

External safety and the role of the spatial planner

Multiple case studies in light of the Environment and Planning Act

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Abstract

Through this research the aim is to understand the needs and the role of the spatial planners in regard to changing external safety policy. Within this research, through a case study research design and qualitative methods, an analysis is executed of the possible knowledge gap between external safety and spatial planners. This is done by defining external safety and the role of the spatial planner and how this may be changed in light of the Environment and Planning Act. Through these cases, qualitative generalizations are made through the lens of the policy arrangement approach, because of the focus on law and policy. Throughout the four cases, the four main components of the policy arrangement approach have been used in order to analyze and structure the data. The focus of this research is on spatial planners, however, according to the data most (generalist) planners are not involved with external safety, which is left with environmental experts within their municipality or with the environmental service or safety region. About the role of the spatial planner can be said that in the case of generalist planners, the roles are broad and divergent. The specialized planners are much more focused on one or few spatial themes, such as legal aspects or environmental aspects of the spatial planning field. In light of the Environment and Planning Act, these roles seem to shift. Due to the environmental table (in Dutch: *omgevingstafel*) and the focus on collaboration and integral processes, spatial planners are going to be part of deliberations with much more actors, providing them with broader insights on more themes (also including health for example).

Key concepts

Role of the spatial planner; External safety; Environment and Planning Act; Case study research and generalizations; Policy arrangement approach

Management summary (in Dutch)

De Omgevingswet treedt naar verwachting in 2023 in werking. Daarmee veranderen ook de regels voor externe veiligheid. Het RIVM, de afdeling omgevingsveiligheid om precies te zijn, ontwikkelt instrumenten die professionals in de praktijk moeten helpen met de ontwikkeling en uitvoering van externe veiligheidsbeleid onder de Omgevingswet. Het RIVM ziet planologen als doelgroep en beoogd gebruiker van de RIVM instrumenten, waaronder het Handboek Omgevingsveiligheid en de Maatregelenwiki.

Het doel van dit onderzoek is inzicht te krijgen in de rol van de planoloog met betrekking tot externe veiligheid. Het RIVM wil deze inzichten gebruiken om de bruikbaarheid van haar instrumenten voor Omgevingsveiligheid te vergroten. In deze scriptie staat de volgende vraag centraal: Hoe kan de rol van de planoloog begrepen worden met betrekking tot externe veiligheid in de context van de transitie naar nieuwe instrumenten en regulatie van de Omgevingswet in Nederland?

De hoofdvraag is beantwoord aan de hand van vier deelvragen:

- Hoe wordt externe veiligheid gedefinieerd binnen de (academische) literatuur en de Nederlandse wet en het Nederlands beleid?
- Hoe verandert de Omgevingswet de huidige regels voor en uitvoering van het externe veiligheidsbeleid en de rol van de planoloog in de praktijk?
- Hoe wordt de rol van de planoloog gedefinieerd binnen de (academische) literatuur en praktijk in Nederland?
- Wat betekenen de veranderingen in externe veiligheidsbeleid- en regelgeving voor de rol van de planoloog en hoe kunnen eventuele veranderingen en verschillen tussen gemeenten begrepen worden?

Voor de uitvoering van dit onderzoek zijn vier cases met behulp van kwalitatieve methoden geanalyseerd. Deze 'cases' bestaan uit Nederlandse gemeenten. Bij de selectie van cases is rekening gehouden met de grootte van de gemeente, gemeten in de hoeveelheid inwoners. Een gemeente onder de 100.000 inwoners is getypeerd als een kleine gemeente, een gemeente met meer dan 100.000 inwoners als een grote gemeente. Uit beide categorieën zijn gemeenten geselecteerd. De verwachting is dat in kleine gemeente voornamelijk generalistische planologen werken en bij grote gemeenten voornamelijk specialistische planologen (denk aan milieu-planologen, juridisch planologen, planeconomen, etc.). Bij de selectie van cases is ook gekeken of er recent

incidenten met gevaarlijke stoffen zijn gebeurd binnen de gemeente. De vier geselecteerde cases zijn : case A (gemeente Barendrecht, generalisten en recente incidenten), case B (gemeente Amersfoort en Enschede, specialisten en recente incidenten), case C (gemeente Blaricum, generalisten en geen incidenten), case D (gemeente Breda en Den Bosch, specialisten en geen incidenten).

