https://www.amsterdam.nl/sociaaldomein/blijven-wij-gezond/programma>

Gemeente Amsterdam (2017) De Vrijblijvendheid voorbij. Amsterdamse Aanpak Gezond Gewicht Meerjarenprogramma 2018-2021.

Gemeente Amsterdam (2014). Bureau Onderzoek en Statistiek; Factsheet, Staat van Gezond Gewicht 2014. Retrieved from: <https://www.amsterdam.nl/sociaaldomein/blijven-wij-gezond/programma>

Gemeente Amsterdam (2018). Afschaffing motie; Brief gezonde schoolkantines.

Gemeente Amsterdam (2018). Jaarverslag gemeente 2017.

Gemeente Amsterdam (2015). Amsterdamse aanpak gezond gewicht. Programmaplan 2015-2018.

Gemeente Amsterdam (2019). Preadvies 2020

Gemeente Amsterdam (2019) Stand van zaken voedselstrategie 2019.

Gemeente Amsterdam (2019) Investeringsnota E-buurt Oost. Stadsdeel Zuidoost.

Gemeente Amsterdam (2016) Gebiedsplan West 2016 Geuzenveld Slotermeer

Gemeente Amsterdam (2019). Aangenomen motie ‘Gezonde schoolkantines’ (nr.299.19).

Gemeente Amsterdam (2015) Uitvoeringsplan Aanpak op Gezond Gewicht 2015-2018.

Gemeente Amsterdam (2015) Pact Gezond Gewicht!

Gemeente Rotterdam (2019) Vaststelling Gezond010: het akkoord – nota Publieke Gezondheid 2020-2024.

Gemeente Rotterdam (2018) Gemeentebblad 2018 nr. 19

Gemeente Rotterdam (2019) Gemeentebblad 2019 nr. 146

Gemeente Rotterdam (2019) Gemeentebblad 201, nr. 170. Subsidieregeling Brede regeling combinatiefuncties Rotterdam, sport.

Gemeente Rotterdam (2017) Beantwoording schriftelijke vragen van het raadsleden S. De Lange (CDA) over Stop met reclame voor ongezonde voeding op Rotterdamse metrostations.

Gemeente Rotterdam (2019). Gezond 010: het akkoord.

Gemeente Rotterdam (2012). Food and the City.

Gemeente Rotterdam (2017). Rotterdam Vitale stad 2016-2020

Gemeente Rotterdam (2019). Afdoening toezegging 19bb18471 over het weren van fastfood

Gemeente Den Haag (2016) Gezondheid and Leefstijl jongeren Den Haag 2016

Gemeente Den Haag (2019) Programmabrief Duurzaamheid 2020

Gemeente Den Haag (2019) Samen voor de stad. Coalitieakkoord 2019-2022

Gemeente Den Haag (2017) Voortgangsrapportage nota volksgezondheid 2015-2016

Gemeente Den Haag (2017) Overzicht activiteiten stadsdeel Laak

Gemeente Den Haag (2009) Voortgangsrapportage Natuurlijk: gezond!

Gemeente Den Haag (2011) Gezond Gewicht, De Haagse aanpak 2010-2014

Gemeente Den Haag (2015) Voortgangsbericht Sportcampus Zuiderpark

Gemeente Den Haag (2019) Initiatiefvoorstel: Duurzaam voedsel: nog een tandje bijzetten.

Gemeente Den Haag (2012) Preadvies (H)eerlijk Haags; Een initiatiefvoorstel voor een Stedelijke Voedselstrategie

Gemeente Utrecht (2012) Volkstuinen in Utrecht Duurzaam en Gezond Beleidsnotitie 2012-2014

Gemeente Utrecht (2013) Jaarstukken 2012

Gemeente Utrecht (2017) Actualisatie aanvullend MER stationsgebied Utrecht

Gemeente Utrecht (2017) Jaarstukken 2016

Gemeente Utrecht (2016) Public Health Policy, Building a healthy future

Gemeente Utrecht (2017) Programmabegroting 2018

Gemeente Utrecht (2018) Jaarstukken 2017

Gemeente Utrecht (2018) Programmabegroting 2019

Gemeente Utrecht (2019) Jaarstukken 2018

Gemeente Utrecht (2019) Voedselbeleid gemeente Utrecht

Gemeente Utrecht (2016) Eetbare woonwijk Rijnvliet, Utrecht. Stedelijk voedselbos- *Urban Food Forestry* Ambitiedocument

Gemeente Utrecht (2012) Gezond Gewicht Utrecht

Gemeente Ede (2015) Visie Food; In uitvoering 2015-2020

Gemeente Ede (2018) Voortgang Voedselraad in oprichting

Gemeente Ede (2019) Regio Deal Foodvalley

Gemeente Ede (2019) Regio Deal: Raadsvoorstel voor behandeling in oordeelvormende/besluitvormende vergadering

