

Wageningen University

Climate Ambitions and Responsibilities in Dutch Municipalities

An interpretation

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Master Thesis

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Abstract

The energy transition in the Netherlands is considered a significant theme, with recent developments such as the adoption of a climate law and a national climate agreement showing its significance. Municipalities in the Netherlands have created climate ambitions and have developed climate plans to reach these ambitions. The Policy Diffusion Framework by Berry and Berry (1990) is used as a guidance to discover the reasons behind goal setting. Several internal reasons for goal adoption such as a motivated municipal councillor and the urge to take a share of the responsibility regarding climate change, and external reasons such as the influence of the region and policies on higher levels are found. The plans to reach certain set ambitions are evaluated, showing that risk perception on climate change has a potential influence on the quality of climate action plans, as well as the process of goal creation.

The influence of a feeling of climate responsibility in the creation of climate ambitions and plans is cautiously considered. Looking at the climate responsibility in relation to higher levels of government, it is found that public officials consider the current support of the national government as insufficient to take the municipality's prescribed leading role in the energy transition. Challenges such as insufficient funds, the encounter of regulation that blocks progression in the energy transition and a lack of guidance are experienced by public officials. While perception might link to climate ambitions and climate plan quality, the practical implementation of climate policies is more focused on the allocation of resources, and need more direction and well-working regulation.

Key words: climate mitigation, climate goals, municipalities, climate responsibility, local climate action plans,

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List of Abbreviations

ACF : Advocacy Coalition Framework
BANS: New Style Government Agreement
CoM: Covenant of Mayors
COP: Conference of the Parties
EU ETS: European Emissions Trading System
EU : European Union
GHG: Greenhouse Gas
IPO: Interprovincial Deliberation Body
LCAPs : Local Climate Action Plans
LKA: Local Climate Agenda
M&E: Monitoring and Evaluation
MLCG: Multi-Level Climate Governance
NAZCA: Non-State Actors' Zone on Climate Action
NDCs: Nationally Determined Contributions
NEPCs: National Climate and Energy Plans
NSAs: Non-State Actors
PA: Paris Agreement
PBL: Planning Bureau for the Living Environment
PD : Policy Diffusion
RES: Regional Energy Strategy
SER: Social-Economic Council
SLOK: Stimulation Local Climate Initiatives
UNFCCC: United Nations Convention on Climate Change
US: United States
VNG : Association of Dutch Municipalities
VROM: Ministry of Housing, Spatial Planning and Environmental Management

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1. Introduction

Climate change is recognized as a global issue since the 1970s. Internationally, the climate negotiations began with adopting the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, leading up to the Kyoto Protocol in 1997 and the Paris Agreement (PA) in 2015. The negotiations of the PA have led to the global goal to keep “the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels” (UNFCCC, 2015). The PA introduces a reporting system where the 193 member-states can submit their Nationally Determined Contributions (NDCs), to reach the goals of the PA, which are expected to be adjusted with increased ambition every five years (UNFCCC, 2015). In addition to the member-states, there are non-state actors (NSAs) which support the global goals. These NSAs consist of several groups of actors such as local government and municipal authorities, businesses and industry non-governmental organizations, environmental non-governmental organizations and more (Bäckstrand, Kuyper, Linnér, & Lövbrand, 2017). The PA indicates the importance of contributions of not only nation-states actors but also of other levels of government and non-governmental actors (UNFCCC, 2015). Implementing the PA will thus require action at all levels: international, regional, national and local.

The local level of government is considered an important party in contributing to limit climate change (Fenton, Gustafsson, Ivner, & Palm, 2015; Organisation for Economic & Development, 2010; Smeds & Acuto, 2018). Cities and municipalities are considered the “best-positioned governments to implement policies to protect people and property from climate-related stress” (Guyadeen, Thistlethwaite, & Henstra, 2019). Local governments have knowledge on the local circumstances and its vulnerabilities, which gives them the ability to create mitigation and adaptation plans specifically tailored for their municipality. Additionally, cities attract industries and people which both have a considerable greenhouse gas (GHG) footprint, on which local governments have a direct influence considering their policy instruments regarding planning (e.g. land use policies, zoning regulations) (Guyadeen et al., 2019).

Increasingly, municipalities are interested to take a part of the responsibility for climate change, and going beyond their national government’s ambition and take on their own formal responsibilities. This development can be seen in e.g. the involvement of municipalities in the Covenant of Mayors, which was launched in 2008 and facilitated by the European Union and the involvement of municipalities as NSAs in the PA process. The Covenant of Mayors is created for cities and municipalities that want to go beyond national legislation. From 2008, the amount of voluntary signatories increased rapidly. All members, consisting for the greater part of European cities, support the EU’s 2030 mitigation goals: a reduction of greenhouse gases of at least 40% (CoM). In addition to reducing their GHG emission, the Covenant is a network where information is shared and gathered to support its members in reaching their goal. Capacity building and increased efforts beyond 2030 are committed to for the long term vision for 2050, and members are expanding outside of Europe (Derwent et al., 2016). Municipalities that are part of the NSAs group of the PA also show their commitment to reduce their negative influence on climate change (de Macedo & Jacobi, 2019). Their climate reduction actions are sent to the Non-State Actors’ Zone on Climate Action (NAZCA) platform. The NAZCA is used as a reporting tool where NSAs can submit their actions. The platform aggregates the combined actions and tracks the contributions of NSAs in reducing climate change (NAZCA). By mid-2018, NSAs were responsible for 12.5000 climate actions, of which cities had

reported over 1/5th of the entries (de Macedo & Jacobi, 2019). Hence, cities and municipalities are ambitious and able to reduce GHG emissions and the impacts of climate change.

In the Netherlands, the governmental system is decentralised. Decentralisation means responsibilities are shifted from the national government to subnational governments such as provinces, water boards and municipalities (Rijksoverheid, 2018). The Dutch governmental system is divided in the national government, twelve provinces, 21 water boards and 355 municipalities (CBS, 2019a; Waterschappen, 2019). In relation to climate change, the formal responsibilities differ per sub-governmental level. Provinces are responsible for spatial planning, nature and recreation, provincial infrastructure, execution of environmental policies concerning soil, air and water, and (financial) supervision of municipalities and water boards. Municipalities deal with services such as the issuing of passports and permits, the design of direct public spaces (public green areas, cycling paths and routes), the implementation of the Environment Act, and the supervision of housing associations. Water boards arrange issues related to water (Koninkrijksrelaties, 2019).

The Dutch climate goal is to reduce GHG emissions with 49% by 2030, and with 95% by 2050. These goals were set in the coalition agreement of 2017 (Rijksoverheid, 2017b). How to reach the goal was debated in the five climate tables. The five themes were the following: electricity, built environment, industry, agriculture and land use, and mobility. Different actors were present to discuss climate implementation plans: from government to market, from market to civil society. Local governments such as municipalities were part of the negotiations as the Association of Dutch Municipalities (VNG) was represented at all tables (Klimaatakkoord, 2018). Per table there is an amount of GHG emissions that should be saved in the coming 11 years to reach the 49% reduction on a national scale. On June 28th 2019 the national climate agreement was presented, which provides guidelines on implementation and lists the different agreement per table (*Klimaatakkoord*, 2019).

While a national climate goal is set and concrete policy measures are recently given, municipalities have created their own goals over the past years (Exter, Lenhart, & Kern, 2015; Van Dijk, 2018). These goals differ per municipality. Different terms are used and varying time slots exist. For example, the terms 'energy neutral', 'climate resilient', 'climate neutral', 'CO2 neutral' are used to indicate climate goals. The definition of these terms also differs between municipalities. Some municipalities aim to be climate resilient in 2050, others in 2040, and some municipalities choose to not have a climate strategy (Van Dijk, 2018).

A manner to reach and work with climate goals is the creation of Local Climate Action Plans (LCAPs). LCAPs are designed to reduce emissions and protect the environment. These plans aim to advance local climate change action (Tang, Brody, Quinn, Chang, & Wei, 2010). While plans do not necessarily lead to effective action (Janicke 2013, Bertelsmann-Stiftung 2013), clear plans and concrete goals are crucial for a successful action plan (Leal & Azevedo, 2016).

To discover the reasons why Dutch municipalities have adopted climate goals, the Policy Diffusion (PD) framework is used. This framework incorporates both internal and external reasons for innovative policy adoption. External reasons include policy decisions from higher levels of government (Bromley-Trujillo, Butler, Poe, & Davis, 2016; Kammerer & Namhata, 2018) or geographical proximity (Armstrong, 2019; Hui, Smith, & Kimmel, 2019) which can result in the diffusion of policies from neighbouring municipalities. Internal reasons such as the political colour of the municipality (Hui et al., 2019), the social acceptance of climate mitigation (Armstrong, 2019; Bromley-Trujillo et al., 2016), the risk perception of climate change or co-benefits of climate mitigation measures (Armstrong, 2019; Kammerer & Namhata, 2018) could be potential reasons for municipalities to adopt local goals.

The formulation of goals can indicate some feeling of responsibility regarding climate change within the municipalities. Research on individual and institutional climate responsibility shows a differing view by scholars on the normative side of who should be responsible for climate change. Some state the individual is responsible (Peeters, Diependaele, & Sterckx, 2019), whereas others state entities which have the means and resources to make a change, should bear the responsibility (e.g. governments or businesses) (Fahlquist, 2009). Besides these normative statements, research on climate adaptation has found a positive correlation between perceived climate responsibility and climate action. Municipalities that viewed itself as responsible for climate change, and viewed climate change as a threat, were more likely to engage in effective climate action and climate plans (Bubeck, Botzen, & Aerts, 2012).

Resulting from the problem description, the objective of the research is the following: To better understand what responsibility Dutch municipalities see themselves having concerning climate change in relation to other levels of government and why, and how they adopt and work with their climate goals.

1.1 Research questions

I aim to reach the objective by answering the following four research questions:

1. How many Dutch municipalities have adopted climate goals and what do these goals look like?
2. Why and how do Dutch municipalities adopt local goals, and to what extent can these reasons be linked to the Policy Diffusion Framework by Berry and Berry (1990)?
3. Using the plan quality framework proposed by Guyadeen, Thistlethwaite and Henstra (2019), can the climate plan quality of the Dutch Local Climate Action Plans (LCAPS) be related to the type of processes through which they were adopted and the perception of public officials on climate change, and if so how?
4. How do public officials see their perceived and prescribed climate responsibility and how is this related to their perception of the climate responsibility of provinces, the national government and the EU?

1.2 Scope and limitations

The scope of the research is limited to the climate action plans of eleven Dutch municipalities. Other policies outside of the climate action plan are not taken into account. As the research is not focused on the complete climate policy of Dutch municipalities but also on the notion of climate responsibility, the scope has to be limited to make the research attainable within six months.

The topic is focused on climate mitigation rather than climate adaptation, as climate adaptation in the Netherlands is framed as a 'water problem' and water boards are the authorities which are mostly involved with water issues (T. Hoppe, M. van den Berg, & F. Coenen, 2014). Climate mitigation is framed as an energy problem (Van Dijk, 2018), which means the climate action plans related to the Dutch energy transition are the core of the research.

1.3 Outline

The rest of the report is structured in ten chapters. The second chapter includes the methods used per research question. Research instruments are discussed, together with manners of data analyses and the sample selection. The third chapter includes two sections: key concepts and an explanation of the used framework. The main concepts are local climate action plans and climate responsibility. These elements set the scene and show the lens which is used to look at climate policies in Dutch municipalities. The theoretical framework proposes two different frameworks: the policy diffusion theory by Berry and Berry (1990) and the Advocacy Coalition Framework by Sabatier and Jenkins-Smith (1988) which both could have been chosen for this research. Chapter four provides background information and contextual information on climate policy on different levels of government from the international level funnelling down to the local municipal level in the Netherlands. Chapter five to eight are empirical chapters which show the results of the research. In total there are four RQs, which means a chapter is used per RQ. The ninth chapter attempts to give a reflection on the results of the previous chapters, answer the four RQs and comprises a critical reflection of the work. Chapter ten is the last chapter which concludes the research and gives recommendations for further research.

2. Methods including data analysis

This chapter discusses the methods used for the research. The first section includes the overall study design, then the research instruments that were used in the research are described. The final section describes the methods and data analysis per research question.

2.1 Overall study design

This section explains the study design for the thesis research. The focus of the research is on the qualitative side of research, described by Denzin and Lincoln (2000) as a practice which creates visibility for the world. This type of research includes interpreting the world or researched phenomenon in its natural setting and the manner people give meaning to it. A core element of my thesis is the perspective public officials have on climate change and their responsibility towards it. Qualitative research focuses on interpretation, and instruments such as interviews, conversations and field notes are common ways to extract knowledge from the research subjects (Denzin & Lincoln, 2000).

This thesis is written from an interpretivist perspective. According to Della Porta and Keating (2008), four different approaches exist in the social sciences. These approaches are based on how they deal with ontological issues (their relation to an objective and real world), epistemological issues (their relation to the knowledge about this world and the possible forms of this knowing), and their methodology (instruments to obtain knowledge). These four are the positivist, post-positivist, interpretivist, and humanistic approach. Not going into depth in all four approaches, a brief explanation will be provided, with a focus on the selected interpretivist view.

On one end of the scale, the traditional positivist view is found. It deals with an objective view of the world and believes an absolute truth exists, considers natural laws as its form of knowledge. One could argue this view considers social sciences and physical sciences as bearing many similarities (Della Porta & Keating, 2008).

The post-positivist view is less extreme than the positivist view. While reality is seen as objective, it is not perfectly knowable. It incorporates probability and is more in line with modern scientific developments (Della Porta & Keating, 2008).

The interpretivist researcher incorporates more subjectivity in the research approach. Universal laws outside of the actors are not relied on, but the approach emphasises subjective meaning and how it shapes knowledge. Individual perceptions of the external world are at the core of this view. Context is what matters and its relationship to reality is that reality can be known, but it cannot be separated from human subjectivity (Della Porta & Keating, 2008). My role as researcher is mostly focused on interpreting the perception of the research subjects and draw meaning from it. I can both have a neutral stance or a subjective position where the personal subjectivity is shown (Ostrom, Spencer, Barnard, & Snape, 2013). The interpretivist view fits best with my research as it relies on the subjectivity of actors closely related to the public policy process, and their views on responsibility regarding climate change, their role and the reasoning behind their ambition. My position in this thesis is neutral. However, the research does not solely rely on subjectivity, but also on the relation between the objective and subjective. What is documented, what are the actual responsibilities, roles and ambitions, versus how are they viewed by the actors themselves.

Finally, the humanistic approach on the other end of the scale considers subjectivity and emphatic knowledge as its core rationale. No objective knowledge is possible as every interaction, sentence, action is filtered by subjectivity of the external reality (Della Porta & Keating, 2008).

The research is based on several case studies. According to Silverman (2014), a case can range from individuals to a phenomenon. In this thesis Dutch municipalities constitute the case. Certain factors are important when conducting case study research: all study units should be considered as one entity, a few aspects are studied in depth, and the focus is on understanding and exploring rather than confirming. Advantages of case studies are the data retrieved by research is detailed, and a part of the phenomena can be studied in depth (Kumar & Metzler, 2014). A disadvantage is the difficulty to generalise findings, as the sample is small and can only be compared to cases very similar to the study unit (Kumar & Metzler, 2014).

This thesis incorporates analysis of eleven Dutch municipalities. As the research questions aim to understand the process of goal-setting, the quality of the climate action plans, and the rationale behind the goal choices in-depth, this is the most appropriate research method.

2.2 Research instruments

For the research, several primary and secondary research instruments were used to find the answers to the RQs. Interviews, document analysis, and literature research were chosen as the appropriate methods. Below is an explanation of the instruments and how they were used during the research.

Semi-structured interviews

In order to obtain useful data from public officials, interviews were used as a research instrument. As the research is on subjectivity, views and opinions on the role and responsibility municipalities have or seem to have, the most appropriate manner to receive the information was through semi-structured interviews. Unstructured interviews would have been too flexible as they do not specify topics on which questions can be posed, and structured interviews would be too rigid to obtain the necessary information. Semi-structured interviews leave room for flexibility, but provide the necessary structure to guide the interviewer (Kumar & Metzler, 2014). As Van Dijk (2018) has argued, municipalities have different views and goals when it comes to climate change, and different

meanings to the same concept, semi-structured interviews was the best option. This left room to ask more in-depth questions when there was a misunderstanding and it provided a basic structure to follow during the interviews (Kumar & Metzler, 2014). I interviewed public officials of eleven Dutch municipalities. Two phone interviews and nine face-to-face interviews were conducted. The person I interviewed was dependent on which public official was available. In some cases, I spoke to a municipal councillor, and in other cases I interviewed project managers. During one interview, two public officials were present, a project manager and a municipal councillor. The codes for the interviews that are used in the thesis, and additional information about the interviews can be found in annex 1.

Document analysis

The document analysis relates to publications and documents which helped to gather empirical data to answer the research questions. Sources such as government publications, policy documents of different governance levels and climate action plans of the selected municipalities were used. The documents were systematically analysed depending on the type of document and the relevance to which research question.

Literature research

Literature research was the basis of the research, it provided background information and helped to build the research (F. Fischer, Miller, & Sidney, 2007). I used databases such as Scopus and Web of Science and did systematic searches on the topics using keywords such as climate responsibility, climate planning process municipalities, climate-goals, implementation, evaluation, planning process, and plan evaluation. In parallel, the snowball method was used. In this method, a relevant paper's references were used to find other interesting articles related to the topic. An advantage is that much information on a specific topic was found relatively quickly. The most significant disadvantage was that the snowball method only finds sources *older* than the original source used, and not all literature on the topic is found (Naderifar, Goli, & Ghaljaei, 2017).

2.2 Research instruments and data analysis per research question

As not every research instrument is used for each research question, the following section explains the research methods in-depth per research question. The subchapter follows the order of the questions stated in subchapter 1.1.

1. How many Dutch municipalities have adopted climate goals and what do these goals look like?

This question was first as the answer led to the selected sample used for the rest of the questions.

Research instruments: The question was solely based on document analysis. Documents such as climate strategies and coalition agreements, and electronic sources such as the municipalities' websites were used to find the climate goals.

Data analysis: Since the 1st of January 2019, there are 355 municipalities in the Netherlands (CBS, 2019b). The first step was to map the climate goal of every municipality. I accumulated the data in an excel sheet including the municipality's name, the province, the RES (Regional Energy Strategy) it is a

part of, the climate goal and related documents, and the number of inhabitants. The data concerning climate goals was transformed to graphs to indicate the differences between the municipalities' climate goals.

Sample selection: Municipalities with different goals and different sizes were used for the sample. Different goals as these differences might indicate a diverging view on climate responsibility, and different sizes as literature showed smaller municipalities might have little resources to create comprehensive climate plans compared to larger municipalities (Melica et al., 2018). I determined the size by an adjusted categorization of the CBS¹.

From the data gathering, I found three rough groups: (1) municipalities with a goal for 2050 similar to the Dutch national goal, (2) municipalities with the ambition to reach the same result in less time, and (3) municipalities that did not have a climate goal yet or had goals less ambitious than the other two groups. Of the third group, 1 out of 74 municipalities had formulated a goal with a lower ambition than the national goal; the rest had not formulated a goal, or were in the process of creating a goal and strategy. As the research is about climate goals and local climate action plans, the third group was not considered for the sample. There would not be enough information to evaluate the quality of the LCAP. Thus, two categories were created (see table 1).

Municipality	Size	Climate goal
Type 1	Small, medium, large	More ambitious than national goal
Type 2	Small, medium, large	Ambition in line with national goal

Table 1 Municipality selection criteria

The first criterion was to find municipalities with different ambitions: type 1 and type 2. Secondly, I searched for different municipal sizes per ambition. Of type one, seven municipalities were interviewed and their LCAPs analysed: two small, three medium, and two large municipalities. For type two, four municipalities were interviewed: one small, one medium, and two large municipalities. In total, eleven municipalities were researched.

As a selection only on size and climate goal was insufficient to make a selection out of 355 municipalities, three additional criteria were set. The third selection criterion was their location (province), to find a variety of municipalities which have different institutions and networks of which they are a part. I chose one municipality per province. One province is not represented: Zuid-Holland, as a result of the lack of responsiveness of the municipality. The fourth criterion was the availability of a climate action plan as climate plan evaluation was part of the research. Lastly, a reference to, or a lack thereof, levels of climate governance above the national level (e.g. Covenant of Mayors, PA, or EU) in the municipalities' documents was a criterion. I specifically chose for levels higher than the national level as all plans mention or link to the provincial or national level. I chose this criterion as the perceived responsibility that public officials and other actors involved in the goal-setting process

¹ CBS uses eight codes to indicate the size of municipalities. 1 less than 5000 inhabitants, 2 5000 – 10000 inhabitants, 3 10.000-20.000 inhabitants, 4 20.000 – 50.000 inhabitants, 5 50.000 – 100.000 inhabitants, 6 100.000 – 150.000 inhabitants, 7 150.000 – 250.000 inhabitants, 8 more than 250.000 inhabitants. <https://opendata.cbs.nl/statline/#/CBS/nl/dataset/84378NED/table?ts=1557408719415> Codes 1-3 indicates a small municipality, codes 4 and 5 a medium municipality, and codes 6-8 indicate a large municipality. This division is determined by the author.

have regarding other levels of climate governance is a central component of the research. There could be a link between the municipalities that mention climate governance levels above the national level in their plans and the feeling of climate responsibility towards them.

I aimed for two small, medium and large municipalities for both types, in total six municipalities that mentioned a level of climate governance above the national level, and six that did not. Only for type 1 large municipalities, this did not work as each large type 1 municipality mentioned a different level of climate governance. The large municipalities for type 1 were selected last, when two provinces were left to choose from: Utrecht and Groningen. Groningen is the only large municipality in the province Groningen. In Utrecht, both Utrecht and Amersfoort are large municipalities. My choice between the two was based on clarity. I chose Amersfoort as it had a clear goal with a clear year: CO2 neutral in 2035, whereas Utrecht's goal is to become energy neutral as soon as possible.

I encountered two problems in my sample. The first was that the ambition of one medium-sized municipality had changed from energy neutral in 2050 to energy neutral 2040 in 2018, which became clear during the interview. This means Weert changed from a type 2 municipality into a type 1 municipality. The second was the lack of response of one small type 2 municipality. My plan was to interview six municipalities per type, in total twelve municipalities. However, the municipality (Hardinxveld-Giessendam, a municipality from Zuid-Holland that referred to a higher level of climate governance) did not respond to emails or calls, which is why this municipality is not part of the sample. As a result, the province Zuid-Holland is not represented, and there two type 2 municipalities less than expected, and an extra type 1 municipality than expected. In total, there are seven type 1 municipalities, and four type 2 municipalities. The municipalities under research, their selection criteria and their climate goals can be found in table 2. Figure 1 is a map of the Netherlands with the locations of the provinces and municipalities under research. The red dots indicate the capital of the province, and the blue stars indicate the location of the sample municipalities.

Municipality	Province	Type 1	Type 2	Small	Medium	Large	CAP available	Reference PA/EU	Climate goal
Amersfoort	Utrecht	x				x	x	x	CO2 neutral in 2030
Groningen	Groningen	x				x	x	x	CO2 neutral in 2035
Noordenveld	Drenthe	x			x		x		Climate neutral in 2040
Lelystad	Flevoland	x			x		x	x	Energy neutral in 2025 (excluding mobility)
Weert	Limburg	x			x		x		Energy neutral in 2040
Oirschot	Noord-Brabant	x		x			x		Energy neutral in 2025
Vlieland	Friesland	x		x			x	x	CO2-free in 2020
Zwolle	Overijssel		x			x	x		Energy neutral in 2050
Alkmaar	Noord-Holland		x			x	x	x	Energy neutral in 2050
Middelburg	Zeeland		x		x		x	x	Energy neutral in 2050
Hattem	Gelderland		x	x			x		Climate neutral energy provision in 2050

Table 2 Characteristics sample



Figure 1 Map of the Netherlands with locations of the municipalities (Nederland-kaart, 2014)

2. Why and how do Dutch municipalities adopt local goals, and to what extent can these reasons be linked to the Policy Diffusion Framework by Berry and Berry (1990)?

The policy diffusion framework was used as a reference to give a possible explanation for the adoption of local climate goals. Interview questions such as which actors are involved in municipal climate goal adoption, to what extent are they involved, and why were climate goals adopted were at the core to answer this RQ.

Research instruments: Firstly, document analysis and literature research were performed to create a solid base on the reasons for goal adoption and the process of goal adoption. The Policy Diffusion framework by Berry and Berry (1990) was used to explain the reasons for policy adoption. Secondly, interviews were conducted with municipal employees to find out why municipalities had adopted climate goals and what the processes of goal adoption exactly looked like, and to fill the gaps from what could not be found online about the goal-setting of the municipality.

Data analysis: The interviews were coded and analysed with the program Atlas.TI. The first round was coded deductively, based on the research questions and the concepts that were included. The second round of coding was inductive coding, which separated the found concepts into smaller topics. The coding scheme can be found in Annex 2. The data of the municipalities were compared and I searched for similarities and differences in the policy processes per type of municipality.

3. Using the plan quality framework proposed by Guyadeen, Thistlethwaite and Henstra (2019), can the climate plan quality of the Dutch Local Climate Action Plans (LCAPS) be related to the type of processes through which they were adopted and the perception of public officials on climate change, and if so how?

This question relates to the strategy behind the goal. A plan quality analysis was executed for this question. In particular, I focused on the eight characteristics deemed important by Guyadeen, Thistlethwaite and Henstra (2019). See figure 2 in chapter 3.1 for an overview of the eight characteristics as the framework and its characteristics are elaborated upon in the conceptual framework.

Research instruments: Firstly, the plan quality framework was researched in depth. Guyadeen, Thistlethwaite and Henstra have used the plan quality framework to analyse 76 Canadian municipalities. The eight characteristics were analysed with the help of 46 indicators. These indicators can be found in Annex 3. The research by Guyadeen Thistlethwaite and Henstra differs in several ways from my research. Their research was based on a sample of 76 municipalities, and took into account both adaptation and mitigation, whereas my research was based on a substantially smaller sample of 11 municipalities, and was only focused on climate mitigation. Regarding the sample size, I was mostly interested in the qualitative part. However, some quantitative element should be present to follow the final plan quality evaluation and ranking of the municipalities. When the plan quality framework was clear (e.g. definitions) and ready to use, the municipal climate goals and strategies were read and analysed. Any gaps in the evaluation were filled by interviews as they provided insights in how the municipalities work with their climate plans and what their processes of plan development looked like.

Data analysis: An excel sheet was created to compare the different types of municipalities and their climate action plans. The 46 indicators were scored per municipality, with the quantitative scores 0 and 1, where 0 indicated no presence of the indicator in the climate document, and a 1 indicated the indicator was present in the climate document. Detailed information on why the indicators were scored a 0 or 1 was written in a box next to the score. After gathering the data, a table was made with the scores per municipality (the scores of the municipal LCAPs can be found in Annex 3), and the relative scores per theme and per municipality were calculated. The similarities and differences between the municipalities were identified, graphed and elaborated upon. Additionally, interviews were coded with the program ATLAS.TI in a similar manner as RQ 2, but focusing on the process of plan development and on several topics in the climate plans.

4. How do public officials see their perceived and prescribed climate responsibility and how is this related to their perception of the climate responsibility of provinces, the national government and the EU?

The final research question is about a possible link between the feeling of perceived and prescribed climate responsibility of public officials, and how they relate to the climate responsibility of other levels of government.

Research instruments: Firstly, literature research on climate responsibility on different levels of government provided background information and context for the research. The different levels of government included municipalities in the Netherlands, the provinces, the Dutch national government and the EU under the Paris Agreement. Moreover, responsibility related to the climate such as individual, collective, perceived and prescribed climate responsibility was added to find a deeper meaning in climate responsibility. In order to funnel the information down to the specific Dutch case, interviews with public officials were conducted to fill gaps in the literature. Questions on their motivations, their views on climate change and how they saw their role in the planning process and further implementation process were posed. Additionally, the interviews provided insights in how public officials considered their climate responsibility and how they related this responsibility to different levels of government.