Figure 1: Conceptueel model



Source: Own work

is samengesteld, documentenanalyse, waarbij gekeken is naar beleidsdocumenten en nieuwsberichten, en semigestructureerde interviews met planologen (en in sommige gevallen de omgevingsdienst of een milieu-expert van de gemeente).

Externe veiligheid(sbeleid)

De definitie van externe veiligheid in het Nederlandse veiligheidsbeleid en de Nederlandse wet- en regelgeving komt overeen met de definitie in wetenschappelijke literatuur. Het Nederlandse beleid en de Nederlandse wet- en regelgeving over externe veiligheid maakt wel een verandering door als de Omgevingswet in werking treedt. De groepsrisicoverantwoording verandert. Er gaat gewerkt worden met aandachtsgebieden en voorschriftengebieden. Waar eerder de berekende hoogte van het groepsrisico een belangrijke rol speelde, maakt deze benadering plaats voor een meer kwalitatieve benadering waarbij de bescherming en onderbouwing van keuzes een belangrijkste rol speelt. Verder wordt er nog altijd gewerkt met kwetsbare en beperkt kwetsbare locaties/gebouwen. In het nieuwe beleid wordt daar de categorie zeer kwetsbare locaties/gebouwen aan toegevoegd bij bijvoorbeeld kinderdagverblijven of andere plekken waar de gebruikers minder zelfredzaam zijn.

Case studies

In dit onderzoek zijn vier casussen geanalyseerd waarbij conform de beleidsarrangementenbenadering is gekeken naar de actoren, de spelregels, de middelen die worden gebruikt door planologen en de informatievoorziening met betrekking tot externe veiligheid. Ook is gekeken naar het gebruikte discours, wat ingaat op de perceptie en woordkeuzes waarmee de rol van de planoloog wordt gedefinieerd. Dit wordt ook gedaan voor de twee extra case studies, namelijk gemeente Enschede en gemeente Den Bosch. De twee extra cases zijn tot stand gekomen vanwege de bereidheid van respondenten en de mogelijkheid om vergelijkingen te maken binnen een bepaalde casus/criteria. Hiermee was het mogelijk om bepaalde conclusies of verwachtingen te versterken of juist te verwerpen. De cases zijn op deze manier weergegeven om de drie empirische deelvragen te kunnen beantwoorden.

Allereerst zijn de actoren en samenwerkingsverbanden binnen de cases onderzocht, waaruit blijkt dat samenwerkingen met andere gemeenten een prominente plek heeft binnen case A en case C vanwege gemeenschappelijke regelingen. Verder speelt de omgevingsdienst en de veiligheidsregio binnen elke case een rol als het gaat om externe veiligheid, ondanks dat in sommige gemeenten externe veiligheidsexperts in dienst zijn. Wat ook nog opvalt is dat er relatief weinig wordt 'samengewerkt' met burgers, wat bij de in werking treding van de Omgevingswet een sleutelconcept is (participatie).

Verder is er gekeken naar de veranderingen die komen door de in werking treding van de Omgevingswet en het vernieuwde externe veiligheidsbeleid. Hieruit is gebleken dat het gemeentelijke beleid wat betreft externe veiligheid in sommige gevallen volledig herschreven moet worden, dat er meer samengewerkt moet gaan worden, zeker aan het begin van ruimtelijke processen en dat er binnen organisaties in sommige gevallen zelfs veranderingen voor komen. In de nieuwe situatie zal participatie een grotere/andere rol gaan krijgen wat door gemeenten zelf ingevuld mag worden en ook digitalisering van de werkomgeving heeft impact op de werkwijze na de inwerkingtreding van de Omgevingswet.

Vervolgens is er gekeken naar de rolopvattingen van de planologen op hun eigen vak. Uit het onderzoek blijkt dat er niet één rol van de planoloog is. De meeste respondenten gaven aan dat de rol van de planoloog uit meerdere facetten bestaat. Deze facetten verschilden ook nog eens met elkaar. Wat wel overeen kwam is dat alle planologen zich bezig houden met beleid (en het juridische aspect), met communicatie met betrokken actoren, met het bureaucratische systeem en met het houden van de controle.