Gemeente Ede (2019) Subsidieregeling Food 2019-2023

Annex I: Overview of analysed policy documents

Nr.	Municipality	Year	Document
1	Amsterdam	2013	Sport- en Bewegingplan stadsdeel Oost 2013-2016.
2	Amsterdam	2013	Amsterdamse Aanpak Gezond Gewicht: Beleids- en uitvoeringsprogramma.
3	Amsterdam	2014	Fact sheet, Staat van Gezond Gewicht 2014.
4	Amsterdam	2015	Uitvoeringsplan Aanpak op Gezond Gewicht 2015-2018
5	Amsterdam	2015	Pact Gezond Gewicht!
6	Amsterdam	2015	Amsterdamse aanpak gezond gewicht. Programmaplan 2015-2018.
7	Amsterdam	2016	Gebiedsplan West 2016 Geuzenveld Slotermeer
8	Amsterdam	2017	De Vrijblijvendheid voorbij. Amsterdamse Aanpak Gezond Gewicht Meerjarenprogramma 2018-2021
9	Amsterdam	2018	Afhandeling motie; Brief gezonde schoolkantines
10	Amsterdam	2018	Jaarverslag gemeente 2017
11	Amsterdam	2019	Stand van zaken voedselstrategie 2019.
12	Amsterdam	2019	Investeringsnota E-buurt Oost. Stadsdeel Zuidoost
13	Amsterdam	2019	Aangenomen motie 'Gezonde schoolkantines' (nr.299.19).
14	Amsterdam	2019	Preadvies 2020
15	Rotterdam	2012	Food & the City
16	Rotterdam	2017	Rotterdam Vitale stad 2016-2020
17	Rotterdam	2017	Beantwoording schriftelijke vragen van het raadsleden S. De Lange (CDA) over Stop met reclame voor ongezonde voeding op Rotterdamse metrostations.
18	Rotterdam	2018	Gemeenteblad 2018 nr. 19
19	Rotterdam	2019	Gemeenteblad 2019 nr. 146
20	Rotterdam	2019	Gemeenteblad 2019, nr. 170. Subsidieregeling Brede regeling combinatiefuncties Rotterdam, sport.
21	Rotterdam	2019	Afdoening toezegging 19bb18471. over het weren van fastfood
22	Rotterdam	2019	Vaststelling Gezond010: het akkoord – nota Publieke Gezondheid 2020-2024.
23	Rotterdam	2019	Gezond 010: het akkoord.
24	The Hague	2009	Voortgangsrapportage Natuurlijk: gezond
25	The Hague	2011	Gezond Gewicht, De Haagse aanpak 2010-2014
26	The Hague	2012	Preadvies (H)eerlijk Haags; Een initiatiefvoorstel voor een Stedelijke Voedselstrategie
27	The Hague	2015	Voortgangsbericht Sportcampus Zuiderpark
28	The Hague	2016	Gezondheid & Leefstijl jongeren Den Haag 2016
29	The Hague	2017	Voortgangsrapportage nota volksgezondheid 2015-2016
30	The Hague	2017	Overzicht activiteiten stadsdeel Laak

31	The Hague	2019	Aangenomen initiatiefvoorstel: Duurzaam voedsel: nog een tandje bijzetten.
32	The Hague	2019	Samen voor de stad. Coalitieakkoord 2019-2022
33	The Hague	2019	Programmabrief Duurzaamheid 2020
34	Utrecht	2012	Volkstuinen in Utrecht Duurzaam en Gezond Beleidsnotitie 2012-2014
35	Utrecht	2012	Gezond Gewicht Utrecht
36	Utrecht	2013	Jaarstukken 2012
37	Utrecht	2016	Public Health Policy, Building a healthy future
38	Utrecht	2016	Eetbare woonwijk Rijnvliet, Utrecht. Stedelijk voedselbos- <i>Urban Food Forestry</i> Ambitiedocument
39	Utrecht	2017	Jaarstukken 2016
40	Utrecht	2017	Actualisatie aanvullend MER stationsgebied Utrecht
41	Utrecht	2017	Programmabegroting 2018
42	Utrecht	2018	Jaarstukken 2017
43	Utrecht	2018	Programmabegroting 2019
44	Utrecht	2019	Jaarstukken 2018
45	Utrecht	2019	Voedselbeleid gemeente Utrecht
46	Ede	2015	Visie Food; In uitvoering 2015-2020
47	Ede	2018	Voortgang Voedselraad in oprichting
48	Ede	2019	Regio Deal Foodvalley
49	Ede	2019	Regio Deal: Raadsvoorstel voor behandeling in oordeelvormende/besluitvormende vergadering
50	Ede	2019	Subsidieregeling Food 2019-2023

Annex II: Topic list used for semi-structured interviews

Introduction:

1. Introduction of research, aim, topic and purpose.
Research evolves around the question: How do Dutch municipalities' local food policies currently address altering the food environment to achieve healthier diets for citizens?
2. Could I please record the interview for transcribing purposes?
 - I will transcribe the interview and can send the transcript if you please.
 - After transcribing the interviews the recordings will be deleted.
 - The content of the interview or direct quotes will only be used anonymised, the only persons that will have limited access to the interview data and your identity are supervisors from my university.
 - If there are any questions you prefer not to answer you can always tell me, you also always have the right to stop or withdraw from the research at any time.