Data analysis: The interviews were coded and analysed in a similar manner as RQ 2. However, instead of focusing on the goal-setting process and reasons for goal adoption, the focus was on climate responsibility and views on the climate responsibility of higher levels of government.

3. Conceptual and theoretical foundations

This chapter consists of several key concepts and theories on which my thesis is based. The first section discusses some key concepts that provide important building blocks for the study. Two concepts are explained: local climate action plans (LCAPs), and climate responsibility. The first concept, LCAPs and their relevance and importance are explained and a framework for LCAP evaluation is introduced. The second concept is climate responsibility and several aspects of the concept such as perceived and prescribed climate responsibility, individual and collective responsibility are described. Then, the second section includes the theory which I used as a foundation for my thesis: the Policy Diffusion Framework. I included a brief explanation of another framework which I could have used as foundation for my thesis: the Advocacy Coalition Framework.

3.1 Local Climate Action Plans

While goals are an important first step to effective strategies, additional steps are significant to have potential effective climate policy: the creation of climate action plans. According to Bassett and Shandas (2010), climate action plans in municipalities should include the following elements: clear objectives and goals, a sufficient factual base which explains the strategy development, and how these strategies or policies articulate the assistance of policy implementation, monitoring, and evaluation. Several factors have been found to be often lacking in climate action plans such as clear timelines, evaluation processes, and information on resources and involved actors (Bassett & Shandas, 2010; Damsø, Kjaer, & Christensen, 2016; Wheeler, 2008). These weaknesses undermine the effectiveness of the climate action plans.

While the overall structure of LCAPs looks similar, a great divergence can exist between the documents within a country. Several authors have evaluated LCAPs in countries in North-America. For example, Wheeler (2008) has evaluated the first generation climate action plans in the US. He found the documents differed in terms of length, depth, goals, and the planning process. He also found a few weaknesses such as a low amount of resources allocated to reduce emissions, and the voluntary nature of the plans have resulted in low implementation levels (Damsø et al., 2016). Additionally, authors such as Bassett and Shandas (2010) found similar results in the US.

The plan quality framework

Guyadeen, Thistlethwaite and Henstra (2019) have created a plan quality framework for LCAPs based on 46 indicators (see annex 3) which I have used for my thesis. They combine quantitative and qualitative research methods to analyse the LCAPs of 76 Canadian municipalities. There are eight characteristics that they deem important regarding plan quality: fact base, goals, policies, implementation, monitoring and evaluation, inter-organizational coordination, participation, and plan organization and presentation (see figure 2).

These characteristics are distilled from the research on plan quality over the years. Literature on planning shows either a combination of some factors used for plan evaluation, or a usage of all eight. Guyadeen (2018) has found these eight characteristics to be significant as a result of a survey distributed amongst practitioners in policy planning in Canada. The specific indicators per theme were based on work of several authors. The indicators for the first three themes were based on the work of Baynham and Stevens (2014), Li and Song (2016), and Tang et al (2010). The work of Li and Song (2016), Stevens (2013) and Berke et al (2006) was used to develop the remaining five themes. An elaboration on the eight themes is given on the next page.

The eight characteristics



Figure 2 Plan Quality Framework by Guyadeen, Thistlethwaite and Henstra (2019)

1. *The fact base* is the first step Guyadeen, Thistlethwaite and Henstra (2019) pose for a high-quality climate plan. Plans have to be based on credible and accurate information and sources to be considered rational and to be able to make a prioritization of goals and policies. The fact base should consist of the following elements: it should frame climate change as an issue that is local, determine its causes and effects, find out its current and future implications for the locality, and assess the awareness of climate change. In practical terms, the plan should have calculated the local GHG emissions, provide information on the impacts of climate change, and assess local conditions by, for example, conducting a local climate scan (discovering which aspects in the local area are most vulnerable to climate change and which issues are most urgent).

2. *Goals*, or ambitions, are fundamental to have an end-point. After having determined the fact base, the logical next step is to set a target to work towards. Both short and long-term goals are expected to be present in high-quality plans (Guyadeen et al., 2019).

3. *Policies* are the actions related to the goals. What is the municipality/coalition planning to do to reach the set target? Researchers have found that focused and concrete plans are necessary to reach goals. These plans should be focused on specific and multiple sectors (Guyadeen et al., 2019).

4. *Implementation* is an important aspect of the level of success a plan has. If there is no implementation, or actual action, tied to the plans, the plan is ineffective. Implementation has to do with who does what and when with what resources. Steps to create an effective climate plan implementation include the allocation of finances, timelines and plan priorities, and the determination of clear responsibilities to execute the plans (Guyadeen et al., 2019).

5. *Monitoring and evaluation* deal with the extent to which the goals and plans are reached. It is the progress over time which is measured, and whether the plans have to be adjusted to reach the set targets. The important aspects which should be present are reporting, indicators for measuring plan progress (Guyadeen et al., 2019).

6. *Inter-organizational coordination* means there is an understanding of the interrelatedness between the multi-actor, multi-level and multi-sectoral nature of climate change. Different sectors deal with climate change to a certain extent, and actors from various organizations and governmental levels are involved in the process. A proper degree of coordination between these characteristics of climate change policies should be present (Guyadeen et al., 2019).

7. *Participation* of actors in the creation of the plan. When multiple actors from different stakeholder groups were involved in the plan development, the legitimacy of the plan increases. The factors deemed important are a description of the involved actors, why the stakeholders were involved and their link to the plan development, and finally the development of the plan over time should be explicit (Guyadeen et al., 2019).

8. *Plan organization and presentation* deals with how the plan is presented. It should be user-friendly, and not be a dense and difficult to read document. The evaluation of this final characteristic of a high-quality plan includes the structure of the LCAP, and whether it includes an executive summary, illustrations, table of contents, and a glossary of terms. Additionally, the plan should reflect the needs of the local community (Guyadeen et al., 2019).

There are certain limitations to determining plan quality according to the framework of Guyadeen and Thistlethwaite and Henstra. Firstly, all eight parts of the plans are considered equal in terms of scoring. Even though not all parts consist of an equal amount of indicators, there is no part more important than the other. This can lead to either over- or undervaluation of certain characteristics.

Secondly, the determination of plan quality is a snapshot of the situation and does not include a learning element. The development over time should be considered now and later as it may present a more realistic picture of what is happening in reality. This is especially significant for climate change plans as the area is dynamic and is updated regularly as a result of new information and the availability of new techniques.

Thirdly, plan quality does not go beyond the plan: its physical implementation and success is not focused on. While plans do not necessarily lead to effective action (Janicke 2013, Bertelsmann-Stiftung 2013), clear plans and concrete goals are crucial for a successful action plan (Leal & Azevedo, 2016).

Nevertheless, the application of the framework to the sample gives an indication of the quality of the LCAPs. An evaluation of the plans is useful as it gives insights in how municipalities work with climate change and how they plan to take measures to reduce its impacts. The eight elements of determining the climate plan quality are applied to the sample of municipalities in the Netherlands. The evaluation is part of the third research question, and I attempt to find links that possibly affect the quality of plans such as the type of process that was followed leading to adoption of the plan, or a perceived sense of climate responsibility. Climate responsibility is the concept that is considered in the next subchapter.

3.2 Climate responsibility

Who is responsible is an often asked question in relation to climate change. I do not attempt to answer this question. What I intend is to understand how public officials consider their responsibility towards the climate, the perceived responsibilities of higher levels of government, and to find if there is a gap between what is formally asked of municipalities and what they perceive as their responsibility. Keeping in mind the interpretivist perspective, the perception of public officials and how they interpret climate responsibility is a subjective matter.

Prescribed and perceived climate responsibility

Kent (2009) has divided responsibility into two aspects: the first aspect being the formal responsibility, a formal duty as is officially written, and the second as a moral responsibility, which is an informal and a more psychological attribute. Both aspects of responsibility are significant when discussing climate responsibility.

A study on climate adaptation highlights the importance of the difference between *prescribed responsibility* (the formal responsibilities of actors), and their *perceived responsibilities* (what they believe their responsibility is) (Bubeck et al., 2012). The results show a great divergence from the prescribed and perceived responsibilities. Where key actors see other actors taking the lead, they do not engage in taking action or collaborating with these actors who are taking measures, while it might be their responsibility. The perceived responsibility is considered more influential in taking climate action compared to purely prescribed responsibilities (Bubeck et al., 2012). These informal ways of belief can have a great influence on climate action (Trell & van Geet, 2019). What is closely linked to both perceived and prescribed responsibilities is the perception of risk of a policy problem. When the policy problem is perceived as a high risk area, it will more likely result in behaviour to mitigate the risk than when the problem is perceived as low risk (Bubeck et al., 2012; Trell & van Geet, 2019).

Individual and collective climate responsibility

Climate responsibility includes many different aspects. When it comes to the nation state, and its government, scholars have certain views on their climate responsibility. The literature regarding climate responsibility and the government/municipalities, show a diversity of views. Often, the distinction between individual responsibility and collective responsibility is made. Individual responsibility dealing with the *individual*, usually depicted as the *consumer*, whereas collective responsibility is about a *bigger group* such as *society as a whole*, *a country*, or *a government* (Peeters et al., 2019). Kyllonen (2018) argues one cannot create collective responsibility without individual responsibility. She describes the link and interconnectedness of the two and argues that governments *should* take the lead and take collective responsibility as they have the power and resources to take action but also businesses need to do so. Governmental actors should create an environment where individuals can choose for more sustainable options (Kyllönen, 2018).

Authors such as Fahlquist state institutional agents and corporations are responsible for environmental problems and should act accordingly. Fahlquist's definition of responsibility explains why: "individuals who have reasonable alternatives, capacity, and resources to do something about the environment should be seen as responsible" (2009, p. 111). She does not consider individuals responsible for environmental damage, and calls for institutions and corporations to use their power and resources to create an alternative environment in which individuals can choose for environmentally-friendly options (Fahlquist, 2009).

Peeters et al (2019) argue the climate responsibility cannot be *only* a collective or institutional responsibility, as individuals are the one to actually carry out the reduction of greenhouse gases. They discuss the concept of moral disengagement and the resulting displacement of climate responsibility. Individuals do not consider themselves responsible for climate change and their emission of GHG as they do not view climate change as a *moral issue*. Additionally, he found two results from the perception that individuals “make no observable contribution to global warming” (Peeters et al., 2019, p. 9). Namely, morally there is no fault as they do not contribute to climate change, and that individuals cannot make a difference by changing their actions. Another example of moral disengagement is that individuals see the results of global warming as remote and abstract in terms of time and space, and thus out of their control (Peeters et al., 2019).

This relates to the idea of *shared responsibility* and is often used when it comes to local climate mitigation. Not one actor is responsible, as everyone has a certain degree of responsibility, and action should be taken collectively. For example, Trell and van Geet (2019) found, in their research on perceived responsibilities in climate adaptation in the Netherlands, that municipal officials see the responsibility to act climate adaptively as a shared responsibility. The municipality cannot take actions on the property of land owners, the land owners have to take these measures themselves.

With this conceptual and theoretical information from this chapter so far, I want to stress why these aspects are important and how they connect. Climate mitigation policy is often considered in a *multi-level* and *multi-actor* context (Janicke 2013). Every level has their own formal responsibilities, as do the actors involved in climate mitigation plans. In some cases, the responsibilities are divided well, and in some cases there is uncertainty on who has to do what and when. While it might be clearly written what the responsibilities are, that does not mean this is carried out in practice. There might be a gap between the perceived and prescribed perception of climate responsibility.

In my thesis I do not research the actual climate action taken. Instead, I look at the LCAPs of the municipalities and their quality and compare this to the forms of climate responsibility and see if there is a gap. In the context of local municipalities and the actors involved in the development of climate action plans,

However, I also check how the public officials consider the responsibility of different levels of climate governance. I add the multi-level climate governance dimension here as literature on climate responsibility showed action or non-action taken by other actors could influence perceived climate responsibility. Keeping in mind the multi-level nature of climate mitigation policy, this influential perception can also come from different levels.

I add one more element to my research in the following subchapter, a framework that I use to explain why decentralised governments adopt climate goals: the Policy Diffusion Framework.

3.3 Theories of policy change and policy variation

Public policy is defined as: “A course of action (or non-action) taken by a government or legislature with regard to a particular issue” (Knill & Tosun, 2012, p. 4). Keeping this definition in mind, climate goals and their climate plans can be considered a public policy. “The course of action”, which is in this case the adoption of a climate goal and creating an action plan, “taken by a government or legislature”, which is a municipality, “with regard to a particular issue”, climate mitigation. The research on public policy can be roughly divided in two groups: *policy variation* and *policy change*. The former searches for explanations of differences between sectors and countries regarding public policy, and the latter focuses on explaining policy stability and change (Knill & Tosun, 2012). To be more precise on the latter, the research on *policy change* attempts to find explanations for changes in the dominant policy patterns in various policy subjects (Knill & Tosun, 2012). With the adoption of a climate goal, the government creates the formal intention to engage in climate policy and work towards the common goal (Krause, 2011). This might indicate a starting point of new public policy, which means the adoption of climate goals in the Netherlands can be considered a change in public policy.

Policy change is a very complex phenomenon. As it is so complex, theories are needed to simplify reality. A theory aids to demarcate the research. There is no universally agreed upon manner to clarify why policies have changed or are changing (Knill & Tosun, 2012).

Sabatier (2007) discusses several theories on policy processes. Keeping in mind the context of climate goals in Dutch municipalities, how and why they potentially differ, the Policy Diffusion framework by Berry and Berry aims to explain why new policies are adopted in federal states, and how factors inside the state and outside can influence adoption and diffusion to other states. As my research is focused on decentralised governments: municipalities, and how and why they have adopted climate goals, the PD framework is interesting and could help explain goal adoption. A significant part of my research is on perceptions of public officials and how they consider other levels of governments, and the Advocacy Coalition Framework seemed interesting as the belief system of individuals is a core part of the framework. Additionally, it reflects a multi-level and multi-actor environment and includes a broad spectrum of contextual factors that can influence the policy process. These two potential frameworks are discussed in the rest of the chapter, followed by a justification for the framework I chose, and I finish with a synthesis of the concepts and frameworks I use for my thesis.

3.3.1 Advocacy Coalition Framework

A framework that could have been interesting for the research is the Advocacy Coalition Framework (ACF). The framework is developed by Sabatier and Jenkins-Smith (1988) to introduce an alternative to the stage heuristics model (policy cycle model), as it was considered limited (Jenkins-Smith & Sabatier, 1994). The basic idea is that the forming of coalitions between actors with similar interests and their belief system is crucial for policy making (Elgin & Weible, 2013). These coalitions interact with each other and their belief systems are influenced by several stable and dynamic factors (P. Sabatier & C. M. Weible, 2007). Policy change over the long term is assumed, with a time span of around ten years (Jenkins-Smith & Sabatier, 1994).

As the ACF is an extensive framework, I only want to highlight its three core assumptions. (1) The greater part of policymaking is done by specialised actors within a policy subsystem, but their beliefs and behaviour is influenced by factors in the broader socioeconomic and political system, (2)

the existence of the 'model of the individual' which is derived from social psychology, and (3) the creation of coalitions are the best way to reduce the complexity of the multi-actor environment (P. P. Sabatier & C. M. Weible, 2007).

The actors of a policy subsystem are assumed to be specialised in the policy area, and trying to influence its policies. Not only government officials, but also actors such as academics and journalists are included as influencers. The policy subsystem, according to the ACF, has both a geographical (e.g. a municipality) and functional delineation (e.g. energy policy). The actors in the subsystem are assumed to have strong beliefs which can result in actual policy, when enough resources are at their disposal. What influences the beliefs is technical and scientific information on the policy topic. Behaviour is influenced by stable and dynamic contextual factors such as socio-cultural values and social structure and policy decisions and impacts from other subsystems (Paul A. Sabatier, 1988; P. P. Sabatier & C. M. Weible, 2007).

The model of the individual, the second core assumption of the framework, has to do with the normative view of the individual in the ACF. The coalition is seen as a corporate actor (P. A. Sabatier, 1998). It determines good behaviour when the individual follows rules and is interested in the maximization of positive consequences. The belief system of actors is divided into a three-tiered hierarchical belief system, consisted of core beliefs, policy beliefs, and secondary beliefs. The core beliefs are difficult to change (Elgin & Weible, 2013), as they consist of deep beliefs about human nature such as equality, liberty, government vs market regulation, and who should be the authority to make decisions (Jenkins-Smith & Sabatier, 1994).

These beliefs can be divided into the traditional left-wing and right-wing, and have to do with childhood socialisation which is almost impossible to alter (Pierce, Peterson, Jones, Garrard, & Vu, 2017). Policy beliefs are the next level of the hierarchy; these beliefs have to do with the specific policy subsystem (e.g. the Dutch energy policy). Examples are the cause of the policy problem, who is the relevant authority, what role should each actor play, and the seriousness of the policy issue. The next level on the scale is the secondary beliefs, which are the most narrow of all three and most likely to change over time. They deal with detailed information and rules of specific aspects or locality of the policy subsystem. In coalitions, the core and policy beliefs are similar, whereas their secondary beliefs can differ (Pierce et al., 2017; P. Sabatier & C. M. Weible, 2007; Paul A. Sabatier, 1988).

The third core assumption deals with the coalition creation as reducing the complexity of the multi-actor environment. To divide the actors into coalitions with similar deep core and policy core beliefs, the actors are grouped. The categorization result in generally two to five advocacy coalitions per policy subsystem. Several assumptions such as that actors strive for the development of policies before their opponents: they search for allies, resources and develop strategies. Additionally, some degree of collaboration and coordination is necessary for the formation of coalitions (P. Sabatier & C. M. Weible, 2007).

Using the ACF entails mapping the coalitions, the actors and their type of interaction and belief system. Mostly focused on the formation and stability of the coalitions and their strategies (Elgin & Weible, 2013). The ACF is often used in climate change policies to understand the coalition networks that aim to influence climate policies (Aamodt & Stensdal, 2017; Elgin & Weible, 2013; Gronow & Ylä-Anttila, 2019; Kukkonen, Ylä-Anttila, & Broadbent, 2017).

3.3.2 Policy Diffusion Framework

The theory I chose for this research is the policy diffusion framework (PDF). In short, the policy diffusion framework illustrates how a particular adopted policy innovation can vary across subnational governments (Paul A. Sabatier, 2007). Berry and Berry (1990) explain how innovative policy adoption in American states can vary. They combine two different type of models: the internal determinants model and the regional diffusion model. The former explains a government chooses to innovate as a result of specific political, economic and social circumstances of the state, and the latter posits the influence of policy adoptions in neighbouring states as a reason for other states to adopt the policy. Innovative policies are defined as a “program or policy which is new to [the state] adopting it” (Walker, 1969, p. 881). Before, these two models did not interact. The internal determinants model did not include statements on the effects of the region, and the regional diffusion model did not consider internal factors as a possibility for policy innovation (Bassett & Shandas, 2010).

Berry and Berry (1990) use the example of lottery adoption in the USA to illustrate the policy diffusion model. This model was new and allowed these two models to be considered simultaneously (Mintrom & Vergari, 1998). Policy diffusion theorists attempt to explain why a policy is adopted, by external and internal factors. Many studies have taken place in the United States of America (USA), which means the theory is mostly based on a federal democratic state system. Examples of external factors are: competition among federal states, emulation of ideas from perceived legitimate states, or policies created on the national level. These factors focus on circumstances *outside* a federal state, which influence a federal state to adopt certain policies. Internal factors can include the amount of resources a subnational government can use, the demands of citizens, and the economic focus of a state (Berry & Berry, 1990).

While both internal and external factors can be considered important, the PD framework has some limitations. Motta (2018) points out some gaps in the policy diffusion such as too little diversity, which leaves it with a narrow definition of what modern governance is. For example, the commonly used perspective is retrospectivity and diffusion is expected to be horizontal; on the same level of government. Additionally, Dobbin et al (2007) describe more causes than the two models of why governments innovate such as competition amongst each other, cultural norms (e.g. same-sex marriage policies), and persuasion or coercion level of government which is higher than the studied units. Mintrom and Vergari (1998) have suggested adding a policy networking theory, as that is one of the important factors which was not considered in the policy diffusion model at that time.

3.3.3 Policy diffusion and Climate Change Policy

When applying the policy diffusion framework to climate change policies, literature shows several internal and external aspects for policy adoption are deemed important. Internally, the broad topics are commonly divided in economic, political (Armstrong, 2019; Kammerer & Namhata, 2018), environmental (Bromley-Trujillo et al., 2016) and social factors that can influence policy adoption (Armstrong, 2019; Kammerer & Namhata, 2018). Political factors such as the political colour of the government can influence the adoption of climate policies, where more liberal municipalities are more likely to adopt climate change policies (Hui et al., 2019). Social and economic aspects that can indicate a higher likeliness of the adoption of climate policies are high levels of educations, support for the environment, the strength of environmental movements, and income (Armstrong, 2019; Bromley-Trujillo et al., 2016). Environmental factors include the vulnerability to climate change effects (Hui et al., 2019), and the risk perception concerning climate change. Moral considerations

can play a role, and co-benefits of climate action such as saving costs by increasing energy efficiency or GHG reduction as it also reduces air pollution can make states engage in climate change policies (Armstrong, 2019; Kammerer & Namhata, 2018).

External factors that might explain the diffusion of climate policies is the location, the closer the more likely policies are to diffuse, especially among neighbouring governments (Armstrong, 2019; Hui et al., 2019). However, geographical proximity is not the only reason for policy diffusion, scholars have found policies on higher levels (e.g. EU) (Bromley-Trujillo et al., 2016; Kammerer & Namhata, 2018) and the engagement with transnational municipal networks (Rashidi & Patt, 2018) as influential in diffusion.

An interesting observation by Hui et al (2019) is that internal determinants might play a larger role with early adopters of climate policies, and diffusion potentially becomes a more significant factor when climate policies are more established in a country.

3.3.4 Policy Diffusion vs Advocacy Coalition

Both frameworks were potential candidates to serve as a base for my research. What both frameworks attempt to explain is at the core when deciding whether to use a framework or to not use a framework. My choice to use the PD framework instead of the ACF is elaborated upon below.

Concerning the ACF, I found several challenges when applying the theory to guide my research. The ACF seeks to explain the influence of coalition forming and interaction on policy making/policy process. While this might be significant, it does not explain why a certain policy came to be and what the factors are that could explain a variety between municipalities. While I believe the political context is important, it is not broad enough to support my research questions. The political context and the interactions between coalitions may be an important factor to why subnational governments adopt local goals, but I attempt to understand a broader context, including social factors, economic factors, the feeling of responsibility and how this relates to climate action plans. My research questions are on the views of public officials, and to understand why municipalities adopt goals, and do not extend to understanding the wider policy network around it. In this part, the ACF is very detailed and incorporates more stakeholders than only public officials, while my focus is not on a detailed stakeholder analysis.

The PD framework fits well in my research for several key reasons. Firstly, I chose the PD framework because of what it aims to explain. One of my central questions is *why do Dutch municipalities adopt local climate goals* when this is not demanded from the national government. Similarly, the PD framework aims to explain exactly this: why do states/decentralised governments engage in innovative policies. Secondly, the broad influence of factors used is interesting as it leaves much room for interpretation and a broad diversity of reasons, ranging from social, economic, environmental, and political to networks. Part of my research is guided by the factors deemed important by policy diffusion scholars: internal and external factors. Additionally, the theory is relatively simple and straightforward, and it has been adapted by authors to fit modern policy making. The framework is used to research local climate change policies and to find differences between decentralised governments. What the PD does, is create a framework to which I can see what internal and external factors are important to take into account when analysing the reasons for climate goal adoption. I use the framework for my second research question, to guide me in analysing the reasoning of public officials. Figure 3 shows the main concepts that I use to guide my research.

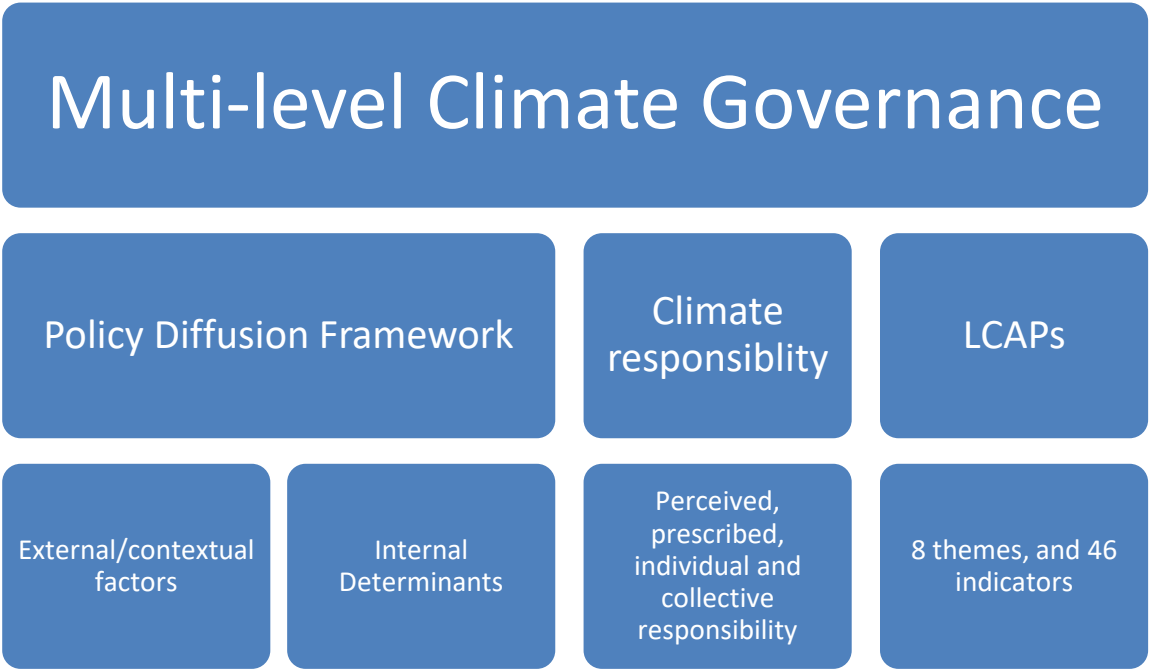


Figure 3 Overview of key concepts guiding the research

The following chapter goes into more detail on multi-level climate governance.

4. Multi-level climate governance in a local context

Climate change is a global issue that transcends borders. It should come as no surprise that policies to combat climate change are created on multiple levels: international, regional, national, and the subnational level. Climate policy is characterised by a shift from government to governance; key actors involve not only governments, but also civil society and market actors as they are all affected by and contribute to the effects of climate change (Driessen, Dieperink, van Laerhoven, Runhaar, & Vermeulen, 2012). The climate policy arena includes both bottom-up and top-down approaches, from local energy initiatives to the PA's global goal to keep "the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels" (UNFCCC, 2015, p. 3). Additionally, a cross-sectoral approach is necessary to adequately tackle the issue as multiple sectors cause GHG emissions. An illustration of the multi-level and multi-actor characteristics of multi-level climate governance (MLCG) is given below in figure 4.

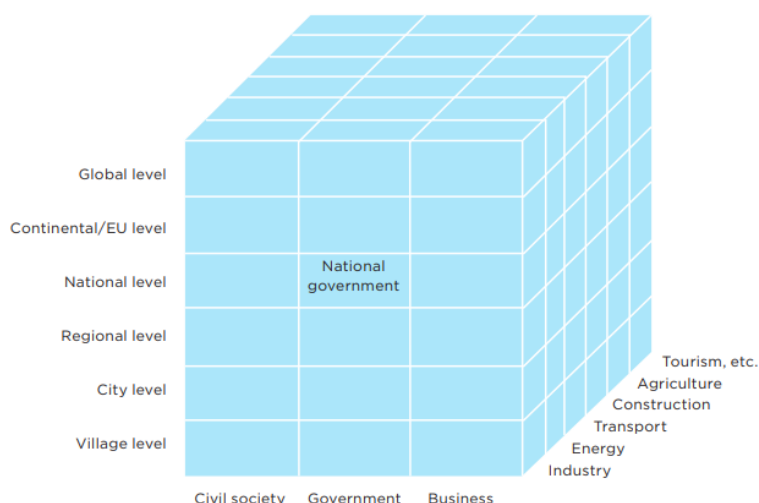


Figure 4 Model of multi-level/multi-sectoral climate governance (Jänicke, 2013)

Figure 4 shows the different actors, levels and sectors involved in MLCG, but does not explain how these building blocks of climate governance can interact. All levels have the opportunity to interact. The possible interactions are illustrated in figure 5.