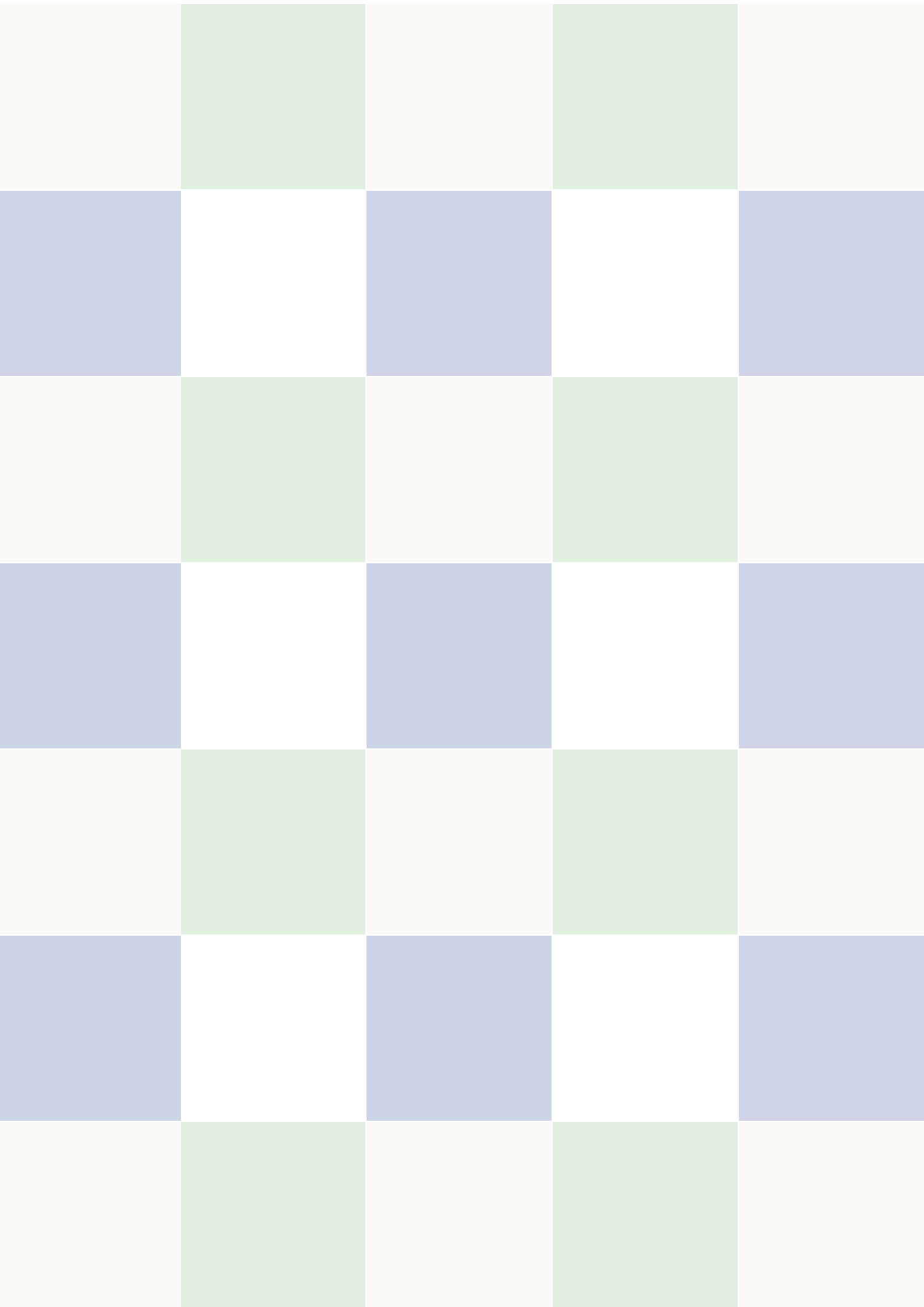
Tot slot zijn alle case studies met elkaar vergeleken, waarbij alle aspecten van de beleidsarrangementenbenadering zijn meegenomen. Wat hier opvalt is dat ondanks dat in de academische literatuur en het beleid wordt gesteld dat de Omgevingswet voor verandering gaat zorgen, niet alle respondenten het hiermee eens zijn. De respondent van case C is van mening dat de Omgevingswet niet al te veel zal veranderen. De respondenten