2. Current local policy environment of the municipality

- a. Actions and aims of municipalities in working towards a healthier food environment
- b. Chances and strengths of a local policy approach
- c. Most important goals and points of action within food environments
- d. Instruments and approach which is needed to improve food environments

3. Chances for policy linked to the conceptualisation of the food environment

Topic 2: Policy regarding the physical geographic block of the food environment

- a. Availability of healthy foods
- b. Convenience
- c. Accessibility, affordability

Topic 3: Policy regarding information and communication within food environments

- a. Food-marketing
- b. Labelling and promotion of food
- c. Information distribution healthy food (food education, cooking courses, training professionals)

Topic 4: Policy which includes the sociocultural building block of the food environment

- a. Social cohesion and food behaviour
- b. Cultural aspects of food behaviour

Topic 5: Potential policy instruments

- a. Informative instruments (Informatieve instrumenten)
- b. Regulatory instruments (Regels en wetten)
- c. Economic instruments (Economische maatregelen)
- d. Organization (Organisatorisch-& faciliterende maatregelen)

Topic 6: Hurdles within current approach of municipalities

- e. Legal
- f. Political
- g. Financial
- h. Organisational

End of interview

- Thank you for the possibility of the interview, would you possibly know any other relevant people I can speak to?

Annex III: Overview of research's coding scheme

Code	Definition	Code options (Atlas coding)	Variation codes	Source of information	Extra info
Municipality	Name of the municipality	Amsterdam, Rotterdam, The Hague, Utrecht, Ede		Policy outputs collected from municipality's RIS)/	
Year of adoption	Publication year of policy output or when it was adopted, as deduced from publication date in document.	2009- 2019			"If publication year and adoption year differ, then adoption year is taken into account."
Instrument type	Instrument types (Hoods,1983)	Informative (information)	Educating people on healthy food choices		
			Offer supporting guidelines for entrepreneurs		
			Educating professionals through trainings		
			Offer supporting food environment guidelines for institutions		
		Regulatory instruments	Rules and regulations		
			City zoning-plans (spatial planning)		
			Permits		
		Organisation instruments	Facilitation of programmes		
			Creating networks among municipalities		
			Creating networks of entrepreneurs		
			Supporting programmes and initiatives		
			Lobbying		
			Agenda-setting		

Code	Definition	Code options (Atlas coding)	Variation codes	Source of information	Extra info
		Financial instruments	Subsidies for projects or programmes within municipality		
			Financing research		
Goal focus area Policy indicators	Food environment characteristics as seen in figure 1. Of Research.	Availability	Composition for out-of-home- meals	Goal focus areas derived from policy outputs referring to the food spheres of the food environment	Indicators that indicate implemented food policy in municipal food environment : (Karbasy et al., 2019)
			Food service outlet availability of healthy and unhealthy foods		
			In-store availability of healthy and unhealthy foods		
			Robust government policies and zoning laws: healthy foods		
			Robust government policies and zoning laws: unhealthy foods		
		Affordability/accessibility	Existing subsidies and food- related income supports favour healthy foods		
		Affordability	Increase taxes on unhealthy foods		
		Information distribution	Support and training systems (private companies)		
			Food and nutrition in education curricula		
			Support and training systems (public sector settings)		
			Support and training systems (private companies) (Information distribution)		
		Marketing	Reducing marketing of unhealthy foods		

Code	Definition	Code options (Atlas coding)	Variation codes	Source of information	Extra info
		Sociocultural sphere	Priorities for reducing inequalities		
			Implementation of social marketing campaigns		
			Targeting specific cultural groups		
Policy infrastructure support	Indicators 'that outline municipal government practices that enable the implementation of successful government policy and action' (Karbasy et al., 2019)	Political commitment	Strong, visible political support		Non-exclusive, developed abductively from (Karbasy et al., 2019)
			Comprehensive implementation plan to link municipal needs		
			Support for State/Provincial or Federal policy agenda		
		Municipal governance support	Monitoring food environments		
			Evaluation of major programs		
			Monitoring population health indicators		
		Multi-actors policy support	Transparency for the public in the development of food policies		
			Platforms for government and civil society interaction		
			Assessing the health impacts of food and non-food policies		
			Mechanisms to support community-based interventions		
			Implementation of social marketing campaigns		
			Unique initiatives		

Annex IV: Research time path

Project stages	Time Table	
	Begin Date	Duration
Phase 1: Setting up research and proposal writing	September/October/ November	2,5 months
Phase 2: Data collection Outlining the urban food policy context Phase 1: Desk research existing policy documents - Mapping the policy field of the case cities: municipality policy databases - Collect existing policy plans, reports and evaluations Phase 2: Establishing and preparing outreach in the field - Conversations with experts for outreach in the field possible informants - Reaching out and interviewing experts and policymakers - Developing topic lists and semi-structured interview questions	November/December/ January	2/3 months
Phase 3: Data analysis - Make coding scheme according to topic lists - Coding interviews and categorising data of policy map - Identifying data saturation	January	1 month
Phase 4: : Thesis writing Draft Deadline Rewriting draft Final Deadline	1 st of February 21 st of February 6th of March	1,5 month
		6 months