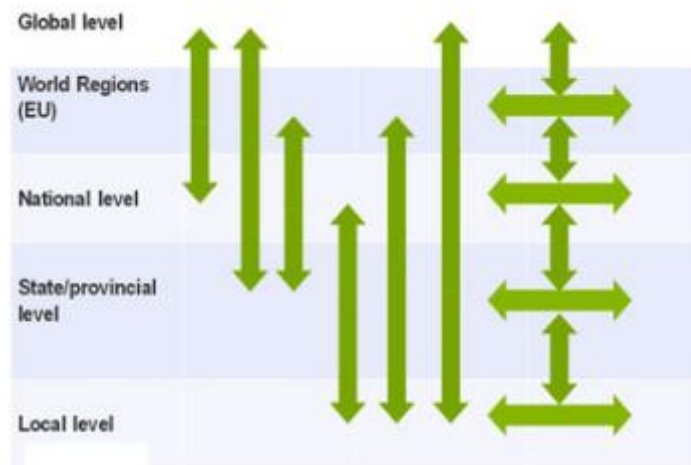


Figure 5 Interactions between and within levels of governance (Jänicke, 2015)

Figure 5 shows interactions can happen within and between all levels of governance. The essence of MLCG is that these levels and the relationship between them are *mutually dependent*, as the actions of all levels have an effect on the other levels, and there is *multi-level reinforcement*, as each level links explicitly or implicitly to another (Janicke 2013). Kern (2014) writes on the influence of international climate negotiations on lower levels of governance, and vice versa. For example, the PA and the trickling down of the common goal that transforms into climate strategies on other levels of climate governance.

Below, every level of governance and the key developments in climate mitigation policy relevant for the Netherlands are described: from the broad international level, funnelling down to the local level. An understanding of the policy developments on the different levels are significant as it shapes and increases the understanding of the context for the municipal case studies. I focus mostly on the most important agreements and strategies that are useful for the rest of my thesis.

4.1 International level

Climate change policy on the global level is characterised by three major milestones, displayed in figure 6. These three events have helped to shaped climate policies all over the world.

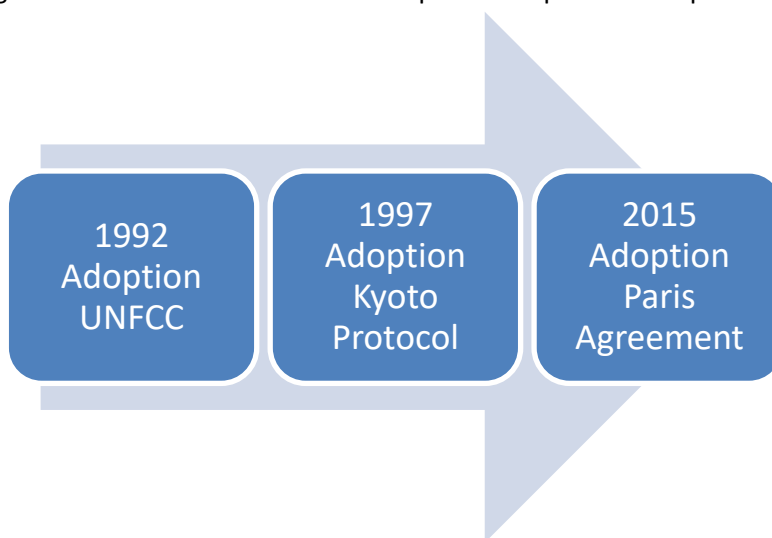


Figure 6 Timeline key international climate agreements

UNFCCC

The UNFCCC was adopted and ratified in 1992 by its 197 Parties to the Convention, and entered into force in 1994 (UNFCCC, 1994) and provides the foundation for climate regulation globally since then. The parties: national governments, come together annually during formal meetings: Conference of the Parties (COP) (United Nations, 1992). The aim of the Convention is to find a way to mobilise countries globally to reduce and stabilise GHG which “would prevent dangerous anthropogenic interference with the climate system” (United Nations, 1992, p. 9). The means to reach this objective are the agreements and protocols it has produced over the years such as the Kyoto Protocol and the Paris Agreement.

The UNFCCC is guided by two main principles, the principle of equity and common but differentiated responsibilities and respective capabilities. These norms take into account the different circumstances of the signatories (United Nations, 1992). As a result, responsibilities under the UNFCCC and its agreements are differentiated between developed and developing countries. Developed countries are expected to take the lead in climate action, provide financial support to developing countries, calculate their GHG emissions, and report on their progress. Developing countries can choose to take part in these responsibilities at any time (United Nations, 1992).

Kyoto Protocol

The first instrument created by the UNFCCC was the Kyoto Protocol, at COP 3 in Kyoto, Japan in 1997. This protocol produced the first global quantitative targets to reduce GHG emissions, agreed upon by 55 Parties to the Convention (United Nations, 1997). These parties were mostly countries from the European Union, and some countries outside of the EU: Australia, Canada, Japan, New Zealand, US, Russia, Ukraine, Norway and Iceland. The target for the parties was a reduction of GHG “by at least 5 per cent below 1990 levels” (United Nations, 1997, p. 4) by 2012. Together, the parties emitted around 55% of the total GHG emissions globally. The protocol did not enter into force until 2005, and its first period of commitment was the four-year period 2008-2012 and its second period of commitment started in 2013 and finishes in 2020. For the second commitment period, the parties committed to at least 18% emission reduction in the commitment period (UNFCCC, 2012). Not all parties committed to the first period are the same compared to the parties that committed to the second commitment period (UNFCCC, 2012).

Three market-based mechanisms were developed to support the participating countries in their GHG emission reduction: the international emissions trading, the clean development mechanism, and joint implementation. These instruments are still used to date (UNFCCC, 2012). Next to instruments to support the aim of the Protocol, means to monitor the progress of the parties are implemented. The parties are expected to take domestic action to reach the set targets, and to send in annual GHG inventories to monitor their progress. These submissions are verified by an international transaction log recorded by the UN Climate Change Secretariat (UNFCCC, 2012).

While the Kyoto Protocol is a legally binding treaty to reduce GHG emissions (European Commission, 2013), it has several participatory weaknesses. The major emitters were not part of the Protocol, the US never ratified the Protocol, and developing countries were not part of the Protocol (Santos, 2017).

The Paris Agreement

It was widely considered that a new universal agreement was necessary to increase global climate action and participation. The negotiations have led to the PA's goal. The PA was signed by all UNFCCC members in December 2015 (Morgan & Northrop, 2017), and will formally enter into force in 2020. Currently, 187 out of 197 parties to the Convention have ratified the agreement.

The Paris Agreement obliges countries to take national climate action, send in their NDCs and strengthen their efforts every five years. National governments can formulate their own climate policies to a large extent (Dimitrov, Hovi, Sprinz, Sælen, & Underdal, 2019).

The efforts by the Parties are monitored in the Enhanced Transparency Framework. This framework consists of three core elements: reporting, technical review and analysis, and multilateral process. The framework differentiates between the requirements of developed and developing countries: developed countries are expected to adhere to stronger regulations compared to developing countries. The framework tracks the progress and oversees whether parties will reach their NDCs (UNFCCC, 2018).

While subnational levels and non-state actors are formally not signatories of the PA, the PA does mention these actor and levels in its preamble: "Recognizing the importance of the engagements of all levels of government and various actors, in accordance with respective national legislations of Parties, in addressing climate change" (UNFCCC, 2015, p. 2). Local levels and non-state actors are included by means of Non-State Actors' Zone on Climate Action (NAZCA) and the Covenant of Mayors (CoM) which are both founded by the UNFCCC (de Macedo & Jacobi, 2019). The CoM is a network of municipalities and cities that want to go beyond national climate goals, and adopt the EU's 2030 mitigation goals: a GHG reduction of at least 40% (CoM). Non-state actors can send in their climate reduction actions to the NAZCA, which aggregates all climate actions and tracks the progress and contributions of NSAs in reducing emissions (NAZCA).

4.2 EU level

The EU level is more substantial than the global level, as it has legally binding rules as a result of its supranational authority through majority voting on some issues (Jänicke, 2017; Miranda Schreurs & Tiberghien, 2007). When it comes to climate policy, EU is considered a leader and strong advocate (S. Fischer & Geden, 2015; Oberthür & Roche Kelly, 2008; M. Schreurs, 2017). In September 2019, the EC reiterated the EU's "commitment to accelerated climate ambition" (European Commission, 2019d).

The EU has created climate goals and commitments over time. Below, in figure 7, is an overview of the goals the EU has adopted from the Kyoto Protocol until today. I describe the separate mitigation packages and frameworks shortly, and finish with monitoring measures.

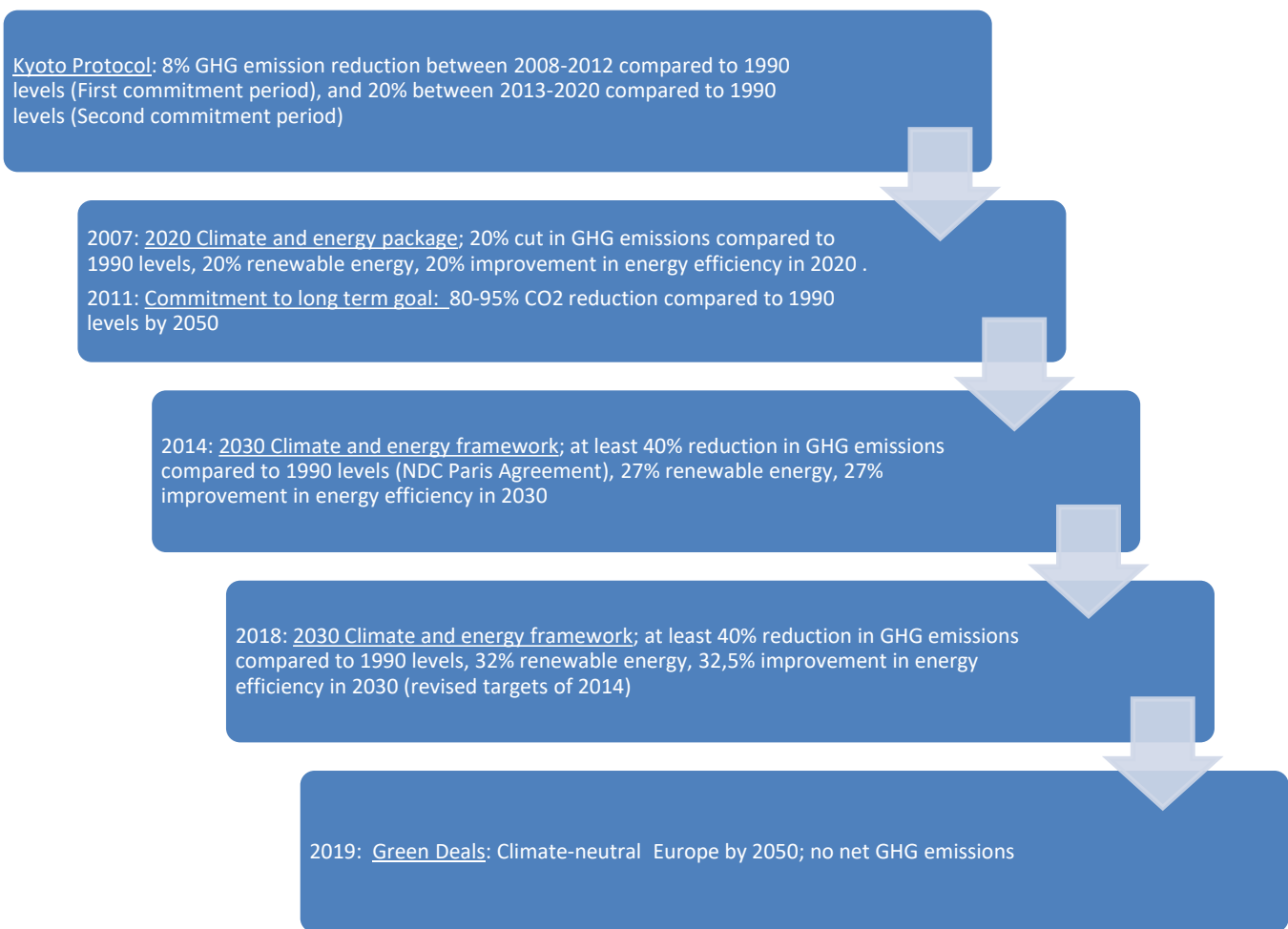


Figure 7 Timeline climate targets adopted by the EU (European Commission, 2007, 2013, 2014b, 2018, 2019c)

Kyoto Protocol

The EU has signed the Kyoto Protocol and has pledged an 8% GHG emission reduction compared to 1990 between 2008-2012. For each country that was part of the EU at that moment: 15 countries, specific targets were linked to their “relative wealth” (European Commission, 2013). For the second commitment period (2013-2020), the EU and its 28 member states’ goal was to reduce GHG emissions by 20% compared to 1990 levels by 2020. The Netherlands’ specific goal was a reduction of 6% compared to 1990 between 2008-2012.

The European Emissions trading system (EU ETS) was created in 2005 and is an important instrument to reduce GHG emissions. The EU ETS is the biggest emissions trading system in the world (European Commission, 2005). It aims to reduce emissions from large energy users in the aviation, industry and power sectors. The EU ETS covers 45% of EU’s GHG emissions (European Commission, 2007). The basic idea of the emissions trading system is the cap-and-trade principle. The member states buy or receive allowances for emissions, and over time, less and less emissions are allowed to be emitted by the sectors the EU ETS covers. The cap is lowered and this results in a reduction of GHG emissions (European Commission, 2005).

The EU has finished its first commitment period with successful results: the 8% reduction target was reached (European Commission, 2013). For the second commitment period, the EU is on track and expected to reach the set goals (European Commission, 2019f).

Responsibilities under Kyoto in the EU differ between the EU and the member states. The EU is responsible for the emissions covered in the EU ETS, and the member states for their national emissions in sectors not covered by the EU ETS (European Commission, 2019e).

2020 Climate and Energy Package

This package is created in 2007, before Kyoto's first commitment period started. The key tool is the EU ETS. The goal of the second period of Kyoto and the 2020 C&E package seems similar, but there are several differences such as the coverage of different sectors, the use of different base years, and the C&E package includes goals for renewable energy and energy efficiency (European Commission, 2019f).

The member states have set national targets for emission reduction, renewable energy and energy efficiency. These national goals should cumulatively account for the 2020 goals in figure 7. The Netherlands had pledged to reach a more ambitious goal by 2020: to reduce its GHG emissions by 30% compared to 1990 levels, increase its renewables to 20% and to increase its energy efficiency by 2% a year. The expectation is that the EU will reach its goals set for 2020 (European Commission, 2019f; European Environmental Agency, 2017).

For the period after 2020, a new framework was necessary to continue with the ambition to further the ambition towards a low-carbon economy and a lower dependence on the import of energy (European Commission, 2014a).

2030 Climate and Energy Framework

For the coming period 2021-2030, the 2030 framework was created. New and revised targets were set by the EU (see figure 7) in 2014, and revised in 2018. The 2014 goals for the Netherlands were in line with the average EU ambition. Currently, the national goal of the Netherlands is a reduction of 49% in CO₂ emissions in 2030, which is an increased ambition. The EU ETS continues to be a central instrument to reduce emissions (European Commission, 2018). Compared to the 2020 framework, existing legislation was updated or new legislation was implemented. There are four key inclusions: a revision of the EU ETS, national targets for sectors not included in the EU ETS, integrating land use, land use change and forestry (LULUCF) in climate targets, and a new legislation on renewable energy, energy efficiency and governance of the Energy Union and Climate Action was created (European Commission, 2019f). The framework is more expansive and covers more sectors compared to the 2020 framework.

The member states created National Climate and Energy Plans (NECPs) for the period 2021-2030. The final plans had to be handed in at end of 2019 (European Commission, 2019f). In 2023, there will be an upward revision for the set targets (European Commission, 2019f).

Green Deal

The most recent EU climate mitigation policy is the Green Deal. The Green Deal was formally introduced at the end of 2019 by the European Commission. The goal is to become the first climate neutral continent of the world by 2050, which means there should be net-zero GHG emissions in 2050 (European Commission, 2019c). The long-term ambition of the Netherlands is close to consistent with the EU's Green Deal: 95% CO₂ reduction by 2050. The use of natural resources and the link to economic growth will be separated. The Green Deal does not only focus on climate mitigation, but aims transform the current economic system to a sustainable system. This includes

topics such as climate adaptation, well-being and health of its citizens, vulnerable parties and regions, and the increase of alliances and participation (European Commission, 2019c).

The current targets presented in the 2030 framework are planned to increase by summer 2020, when the EU presents “an impact assessed plan” (European Commission, 2019c). The increase in ambition is expected to be at least 50% GHG reduction compared to 1990 levels, towards 55%. In 2021 the EC will revise several instruments as well as the ambitions by the Member States. The Member States are expected to take the increased ambition into account in their NEPCs that are updated in 2023 (European Commission, 2019a). The Green Deal iterates that the member states hand in the NEPCs, obliged under the 2030 framework (European Commission, 2019c). Additionally, the Green Deal emphasises the necessity of commitment of actors apart from governments. It calls for stakeholders and citizens to be and get involved, as it is critical for its success (European Commission, 2019c).

Monitoring

Monitoring in the EU is arranged in the Climate Monitoring Mechanism, which is in line with internationally agreed upon rules and obligations. This mechanism requires Member States to report on national climate actions and strategies, and monitor their emissions. The mechanism will be updated and replaced by the first of January 2021 by the Regulation on the Governance of the Energy Union and Climate Action (European Commission, 2019b). The aims of the updated mechanism is to reduce the amount of administrative measures the member states have to take, to bring the new monitoring mechanism in line with the requirements of the PA with regards to transparency, and to make it suitable for monitoring progress in the 2030 framework (European Commission, 2019b).

EU support

To support national governments and subnational governments and to spark climate action, the EU has opened up several funds and subsidy measures (Kern, 2014). An example of an EU fund is the Innovation Fund of around 10 billion euros which funds projects related to innovation in climate neutrality in the EU. The four areas the funding program support are: (1) energy intensive industries, (2) renewables, (3) energy storage, and (4) carbon capture, use and storage. Different types of projects and stakeholders can apply for a fund, from large projects that will bring substantial emission reduction, to small projects under 7,5 million euros. Small-scale projects are supported by simplified procedures. The fund consists of five criteria that every application has to be evaluated against: cost efficiency, scalability, project viability and maturity, degree of innovation, effectiveness of GHG avoidance (European Commission, 2020).

4.3 National level

In the past 20 years, the Netherlands has created several agreements, regulations and subsidy measures to accelerate the reduction of GHG and to motivate other parties apart from the national government to participate in climate change mitigation measures. This section highlights several policies initiated by the national government which are relevant to understand the climate context in the Netherlands and how it has developed over time, with the EU and international context in mind. Not all policies are mentioned here, but only the policies relevant for the local municipal context and related to climate mitigation. The section is divided in the different coalitions: Cabinet Kok 2 from 1998-2002, cabinet Balkenende from 2002-2010, and cabinet Rutte from 2010 until today. The names of the different cabinets indicate the name of the prime minister at the time.

The first Dutch climate policy actions were introduced at the end of the 1980s as a response to the Brundtland report in 1987 (T. Hoppe, M. M. van den Berg, & F. H. J. M. Coenen, 2014; Miranda Schreurs & Tiberghien, 2007). The first Dutch goal to reduce CO₂ was set in 1990: 3% CO₂ reduction in 2000 compared to 1990 levels, as agreed upon in EU context (VROM, 1999). However, in 1998, monitoring showed the GHG emissions had only increased. After this, climate goals became more ambitious and climate strategies were created to support the goals (VROM, 1999). The climate goals for the Netherlands can be found in figure 8 below.

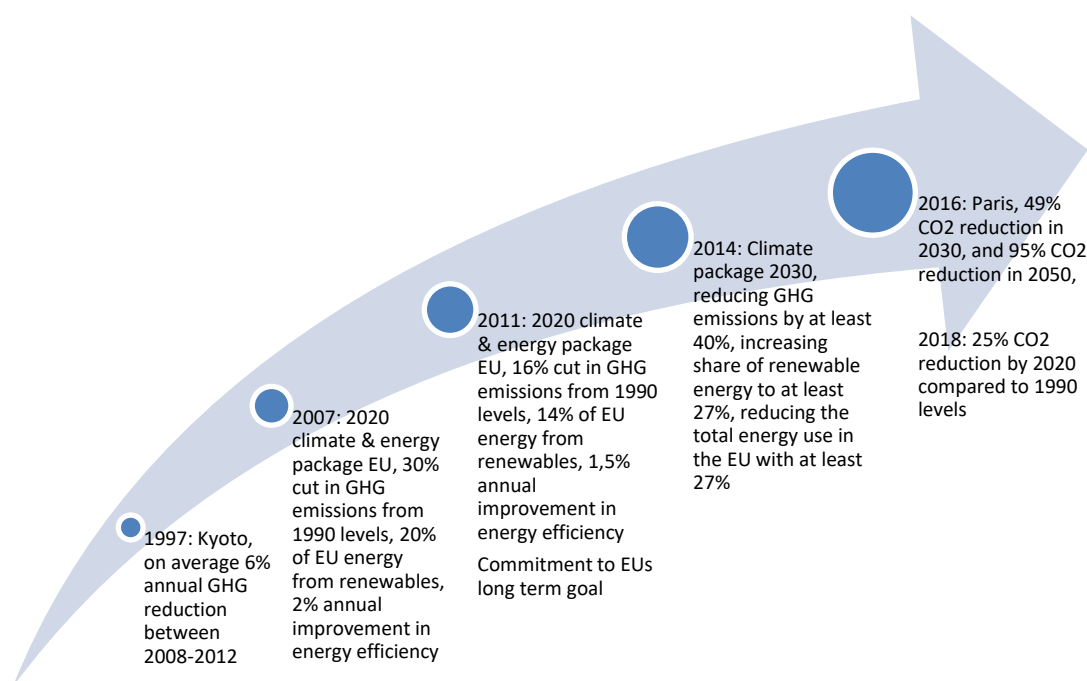


Figure 8 Dutch national climate goals

Cabinet Kok 2: 1998-2002

In relation to the Kyoto Protocol, the ministry of housing, spatial planning and environmental management (VROM), has created a plan for the implementation of climate policy, which stated how the Dutch government is planning to reach its specific national target of 6% GHG emission reduction required by the Kyoto protocol and EU between 2008 and 2012 compared to 1990 levels. Additionally, the plan discussed preparations for after 2012 in terms of technological developments and innovations relating to climate policy (VROM, 1999).

A climate covenant was signed by the umbrella organization for the twelve provinces, IPO, the umbrella organization for all municipalities (VNG) and the national government in 1999, and a subsidy measure: the new style government agreement (BANS), was implemented to support subnational governments (VROM, 2002). The goal was to motivate municipalities and provinces to increase their efforts in reaching the set climate goals of the national government. The subsidy was available from 2004 to 2007. Subnational governments could apply for a basic package subsidy by creating climate plans including three elements: (1) energy efficiency measures in the built environment, (2) actively stimulating renewable energy, (3) and four goals related to climate policy in theme of their choice. A plus package could be applied for, which included six additional goals related to climate policy, for which municipalities would receive more money (VROM, 2003). The amount of money available for the subsidy was 38,5 million euros (VROM, 2002).

Cabinet Balkenende 1-4: 2002-2010

During the next coalition period, a new working program was created, with improved climate targets, and an additional agreement and subsidy measure were introduced.

New energy for climate: Working program clean and economical

A new working program was introduced in 2007. In this year, the EU 2020 energy and climate package was negotiated, and the 2020 goals were created (see figure 7) (European Commission, 2007). The Dutch climate goals were the following: a 30% reduction of GHG emissions by 2020 in comparison to 1990 levels, an increase in renewables by 20% in 2020, and an energy efficiency increase of 2% a year (VROM, 2007). Now, not only GHG emission reduction was part of the national goals (the Kyoto target), but also an increase in renewable energy and energy efficiency became part of the Dutch climate goals. The working program was an implementation plan and focused on the following six themes: the built environment, the energy sector, industry, mobility, agriculture and horticulture and other GHG (VROM, 2007). Strategies per theme were introduced, and national measures and European measures such as the Emissions Trading System (ETS) were combined. This working program provided 262 million euros for initiatives from governments and citizens from 2007-2011 (VROM, 2007).

Climate agreement municipalities and national government 2007-2011

In 2007, a climate agreement between the VNG and the national government was signed to complement the working program. This agreement focused on the potential role of municipalities in climate policy, and how they could increase their climate action. The climate goals of the working program were emphasised and the different roles of the municipalities such as, the exemplary role, the facilitating role, the stimulating role, and the role of innovator, were discussed. The climate agreement and innovations were especially focused on the group of ambitious municipal leaders in climate policy (Rijksoverheid, 2007). Several goals and measures were discussed such 75%

sustainable procurement in 2010 and 100% in 2015, new construction should be energy neutral in 2020, and 50% of the existing built environment should be energy neutral in 2020. These ambitious goals were meant to accelerate the energy transition (Rijksoverheid, 2007).

SLOK subsidy

The successor of the BANS subsidy (which was in place from 2003-2007 (VROM, 2003), the Stimulation Local Climate Initiatives (SLOK), was introduced in 2008 to, again, support subnational governments in their climate policies. The SLOK subsidy was in place from 2008-2012, presented in support of the climate agreement 2007-2011. SLOK stands for stimulating local climate initiatives (Rijksoverheid, 2008). SLOK differs in various ways from BANS. Where the BANS was focused on CO2 reduction, the SLOK subsidy targeted GHG emissions. Additionally, as opposed to two packages, the SLOK offered three different levels of ambition: active, frontrunner, and innovative. Active being the basic package, and innovative the most ambitious package. Moreover, compared to the BANS subsidy, more themes were involved, and the subsidy prescribed the ambition level which the municipality could follow. For example, the energy efficiency measures, for the active, frontrunner and innovative level of ambition stated respectively, 2%, 3% and 4% annual increased efficiency on energy used within the municipality (Rijksoverheid, 2008; VROM, 2003). The SLOK was more detailed compared to BANS.

Cabinet Rutte 1-3: 2010-Present

The next period in Dutch climate mitigation policy broke with the previous ambitious goals and measures. The previous ambitious goals were reduced to EU level goals, and subsidies after the SLOK was finished were not as numerous anymore until 2018 as the focus of the agendas and agreements were mostly on knowledge-sharing and bringing parties together.

Lokale Klimaat Agenda (LKA) 2011-2014

The local climate agenda 2011-2014 consists of five themes: built environment, mobility, market, energy, and the climate neutral city and region. The agenda stated the important role of subnational governments and created actions for local, regional, and the national government. The ambition was lowered compared to the working program in 2007, without a scientific explanation (*Climate Case Urgenda*, 2018). The climate agenda committed to the Dutch goals in the EU: 20% CO2 reduction and 14% renewable energy in 2020. A long term goal, which was introduced by the European Committee in 2011, was also committed to: 80-95% CO2 reduction in 2050. The LKA was aimed at reaching the goals, to scale up existing projects that both support climate and the economy, and to increase collaboration between the different layers of government (Ministerie van Infrastructuur en Milieu, 2011). The LKA was mostly based on knowledge-sharing, and did not provide supporting financing for decentralised governments. The expectations of the results the LKA could bring were high, which was not the case as the focus was on knowledge-sharing instead of on direct climate mitigation results (K plus V, 2015).

SER-Energieakkoord 2013

The energy agreement for sustainable growth of 2013 was initiated by the Social-Economical Council (SER), to facilitate the process towards reaching the climate goal in 2050. Not only governments, but also different parties such as energy companies, NGOs, housing corporations, trade unions, and environmental organizations signed the energy agreement, in total 47 parties signed the agreement

(SER, 2013). The following goals were agreed upon: 1,5% annual energy efficiency, 14% renewable energy in 2020 and 16% renewable energy in 2023. Additionally, 15.000 new fulltime jobs were aimed for. The focal points were 4 roundtables: (1) built environment, (2) industry energy and ETS, (3) commercialisation innovation and clean energy technologies, and (4) mobility and transport, resulting in 10 key topics (SER, 2013).