van extra case D hebben aangegeven dat hun werkwijze al grotendeels overeenkomt met het vernieuwde externe veiligheidsbeleid. De meerderheid van de respondenten is wel van mening dat er veranderingen aan zitten te komen. Dit heeft volgens het ook gevolgen voor de actoren met wie er wordt samengewerkt. Uit de analyses blijkt dat de meeste planologen een groot netwerk hebben van actoren met wie samengewerkt wordt, zowel binnen als buiten de gemeente. Aangezien integraal samenwerken één van de pijlers uit de Omgevingswet is (omgevingstafel) zullen deze samenwerkingsverbanden mogelijk nog uitgebreider worden. Dit kan ook betekenen dat de rol van de planoloog hier in kan veranderen, en meer zal verschuiven naar een rol als mediator of planologen die pleiten voor bepaalde groepen/stemmen uit de maatschappij. Wat wel duidelijk is geworden is dat de meeste planologen zich weinig bezighouden met externe veiligheid, ook als er incidenten zijn voorgekomen binnen die gemeente. De implementatie van externe veiligheidsbeleid wordt eerder uitgevoerd door milieu-experts binnen de gemeente of in samenwerking met de omgevingsdienst of de veiligheidsregio. De rol van de planoloog is hierin breed en divers. Dat blijkt zowel uit de literatuur als uit de empirische data die is verzameld.

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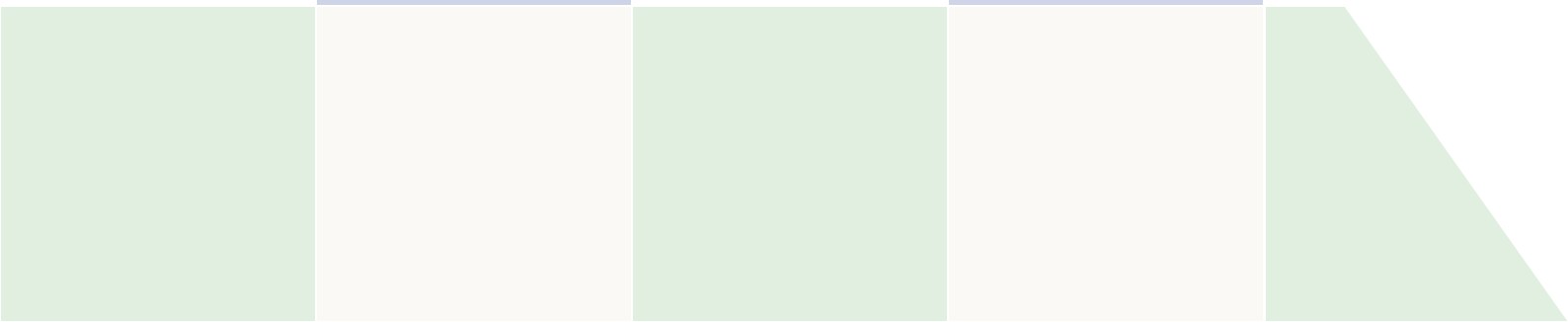
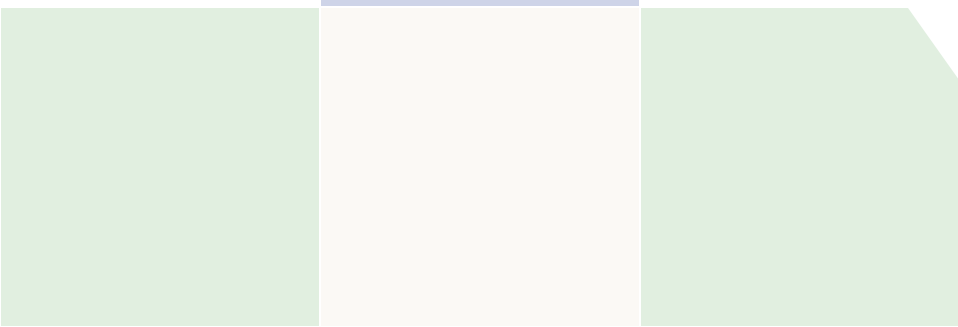
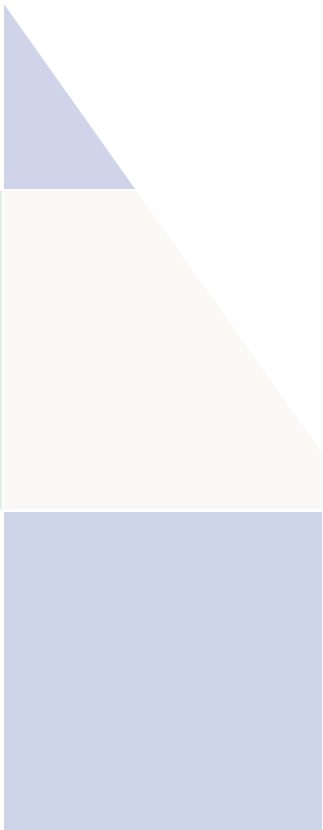
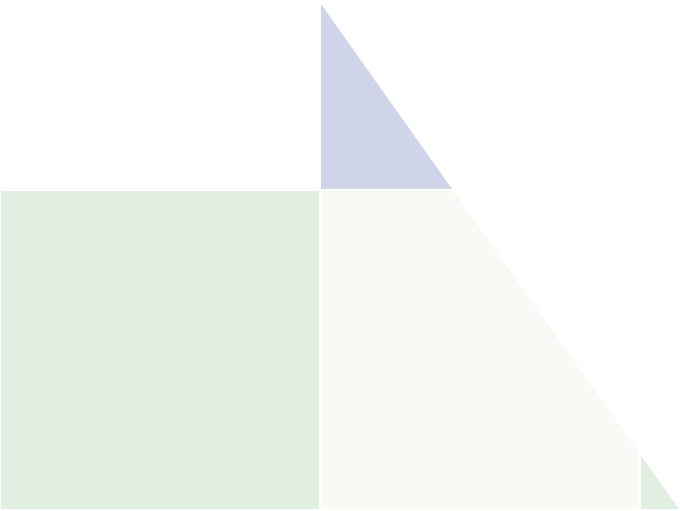
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PART 1