Subnational government pledged to create local spatial policy for decentralised renewable energy (SER, 2013). The finances to support the signatories of the agreement consisted of around 1,4 billion euros to support several key topics, and a financial program was introduced to be able to borrow money and invest in renewable energy, as small-scale projects experience financing as a challenge (SER, 2013). The Planning Bureau for the Living environment (PBL) calculated if the concrete measures would have the potential to reach the set goals, and it was possible in the most optimistic scenario (PBL, 2013). In 2016, the Kwink group evaluated the energy agreement. The parties were not on their way to reach the goals concerning energy efficiency and the share of renewable energy (Van Mill, Noordink, Van Schelven, & Westerbeek, 2016).

Energieagenda 2016

The energy agenda was focused on the long term goal for 2050, which was similar to the EU goal of 80-95% CO₂ reduction compared to 1990 levels in 2050. Four topics (electricity sector, low temperature heat, high temperature heat, mobility) and transition paths per topic were created (Rijksoverheid, 2016). The agenda stated municipalities should get responsibility for the local energy transition and the heat transition (fossil fuel free heating) and direct these transitions.

For municipalities, the energy and heat transition in the built environment became part of their responsibility, as local governments were most familiar with the local energy provision and actors that could support the energy transition. Municipalities were expected to create plans for the energy and heat transition (Rijksoverheid, 2016). The national government would provide policy frameworks to support parties to actively participate in the energy transition. The energy agenda calls for all parties (civil society, market actors, governmental actors), to contribute to the energy transition (Rijksoverheid, 2016).

Regeerakkoord: faith in the future 2017 - 2021

The coalition agreement of 2017-2021 consists of the key topics addressed in the coalition period. It includes a section on sustainability, with the topics climate and energy, mobility, natural gas extraction, agro-food, and living environment. The agreement iterates the EU's commitment to the Paris Agreement, and the climate goal specific to the Netherlands: 49% GHG reduction compared to 1990 by 2030 (Rijksoverheid, 2017a). The Dutch goal was 9% higher than the overall EU goal at the time.

The responsibility for leading the energy transition for the Built Environment for decentralised governments was restated. The coalition promised a national climate and energy agreement which should include concrete measures and strategies to reach the goal for 2030 (Rijksoverheid, 2017a). In 2019, this climate agreement was finalised (Rijksoverheid, 2019).

Klimaatakkoord 2019

The most recent agreement is the Climate Agreement of 2019. Its central goal is 49% GHG emission reduction in 2030. Additionally, the national government has to reduce its GHG emissions by 25% compared to 1990 levels by the end of 2020 as a result of the Climate Case Urgenda. Urgenda, a

foundation that aims to accelerate sustainability transition in the Netherlands, sued the Dutch state. Urgenda demanded more climate action from the Dutch government as it had been lacking until then. The court ruled in Urgenda's favour, obligating the national government to reduce GHG emissions by at least 25% compared to 1990 levels by the end of 2020 (*Climate Case Urgenda*, 2018). In the High Court, after the appeal of the national government, the appeal was overthrown and the verdict of the 25% GHG emission reduction was restated (*Climate Case Urgenda*, 2019).

The Climate Agreement consists of five climate roundtables: built environment, mobility, industry, agriculture and land use, electricity. Decentralised governments were present at these negotiations, as well as other significant actors which are necessary to successfully implement the energy transition. Parties such as NGOs, institutions, network operators, housing corporations and more are included (*Klimaatakkoord*, 2019). The focus of the agreement is on collaboration, the allocation of responsibilities and concrete measures to reach the central goal.

An important aspect for decentralised governments is the Regional Energy Strategy (RES). The country is divided in 30 energy regions, which are expected to create a strategy for two of the roundtables: electricity and built environment. Financial support for the creation of the plan is 22,5 million euros per year between 2019-2021 (*Klimaatakkoord*, 2019). The amount of money the regions can apply for depends on the following factors: the number of participating governments, the number of inhabitants, and the size of the region (Nationaal Programma RES, 2019).

Now, for the first time provinces and municipalities *have to* commit to the energy transition. There are two deadlines. First, the RES, for which a concept version is expected from all 30 RES regions by 1 June 2020. Then, the second deadline is for a transition vision for heat which has to be created before the end of 2021. It should include plans on becoming natural-gas free (*Klimaatakkoord*, 2019).

The climate agreement is the first climate plan related to the climate law (Rijksoverheid, 2019). The climate law makes the long term goal of 95% GHG reduction in 2050 binding (Minister van Economische Zaken en Klimaat, 2019). A significant aspect of the climate law is the creation of a climate plan, which should be revised every five year (Rijksoverheid, 2019). Monitoring will be done by the PBL. It will annually calculate the emissions and progress made by the country (Rijksoverheid, 2020).

4.4 Subnational level

Before 2019, the formulation of climate goals has been a political choice for decentralised governments (T. Hoppe et al., 2014; Van Dijk, 2018). While the Dutch national climate mitigation agreements were signed by municipalities and provinces, no hard regulations have been set to create climate goals. Informally, decentralised governments are responsible for the implementation of the trickled down climate goals of the PA to the EU, and eventually the Netherlands. Local implementation of climate mitigation policies is crucial to goal realisation (T. Hoppe et al., 2014; Kern, 2014).

Provincial level

An important body on the provincial level is the Interprovincial Deliberation Body (IPO). The IPO is an umbrella organization and represents the twelve provinces (IPO, 2015b) in, for example, the climate agreement negotiations.

Since 2008, the provinces collaborate in the areas energy and climate. They aim to find a balance between the following key topics: spatial preconditions, sustainable economy, innovation,

employment and mobility. Formal responsibilities of provinces include e.g. the allocation of wind energy on the mainland, determined in the 2013 Energy Agreement, to contribute and reach the goals for 2020 and 2023 (respectively 14% and 16% of renewable energy) (IPO, 2015a).

As a response to the 2013 Energy Agreement, the Interprovincial Collaboration Energy Transition and Economy, was created. Three key clusters, of which the first is the implementation of the agreements made on wind energy on land, create plans to reach the 14% renewable energy goal by 2020 which take into account regional economy, innovation and employment, and the creation of spatial plans on the allocation of renewable energy in combination with sustainable regional economic development. The second cluster has to do with the increase in energy efficiency in the following segments: businesses, heat, biomass, and public transportation. The third and last cluster includes the collaboration and knowledge-sharing, and to optimize the policy instruments they need to implement measures for the energy transition (IPO, 2014).

Concerning the energy transition, provinces created the strategy called “trias energetica”, they first focus on energy efficiency, then on renewable energy and as a last resort, on producing energy with the least polluting fossil fuels (IPO, 2015a).

Furthermore, most provinces have created their own climate goals. More on the climate goals of provinces can be found in chapter 4.

Climate Agreement

In the Climate Agreement of 2019, several topics are important for provinces where they have a certain amount of influence: mobility, industry, and supervision.

Mobility: Shared responsibility with national government and municipalities to ensure enough charging infrastructure for electric cars, and to reduce the CO₂ emissions from large-scale infrastructural building projects. In collaboration with municipalities in the province, provinces will create Regional Mobility programs to stimulate zero-emission mobility (IPO, 2019).

Industry: another significant topic for decentralised governments in the heat transition. Provinces are stimulated to link the heat transition with industry, to supply and generate heat for the built environment. Additionally, the decarbonisation of industry is discussed at the provincial level (IPO, 2019).

Supervising authority: provinces supervise a large part of businesses and is the licensing authority. Provinces are expected to stimulate the decarbonisation of industry and businesses by CO₂ taxes, and the creation of norms concerning energy efficiency. Provinces are the authority to ensure the goals for industry and mobility are reached (IPO, 2019).

Municipal levels

The umbrella organization for municipalities is the Association of Dutch Municipalities (VNG). The VNG represents the 355 municipalities in negotiations and acts as a united voice. Similarly to the IPO, the VNG has signed national climate agreements on behalf of the municipalities (VNG, 2020b).

Concerning climate mitigation, the period until 2011 was characterised as promising. Hoppe, van den Berg and Coenen (2014) have researched the uptake of climate change policies in Dutch municipalities, and found that a great majority (95%) of the municipalities had created plans for climate mitigation. Additionally, climate change became a widely accepted topic on the political

agenda: climate change was a regular theme in election manifestos. The SLOK subsidy was applied for by 82% of the municipalities, and most municipalities searched for renewable energy production opportunities in their spatial plans. Stakeholder participation in the production of renewable energy was considered important by 59% of the municipalities, which stated they actively involved stakeholders in this matter (T. Hoppe et al., 2014).

After 2011, the upward trend in climate mitigation halted. More than half of the municipalities which were involved in the 2007 climate agreement, had cut the amount of mitigation projects they started. The SLOK subsidy ended in 2011, which can be considered a turning point in local climate policy. Widespread confusion about climate goals, who was the responsible party to reach these goals and to implement measures, was present among municipalities. There was seemingly no coordination and municipalities had difficulties in implementing projects, evaluating them, and to fit their policies to their often overambitious goals. Half of the municipalities would not reach their set climate goals (T. Hoppe et al., 2014).

After 2014, the PBL has researched municipalities and their climate policies in the period 2014-2018. The results from this research show interesting results. The extent to which municipalities engage in the energy transition varies greatly between municipalities. The municipalities that implement measures for climate mitigation are often large municipalities that have been considered front-runners from the beginning (De Vries, Vringer, Wentink, & Visser, 2019). The majority of the municipalities did not take or barely took measures to implement the energy transition by mid-2018. The research illustrates several challenges municipalities experience regarding climate mitigation policies: the lack of (technical) knowledge on the energy transition, insufficient financial resources, and not enough staff to work on the energy transition. Additionally, the public is often resistant to the introduction of wind mills in their area, which makes it challenging to further renewable energy measures. There is a widespread need for support and guidance from the national government (De Vries et al., 2019).

Climate agreement

The responsibilities for municipalities in the 2019 Climate Agreement lie for the greatest part in the roundtable built environment. Municipalities are expected to take the lead in the energy transition of the built environment. They are expected to create a heat transition plan before the end of 2021. This plan should consist of a neighbourhood-oriented strategy that determines when every neighbourhood of the municipality should become natural-gas free. In total, 1,5 million buildings and houses should become natural gas free in the period from 2022 to 2030 in the Netherlands. For the districts that should become natural-gas free before 2030, additional information is necessary. Municipalities should map which sustainable energy sources and infrastructures are available that are reliable and sustainable and most cost-efficient (VNG, 2020a).

Several issues such as the price of the transition (consumers should not pay for its costs), and the linked energy poverty are taken into account (VNG, 2020a). A financial measure is in development which allows people to take loans which are bound to the house in which is invested, instead of the person (*Klimaatakkoord*, 2019).

Concerning mobility, a Regional Mobility Plan should be created (see provinces). Electricity has to do with the RES (see below).

Regional Energy Strategy

The RES is the key strategy to tackle the energy transition in decentralised governments. Some important features are: to collaborate with parties, facilitate the energy transition, sharing knowledge and capacity to increase climate action (Rijksoverheid, IPO, VNG, & UvW, 2018).

The concept versions of the RES which should be handed in mid-2020, will be send to the PBL and the bureau will check if the cumulative RESs will reach the national goals of 35 TWh renewable energy on land. When this is not the case the decentralised governments can divide the rest of the assignment between them. After the concept version, the first final RES, the RES 1.0 should be handed in in March 2021. Integration of the RES in spatial planning policies is expected (Rijksoverheid et al., 2018). By 2025, all permits for projects under the RES should be assigned by the municipalities, as the projects can then still apply for the SDE++ subsidy in 2025 (Rijksoverheid et al., 2018).

In the period 2019-2021 22,5 million euros is assigned annually to facilitate RES procedures. Of this amount of money, 5 million is for program organization and the development of data-infrastructure and knowledge, 15 million to support the 30 regions, and 2,5 million for participation coalitions to deliver concrete contributions to RESs (Rijksoverheid et al., 2018).

The RES is an intermediate phase for the broader environmental act that will be implemented in 2021 (*Klimaatakkoord*, 2019). The environmental act is created for several reasons. It aims to reduce the amount of rules surrounding the environment, and create one law that includes the rules in a single place, which creates a clear overview which includes all regulations, instead of many regulations in different acts. The idea is to create simpler ways, and to fasten decision-making, taking into account the local context, and to create coherence. Additionally, it aims to create a balance between the usage and protection of the physical living environment. Decentralised governments are expected to create an integrated plan that consists of all rules for the physical living environment in the municipal borders. Participation is an important value in the environment act, and the public and stakeholders should be included in the creation of the plans (Omgevingsportaal, 2020).

I have created an overview of the key events and implications in the climate mitigation arena, from the international to the local level. Several links between the governmental layers in terms of the trickling down of climate goals and policies were made. In the case of the Netherlands, an interesting current development has taken place: the change from local climate policies that were a 100% political choice, to an agreement in 2019 where decentralised governments have to commit to climate mitigation policies. The following chapters (5-8) discuss the results per research question.

5. Climate goals in Dutch municipalities

In this first result chapter I attempt to answer the first research question:

How many Dutch municipalities have adopted climate goals and what do these goals look like?

This chapter is divided in two subchapters which reflect the two parts of the research question. The first part deals with the number of Dutch municipalities that have adopted climate goals, and the second part is what these goals look like.

5.1 Climate goal adoption in Dutch municipalities

The Netherlands consists of 355 municipalities. Of these 355 municipalities, 280 municipalities have adopted climate goals, and 75 municipalities have not adopted a clear goal. Three types can be identified to group the municipalities, these types are explained in table 3 below.

Type of municipality	Ambition climate goals
Type 1	Municipalities which are more ambitious than the national level
Type 2	Municipalities which share the same level of ambition as the national level
Type 3	Municipalities which have not yet created a clear goal or have adopted a goal less ambitious than the national level (or relied on an outdated Dutch/EU goal)

Table 3 Type 1, 2 and 3 municipalities in the Netherlands

The division of climate ambitions per type in Dutch municipalities is displayed in figure 9.

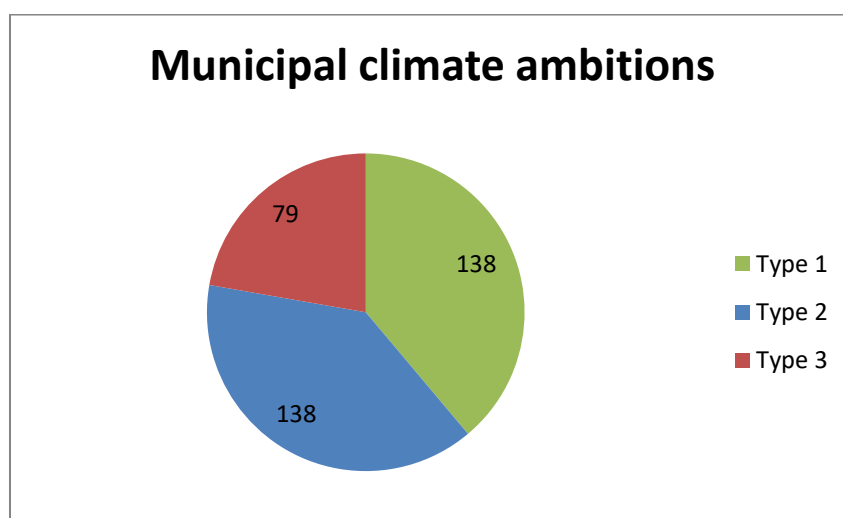
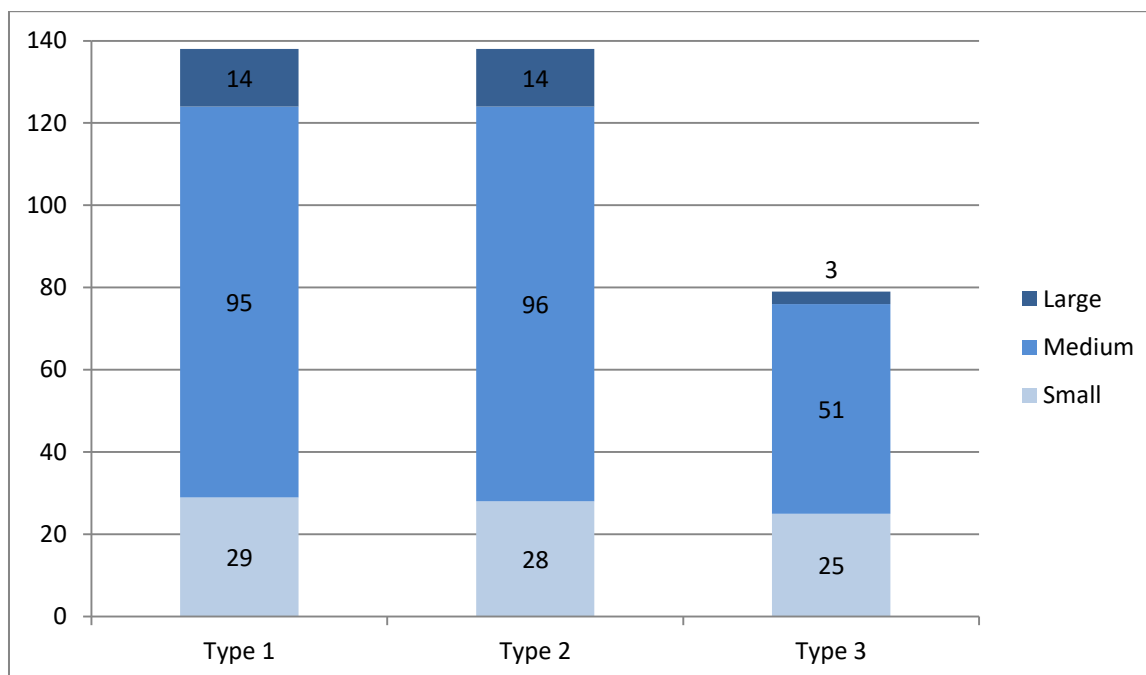


Figure 9 Division type 1, 2 and 3 municipalities in the Netherlands

In total, around one-fifth of the Dutch municipalities are type 3 municipalities, and the remaining four-fifth is type 1 and type 2. What is interesting is that the amount of type 1 and type 2 municipalities is identical.

The municipalities part of the three types can be divided in small, medium, and large municipalities. When looking closer to the size of the municipalities in these types, a very similar result can be found for type 1 and 2 municipalities (see graph 1).



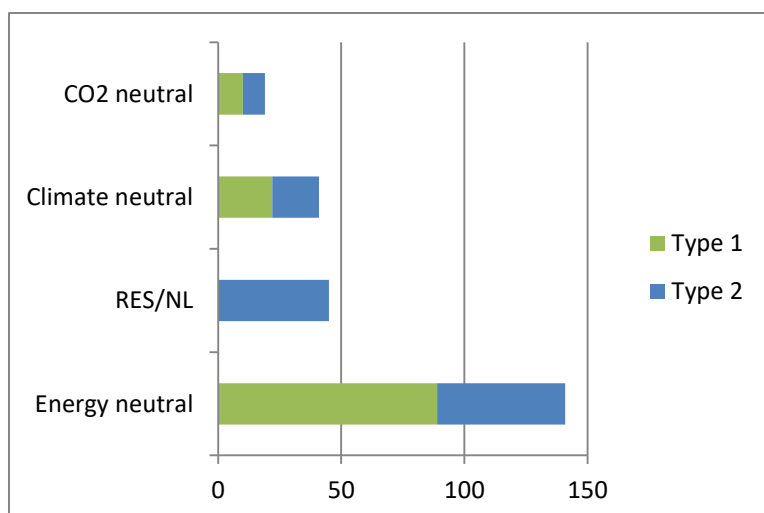
Graph 1 Municipalities size per type

Type 1 and type 2 municipalities look very similar when looking at the sizes of the municipalities. The division is almost identical. Most large municipalities have created climate goals, and approximately 80% of the medium sized municipalities have adopted climate goals. For the small municipalities, around two-thirds have created climate goals.

5.2 Climate ambitions in Dutch municipalities

Looking closer at the ambition that municipalities have created, a climate goal contains of two elements: a term and a year. For example, energy neutral in 2050. Type 2 municipalities adopted a goal similar to the Dutch climate goals: 95% GHG emission reduction compared to 1990 levels by 2050. This similar ambition is phrased in different ways; municipalities state they share the same ambition as the Dutch government and give it the term 'energy neutral in 2050', or 'climate neutral in 2050'. The interpretation of the goal and the terminology differs. Van Dijk (2018) found that similar terminology of goals (e.g. energy neutral), can entail very different interpretations and policy measures to reach the seemingly same goal.

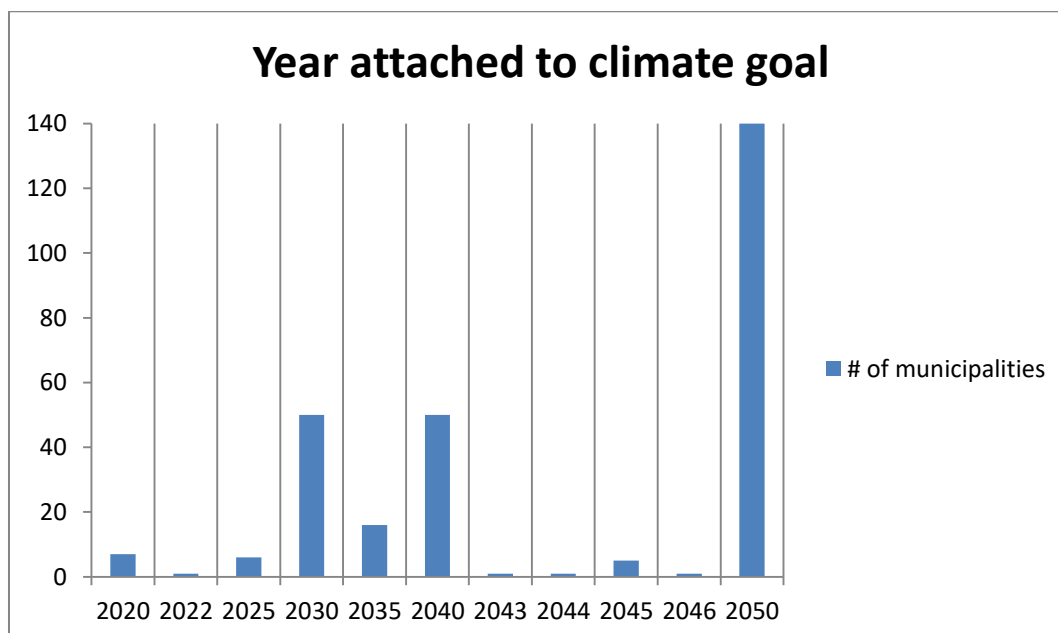
However, this is not the case for every municipality. For example, Groningen has changed its goal from energy neutral in 2035 to CO2 neutral in 2035 as energy neutral implies the municipality has to generate the same amount of energy as it consumes within its geographical borders. The term CO2 neutral is not bound to the specific boundaries of a municipality, which means sustainable energy can be imported from other part in the Netherlands or abroad (GROm). To illustrate the goals that are adopted by Dutch municipalities, graph 2 shows the most common terminology used for the climate goal.



Graph 2 Most common terminology climate goals type 1 and 2 municipalities

The graph shows the terminology used by 246 municipalities in total, out of 280 municipalities that have created goals. The remaining goals were very specific: energy independent, or a green energy provision is self-evident or 200% sustainable. I have divided the terms up in type 1 and type 2 municipalities. The most common terminology used is energy neutral, which is more often used by type 1 municipalities than type 2 municipalities. Climate neutral and CO2 neutral are also used relatively often by both types. Unsurprisingly, the municipalities that have specifically mentioned the Dutch goal or the RES goal (which is in these cases similar to the Dutch goal), are all type 2 municipalities.

The second aspect of a climate goal is the year the goal is expected to be reached. Graph 3 shows how often a particular year is mentioned in adopted climate goals.



Graph 3 The years attached to the climate goals

The division of the year 2050 is clear: all type 2 municipalities have used the year 2050 as their long term goal. However, there is one exception. One small municipality aims to be energy positive by

2050, which is more ambitious than the national goal and thus a type 1 municipality. Type 1 municipalities have adopted goals with years attached that run up from 2020, to 2050. Type 1 municipalities mostly use 2030 or 2040 as their year to reach the set climate goals. Several years, such as 2020 and 2025 are taken up by clusters of small municipalities. For example, 2020 is the year the five Dutch islands in the Northern part of the country have adopted, of which Vlieland is part of the sample, and 2025 is the year that the Kempen municipalities, of which Oirschot is part of the sample, aim to reach their goal, a region in the province Noord-Brabant. This means that regional influences might have an effect on goal adoption, and which specific goal is adopted.

5.3 Concluding remarks

In the Netherlands, around 80% of the Dutch municipalities have created a clear climate goal that looks similar to, or is more ambitious, than the national climate goal. The influence of the creation of the Dutch national climate goal can be seen in type 2 municipalities: around 40% of the Dutch municipalities have adopted a goal similar to the Dutch national goal. 20% have not created climate goals yet. Some municipalities have created goals within the region and possibly indicate the region to have an effect on goal adoption. The next chapter discusses the impact of the region on goal adoption into further detail with the support of the Policy Diffusion Framework.

6. Reasons climate goal adoption and the Policy Diffusion

Framework

In chapter 5, climate goals in the Netherlands were discussed: what they look like and what the division between type 1, 2 and 3 municipalities is. This chapter builds on the previous chapter, discovering the reasons why Dutch municipalities adopt local goals and how the goals are created. I use the Policy Diffusion (PD) framework to guide my categorization and reasoning and discuss how the PD framework can help to explain the diffusion of climate goals and what it might not be able to clarify. The question I aim to answer in this chapter is:

- Why and how do Dutch municipalities adopt local goals, and to what extent can these reasons be linked to the Policy Diffusion Framework by Berry and Berry (1990)?

I begin with the goal adoption process. Then, I discuss the reasons why municipalities have adopted climate goals, based on interviews and where possible expanded by municipal documents or other sources. The last section is on when the goals were created and how this links back to the reasoning for goal adoption and possibly national contextual factors.

According to the PD framework, the reasons municipalities adopt climate goals can be divided in two parts: external and internal factors. External factors are factors from *outside* the municipality that influenced the goal adoption, whereas internal factors are factors from *inside* the municipality that influenced goal adoption (Berry & Berry, 1990). After the explanation of goal adoption process, I begin with the explanation of the external factors. The order of the factors is determined by the number of public officials that stated the reason, and the amount of documents that addressed the reason. The factor mentioned first is the factor that was mentioned most, the factor mentioned last is the factor that was least mentioned. A table where all factors are laid out per municipality is given at the end of the chapter. The codes for the interviews that are used in the thesis and additional information about the interviews can be found in annex 1.

6.1 Goal adoption process

The goal adoption process can be divided in three general pathways: (1) most public officials stated the goal was created internally by the municipal council (GROm, LEL, NOO, WEE, ZWO) (2) in collaboration with the region (HAT, OIR, VLI) and (3) in some cases with the help of a consultancy bureau (ALK, AMEm, MID). The bureau helped to create a realistic goal.

In two cases, there was a participation element in the process of goal adoption in (MID, NOO).

In Middelburg, its environmental vision was ending, and there was need for a new vision. In relation to energy, a meeting with stakeholders and councillors was planned to inform them and to choose the climate goal. The three options presented were energy neutral in 2050, energy neutral in 2030 or no climate goal. The involved parties could choose one of these options, and the final decision was energy neutral in 2050, as that was considered most realistic according to the stakeholders (MID).