Outline of the research



1. Introduction

The RIVM is a Dutch organization working on national issues surrounding the environment and the health of citizens. One of their departments is called environmental safety (in Dutch: *omgevingsveiligheid*), which focuses on activities with hazardous substances containing risks of fire, explosions and/or poison clouds (RIVM, n.d.). These activities often occur in dangerous spaces and high risk accidents sites, such as old factories or along train tracks. These hazardous locations, however, are due to lack of housing and space, often terrain for the implementation of new spatial plans (Van Der Vlies, 2011). External safety is of high importance within the field of spatial planning (Zoete & Spit, 2016), however, it remains unclear which actor is responsible for executing, implementing and supervising the technical aspects surrounding external safety (Raad voor Verkeer en Waterstaat en de Vromraad, 2003). According to Spit and Zoete (2016), external safety has been part of the *Nota Ruimte* (translation: note space), which is a Dutch national policy document administered in 2004 (Eerste Kamer der Staten-Generaal, n.d.) compiled with national aims in regard to spatial planning. Furthermore, in regard to the creation and future implementation of the Environment and Planning Act, the execution, implementation and supervision of the technical elements of external safety might be assigned to specific actors.

1.1 Knowledge gap

The knowledge gap concerning the uncertainty of the involved actor(s) in regard to executing, implementing and supervising external safety regulations in practice raises questions regarding the role of the spatial planner, the different tools/instruments that spatial planners use to fulfill this role and the remaining actors that collaborate in projects in which external safety is relevant. Determining which actor is responsible for this role could create more structured and streamlined processes in future spatial planning projects, with the purpose of implementing external safety policy in design and governance. In light of the implementation of the Environment and Planning Act in January 2023 (VNG 2022), this might be relevant.

1.2 Environment and Planning Act

The Environment and Planning Act will be implemented in January 2023 (VNG, 2022) in order to create easier and better law and regulation for the physical environment (IPLO, n.d.). This is done through four improvements, such as bundling current law and regulation in order to increase the usability. Furthermore, there is much more integrality between all the physical facets, but also between actors in the decision making process, which is designed to go faster (IPLO, n.d.). Finally, the Environment and Planning Act is designed to create customization for the decentralized administrators (IPLO, n.d.).