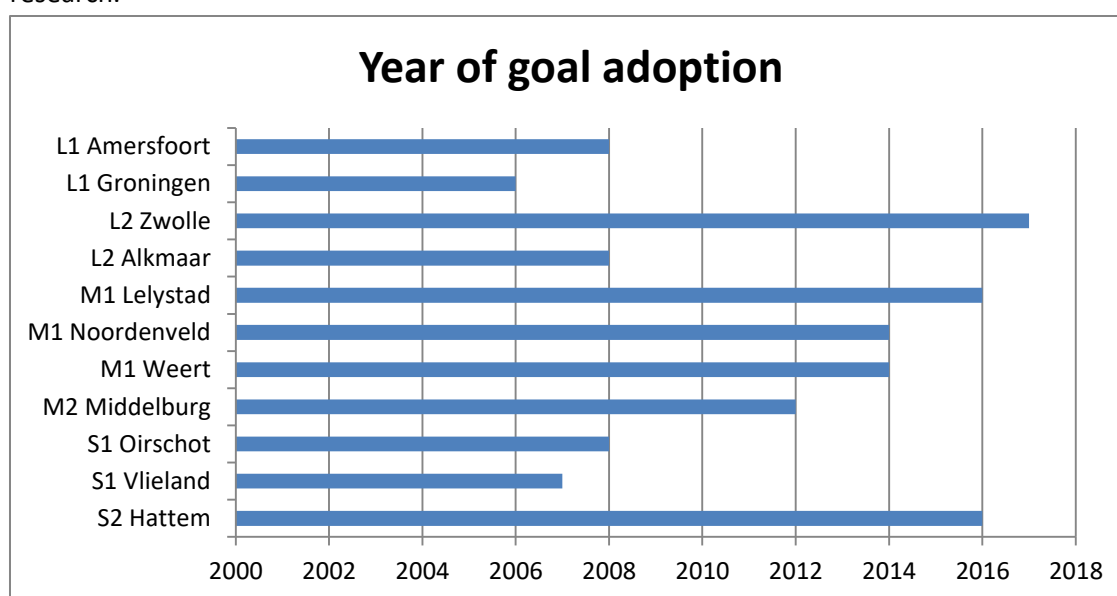
In Noordenveld, a consultation was held with citizens, on the initiative of the municipality, prior to goal adoption. The municipality was developing its municipal vision on environment and planning, and this process asks for stakeholder participation. As a result, a consultation night was held and the sustainability and environmental policy and what topics should be included were

discussed among stakeholders and public officials. The specific climate goal was created in the municipal council, climate neutral in 2040, taking into account the wishes and perspectives of its citizens (NOO).

Small municipalities collaborate on a regional level. Medium and large municipalities have either internally created the goal or hired a consultancy to find an appropriate goal. Two out of three medium municipalities have included an element of participation in goal adoption. Comparing the goal adoption process to ambition, most type 1 municipalities have created the goal internally, and most type 2 municipalities have hired a consultancy to find the goal.

6.2 Time of goal adoption

The time of goal adoption is significant when comparing it to policy developments on the international and national level. Graph 4 shows the year of goal adoption per municipality under research.



Graph 4 Year of first goal adoption in sample municipalities

There are several early adopters; Amersfoort, Groningen, Alkmaar, Oirschot, and Vlieland. The early adopters are mostly type 1 municipalities, with the exception of Alkmaar. They created their goals between 2006 and 2008. Then, there is a group of medium-sized municipalities that have adopted their goals between 2012 and 2014 (Noordenveld, Weert and Middelburg) of both ambition types. And in 2016 and 2017 (Hattem and Zwolle) have adopted their goals, both are type 2 municipalities.

There is no clear link between year of goal adoption and the type of goal adoption process. Nevertheless, the year of goal adoption is interesting when comparing it to the agreements and policies happening at that time on a national level. These factors and links are described in the following subchapter.

6.3 Reasons goal creation: external factors

Goal adoption as a result of external factors such as policies on higher levels of government (Bromley-Trujillo et al., 2016; Kammerer & Namhata, 2018), geographical proximity (Armstrong, 2019; Hui et al., 2019) or transnational municipal networks (Rashidi & Patt, 2018) show the interdependencies between governmental levels. The element of MLCG concerning policies on the international level, national level and local level was mentioned by all public officials and was included in ambition documents. The results are shown in the subsections below.

6.3.1 Policies on higher levels

National influence

The direct influence of national policy on goal adoption was a significant reason for goal adoption in all municipalities. The public officials have stated their goal adoption was highly influenced by the policy developments on the national level. Policy developments included the adoption of goals (ALK, ZWO) and the implementation of policy measures to motivate subnational governments to participate in climate policy (e.g. subsidies). The BANS and SLOK subsidies were mentioned as sparking climate policy and goal development (Personal communication, 2019; HAT), and the direction of the national climate policies that influenced municipalities to engage in climate mitigation policies (LEL, NOO). For example, in Oirschot, the ambition of creating a climate agreement sparked the municipality to engage in the creation of a climate goal (OIR).

Further document research shows ten municipalities have adopted goals based on national policies and goal adoption. Particularly, when considering the empirical chapter on climate mitigation policies, these documents mention several policies as reasons for goal adoption. Early adopters mentioned the ambitious national policy of cabinet Balkenende as a determining factor, and its focus on sustainable energy (Gemeente Amersfoort, 2008; Gemeente Groningen, 2007; Gemeenteraad van Texel, Gemeenteraad van Vlieland, Gemeenteraad van Terschelling, Gemeenteraad van Ameland, & Gemeenteraad van Schiermonnikoog, 2007). Additionally, the 2007-2011 agreement and subsequent goals have motivated Middelburg and Alkmaar to adopt local goals (Gemeente Alkmaar, 2011; Gemeente Middelburg, 2013). The energy agreements of 2013 (Gemeente Noordenveld, 2015; Gemeente Weert, 2014) and 2016 (Raad van Hattem, 2017) also sparked goal adoption. Lastly, Lelystad mention the general adoption of Dutch goals as a significant reason (Gemeente Lelystad, 2015).

International influence

The importance of international developments in climate policy for their goal creation was mentioned in six municipalities. The Sustainable Development Goals (ALK) and the Paris Agreement (HAT, ZWO) were mentioned as a point of influence. For Hattem, the international influence was in terms of creating the definition of its climate goal (HAT). Documents show more municipalities were stimulated by international climate mitigation developments. Especially early adopters have mentioned the international concern and interest in climate mitigation as influential (Gemeente Alkmaar, 2011; Gemeente Amersfoort, 2008; Gemeente Groningen, 2007; Gemeenteraad van Texel et al., 2007).

6.3.2 Geographical proximity

Geographical proximity played a significant role in seven municipalities. Hattem had created climate policy in collaboration with the region Noord-Veluwe. The public official stated the municipality collaborated with the region in climate policy since she worked there: ten years. Together with the region Noord-Veluwe, which is now also a RES area, climate policy and goals were created in the past decade (HAT). In Flevoland, requests from the national governments to place wind mills have shaped climate policy and climate goals. The province actively acted on the requests, as well as Lelystad. As a result, the climate goal energy neutral in 2025 was created (LEL). For Middelburg, the experience of the public official was that around the time of goal creation many municipalities were discussing climate goals, which had influenced Middelburg in creating a climate goal (MID). For Vlieland, the island boards believed they had to participate and act on sustainability and to become self-sufficient for which they developed a regional strategy (VLI).

Documents show that more municipalities are influenced by regional decisions. For example, Noordenveld by Energy Agenda SWITCH and the energy strategy of the province Drenthe (Gemeente Noordenveld, 2015). A document of the municipality Weert mentions the coalition of North and Middle Limburg, which is a RES region, as influential in goals adoption (Gemeente Weert, 2014). Moreover, Oirschot has created its climate goal in collaboration with four neighbouring municipalities in 2008 (M. van Oosterhout & D. Schaeffers, 2008).

6.3.3 Transnational networks with local governments

The Covenant of Mayors was mentioned in regional documents in which Alkmaar is a part. The municipality adopted the EU 2030 goals in collaboration with the region (Regio Alkmaar, 2014). What is striking is that the goal energy neutral 2050 still has to be formally adopted, which is expected in 2020, for which the national climate policies are considered the most significant reasons (ALK).

6.4 Reasons goal creation: internal factors

Internal factors are about factors inside the municipality that have aided to spark the decision to adopt a climate goal. This subchapter discusses the factors public officials have stated and the factors written in municipal documents for goal adoption. These factors are environmental, social factors, and political factors. Risk perception and a feeling of responsibility is mentioned last as

6.4.1 Environmental factors

Co-benefits of climate actions

One public official explicitly mentioned the benefits of energy efficiency and renewable energy for the municipality as a reason for the engagement in climate policy and goal creation. The positive effects for society and the municipality were considered and deemed significant enough to create a climate goal and a comprehensive climate mitigation policy (AMEm).

Ambition documents show four other municipalities have created climate ambitions resulting from co-benefits of climate actions. Several co-benefits such as creating social and economic value through climate actions (Gemeente Zwolle, 2017b), the long term economic benefits/cost effectiveness, increase in employment (Gemeente Weert, 2014), knowledge benefits (Gemeente Groningen, 2007), strengthen position (Gemeente Groningen, 2014; Gemeente Middelburg, 2013), and to guarantee the availability of energy (Gemeente Middelburg, 2013).

Response to climate change in own environment

One public official discussed climate goal adoption in relation to the response to climate change in its own environment. Groningen is the province where natural gas is extracted. The public official discussed the consequences of natural gas extraction and the increase in earthquakes in the province. The natural gas of Groningen has given it much wealth, but also caused earth quakes in the area. The municipality experienced an increase in earth quakes over the years, and saw relative peaks in the years 2003 and 2006, where the earth quakes were also heavier compared to previous years (KNMI, 2019). This is when the municipality Groningen started to engage in climate policy and started to set its climate goal (Groningen, 2011).

6.4.2 Social factors

Support for the environment

Support for the environment was mentioned by six public officials in a broader perspective (AMEm, HAT, MID, NOO, OIR, VLI). They have noticed a shift in society over the past years. Climate change and its related policies are a more accepted topic in society, and are considered less of an activist movement and more a necessary topic. Additionally, several public officials state that the discussion between the political parties in the municipal council and the executive board is not on whether to engage in climate policies, but more on how to deal with climate change in a practical sense (HAT, MID, NOO, OIR, VLI). Additionally, the public official of Amersfoort considered parties from within the municipality that have called for more climate action from the government as a reason for goal creation (AMEm).

6.4.3 Political factors

Keeping autonomy

Three public officials discussed the reason of keeping their municipal independence (AMEm, OIR, WEE). They created a climate goal to be in front of the game, and to not be last and have to follow national legislation and be forced to engage in top-down climate policies. Now they have a form of independence and can choose how they want to fill in their climate policy, to decide where to put windmills and solar parks without interference of a higher level of government (AMEm, OIR, WEE).

Motivated municipal councillor

In two municipalities a motivated municipal councillor was coined as a significant factor (LEL, WEE). As the municipal council and executive board decide about the budget assigned to each policy field, and decide what the topics are that are important for the coming year, the council and executive board are important factors to develop climate policy. In Lelystad and Weert, a motivated municipal councillor or mayor was considered a factor that greatly helped in creating a climate goal (LEL, WEE).

6.4.4 Perception climate change and responsibility

Risk perception climate change

The perception of climate change is considered an important factor when it comes to climate responsibility. When climate change is considered a dangerous threat, the feeling of climate responsibility can be positively correlated (Bubeck et al., 2012).

Four public officials perceived climate change as a clear threat to their municipality and to society (LEL, MID, NOO, OIR).

Four public officials did not go into how they view climate change, as it is a fact that they have to deal with. It is an assignment from the national government and they have to engage with it. Whether they thought it was a threat or not had no influence on the development of their climate policy according to the public officials (ALK, HAT, WEE, ZWO).

One public official explicitly mentioned he considered climate change a threat, but also as a chance. A chance to make the world better and to reduce the impact the municipality has on the environment and climate (GROm).

Municipal documents show six municipalities directly link a sense of urgency to reduce the effects of climate change and their goal creation (Gemeente Amersfoort, 2008; Gemeente Groningen, 2007; Gemeente Lelystad, 2015; Gemeente Weert, 2014; Gemeente Zwolle, 2017b; Gemeenteraad van Texel et al., 2007).

Take responsibility for climate change

Two public officials mention the reason to take their own responsibility for climate change issues as reasons for goal creation (AMEm, GRO). In relation to climate responsibility, this might be an important factor to keep in mind, also because both municipalities are large type 1 municipalities.

The table below shows which municipalities have mentioned which factors as reasons for goal adoption, how they view climate change, and which process of goal adoption they used.

Municipality	External factors	Internal factors	Perception	Process goal adoption	Year goal adoption
Alkmaar	National and international influence		Assignment	Consultancy	2008
Amersfoort	National and international influence	Political factors and co-benefits	Urgency + take responsibility	Consultancy	2008
Groningen	National and international influence	Response to cc in own environment and co-benefits	Threat, opportunity, urgency, take responsibility	Internal goal adoption	2006
Hattem	National and international influence, geographical proximity	Social factors	Assignment	Regional	2016
Lelystad	National and international influence, geographical proximity	Political factors	Threat, urgency	Internal goal adoption	2016
Noordenveld	National influence and geographical proximity	Social factors	Threat	Internal goal adoption + participation	2014
Middelburg	National influence and geographical proximity	Social factors and co-benefits	Threat	Consultancy + participation	2012
Oirschot	National influence and geographical proximity	Political and social factors	Threat	Regional	2008
Vlieland	National and international influence and geographical proximity	Social factors	Urgency	Regional	2007
Weert	National influence and geographical proximity	Political factors and co-benefits	Assignment, urgency	Internal goal adoption	2014
Zwolle	National and international influence	Co-benefits	Assignment, urgency, opportunity	Internal goal adoption	2017

Table 4 Summary of factors of goal adoption and goal adoption process per municipality

When comparing the different factors, several potential trends can be seen. Firstly, all municipalities have external reasons for goal adoption. When looking closer at the external factors, large municipalities are the only municipalities that have not discussed geographical proximity and

collaboration with the region as a reason for goal adoption. Large municipalities mostly focus on national and international influence. The rest of the municipalities, small and medium, have adopted goals as a result of national policies and geographical proximity. When looking at the process of goal adoption, for small municipalities this comes as no surprise as the goal was created in collaboration with neighbouring municipalities.

Internal factors were mentioned by all municipalities except for the municipality Alkmaar. Concerning internal factors, political factors were only mentioned by type 1 municipalities, and social factors only by small and medium municipalities. Co-benefits are mentioned by medium and large municipalities of both ambitions. When incorporating the perception of public officials and municipalities, most type 2 municipalities considered the engagement in climate policies as an assignment from higher levels of government, and a perception of risk was not deemed significant in goal adoption. The two large type 1 municipalities considered that they should take responsibility for climate change and should thus create a goal and work towards reaching it. Most other municipalities perceived climate change as a threat to the municipality, which might have an influence on goal adoption and the ambition.

6.5 Concluding remarks

This chapter showed a wide range of reasons for goal adoption. Considering the PD framework, combining internal and external reasons is helpful to understand why municipalities have adopted climate goals. Seemingly, external factors are stronger than internal reasons for goal adoption in small municipalities, and are political factors such as a motivated municipal councillor significant in type 1 municipalities. The region is an important factor in the process of goal adoption in small municipalities, and only medium municipalities have included stakeholder participation in their process.

The external factors show a great interdependence with other levels of government, specifically the influence of the national level. All municipalities are influenced by national policies and ambitions over the years.

To reach the set goals, a road towards the goals has to be paved. This is often done the creation of an LCAP. The following chapter discusses the quality of the climate action plans of the municipalities under research and how this is linked to the process of plan development.

7. Evaluation LCAPs

I aim to answer the third research question in this chapter. The RQ is the following:

- Using the plan quality framework proposed by Guyadeen, Thistlethwaite and Henstra (2019), can the climate plan quality of the Dutch Local Climate Action Plans(LCAPS) be related to the type of processes through which they were adopted and the perception of public officials on climate change, and if so how?

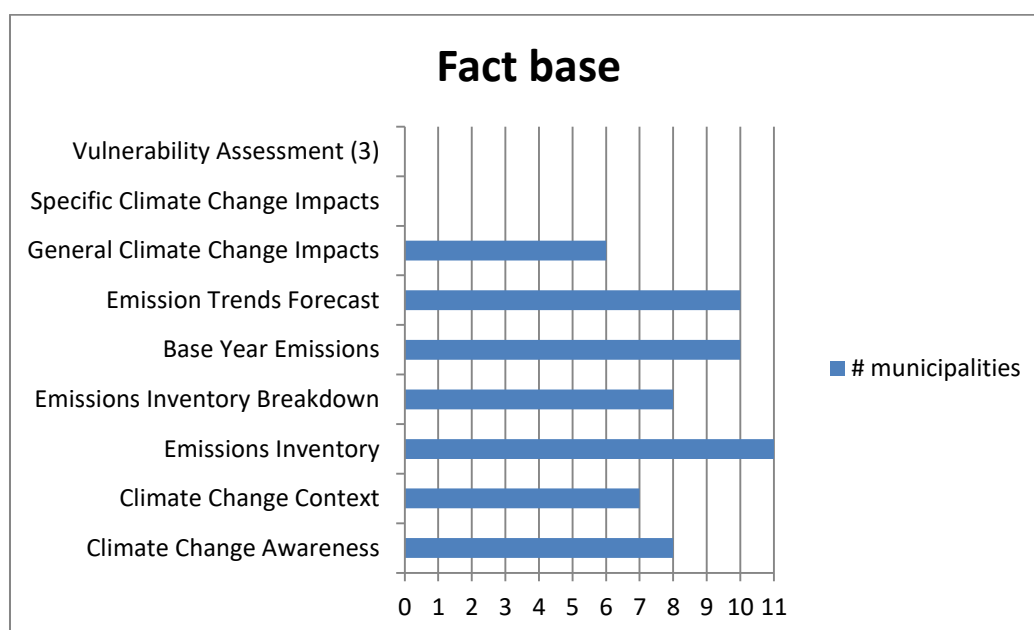
For every municipality under research, their most relevant planning document related to their mitigation policy was evaluated and analysed. The framework of Guyadeen, Thistlethwaite and Henstra (2019) which includes 46 indicators was used to analyse the documents. The indicators per theme and their explanation can be found in annex 3. The subchapter is structured based on the themes of the plan quality framework. The eight themes are the following: (1) fact base, (2) goals, (3) policy, (4) implementation, (5) monitoring and evaluation, (6) inter-organizational coordination (7) participation (8) plan organization and presentation. I divided the themes in two parts: first, I present specific findings using the indicators linked to the theme. Then, I focus on the findings per municipality and incorporate interview findings on the documents and highlight if there is any difference in what I found in the document and the responses I received in the interviews. Then, I discuss average scores for the themes and the overall results of the municipalities are discussed. Finally, the influence of the plan development process and the perception on climate change are elaborated upon, followed by a concluding paragraph.

The results per indicator are counted by how many municipalities have included the indicator in their planning document, and the results per municipality are calculated by proportionality. I added a code to the names of the municipalities to indicate their size and ambition. S/M/L stand for size: small/medium/large respectively. The ambitions are indicated by a 1 or 2, where 1 is a type 1 municipality (ambition higher than the national government) and 2 is a type 2 municipality (similar ambition to the national government).

7.1 Fact base

The fact base consists of eleven indicators, of which four are specifically focused on climate adaptation. The remaining seven are concerned with general information on the causes and consequences of climate change and the availability of an emissions inventory and its quality. Below are the results per indicator shown in graph 5.

Fact base results per indicator



Graph 5 Fact base results per indicator

The four climate adaptation indicators were not included in any of the municipal plans as the plans were mostly focused on climate mitigation. Climate context, awareness and general impacts were not included by every municipality as they rather focused on the content of the projects and the actions of the municipality. An emissions inventory was present in every plan, most of which were extended to a breakdown of emissions and the inclusion of a base year.

Fact base results per municipality

When comparing the results per municipality, some differences can be seen based on size and ambition. Small and large municipalities showed differences when comparing ambitions. A clearly lower score was appointed to type 2 municipalities of both sizes. For medium municipalities, the difference was not significant, and the results were similar.

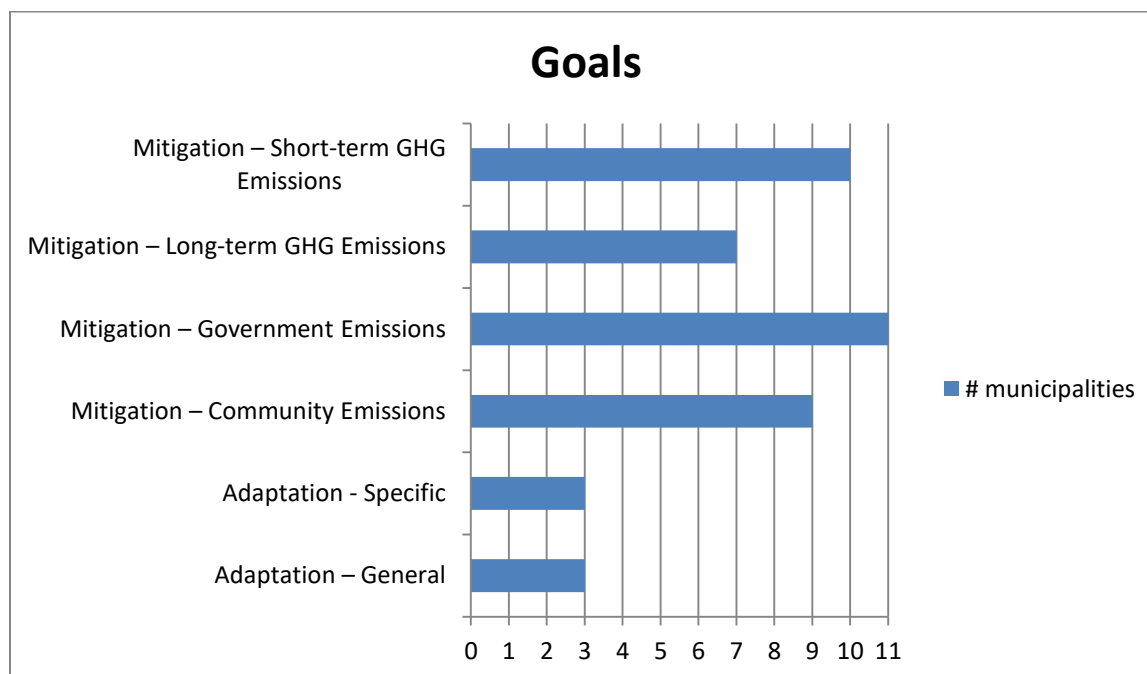
Additional interview results

After interviews with municipalities, there is an understanding of the general impacts of climate change, and the emissions inventory was experienced as a difficult and complex task, as the municipality is dependent on information from other parties such as energy companies, network operators, consultancies. Additionally, most municipalities hired specialists (e.g. data analysts or consultancies) or used the national Klimaatmonitor to determine the emissions inventory for them. For climate adaptation, most municipalities have done a stress test which shows what the significant weak spots are in the municipality when it comes to climate change impacts, which they can lower with climate adaptive measures. While the quantification of goals is considered difficult for climate adaptation, some municipalities indicated their climate adaptation policy was well-developed and integrated.

7.2 Goals

The goal section consists of six indicators, of which two are related to adaptation, and four related to mitigation. Below are the results per municipality.

Goals results per indicator



Graph 6 Goals results per indicator

The scores of long term and short term mitigation emissions differ, as some municipalities have only adopted a short term goal, whereas others have only adopted a long term goal. All documents included goals for government emissions, and most of them on community emissions. Unsurprisingly, adaptation goals were not widely represented by the documents.

Goals results per municipality

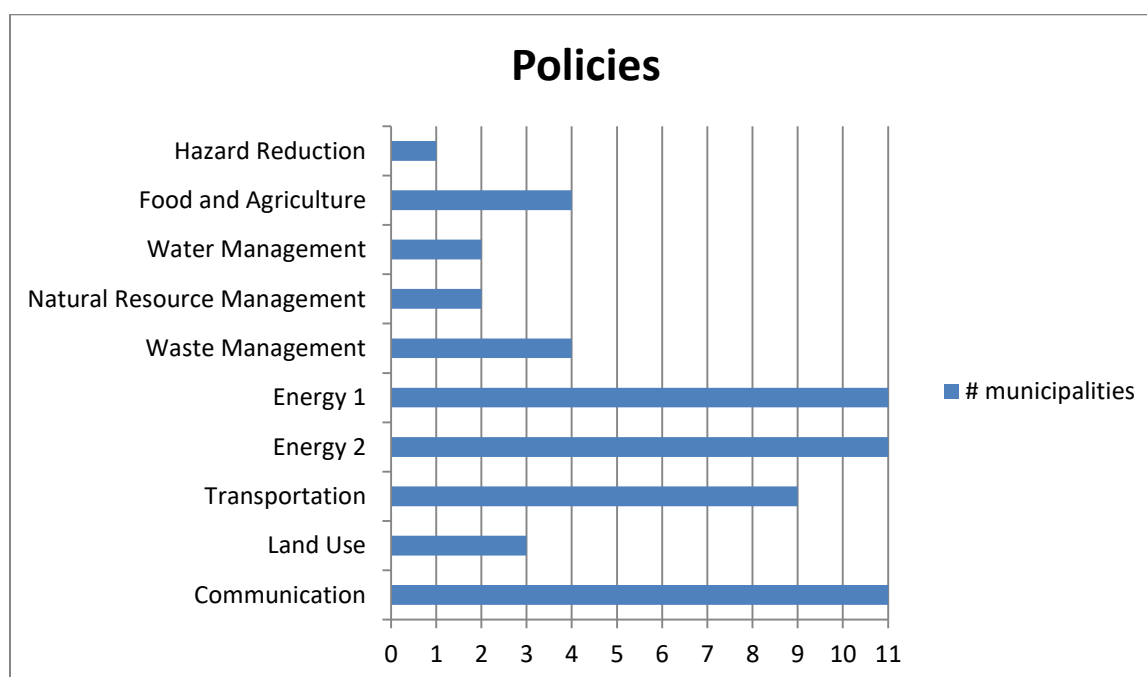
When looking at size and ambition, type 2 municipalities generally score higher on the theme goals than type 1 municipalities. Especially small municipalities showed a great difference. Most municipalities (seven out of eleven) did not include any adaptation related goals. The four municipalities that did create a climate adaptive goal were municipalities that focused their plans on sustainability and climate in general, which included topics other than climate mitigation. These plans linked different municipal policy fields. While other municipalities also used the term sustainability in their documents, their definition in the documents focused specifically on energy saving and increasing renewable energy. That could be a possible explanation for the divergence between small type 1 and type 2 municipalities. Additionally, some municipalities (four out of eleven) did not include a long term goal as their mitigation goal was already short term² (e.g. energy neutral in 2025). Thus, these municipalities received a lower score as their ambitions were set high. One municipality did not include a goal other than its long term goal. Medium municipalities score highest out of the three sizes followed by large municipalities. The level of ambition for medium and large municipalities does not seem to be influential in the scoring.

² short term being a goal less than 20 years away in time

7.3 Policies

The theme policies consist of ten indicators, two directly related to energy, one to creating awareness and the remaining seven related to different policy fields. The results per indicator are given below.

Policies results per indicator



Graph 7 Policies results per indicator

Three policy topics were found in most LCAPs: energy, transportation and communication. The remaining policy fields were not mentioned in most policy documents. A possible reason is that these fields are often related to climate adaptation.

Policies results per municipality

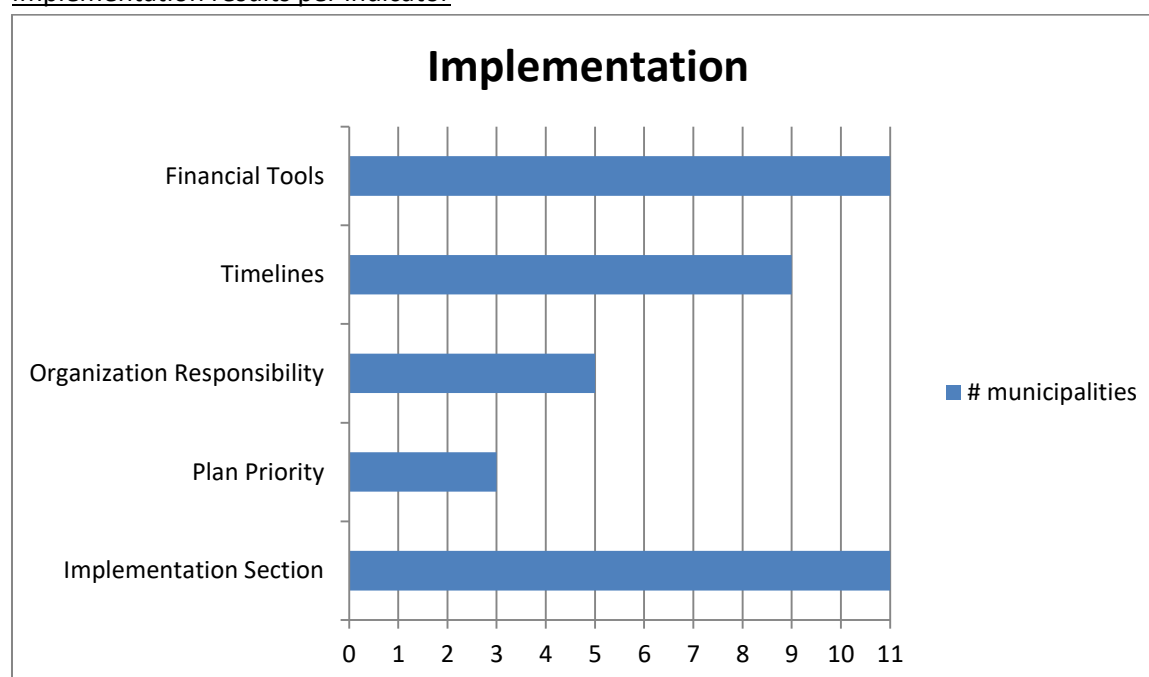
The scores differed significantly between the municipalities. Four municipalities scored 60% or over, while the rest scored 40% or lower. The three municipalities that scored highest were also municipalities that included climate adaptive goals in their plans, and focused on a broad definition of sustainability. As I searched for documents related to climate mitigation, the two indicators related to energy were found in every municipality. Additionally, creating awareness was another indicator that was found in every document. The rest of the indicators depended on the topics included for climate mitigation in the municipality; some municipalities included mobility as an important topic while others did not. The topics mentioned in the plan evaluation framework that were not found could be considered related to climate adaptation, which most plans under evaluation were not focused on. Nevertheless, the line between topics related to climate mitigation and adaptation can be blurred. For example, Middelburg and Weert both included most policy areas related to climate change, and their documents were focused on sustainability. Whereas Alkmaar and Lelystad included policies on waste management in their climate mitigation plans, while the remaining seven municipalities did not consider waste a climate mitigation issue. Medium sized

municipalities are among the highest scoring, but also include a type 1 municipality that scored 30%. Ambition seems not to be an influential factor, as type 1 municipalities score amongst the lowest of the municipalities.

7.4 Implementation

The theme implementation consists of five indicators. Below are the results per indicator.

Implementation results per indicator



Graph 8 Implementation results per indicator

Two out of five indicators are found in every document: the separate implementation section and the availability of financial tools. Timelines were found in most municipal documents (nine out of eleven). The remaining two indicators: plan priority and specific organizations which have responsibility for implementation, were found in respectively five and three out of eleven municipalities. In the implementation theme there were some grey areas as the level of detail in the documents differed. Some municipalities gave names of organizations with detailed information on their responsibilities and actions they had to take, while others name partners and name some general responsibilities they have without concrete actions. Both options were scored with 1. Other municipalities named some partners for topics without mentioning responsibilities, these municipalities were scored with a 0. For plan priority, there were few municipalities (three out of eleven) that prioritized actions. For the rest of the municipalities it was unclear which topics or actions were prioritized over others.

Implementation results per municipality

The overall score for municipalities is quite high, ten out of eleven scored 60% or higher. Ambition seems to play a role when comparing large municipalities: type 1 municipalities score higher than type 2 municipalities. Small sized municipalities score lowest on average, with a divergence between type 1 and type 2 municipalities: type 2 scored lower than type 1. For medium sized municipalities, there is no clear distinction between both types.

Additional interview results

All municipalities gave their priorities for the plan, while these were not highlighted in the document. For example the public official in Zwolle stated the priorities change as some projects are more practical, advance quickly, and give high results. When they run into problem in one of the projects, the priority shifts to the most result-driven projects and cost-effective measures (ZWO).

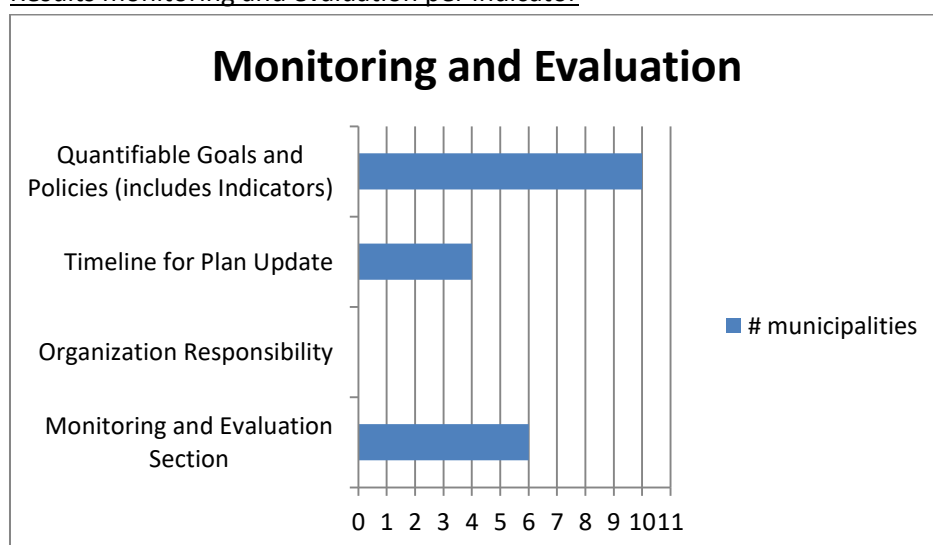
For the involved organizations and their responsibilities for implementation, some municipalities have not yet defined the responsibilities between the partners. In the municipalities Groningen and Weert (GROm, WEE) the responsibilities still have to be defined, or new documents have to be approved in the municipal council first before responsibilities and partner can be linked to projects like in Alkmaar and Oirschot (ALK, OIR). Other municipalities (e.g. Lelystad, Zwolle and Alkmaar) have appointed project managers who are responsible for specific projects and their results (ALK, LEL, ZWO).

The interviews shed more light on the financial tools and how these are used in the municipalities. All municipalities make use of subsidies of provinces or the Dutch government. However, most indicate that these finances are not enough to finance the energy transition. Finances are considered a problem in some municipalities. For example, to motivate citizens to invest in their houses, the citizens can apply for a loan. However, most citizens are sceptical and do not want to be personally bound to the loan. The concept of home-based financing is considered very promising. In this way, the people who want to invest in their house are not bound to the loan, but the house is. When the house is sold, the loan is taken over by the new owners. The home-based financing is not yet possible because of judicial limitations (GROm, NOO). More issues like these are experienced in the municipalities and are considered limiting their ability to advance the energy transition.

7.5 Monitoring and Evaluation

The section monitoring and evaluation (M&E) consists of four indicators. Specifically, (1) is there a separate section that addresses M&E, (2) whether there is a department responsible for monitoring, (3) whether there is a timetable for updating the plan based on results of monitoring changing conditions, and (4) if the plan includes goals and policies that are quantifiable and based on measurable objectives and targets. Below are the results per municipality.

Results monitoring and evaluation per indicator

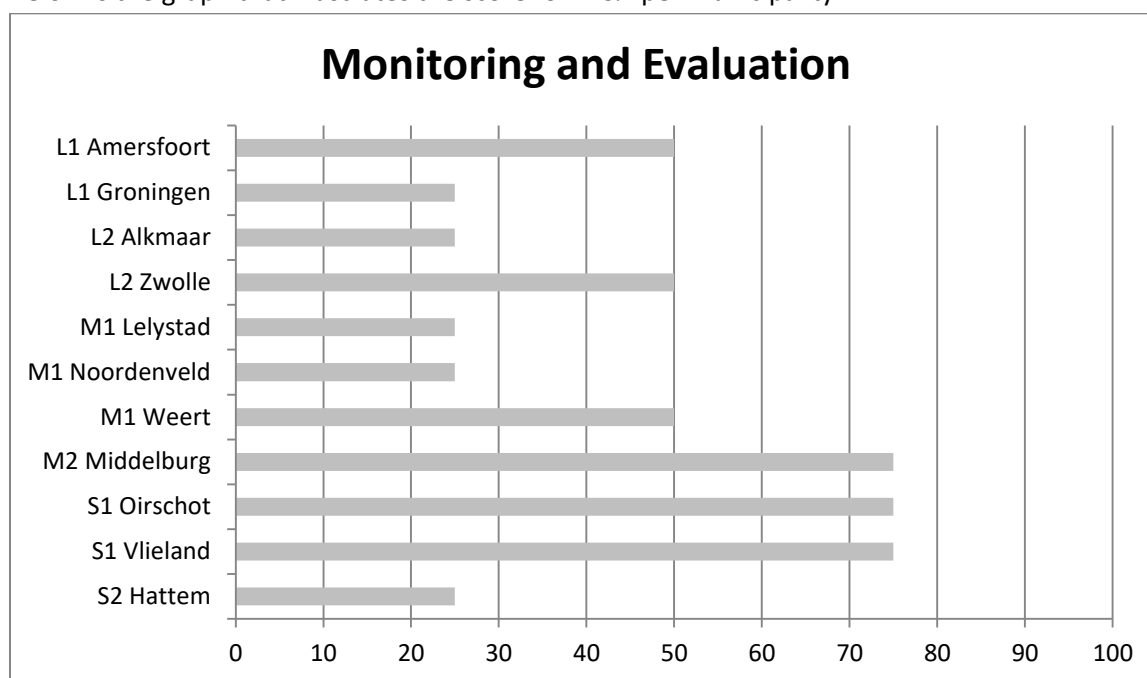


Graph 9 Monitoring and Evaluation results per indicator

Over half of the municipalities (six out of eleven) had a separate section dedicated to M&E. The five municipalities that did not have a separate M&E section included in their document, neither appointed a responsible department nor gave a timetable. Only one of these five indicated different scenarios for CO2 reduction depending on the amount of FTE and budget. What is striking is that no municipality had identified a responsible department for M&E, and most municipalities (ten out of eleven) had quantifiable goals and policies present in their plans. The amount of text and detail of the plans on M&E differed. E.g. the document of the municipality Oirschot included a one-page chapter on M&E (M. van Oosterhout & D. Schaeffers, 2008), whereas Vlieland wrote a short paragraph on the topic (Gemeente Vlieland, 2017).

Results monitoring and evaluation per municipality

Below is the graph that illustrates the score for M&E per municipality.



Graph 10 Monitoring and Evaluation results per municipality

The results per municipality differ greatly. Ambition seems not influential in the case of large municipalities as both score similar results. The results for medium municipalities show a higher score for type 2 municipalities as opposed to type 1 municipalities. Small municipalities score highest, where type 1 municipalities score significantly higher than the type 2 municipality.

Additional interview results

The interviews provided more clarification regarding M&E and how this is arranged within the municipalities. The first finding is that M&E is considered difficult and complex for municipalities. A reason for the complexity is because the municipalities are dependent on other parties for information concerning emissions. The national Klimaatmonitor developed by Rijkswaterstaat is used in six out of eleven municipalities. However, the information in the Klimaatmonitor is not considered up-to-date and information is missing or changing. Municipalities use different methods to monitor their emissions, some municipalities monitor or are planning to monitor regionally instead of locally (HAT, OIR) while others hire consultancies or data analysts to do the monitoring (GROm, LEL, VLI).

One municipality uses a certification company for monitoring (ALK), and others do not prioritise monitor (MID, NOO). Additionally, one municipality had monitoring plans in their documents, but had not used them in practice (OIR). These results indicate that some municipalities engage less in M&E than what is stated in their documents.

7.6 Inter-organizational Coordination

The sixth theme, inter-organizational coordination, consists of two indicators: one on horizontal coordination (connections to other local plans or programs), and the other on vertical coordination (connections to provincial and regional or national plans).

Evaluation results

All document consisted at least one vertical and horizontal form of coordination. All documents gave context for their policies and actions by summing up the most important agreements and goals from different governmental levels and links to other documents within the municipality. Some documents were more thorough than others, providing multiple page summaries of relevant national and regional legislation and policies (Gemeente Noordenveld, 2015) while other documents provided short and scattered information on the relevant coordination context (Gemeente Zwolle, 2017a).

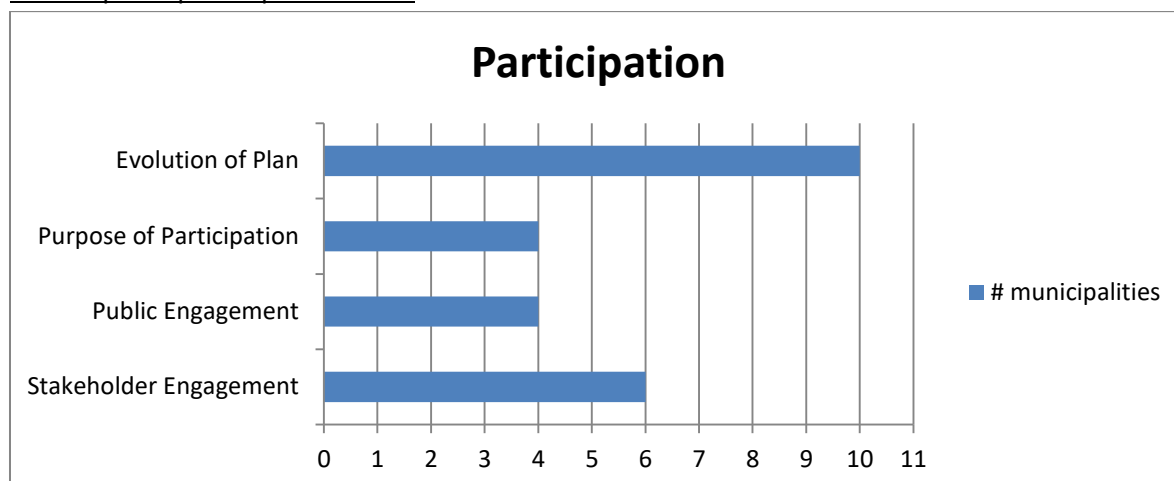
Additional interview results

Interviews showed additional coordination and networks that municipalities were a part of. These links are considered very important and help many municipalities create their strategies together with others, and create information and pilot networks in which ideas and funds are shared. Especially small municipalities (Oirschot and Hattem) mentioned the importance of networks for their policy. The public official of Oirschot mentioned that this made sure they were not reinventing the wheel (OIR). An example of a regional collaboration is the Regional Energy Strategy (RES). The RES was mentioned by all municipalities as an important collaboration for information sharing, policy-making and a means to further and enhance their policies.

7.7 Participation

Participation consists of four indicators, three of which are aimed at the involvement of stakeholders in plan-making, and the last focuses on whether there is a description of the evolution of the plan. This theme touches on the process of plan development. The results are shown below.

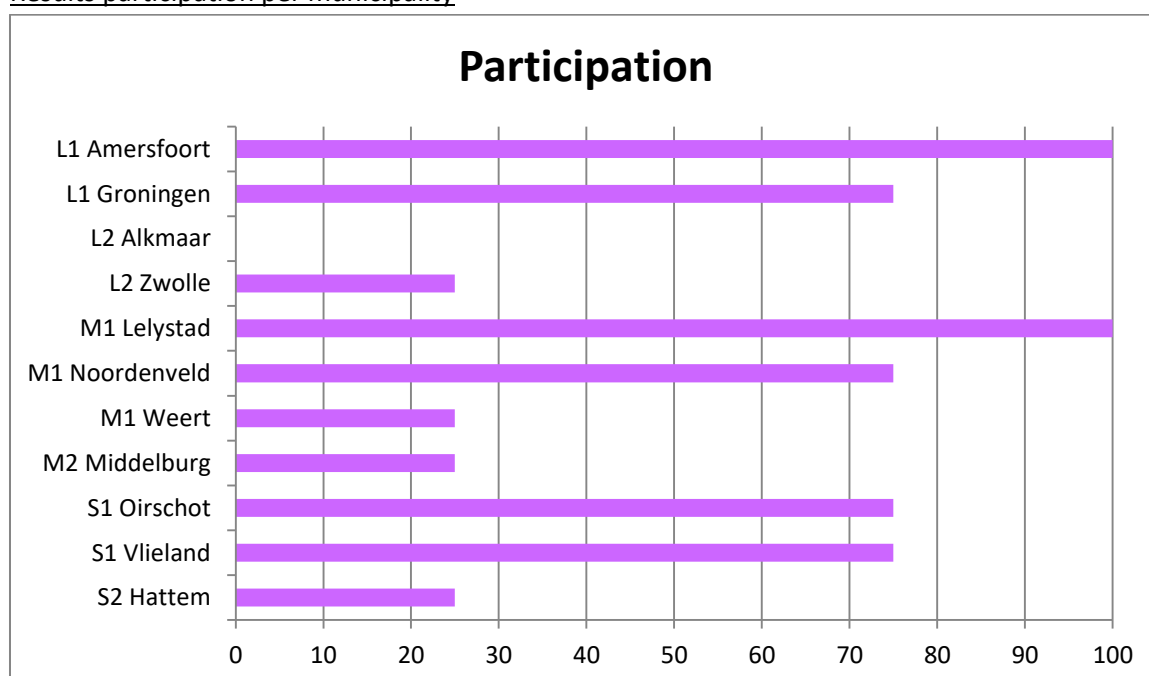
Results participation per indicator



Graph 11 Participation results per indicator

The results can be considered quite weak. Most plans did not include the purpose of participation nor did they include the public in plan development. More than half documents discussed stakeholder engagement and almost all plans gave an evolution of the plan.

Results participation per municipality



Graph 12 Participation results per municipality

The theme participation consists of striking differences between municipalities. Ambition seems to play a large role as type 2 municipalities in small, medium and large municipalities score 25% or less,

while type 1 municipalities score 75% or higher, with the exception of Middelburg. A score of 25% or under indicates either that there was no information on stakeholder involvement or that stakeholders were not involved. Again, the level of detail on this topic differs per municipality. Some municipalities were more explicit than others. E.g. the municipality Noordenveld wrote a separate paragraph on how they involved the public and what they thought the sustainability policy of the municipality should look like (Gemeente Noordenveld, 2015). For some municipalities there was no information on this theme, for these interviews shed more light on whether there was stakeholder participation in the plan development.

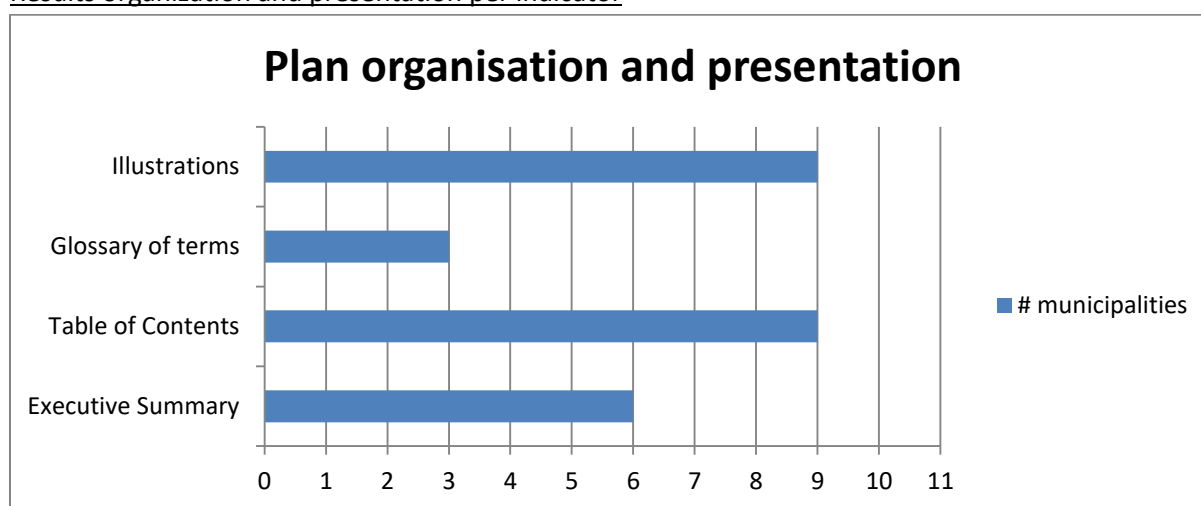
Additional interview results

In the evaluation results, five out of eleven did not clarify whether they did or did not involve stakeholders in the plan development. Interviews with public officials clarified the evolution and process of the plan and which stakeholders were involved. In every municipality, stakeholders were involved and participated in plan-making. Additionally, eight out of eleven municipalities included input of citizens in their plans, and of the three remaining municipalities one explicitly stated the citizens were not involved (GROm), and the other two would include the citizens in a later stage (WEE), or did not remember whether citizens were involved (VLI). What this means is that the results in the documents differ greatly from what is stated in the interviews. More detailed information on participation can be found in the section on the policy process of the creation of LCAPs at the end of the chapter.

7.8 Organization and Presentation

The last theme includes the last four indicators. The four indicators are about the presentation of the document. Does the document provide a summary section, does it include a table of contents, does it have a glossary, and does it use clear illustrations. The results are presented below.

Results organization and presentation per indicator

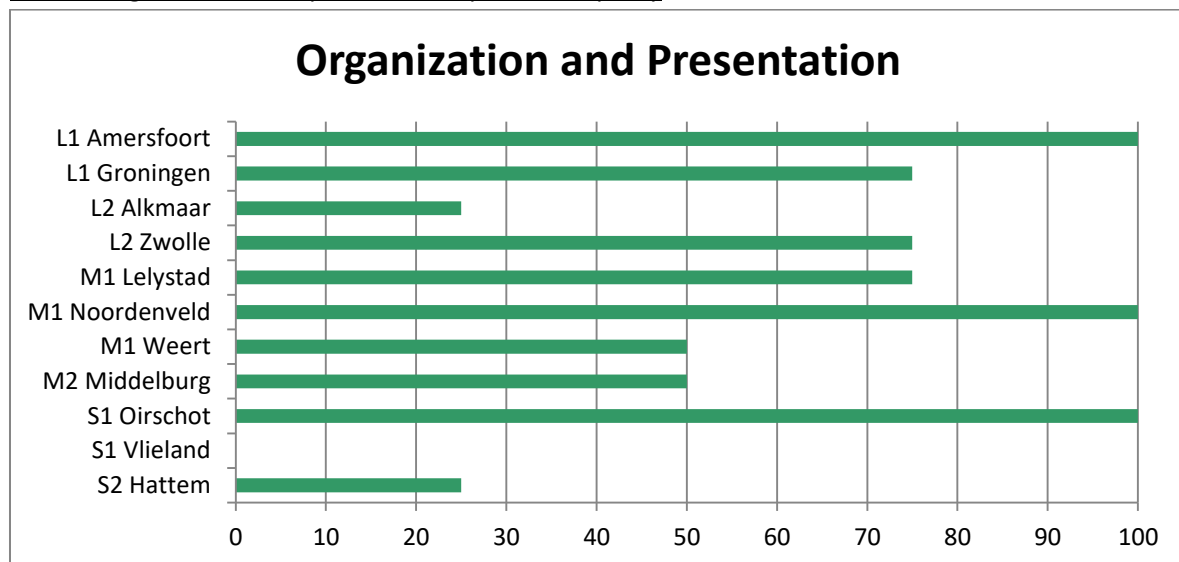


Graph 13 Organization and Presentation results per indicator

Most municipalities include a table of contents in their municipal plans. Just over half of the municipalities included a summary section (six out of eleven) and most municipalities (ten out of eleven) inserted a table of content in their document. Most municipalities (seven out of eleven) did not include a glossary of terms. The documents differed most in the area of clear illustrations. Some

documents were plain word documents with headings and tables, which scored a 0, while others were filled with infographics and diagrams, which scored a 1. Within the plans that scored a 1, great variety existed. For example, Amersfoort and Groningen included multiple clear and informative infographics (Over Morgen, 2017; Quintel Intelligence, E&E advies, & Deelnemers Platform Groningen Energieneutraal, 2018), and Noordenveld included one circle diagram (Gemeente Noordenveld, 2015).

Results organization and presentation per municipality

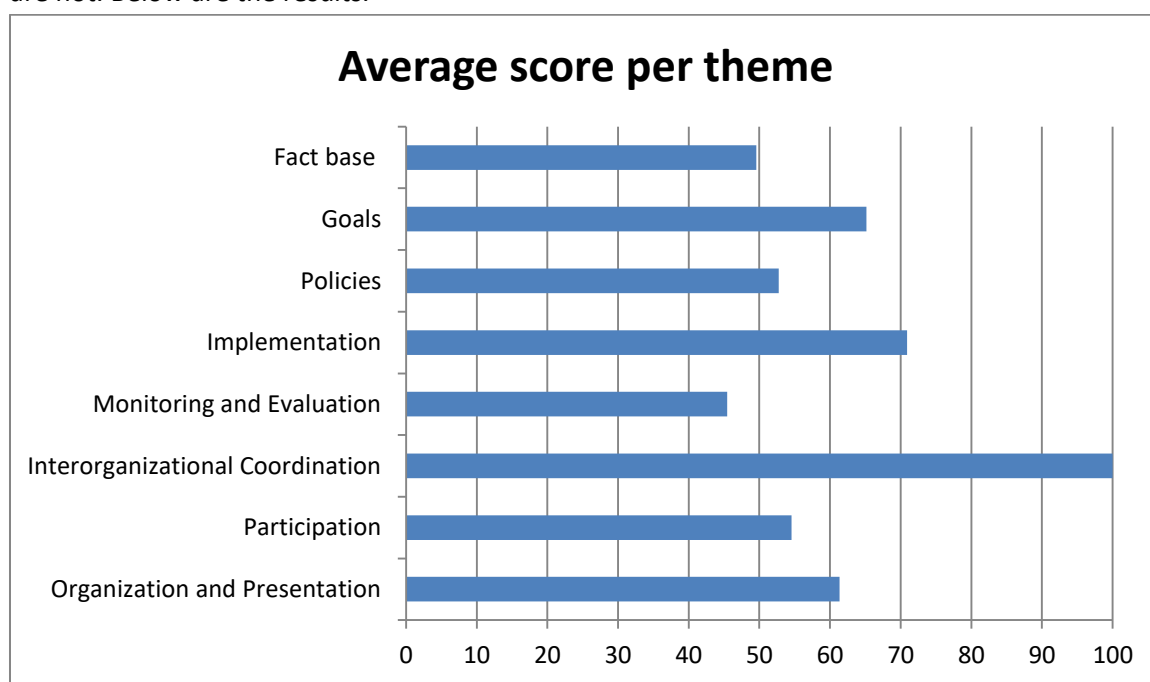


Graph 14 Organization and Presentation results per municipality

The organization and presentation of the documents differed greatly between the municipalities. Within the small municipalities great varieties existed in terms of the theme, and their ambitions. One type 1 municipality scored 100%, while the other scored 0%. The type 2 municipality scored 25%. Large and medium sized municipalities scored relatively high compared to small municipalities, and type 2 municipalities in medium and large municipalities scored relatively lower than type 1 municipalities.

7.9 Average score per theme

The last sub-chapter is about the average scores per theme. I want to shortly highlight the difference per theme as it shows what the topics are that are widely included in local climate plans and which are not. Below are the results.