According to VNG (2020) there are three 'tracks' that combined outline the Environment and Planning Act. These tracks are the role of the municipal council and the executive board (track 1), the environmental vision (track 2), and the environmental plan (track 3). The first track emphasizes the collaboration between the council and the board throughout the process of creating frames for the physical environment. These frames are outlined within the environmental plan and environmental vision, which are determined by the council. The board is authorized to differentiate from these determinations, however, the council may include a binding advise since it is their right (VNG, 2020). These frames also include frames in regard to the manner and amount of participation that needs to be implemented within certain borders of projects (VNG, 2020). The second track embodies the environmental vision, which outlines the goals and ambitions of the upcoming years on a variety of physical themes. The role of the council is important as an advisory organ within municipalities, because of their influence on the decision making process (VNG, 2020). The third track is that of the environmental plan, in which designs, strategies and rules are implemented within one instrument. Municipalities are able to create flexible or tight frames, depending on their agenda (VNG, 2020). Rules from higher governmental organs, such as the province or the national government that apply on the physical environment within the municipality are also embedded within the environmental plan (VNG, 2020).

1.3 Main research question

Within this masterthesis several inquiries are executed due to the multiple layers of the research objectives. In order to inquire these various research objectives the research is performed through a case study design with only qualitative research methods. First of all, the exact definition and components of external safety is researched, with the aim of creating clarity on the Dutch conceptualization. Secondly, the role of the spatial planner is examined from several perspectives in order to establish the link between the field of spatial planning and external safety. When looking at the role of the spatial planner, it is important to also inquire which tools are used in order to fulfill this role, why they selected these tools and whether all available tools are familiar to the spatial planner. Considering the current transition phase of the Dutch spatial planning law from the Wro to the Environment and Planning Act, this master thesis provides insights on the changes that this new law has on external safety policy and the role of the spatial planner. Furthermore, due to the special focus on law and regulation within the Netherlands, there is a specific light shed on Dutch policy documents, because of their guidance in spatial processes. In order to fully operationalize the focus on law, regulation and policy, this research is structured through and analyzed by the policy arrangement approach. In order to compile a comprehensive and clear inquiry throughout, the following research question is composed:

How can the role of the spatial planner in regard to external safety be understood within the context of the transition towards new instruments and regulations of the Environment and Planning Act in the Netherlands?

1.4 Sub-questions

This research question contains all the different element that this inquiry consists of and that is examined through the case study design. The case study design is executed through the methods of semi-structured interviews, a literature review and a document analysis, with a special focus on policy documents. The RIVM has created the manual environmental safety (in Dutch: *Handboek omgevingsveiligheid*) especially for practitioners, which is a tool that guides professionals in the complexity of external safety issues. This document is especially important, because of the direct link with the main focus of this research: external safety. The structure of this masterthesis is outlined by four sub-questions which inquires the various definitions and evaluates actors and tools in the field of spatial planning through the four case studies.

- How is external safety defined within (academic) literature and Dutch law and policy?
- How does the Environment and Planning Act change current aspects of external safety regulation/implementation and that of the role of the spatial planner in practice?
- How is the role of the spatial planner defined within (academic) literature and practice in the Netherlands?
- How do the implications of the Environment and Planning Act relative to external safety/the role of the spatial planner compare between different municipalities and how can we explain this?

1.5 Research objectives

The research objective of this research is to create clarity on what exactly defines external safety in the spatial context and what changes the Environment and Planning Act is going to bring to this part of the spatial field. The Environment and Planning Act is not yet implemented, but the content and future outlook of this law is known, since the implementation date has been delayed five times (Van Dinther, 2022). Furthermore, the role of the spatial planner needs additional inquiry in order to determine whether the technical implications and the execution, implementation and supervision of regulation of external safety belongs within their range of duties (Raad voor Verkeer en Waterstaat en de Vromraad, 2003). Besides the role of the spatial planner, it is also unclear what tools spatial planners use, on what bases these tools are selected and whether spatial planners are aware of the existing tools. Creating clarity on these matters contributes to streamlining and structuring future processes of spatial projects.