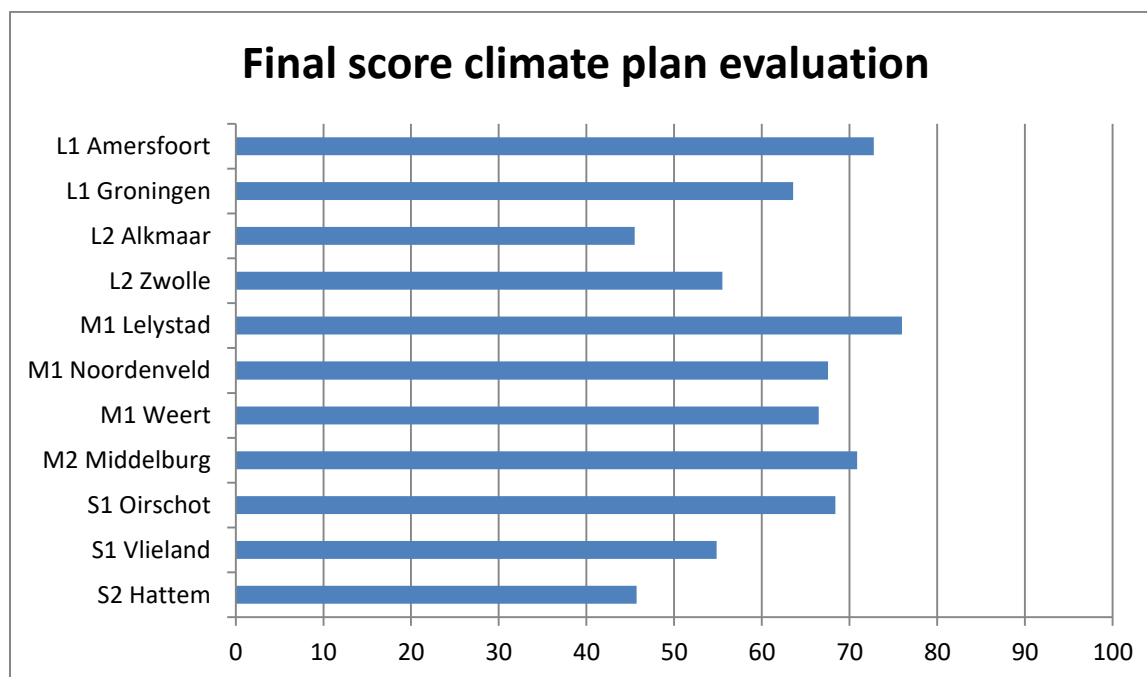
Graph 15 Average score per theme

Evaluation results

There are four themes that score above 60%: goals, implementation, inter-organizational coordination and organization and presentation. These themes are widely represented in the documents. The rest of the themes are scored lower, and M&E is the theme that is scored lowest on average. From the interviews it became clear that M&E was a challenging topic, of which most municipalities did not know yet how to calculate and keep track of their emissions. Some municipalities were actively involved in M&E, while others did not invest time and energy in creating a M&E tool as they wanted to spend their resources on practical implementation of their energy policies (MID, NOO).

7.10 Final results LCAP evaluation

Below are the aggregated scores of all eight themes per municipality.



Graph 16 Final score climate plan evaluation

The final scores range between 45% and 76%. Small municipalities score an average of 56,3%, medium municipalities an average of 70,2%, and large municipalities an average of 59,3%. Within the municipalities, there is a difference between type 1 and 2 municipalities. Type 2 municipalities score lower on average: 54,4% compared to 67,1% in type 1 municipalities. The exception is Middelburg, which scored relatively high and had a very detailed plan focusing on the broad topic of sustainability.

7.11 Process plan development

The process of the plan development seems similar when looking at the interviews and documents. I included both methods as some plans did not include a section or information on how the plan was shaped, so information from the public officials was necessary to fill in the gaps.

Formally, the Municipal Council has created the ambition, and the Executive Board creates the road to get there, which the public officials solidify and concretise. In this process, the baseline of GHG emissions is measured, and then the plan on how to reach the goal is written. This process involved stakeholders and in most cases the public. The reason for stakeholder involvement is because the overall view is that the municipality cannot reach the set goals alone: action of other stakeholders and parties are necessary. The municipality has limited power and instruments to increase climate action. The next chapter on climate responsibilities goes into detail on these issues. Three public officials stated the municipality did not involve the public in plan development (GROm, WEE) or were not sure (VLI). These are ambitious municipalities. Several municipalities hired a consultancy or other external party to write the plan (GRO, MID, AMEm, OIR) or to help with the baseline measurement (GRO, NOO). All of these municipalities are type 1 municipalities, except for Middelburg. One municipality had created a regional plan with other ambitious municipalities (OIR).

In general, plan development seems very similar in all municipalities, including stakeholder involvement. Some municipalities included consultancies or external parties to help to create their plans, which seems to have a positive influence on plan quality. Concerning size and ambition, size seems to not matter in the plan development process. Ambition seemed to have an influence on the process as the involvement of an external party for plan development was done by type 1 municipalities, with the exception of Middelburg.

7.12 Quality LCAPs and perception climate change

When considering climate action plans the perception on climate change, which is elaborated upon in the previous chapter, an interesting result is found. Namely, the municipalities that consider climate change as solely an assignment from the national government, are also the municipalities that score lowest on climate plan evaluation. Additionally, the municipalities that specifically stated they created their ambition because they wanted to take responsibility for climate change, are two large municipalities that score relatively high. Moreover, all public officials that considered climate change as a clear threat, are among the highest scoring municipalities.

While it is difficult to establish a clear link between the perception on climate change and the quality of LCAPs, the small sample does show some interesting results.. While LCAPs are not directly action, it is the intended action a municipality aims to make to reach its climate goals.

7.13 Concluding remarks

This chapter showed the evaluation results of the LCAPs in municipalities in the Netherlands. Overall, medium municipalities scored highest. The scores of small and large municipalities are very close together. Small municipalities score lowest. On average, type 1 municipalities score higher on goal evaluation compared to type 2 municipalities, with the exception of Middelburg.

Two topics were particularly interesting: participation and monitoring and evaluation. Both themes differed significantly when comparing the documents and the interviews. In case of participation, all municipalities included stakeholders, and most included the public, which was not specifically mentioned in the documents. The reverse is true for monitoring and evaluation, which is scored the lowest. Most municipalities have included a section on M&E in their climate plans, but interviews show that some municipalities have not prioritised M&E in practice. Additionally, the interviews show that M&E is a challenging and time-consuming topic for municipalities.

The content and organization of the plans were all different, and that shows in the results. As there is no common method to create LCAPs, this was expected. Considering the process of plan development, the involvement of a consultancy might have an influence on the overall scoring of the document. The public officials that have stated they hired a consultancy and the documents that have explicitly mentioned an external party involved in plan writing were type 1 municipalities with the exception of Middelburg. These municipalities have an overall higher score on plan quality. A potential link between the perception of climate change and the quality of climate plans is found: municipalities where the public official considered climate change as a threat, and where the public official stated they wanted to take their responsibility for climate change, score highest on plan evaluation. The next chapter discusses climate responsibility and how public officials consider their climate responsibility and the climate responsibility of other governmental levels. Here, I will go into climate responsibility and reflect on how and if it relates to the quality of the LCAPs.

8. Climate responsibility

This last result chapter is about how the public officials perceive their climate responsibility and their prescribed responsibilities in relation to different governmental levels. The question that I attempt to answer in this chapter is:

- How do public officials see their perceived and prescribed climate responsibility and how is this related to their perception of the climate responsibility of provinces, the national government and the EU?

The first part of the chapter is on the perception of perceived and prescribed climate responsibility of the public officials. The second part on how public officials perceive the climate responsibility of different governmental layers. Thirdly, the perception of public officials on which is the most responsible party to take climate action is reflected upon. This chapter embraces the interpretivist approach as the chapter is about perceptions of the interviewed public officials. I use several quotes by public officials to show certain feelings on prescribed responsibilities and how public officials perceive the climate responsibility of higher levels of government. Additionally, the view on which party is most responsible to take climate action is approached with supporting citations.

8.1 Perceived and prescribed climate responsibilities public officials

Perceived and prescribed climate responsibilities are respectively *informal* and *formal* climate responsibilities that municipalities have. Research has shown that perceived climate responsibility can have more influence on climate action than prescribed climate responsibility, and there can be a gap between these two forms of climate responsibility (Bubeck et al., 2012; Trell & van Geet, 2019). For my research I have asked public officials about their perceived climate responsibility and how they perceive their role as a municipality in the energy transition. I have added information on the roles municipalities take in the energy transition that was mentioned in their LCAPs. I compare this to their prescribed climate responsibilities to see if there are discrepancies.

8.1.1 Perceived climate responsibility municipality

Municipalities view their own climate responsibility and role in climate mitigation in many different ways. Below are the perceived roles and climate responsibilities of the municipality mentioned by the interviewed public officials and municipal documents. Several roles are considered for municipalities: stimulator, facilitator and initiator, providing information and create awareness, financial support, leader, exemplary role, considering the interests of citizens, and lastly as negotiator with higher levels of government.

Stimulator

The role as stimulator of change was mentioned by all public officials (ALK, AMEm, GROm, HAT, LEL, MID, NOO, OIR, VLI, WEE, ZWO). The municipality is viewed as a governmental level with little imposing power compared to the national government by the public officials. As a result, stimulating and motivating stakeholders in the municipality to act and engage in climate projects was considered an important role and responsibility. One example is the reduction of energy use in the built environment. The municipality does not have the power to impose sustainability measures to its

citizen's houses. What the municipality can do, is stimulate and motivate the citizens to make these changes themselves (ALK, AMEm, GROm, HAT, LEL, MID, NOO, OIR, VLI, WEE, ZWO).

Facilitator and initiator

The facilitating and initiating role was considered an important role for all municipalities (ALK, AMEm, GRO, HAT, LEL, MID, NOO, OIR, VLI, WEE). The public official of Lelystad discussed the policy instrument to allow citizens living in the city to put solar panels on their roofs without the need of a permit (LEL). Several actions that the municipality can take were mentioned such as taking away restrictive legislation, and to create monitoring instruments. In Noordenveld, the public official talked about the municipality being a place where citizens go with their initiatives and the municipality thinks along with them, and provides them with any support that is in the municipality's power (NOO). Many public officials consider the role of the municipality and its responsibility to initiate projects and negotiations to bring parties together and spark the energy transition (Gemeente Alkmaar, 2016; Gemeente Lelystad, 2016; Gemeente Middelburg, 2013; Gemeente Vlieland, 2017; Gemeente Zwolle, 2017a; M. van Oosterhout & D. Schaeffers, 2008).

Providing information and create awareness

Document research shows that all municipalities deem awareness creation and the provision of information as a responsibility of the municipality (Gemeente Weert, 2019; Gemeente Zwolle, 2017a; Raad van Hattem, 2018). The public officials perceived the municipality's responsibility was to inform society on the energy transition and climate mitigation and create awareness around these topics (ALK, AMEm, GROm, LEL, MID, NOO, OIR, VLI). Sharing information on subsidies, isolation measures for citizen's houses, smart manners to save energy and the explanation of energy policies and the energy transition to the public were considered the responsibility of the municipality (LEL, MID, OIR). The municipalities saw the role as the party which should spread awareness about climate change and the energy transition to stakeholders and society (ALK, AMEm, VLI).

Leader

The role as leader was mentioned by ten out of eleven public officials who were interviewed (ALK, AMEm, GROm, OIR, LEL, MID, NOO, VLI, WEE, ZWO). The leading role is often mentioned in combination with the Regional Energy Strategy. The RES is a top-down strategy to enhance and accelerate the energy transition. The municipalities perceive the RES as a decentralisation measure by the national government where the municipalities receive the leading role (ALK, AMEm, NOO, OIR, WEE, ZWO). Three public officials considered the role of the municipality as leading and shaping the energy transition (AMEm, LEL, GROm). Except for Hattem, which considered itself as a follower due to its size and resources (HAT).

Exemplary role

Nine municipalities discussed the exemplary role. (Gemeente Weert, 2019; M. van Oosterhout & D. Schaeffers, 2008; Quintel Intelligence et al., 2018; Raad van Hattem, 2018) (ALK, NOO, MID, VLI, ZWO). The public officials stated they cannot directly impose sustainability measures and energy reduction measures on the citizens living in their municipality. However, they can influence the energy reduction of their own buildings and the increase in renewable energy in the form of solar panels on the roofs of their own buildings. In this way, they can show society how to support the energy transition and show their stance (ALK, NOO, MID, VLI, ZWO).

Financial support

Financial support in the form of subsidies or giving ‘pocket money’ for climate projects was considered a responsibility by nine municipalities (Gemeente Vlieland, 2017; Quintel Intelligence et al., 2018; Raad van Hattem, 2018) (ALK, AMEm, LEL, MID, NOO, WEE). The municipality Noordenveld has a budget for sustainability measures that they can hand out to projects related to sustainability (NOO). While this is considered a responsibility of the municipality, the financial resources of the municipalities are limited when it comes to being able to provide support. For example, Middelburg has a small budget but it does support and fund, for example, the money necessary to rent a venue to host a sustainability night and provide drinks (MID). Additional document research showed that three other municipalities also considered their role to provide financial support to parties that aim to participate in the energy transition (Gemeente Vlieland, 2017; Quintel Intelligence et al., 2018; Raad van Hattem, 2018).

Considering interest of citizens

Municipality’s responsibility to consider the interests of citizens was explicitly mentioned by five public officials (HAT, LEL, OIR, NOO, WEE). The five public officials discussed their role as representatives of the citizens in the municipality, and that the interests and wishes of the citizens should be well-considered. Especially in combination with wind mills, as in some areas wind mills are not yet supported by the citizens (HAT, WEE). For example, the public official of Oirschot spoke about how they municipality dealt with wind mills. A wind safari was organized to show interested citizens what it would look like to have a wind mill close to home. The citizens could listen and see the impact. They gave their opinions, and the municipality took the views of the citizens into account when making the energy plans (OIR).

Negotiation with other levels of government

Two public officials considered the role of the municipality to negotiate with other levels of government (LEL, GRO). The public official of Lelystad mentioned the important role of the municipality in the negotiations in The Hague with the national government. He considered Lelystad as the link between the national government and explaining what the municipality and especially what citizens need. As Lelystad is the capital of the province Flevoland, it has significant influence in national climate negotiations (LEL).

Concluding remarks

The perceived climate responsibilities among municipalities are relatively similar. All municipalities state at least five of the above-stated responsibilities, and some responsibilities are mentioned by all municipalities. The responsibilities are mentioned in e.g. the climate agreement of 2007, where several roles of municipalities are highlighted: the role as leader, stimulator, provider of information, facilitator, the exemplary role, provider of permits and the role of enforcer (Rijksoverheid, 2007). The role to provide finances is mostly stated by medium and large-sized municipalities, to consider the interests of citizens by small and medium municipalities. However, this is an obvious role for municipalities as the municipal council is democratically elected. The negotiation with other levels of government is only mentioned by municipalities with relatively strong political capacity: the capitals of provinces.

8.1.2 Prescribed climate responsibility

Over the years, decentralisation measures for climate mitigation have been taken by the national government, giving municipalities more responsibilities. The most recent climate agreement prescribes several responsibilities for municipalities: to take the lead in the energy transition in the Built Environment (*Klimaatakkoord*, 2019), and to create a RES in collaboration with the region that is focused on electricity measures such as renewable energy (Rijksoverheid et al., 2018).

The interviews shed light on the experience of the interviewed public officials of their prescribed climate responsibilities: their formal responsibilities. Nine out of eleven municipality clearly mention the energy transition (ALK, AMEm, HAT, MID, WEE, ZWO) and the Climate Agreement of 2019 and its components as prescribed climate responsibilities. Several components related to the CA such as the heat transition (ALK, AMEm, GROM, MID, NOO, ZWO) the RES (ALK, AMEm, HAT, MID, NOO, OIR) and climate monitoring (ALK, GROM) were considered prescribed climate responsibilities by higher levels of government. Additionally, the public officials experience the energy transition as a decentralisation measure by the national government. The municipalities have received more responsibilities when it comes to the energy transition, but the overall view is that they have not received the resources necessary to fill in this responsibility (ALK, AMEm, HAT, MID, OIR). To illustrate several views, citations of public officials are given below.

“The immense steam train, the RES, that is how I experience it” (W. Rouffaer, 2019)

“What I notice about the national government is that they put a lot on the local level, with the idea that we know what the local circumstances are. But this is not possible without the associated resources or legal powers, and I believe the national government is taking a cautious attitude and is not delivering what it should to provide local governments with the opportunity. It is a real shortcoming and a challenge.” (J. Minderhoud, 2019)

“And they (the national government) said: dear municipalities, you are now in control. [...]. We have not received the means from the national government to actually control. Hence my statement: we can initiate, stimulate, motivate, but that is it, apart from our own buildings: we have control over those.” (P. Van Den Dries, 2019)

“Well, as a municipality we first state: if we get a new responsibility, it would be nice to receive a bit of finances, it would really help in terms of capacity.” (E. Langens, 2019)

“The central government does play a major role as they have legislative authority, and with the climate agreement the municipality receives extra tasks, which is fine: the climate agreement actually assigns a leading role to the municipality for implementation, especially in the heat transition, but we need the tools and resources to actually be able to take the role.” (Public official of Amersfoort, 2019)

In terms of perceived and prescribed responsibility, when looking at national agreements between local governments and the national government, certain roles were envisioned for local governments which are seen in how they perceive their climate responsibilities. In case of prescribed responsibilities, there is little discrepancy between what they believe their responsibility is, and what the formal responsibility actually is. An interesting finding is that all municipalities accept their prescribed responsibilities, but there is more to climate policies than only perception. An often found

challenge is, regardless of municipality's size or ambition, lacking resources to fulfil their leading role in the energy transition. The next section discusses the perception that public officials have on the climate responsibility of higher layers of government.

8.2 Perceived climate responsibility of higher levels of government

The perception of the climate responsibility of higher levels of government could bring more understanding of the role that municipalities see for themselves and of other layers of government in climate mitigation policies. I start with the view of public officials of the European Union, followed by the national government, and I end with the perception of climate responsibility of the provinces.

8.2.1 Perceived climate responsibility of public officials towards the European Union

The climate responsibility of the EU was considered in several ways. In general, the public officials saw a broad role for climate responsibility for the EU, and they were happy with the climate responsibility the EU has taken so far (AMEm, ALK, ZWO, NOO, OIR). They felt more connected to the national government, as there is a more direct policy contact in comparison to the EU. Some municipalities felt the EU was too far away to be able to extensively discuss its climate responsibility (AMEm, OIR). Most public officials that discussed the EU's responsibility regarding climate spoke in general terms or gave specific examples of climate policies they were happy with. For example, the financial support the EU is giving to several climate projects is appreciated by municipalities that engage in these projects (ALK, AMEm, NOO).

"We have international European projects which we participate in relating to the energy transition and climate." (Public official of Amersfoort, 2019)

"We participate in several projects, of which one is the Horizon program, a European subsidy project" (P. Van Den Dries, 2019). // "Europe takes climate seriously in its new budget, and it makes billions of euros available to support countries to further solve the climate problem." (P. Van Den Dries, 2019).

"I can only say these are ambitious goals and they (the EU) could not have done more, so we cannot be unsatisfied about it. And we cannot be unsatisfied about the amount of finances they (the EU) make available. A lot is possible ... when it comes to finances." (K. Ipema, 2019)

Other public officials perceived responsibilities were taking smart decisions, in relation to making sure countries that lag behind in GHG reduction are supported: that the many differences in GHG reduction between European countries are brought to attention (NOO). Moreover, the monitoring of each country's GHG emissions was perceived as the responsibility of the EU (OIR). One municipality considered the EU as a region which has exploited the earth for many centuries, and felt the EU should give the example and should take the lead when it comes to climate policy as it has to make up to the rest of the world (LEL). The next subsection discusses the national government with a more direct line to the municipalities: the national government.

8.2.2 Perceived climate responsibility of public officials towards the Dutch government

The overall view of public officials is that the Dutch government should do more to support the municipalities to develop and implement energy transition strategies. The public officials view the

steps taken by the national government such as the climate agreement as a step forward, but not yet sufficient.

“It is great that a climate agreement was created, but there is still room for improvement to ensure the pre-conditions are properly taken care of, to make it enforceable for municipalities.” (Public official of Amersfoort, 2019)

The interviewed public officials coined several issues they experience as a result of action or inaction by the national government. I divided these issues in three responsibilities the public officials view for the national government: to provide well-working regulation and financing, fast and clear decision-making and to provide direction.

Provide well-working regulation and financing

The perception of public officials is the national government should provide well-working regulation to aid them to adequately implement climate mitigation policies. The experience of public officials shows the current laws and regulations are considered insufficient or even blocking their ability to develop and accelerate the energy transition (AMEm, GROm, HAT, LEL, MID, NOO, OIR, VLI, WEE). For example, the public officials of Groningen and Oirschot stated the energy laws and regulations are still based on the fossil fuel energy system (GROm, OIR), which causes a delay in innovations and possibilities to socialise the costs of energy policies (GROm).

“We have underground gas networks, water supply networks, so it would be practical if Nexis develops this and that the costs could be socialised, but then we encounter regulations which makes it impossible, which challenges us. A lot of laws and regulations is still focused on the old energy system of fossil fuels.” (J.W. Brontsema, 2019)

Additionally, the public officials of Middelburg discussed the linkage of the price of natural gas to the price of heat, which means a heat network will become more expensive over time and less attractive to construct, as the gas price will rise (MID). Another responsibility considered for the national government is to provide financing for the energy transition, which is lacking at the moment. Eight out of eleven municipalities experience lacking financial resources as a limiting factor, which the national government should provide (AMEm GROm, MID, NOO, OIR, VLI, WEE, ZWO).

“And national regulation should be in order, and also the finances, which will make it possible that municipalities can do their job.” (Public official of Zwolle, 2019)

“There is a cautious attitude, also in the municipality, because many national regulations still have to be altered. For example, there are no good solutions for financing, and the problem is that the gas price is increasing to stimulate, but there are no good solutions which increases the issues with e.g. energy poverty.” (J.W. Brontsema, 2019)

However, one municipality, Hattem, considered the finances that the municipality received from the national government as abundant when considering the RES.

“Now it has taken shape and the national government finances a lot, they support us with finances.”
(W. Rouffaer, 2019)

Fast and clear decision-making

Some public officials wanted to accelerate the developments of the energy transition in their municipality but this was not possible as a result of slow decision-making by the national government. More than half of the public officials view the decisions regarding the energy transition made by the national government as too slow (HAT, GROM, MID, NOO, OIR, WEE).

For example, in the climate agreement a financing option for the built environment is given: building-related financing. This is a loan where the person taking the loan is not liable, but the house or building that the loan is meant for is liable. When the house or building is sold, the loan is also taken over by the new owners. This way of financing is considered promising by public officials, but the national government has not yet made it possible to use this method of financing (GROM, NOO).

“The climate agreement discusses building-related financing [...] it is written in the climate agreement but it takes such a long time before we can actually use it [...] and that kind of stuff take too much time. These are essential parts of the solution and people have to wait for it.” (K. Ipema, 2019)

Four public officials view the national government as taking short-term (ALK, AMEm) and inconsistent decisions (NOO, WEE). For example, the public official from Weert mentions the Dutch goal and how the national government has not implemented sufficient measures to reach the goal according to the Urgenda judgement. The public official argues if the national government had taken consistent, long term and fitting measures to reach its set climate goals, there would not have been inconsistent and ad hoc decisions made and would e.g. the built environment be much more sustainable if the Dutch government had started taking climate mitigation measures a decade ago (WEE).

Provide direction

The national government is considered to not provide enough direction in the energy transition (AMEm, GROM, HAT, LEL, MID, NOO, OIR, VLI). Some issues such as the location of wind mills is a topic where municipalities would like to experience more guidance from the national government. Some municipalities are more open and accepting of wind mills in comparison to others, also the amount of space to place wind parks is an important factor. Some public officials worry their land will be used to generate renewable energy for high density areas, which will highly influence their landscape. The public officials expect much discussion on the topic of renewable energy and wind mills, and consider the national government to be able to solve the discussion by providing direction and a fair division of the share of renewable energy per municipality or province (HAT, MID, NOO, OIR).

“And what I also consider a responsibility for higher governments is that if there are front-runner regions and laggard regions, there should be some steering [...] I have heard that some areas of the Netherlands do not want to build wind mills in their area [...] and of course that is their responsibility and their view, but I do hope on some steering from the national government.” (E. Langens, 2019)

“Especially when it is about things such as windmills or solar parks, there is a lot of resistance [...] which has to do with major conflicts of interests, because in the end it is all about landscape pollution, [...] everyone has their own opinion [...] that can be very difficult. And there may be some steering of the national government in these issues as it may be very difficult to figure it out locally.” (W. Rouffaer, 2019)

8.2.3 Perceived climate responsibility province

The province was not discussed elaborately when talking about climate responsibility of higher levels of government. Although little information was gathered on the climate responsibility of the provinces, still some public officials mentioned their perception on the climate responsibility of the province. Three public officials discussed the climate responsibility of governments in general, including the provinces, and governments should take the lead in climate mitigation. They saw a significant role for governments to steer the energy transition and pull in and convince other stakeholders to join (GROm, MID, OIR).

“Someone should make decisions: you have time until then, and after that you really have to take action. Neighbouring municipalities will not take this role, it should come from both province or the Hague (national government)” (E. Langens, 2019)

However, the province is also a party that is collaborating with the municipalities in e.g. the RES process and supporting them financially:

“The province is a communication partner now.” (E. Langens, 2019).

“.. and the province supports us with manpower and money, and that is used regionally, and the process financed of this money.” (W. Rouffaert, 2019)

“The province has made a grant available for us,” (E. De Ruijter, 2019)

Other public officials perceived the climate responsibility as a stimulating and facilitating role (NOO, ZWO).

“In addition, there is a provincial role that can be stimulating, but it should in particular support good decisions in inter-municipal matters.” (Public official of Zwolle, 2019)

An example is the province Drenthe, which engaged in an EU climate project and the municipality Noordenveld could join in (NOO).

“we participate through the Province Drenthe, the province leads the grant application (of EU project)” (K. Ipema, 2019).

Nevertheless, there should be enough room for municipalities to decide about their own climate policies, and these should be supported by the province (OIR). As some policies are not possible yet, the public official of Oirschot would appreciate support for climate plans and a helping hand with their implementation (OIR).

“.. so if we want something within the municipality that does not fit the current laws and regulations, that the province and layers above take this into account and help to find solutions” (E. Langens, 2019).

Some indication that more guidance should be provided by the national government compared to the province is made clear by the public official of Vlieland:

“Whatever that can be done locally, should be done, but we encounter regulations that give no space for what has to be done locally, the national government should be aware of this, the provinces to a lesser extent.” (E. De Ruijter, 2019)

Considering the view that public officials have of different levels of government, a sense that the role the EU and provinces take in climate policy are considered with more content compared to the national government. The national government is mostly viewed as a party that is responsible for the availability of resources and well-working regulation. Public officials need more support and guidance of the national government. However, one interesting finding is that one public official of a small type 2 municipality considered the funds that the national government provided as abundant.

8.3 Responsible party climate action

This subchapter relates to literature on climate responsibility, and which party the public officials feel is most responsible to take climate action.

8.3.1 Perception most responsible party

Most public officials, eight out of eleven, stated they view all parties involved as responsible for climate change (AMEm, GROm, HAT, MID, NOO, OIR, WEE, ZWO). This finding links to shared climate responsibility, what an often found perception is in local governments concerning climate change (Trell & van Geet, 2019). Shared responsibility means that the responsibility is not appointed to a specific actor, but the responsibility for climate is considered shared by all parties (Trell & van Geet, 2019). The following citations show how public officials view shared responsibility:

“I think we are all responsible for this transition, individual citizens, governments, and the market also plays a role” (Public official of Amersfoort, 2019).

“I am convinced that everyone has their own responsibility on their own level.” (J. Minderhoud, 2019).

“I think everyone is responsible, not one party is most responsible.” (public official of Zwolle, 2019).

“I believe it is something we are all responsible for, the energy transition cannot be implemented solely by the municipality.” (T. Fijlstra, 2019)

“I think we are (the most responsible party), [...] all of us.” (K. Ipema, 2019)

Four public officials viewed governments as powerful parties with climate responsibility to reduce climate change (AMEm, HAT, MID, OIR). Collective responsibility is about a responsibility of a group,

or a government (Peeters et al., 2019). Fahlquist (2009) considers governments as powerful parties that should use their power to make it possible for individuals to make sustainable choices. These four public officials share this view. Below are three citations that indicate the view of three public officials regarding collective responsibility.

“I am convinced that environmental issues must be taken up by governments, because it simply will not be taken up by individuals, so in that sense I am strongly in favor of a strong governmental role.” (W. Rouffaer, 2019).

“but governments in particular and companies have a great responsibility to deal with their own energy consumption.” (public official of Amersfoort, 2019).

“.. but governments, in particular the national government, have the power to take action.” (J. Minderhoud, 2019).

The public officials of Vlieland and Alkmaar stated they considered citizens and individuals as most responsible parties (ALK, VLI). Theory on individual responsibility states that the consumer is responsible for its consumption (Peeters et al., 2019). As municipalities do not install solar panels or can currently make decisions on what people should do with their houses, the public official of Vlieland viewed the citizens as most responsible to act on climate change (VLI),

“I think citizens are the most significant actors, who have to reconsider their energy consumption. [...] Citizens play an important role.” (E. De Ruijter, 2019).

and as citizens vote for the different governmental layers in the Netherlands, they can influence what type of people represent them (ALK).

8.4 Concluding remarks

Considering perceived and prescribed responsibility, most information on how these responsibilities relate to different levels of government is found in how public officials perceive the national government. The national government is considered a party that should support the municipalities in the implementation of the energy transition. As the responsibility is prescribed by the national government, the municipalities expect resources to adequately fulfil the task, which they do not yet have received. Additionally, well-working legislation and direction from higher levels of government is currently missed, and these are considered challenging the ability of municipalities to progress in the energy transition.

The perception is in general that climate responsibility is shared between stakeholders in municipalities, and some public officials view the government has an important role to steer and motivate individuals to make more conscious choices. What can be tentatively concluded is that the political will is present, and a sense of responsibility is there, but that implementation is not yet possible as a result of lacking resources.

9. Discussion

The aim of this thesis is to create a greater understanding of why and how Dutch municipalities adopt local climate goals, how they work with their goals and how this relates to the perception of climate responsibility of different governmental levels. In the discussion, I go into several findings per research question and reflect on them with, in some cases, supporting literature. After the discussed results, I integrate them towards the objective.

9.1 Local climate goals in the Netherlands

The first research question is quantitative and descriptive, and discusses how many municipalities have adopted local goals and what they look like. Municipal climate goals are widespread in the Netherlands. From the 355 municipalities, 280 municipalities have adopted local climate goals. The greater majority of municipalities have adopted clear climate goals: around 80%. These climate goals consist of a term and a year. The choice to create and adopt climate goals was, until the recently adopted climate law that sets a national long term binding goal, voluntary and a political choice (Van Dijk, 2018). As the goals are voluntary, the goals are not fixed: these can change over time. The quantitative analysis of climate goals in municipalities in the Netherlands was further informed by the eleven municipal case studies. In interviews, questions about what would happen when the municipality was not on track to reach its set goals were answered in twofold: either the goal gets adjusted to a more realistic goal, or they can allocate more resources to the energy transition.

In practice, goals can be altered quite easily. In the sample, one-third of the sample municipalities had changed their goals over time for different reasons such as the increase in information on which actions would be necessary to reach the goal, or because the terminology seemed to be unrealistic (GRO, WEE) (Gemeente Vlieland, 2017). For example in Groningen, the terminology of the goal changed from energy neutral to CO₂ neutral, as the term energy neutral indicates the energy that is used in the municipality has to be generated in its geographical area, whereas CO₂ neutral is not bound to the geography of the municipality (GRO). Only the ambitious municipalities have changed their goals over time.

Climate goals do not necessarily indicate the start of mitigation policies. Some municipalities have already engaged in these policies for years. For example Middelburg, which has established its first energy plan in 1994, and has adopted its long term climate mitigation ambition in 2012 (Gemeente Middelburg, 2013). The reverse is also true: when climate goals are formally adopted, it does not mean the municipality's priority is on reaching the ambition. For example, Oirschot has created an ambitious goal in 2008: energy neutral in 2025. However, since then, climate policies have not been actively implemented for several reasons such as the economic crisis, decentralisation measures in other policy fields, priority for other policy fields, and a lack of financial resources and knowledge (OIR). This means that my first research question does not capture an actual starting point for the implementation of climate goals, but it might indicate an explicit formal expression to show that climate is considered an important topic.

9.2 Policy diffusion and climate goals

In relation to the Policy Diffusion framework, the findings on climate goals in the sample and that these do not reflect a beginning of active climate mitigation policies are of great value. The PD framework is used to find reasons for goal adoption in this thesis, which was not a perfect fit as the framework aims to explain what the factors are that indicate the adoption of innovative policies (Paul A. Sabatier, 2007). Nevertheless, several characteristics and explanatory features of the PD

framework were useful to explain why goals were adopted. The inclusion of both internal and external factors reflected the reasons for goal adoption. Concerning the external factors: the national policy context was considered important by every municipality, and the year of goal adoption is closely related to the development of certain energy and climate agreements that were created around the time of goal adoption. The influence of higher levels of government and the interdependencies between goal adoption is clearly seen here. In small, and to a lesser extent in medium-sized municipalities, geographical proximity was a significant reason for goal adoption.

Internal factors, according to the theory, could include economic, political, social and environmental factors. Direct reasons for goal adoption did not include all four broad topics. The most common internal reasons for goal adoption were: co-benefits of climate actions, keeping autonomy, a motivated municipal councillor, and a general increased social acceptance to take climate change measures.

Information from interviews indicate that reasons why municipalities do or do not engage in climate policies strongly relate to internal factors such as the amount of resources and the demands of citizens. However, these reasons were discussed in interviews, but were not specifically focused on goal adoption but related more to the implementation of climate policies. Reasons for climate mitigation policy adoption more broadly could have been considered in the questions, to make better use of the PD framework.

Reflecting on the results, I can identify several weaknesses and potential mismatches between my research and the choice to use the PD framework. Firstly, the extent to which diffusion has taken place cannot be determined, as the sample is too small. With a bigger sample, or e.g. focusing on a whole province, the PD framework could fit well. Additionally, there is not a clear answer to which factor is most influential in climate goal adoption. Several factors are mentioned by more municipalities than others, which could give an indication of its relative influence, but this might be too short-sighted as e.g. the factor of a motivated municipal councillor was mentioned by only two public officials, which would then indicate a relative low influential reason, but for one municipality this was considered the most important factor why a climate goal was created by the interviewee. Thus, a reason that was stated by every municipality does not necessarily weigh more than a reason that is stated by few municipalities.

Additionally, the potential significant role of internal determinants in early adopters versus the importance of external factors for municipalities that adopt climate goals when they become more established in a country (Hui et al., 2019) cannot be clearly established. In case of large municipalities, Amersfoort and Groningen which are early type 1 adopters, internal determinants and a feeling of taking responsibility play an important role in goal adoption. However, early type 1 adopters of small municipalities were greatly influenced by the region, which shows a different result: size might have an influence on which factors have led to goal creation. Additionally, the findings that national policies were influential in every municipality, might suggest a great role for external factors. However, as the weight of the different internal and external factors that have resulted in goal adoption cannot be clearly determined, the link between early adopters and the influence of internal determinants cannot be clearly established in municipalities in general.

Moreover, the process of goal adoption cannot be explained by the PD framework, as it is not part of its scope. The PD framework focuses on explanatory factors of policies that have already been adopted.

A potential weakness concerning the interviewees is that the information on the process and reasons for goal adoption might be incomplete as most interviewed public officials did not work at

the municipality at the time of goal adoption, which means they were not present or part of the goal adoption process. To partly solve this weakness, municipal documents on climate goal adoption were included.

9.3 Local Climate Action Plans (LCAPs)

Municipalities work with their climate goals by creating Local Climate Action Plans (LCAPs). These plans reflect the practical road to reaching the ambition in the form of projects, actions, or themes. In general, the results of the LCAPs show that type 1 municipalities, the more ambitious municipalities, score higher on the evaluation. The plans are score higher on plan evaluation compared to type 2 municipalities. The process of plan development could have some influence on plan quality. In general, the process of plan development looked quite similar in all municipalities: stakeholders were involved to provide input and the plan was eventually written by public officials. However, the municipalities that had hired a consultancy to co-create the plan scored relatively higher compared to municipalities that did not. The municipalities that hired consultancies were mostly type 1 municipalities with the exception of Middelburg. The inclusion or exclusion of the public seems to have little effect on the quality of LCAPs.

An interesting finding was the relatively low scores on monitoring and evaluation. This would indicate that municipalities have little knowledge on the progress they have made to reach their climate goal. In several municipalities, this was considered a low priority compared to climate action and implementation of policies were prioritised. Public officials experienced difficulties in M&E for several reasons: the national M&E tool does not provide up-to-date data, the data is not accurate, to set up a working M&E system is time and resource-consuming, and knowledge on how to measure is lacking. Additionally, municipalities are dependent on the information from other parties in the municipality. Most municipalities use different strategies to monitor the municipal emission of GHG: from a monitoring certification agency to hiring a consultancy to roughly approximate the progress by counting potential decrease in GHG emissions of the implemented energy projects.

Monitoring and evaluation as a weak element in municipalities is found more often in plan quality research (Wheeler, 2008; Woodruff & Stults, 2016). Monitoring and evaluation is proven to be a difficult task overall. However, in case of the research of Guyadeen et al (2019), which focused on populous municipalities in Canada, M&E scored relatively high, indicating timelines for monitoring, an inclusion of goals that are quantifiable in terms of GHG emissions. Comparable results can be found in the research of Tang et al (2010), which researched local jurisdictions in the US. However, Tang et al (2010) found that in practice, challenges were experienced with the implementation of M&E. These results are similar to the results that I found, with the inclusion of my interview results. This shows that plans and policies are implemented to different degrees. This might indicate that plan quality evaluations need a more detailed analysis of the degree of implementation over time.

Several authors have stated that strong participation results is a higher quality of plans (Berke, Spurlock, Hess, & Band, 2013; Burby, 2003). When comparing these findings to my results, the municipalities that score high on participation, also score highest on the overall LCAP evaluation, which seems in line with literature. Other authors have found that participation is generally lacking in LCAP creation (Baker, Peterson, Brown, & McAlpine, 2012; Guyadeen et al., 2019; Li & Song, 2016). When only looking at the participation scores, half of the documents scored low and the other documents were evaluated with a high score for participation. The interviews showed participation was greater than what was stated in the documents. This means the results for participation are

different from literature and that the overall evaluation should be higher when incorporating the interviews.

The selection of the climate action plans is a potential weakness in relation to the quality of plan evaluation. As the plans differ from each other in terms of time-range (the document for Noordenveld was from 2015-2020, Middelburg from 2013-2018, Weert from 2019-2020 etc), pages (from 114 pages to 15 pages) and the range of topics included (some documents focused on sustainability, others on energy). Additionally, some documents were outdated, which could cause for a friction between the results of the quality of LCAPs and the link to e.g. climate responsibility or ambition and size. As the public officials are focused on new plans and could have answered questions based on the documents that were in the making, but the new documents were not publically available yet for evaluation. Moreover, for one municipality, I used the regional plans instead of municipal plans, as these were not available. This could cause for a disproportionate as I used municipal documents for the rest of the municipalities.

According to theory, the divergence between LCAPs is normal and there is often no standardized method to create LCAPs (Damsø et al., 2016; Guyadeen et al., 2019). These challenges that I found, are also found in several other research on plan quality. Other plan quality research has also be based only on analysis of a single document, and these have called for the inclusion of more documents to create a better reflection of municipal approaches towards their municipal plans (Guyadeen et al., 2019; Tang et al., 2010; Woodruff & Stults, 2016).

A last point of discussion concerning LCAPs is the relation between public officials' perception on climate change and the quality of their LCAPs. I found that the public officials that considered climate change as a clear threat, and those that created climate goals as a result of a feeling of responsibility for climate change, were part of municipalities that score high on LCAP evaluation. Two research papers have stated a potential link between a risk perception of climate change and climate action could be possible (Bubeck et al., 2012; Trell & van Geet, 2019). These papers are both focused on climate adaptation in the Netherlands. Additionally, one of these papers was partly focused on public officials (Trell & van Geet, 2019), while the other focused on individuals (Bubeck et al., 2012). The latter might be less relevant than the former paper as the latter paper was not focused on the perceptions of public officials. While public officials are also individuals, the position of power public officials have compared to individuals might create a mismatch between the findings. While the link might be meagre, as the sample is small and a direct link cannot be made with certainty, these findings might deserve ground for further research.

9.4 Climate responsibility

Public officials consider the climate responsibility of higher levels of governments in several ways. Concerning the EU, public officials state the links to the EU are too indirect to have a strong opinion on its climate responsibility, but in general they are content with the EU and how it is taking its climate responsibility, its ambitious goal and the finances that the EU provides. Several municipalities engage in these projects and receive subsidy from the EU.

Provinces are considered almost partner-like. In several cases the province is mentioned in relation to mitigation projects the province initiates which the municipalities can join, subsidies the provinces provide, and public officials mention the province as communication partner.

There is a strong perception when it comes to the national government, which is in general a sentiment of receiving insufficient support to carry out their responsibilities. The national

government is in some cases even considered an *obstacle* in progressing in the energy transition. This indicates a perception that the national government is responsible to provide municipalities with resources such as finances.

When looking at the perceived and prescribed climate responsibilities of municipalities, the overall view is that decentralisation measures in climate policy are considered logical as municipalities have knowledge on local circumstances. Additionally, the increased responsibilities in climate policies are generally understood and accepted by the municipalities. However, the resources to implement measures to reach set goals and to fulfil the prescribed climate responsibilities are considered to be lacking. Resources such as finances, knowledge and well-working regulation are considered to be insufficient to take a leading role in the energy transition. The municipalities perceive the insufficient resources as a responsibility of the national government, which it has to provide. Considering the recently agreed upon Climate Agreement, the national government has agreed to provide resources which it has yet to provide.

Considering the view on which party is most responsible, there is a general consensus that the responsibility is shared between all actors in the municipality. Shared responsibility is often considered in local climate mitigation (Trell & van Geet, 2019). Collaboration with stakeholders is thus significant and essential in climate mitigation policies. Some municipalities see a significant role for governments which relates to collective responsibilities (Peeters et al., 2019). And only few public officials mention individual responsibility: talking about the responsibilities we all have as individuals to make sustainable choices (Fahlquist, 2009).

Combining this view with the challenges that municipalities face with climate mitigation policy implementation: the political will is present to implement climate mitigation policies. The belief that climate change is an urgent matter and something has to be done is there. However, this is not the only important factor. Reality is much more complex. Without the resources to take action, decentralised governments cannot fulfil their responsibilities. Recently, this problem is more and more researched. Research has shown there is a lack of coordination and climate action among subnational governments (T. Hoppe et al., 2014). Now there have been efforts to increase the support to municipalities considering the recently adopted climate law, and subsequent climate agreement. While the national government has not yet provided all support it has promised, this is expected to come (VNG, 2019).

10. Conclusion

The climate mitigation strategy of the Netherlands is characterised by decentralisation efforts over the past decades. Municipalities have received more responsibilities regarding climate mitigation, especially in terms of leading the energy transition in the Built Environment (VNG, 2020a). Several nation-wide climate agreements, energy agreements and climate agendas have indicated the urgency of climate change and have attempted to involve decentralised governments and other stakeholders to engage in climate mitigation. Subsidy measures specifically tailored to municipalities were provided until 2011 to support and motivate them to create ambitious local climate action plans. These subsidies were used by almost all municipalities (T. Hoppe et al., 2014).

Municipalities have adopted climate goals over the years, which has been a political choice. Around 80% of Dutch municipalities have created climate goals. Some adopted goals early, and some later. Nevertheless, the majority of Dutch municipalities have created clear goals. The process of goal creation can be divided in three strands: internal goal creation, creation with help of consultancy, and regional goal creation. In terms of size, small municipalities participated in regional goal creation, and also pointed out the region and the interaction with other municipalities as reasons for goal creation. Medium-sized and large-sized municipalities have created the goals internally or with the help of a consultancy. These climate goals are adopted as a result of several external and internal reasons, as proposed by the Policy Diffusion Framework. Externally, the national policy context is a significant influencer in all municipalities, no matter the size or ambition. Geographical proximity and networks with other municipalities was considered important for medium and small municipalities. Internally, political factors such as a motivated municipal councillor or keeping autonomy as a municipality were reasons for goal creation. Social factors such as support for the environment, and environmental factors such as co-benefits of climate actions and response to climate change in the municipality were also considered reasons for goal adoption.

While climate goals are set, these can change over time. Additionally, the setting of a climate goal does not necessarily indicate the beginning of active climate mitigation policy implementation. In some municipalities climate mitigation was already an implemented policy area before the climate goal was set, and in other municipalities the climate goal was set but this had not resulted in climate policy implementation.

Municipalities work with their climate goals by the creation of Local Climate Action Plans (LCAPs). These differ in quality as there is no specific agreed-upon manner to create the plans. There is possible influence of involvement of consultancy on quality of climate plans, whereas the involvement of public seems not influential. The results show that municipalities that are more ambitious generally have higher quality LCAPs, and medium municipalities score highest among small and large municipalities. Monitoring and evaluation is considered a challenging task by municipalities, and there is not a single monitoring tool that they use. Stakeholder participation is deemed important and is included by every municipality.

As a result of decentralisation measures of the national government regarding climate mitigation, the municipal level has received more responsibilities. Municipalities are entrusted with the responsibility to lead and coordinate the energy transition on a local scale. They also perceive their responsibility in a similar way. While municipalities accept these responsibilities, and the municipal perceptions on climate responsibility show that the political will is there to act, there is a widespread perception among the municipalities that they do not have enough resources to adequately fulfil these climate responsibilities. There is a widespread perception among the public officials that they do not have enough resources to adequately fulfil these prescribed responsibilities.

The general perception is that the decentralisation measures from the national government are not accompanied by the resources that are necessary to effectuate their tasks. Public officials perceive the national government as *challenging* and in some cases *blocking* their ability to effectively carry out their tasks to coordinate the energy transition. Examples of challenges are the slow manner of decision-making by the national government which halts the developments in municipal policy implementations, not providing enough finances or knowledge, and in-place regulation that still relies on the dependency on natural gas.

The perception of public officials on who is responsible to take climate action is generally considered a shared responsibility between all parties. Some consider an important role for governments to take the lead in climate action. What this means is that the political will to act is present, but the means to implement effective strategies are lacking. Municipalities view their own role as coordinator, but rely on action from stakeholders. This might also explain why stakeholder participation is important in many municipalities.

Looking at the bigger picture and the broader policy context, the recently adopted Climate Law and the related Climate Agreement may lead to a shift towards an increased climate mitigation response in the Netherlands. These recent events in climate mitigation policies are a potential increased coordination effort which could have several effects: plans similar in scope and themes, municipalities that have not yet created clear goals could be motivated to formally adopt climate goals, and climate action might be more widespread. Additionally, the adoption of climate goals is no longer voluntary, but is now a binding legislation.

My thesis research can serve as a base for future research in several ways. More in-depth research is needed to better identify the causes and consequences of weak M&E instruments in Dutch municipalities. As the progress municipalities make in climate mitigation is not measured uniformly, the most cost-effective and practical options to measure development and progress in GHG emission reduction can be scanned. Then, possible recommendations on how municipalities could be supported in monitoring and evaluation can be considered.

With regard to the recent national developments in Dutch climate policy, the impact of the new Climate Agreement on Dutch subnational climate policies and their ambitions can be very interesting to study. The element of voluntary climate responsibility is no longer included as all subnational governments are put to the task. All regions are expected to create Regional Energy Strategies by mid-2020, and these can be studied and used as a base. The PBL will look at the feasibility of the RESs and whether the national ambitions are expected to be reached with the pledged efforts. It is interesting to see how this shift works in the regions and what happens to ambitious municipalities, will they remain ambitious or will they take on the ambitions of the RES, and how will laggard municipalities respond to the obligation of a RES.

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Annex 1 – Information interviews and codes

Municipality	Code	Date of interview	Type of interview	Name	Function	Since	Duration of interview
Amersfoort	AMEm	19-11-2019	Telephone	Anonymus	Public official	End February 2019	30 mins
Hattem	HAT	19-11-2019	Face-to-face	Willemien Rouffaer	Advisor Environment	Approximately ten years	1 hour
Lelystad	LEL	20-11-2019	Face-to-face	Ite Meints	Sustainability director for energy	2017	1 hour
Groningen	GROm	21-11-2019	Face-to-face	Jan Willem Brontsema	Public official	2015	1 hour
Noordenveld	NOO	21-11-2019	Face-to-face	Kirsten Ipema	Municipal councillor	May 2018	1 hour
Vlieland	VLI	27-11-2019	Telephone	Elsje de Ruijter	Municipal councillor	2018	30 mins
Alkmaar	ALK	02-12-2019	Face-to-face	Peter van den Dries	Programme manager sustainability	January 2019	1 hour
Middelburg	MID	03-12-2019	Face-to-face	Chris dekker	Municipal councillor	2014	1 hour
				Jan Minderhoud	Public official energy	2006	
Oirschot	OIR	04-12-2019	Face-to-face	Esther Langens	Municipal councillor	2018	1 hour
Weert	WEE	10-12-2019	Face-to-face	Tjalle Fijlstra	Sustainability coordinator	January 2019	1 hour
Zwolle	ZWO	16-12-2019	Face-to-face	Anonymus	Public official	April 2019	30 mins

Annex 2 – Coding scheme interviews

Key themes (based on RQs/chapters)	Round 1 deductive codes	Round 2 deductive /inductive codes
1. Climate goals	Climate goal	Type 1, type 2
	Parties involved in goal-setting	Stakeholders, public
	Process goal-setting	Internal goal creation, consultancy, regional goal creation
	Time of goal-setting	
	Reasons goal-creation (Policy Diffusion Framework)	<u>External factors:</u> international influence, national influence, geographical proximity, transnational municipal networks <u>Internal factors:</u> Political factors: motivated councillor, keeping autonomy Social factors: support for the environment Environmental factors: co-benefits of climate action, response to climate change in own environment Perception climate change and responsibility: perception climate change, take responsibility for climate change
2. Plan quality	Process creation plan	Consultancy, public participation, stakeholder participation
	Fact base	
	Policy	
	Implementation	Finances, priority, responsibility
	Monitoring and evaluation	
	Interorganizational Coordination	
	Participation	
	Municipal use of plan	
3. Climate responsibility	Perceived climate responsibility municipality	To stimulate, to facilitate and initiate, to direct, to inform and create awareness, financial support, to be the example, to consider interests citizens, to negotiate with other levels of government
	Perceived climate responsibility Dutch government	Provide well-working regulation and financing, fast and clear decision-making, provide direction
	Perceived climate responsibility EU	Goal setting, financial support, project initiation, standing too far away, guilt to rest of the world, making smart decisions, monitoring
	Perceived climate responsibility province	Government in general, leave room for municipalities to decide, project initiation, province less responsible compared to national government, support municipalities in their plans, to stimulate and facilitate
	Perception most responsible party	All parties, government, citizens
	Prescribed climate responsibility municipality	Energy transition, climate agreement, decentralisation
	Risk perception CC	Threat, assignment, chance

Annex 3 – LCAP indicators

		Municipality:	Title of Plan:
		Year of plan	Date of evaluation:
Characteristic	#	Indicator	Description
Fact base	1	Climate Change Awareness	Does the plan include a description of the causes of climate change?
	2	Climate Change Context	Does the plan frame climate change as both a global and local issue?
	3	Emissions Inventory	Does the plan include an emissions inventory, such as greenhouse gases (GHG) and hydrofluorocarbons (HFCs)?
	4	Emissions Inventory Breakdown	Does the plan include a breakdown of the emission inventory, such as providing an inventory of emissions by sector?
	5	Base Year Emissions	Does the plan include a base year for emissions?
	6	Emission Trends Forecast	Does the plan include an emissions forecast (e.g., carbon footprint reduction in the future)?
	7	General Climate Change Impacts	Does the plan include a discussion of the general impacts of climate change (e.g., sea level rise, increasing temperature, storm frequency, impact on quality of life, and local air quality)?
	8	Specific Climate Change Impacts	Does the plan include a discussion of the specific impacts of climate change to the jurisdiction (e.g., identifies specific locations in the jurisdiction that are vulnerable to the effects of climate change)?
	9	Vulnerability Assessment	Does the plan identify certain geographic areas that will be disproportionately affected by climate change?
	10		Does the plan identify certain demographic populations that will be disproportionately affected by climate change?
	11		Does the plan identify certain industries that will be disproportionately affected by climate change?
Goals	12	Adaptation – General	Does the plan include at least one broad goal related to adaptation or reducing vulnerability to climate change?
	13	Adaptation - Specific	Does the plan include at least one specific goal related to adaptation or reducing vulnerability to climate change (e.g., reducing development in hazard areas found in the jurisdiction)?
	14	Mitigation – Community Emissions	Does the plan include at least one goal related to community emissions (i.e., how can the community reduce its impact related to climate change)?
	15	Mitigation – Government Emissions	Does the plan include at least one goal related to government emissions (i.e., how can the local government reduce its impact related to climate change)?
	16	Mitigation – Long-term GHG Emissions	Does the plan include at least one long-term (i.e., 20 years or greater) target for reducing GHG emissions?
	17	Mitigation – Short-term GHG Emissions	Does the plan include at least one short-term (i.e., less than 20 years) target for reducing GHG emissions?
Policies	18	Communication	Does the plan include at least one policy for public awareness, education, and participation?
	19	Land Use	Does the plan include at least one policy for efficient land use (e.g., compact development, mixed use, infill, and brownfield)?
	20	Transportation	Does the plan include at least one policy on transportation, including transportation strategies, transit-oriented development, pedestrian-friendly, and bicycle-friendly transit?
	21	Energy	Does the plan include at least one policy on renewable energy (e.g., solar energy and wind energy)?
	22		Does the plan include at least one policy on energy efficiency (e.g., energy star ratings and green buildings)?
	23	Waste Management	Does the plan include at least one policy on reducing waste (e.g., landfill methane strategies, recycling strategies, and other strategies for reducing waste)?
	24	Natural Resource Management	Does the plan include at least one policy on resource management conservation, such as protecting critical environmental areas and conservation zones (e.g., watersheds, lakes, streams, and tree

			canopy)?
	25	Water Management	Does the plan include at least one policy on the conservation of water demand and supply (e.g., water metering, greywater reuse, and water restrictions)?
	26	Food and Agriculture	Does the plain include at least one policy on food security and agriculture (e.g., conservation of agricultural lands, support for local farmers, and support for organic food)?
	27	Hazard Reduction	Does the plan include at least one policy on hazard reduction (e.g., locating away from known flood zones)?
Implementation	28	Implementation Section	Does the plan include a separate section that addresses what needs to be done to implement the plan?
	29	Plan Priority	Does the plan prioritize actions for implementation?
	30	Organization Responsibility	Does the plan generally identify specific organizations with responsibility for implementation?
	31	Timelines	Does the plan identify timelines for implementation?
	32	Financial Tools	Does the plan include at least one policy on financial mechanisms to incentivize action or collect revenue related to climate change (e.g., carbon tax, GHG reduction fee, development charges, and funding for GHG reduction projects)?
Monitoring and Evaluation	33	Monitoring and Evaluation Section	Does the plan include a separate section that addresses what needs to be done to monitor and evaluate the plan?
	34	Organization Responsibility	Does the plan identify departments responsible for monitoring the plan?
	35	Timeline for Plan Update	Does the plan identify a timetable for updating the plan based, in part, on results of monitoring changing conditions?
	36	Quantifiable Goals and Policies (includes Indicators)	Does the plan include goals and policies that are quantifiable and based on measurable objectives and/or targets (includes indicators)?
Inter-organizational Coordination	37	Horizontal Coordination	Does the plan include at least one horizontal connection with other local plans/programs (e.g., official plan documents and other climate change initiatives)?
	38	Vertical Coordination	Does the plan include at least one vertical connection to federal, provincial plans and regional plans (where applicable) (e.g., provincial legislation on climate change)?
Participation	39	Stakeholder Engagement	Does the plan identify the organizations and stakeholders involved in the plan making process (e.g., staff from different agencies or departments, and politicians)?
	40	Public Engagement	Does the plan identify the public as part of the plan making process?
	41	Purpose of Participation	Does the plan include an explanation of why organizations and stakeholders were involved?
	42	Evolution of Plan	Does the plan include a description of the evolution of the pan?
Organization and Presentation	43	Executive Summary	Does the plan contain an executive summary or similar section that provides an overview/summary of the plan?
	44	Table of Contents	Does the plan include a table of contents detailing plan chapters and subheadings?
	45	Glossary of terms	Does the plan include a glossary or definition of terms?
	46	Illustrations	Does the plan use clear illustrations (e.g., diagrams and graphs)?