Furthermore, this research is shaped by a case study design through the analysis of the policy arrangement approach. In order to create a valid and reliable inquiry the case study design consists of four cases, selected through multiple criteria. The exact criteria are described in chapter 3 'Methodology'. Earlier, the importance of policy has been established because of the focus on law and regulation within this research. Therefore,

the analytical framework of the policy arrangement approach is used in order to structure the four different cases. The policy arrangement approach enables the researcher to look beyond the information gathered by semi-structured interviews, literature review and document analysis through four components: Actors, rules of the game, discourse and resources.

1.6 Societal and scientific relevance

The societal relevance of this research is intertwined with the implementation of a new law. In this instance it is the Environment and Planning Act which is postponed multiple times. New laws are always of great relevance, because of the various alterations that it brings to the societal system. This relevance is even more evident considering that external safety is one of the key objectives. External safety is of relevance for every citizen, especially in a densely populated country like the Netherlands. Furthermore, the role of the spatial planner, which is a role that many people look upon in times of a housing shortage and the energy transition, might have to be rewritten. Because of these three elements, this research is in multiple perspectives relevant to society.

Scientifically, this research is relevant due to the nature of existing literature on the role of the spatial planner. According to Dawkins (2016) spatial planning and the general characteristics have a place-based nature (also known as idiographic science (De Pater, 2014)). Current literature on the role of the spatial planner, described and outlined within this thesis, such as Spit and Zoete (2016) and Voogd, Woltjer and Van Dijk (2012) are academic books without testing their academic claims with real life spatial planners. The literature within this thesis that is tested with planners, such as Othengrafen and Levin-Keitel (2019) (research in Germany) and Fox-Rogers and Murphy (2015) (research in Ireland), prove their findings among countries other than the Netherlands. The focus of this research lies within the boundaries of the Dutch borders, therefore the findings from the academic literature is going to be compared to Dutch spatial planners in order to comprehend which framework, role or concept aligns within the Netherlands.

2. Theoretical framework

The theoretical framework is a broad chapter with various layers of academic literature. Therefore there are three paragraphs that create a complete overview of information necessary for this inquiry. The first paragraph provides the theoretical framework, consisting of academic literature on external safety (2.1), the distinction between generalists and specialist planner is made and a typology on the role of the spatial planner is compiled from three different perspectives (2.2). Finally, the theoretical and analytical framework of the policy arrangement approach is outlined, which is applied throughout this thesis (2.3).

The theoretical framework, as explained before, is divided into three sections. The first section is focused on academic literature about external safety. The selected literature shows the origin of external safety measures, the risks that could occur on different locations or with certain activities and the hazardous substances that are involved within this framework.

2.1. External safety

According to Van der Vlies (2011), the disaster in the Bijlmer (Amsterdam) and the SE Firework disaster (Enschede) led to a rise of attention from the national government on involuntary risks, as opposed to voluntary risks (e.g. smoking). These incidents were part of an accelerated policy development regarding external safety in the Netherlands. Involuntary risks, caused by storage, production, transportation and usage of hazardous materials, are prevented by this external safety policy (in Dutch: *externe veiligheidsbeleid*). The various aspects that pertain to external safety (policy) are risks surrounding hazardous substances, such as ammunition, fireworks and liquefied petroleum and the storage, production, usage and the transportation of these substances near/on water, roads, rails, airports and through pipelines (Van der Vlies, 2011). These aspects are part of the external safety measurements policy in order to protect civilians in general and specifically those living near chemical plants, airports and electricity pylons (van der Vlies, 2011).

Transportation of hazardous substances can be done through multiple ways, as described before (water, roads, rails, airports, pipelines). The transportation of hazardous substances through rails roads, water and pipelines are in the Netherlands limited to the Basic Network (in Dutch: *basisnet*) (Van der Vlies, Berrevoets & Tretjakova, 2018), which indicates that transporting of these hazardous substances are only allowed on certain infrastructural connections. Unlike other European countries, the Dutch Basic Network has been implemented because the transportation of hazardous substances occurs through city centers, which creates a direct link between external safety and spatial planning (Van der Vlies et al., 2018). External safety measures are created to protect residents that are not directly working with hazardous substances (which is called internal safety or occupational risk), living, working or residing near locations where activities with hazardous substances occur (Van der Vlies et al., 2018).

Besides transportation of hazardous substances, there are also locations where these substances are produced, used or stored. The production of hazardous substances (usually) occurs within chemical clusters, since there is much law and regulation on locations with this kind of activity. Therefore, chemical plants rarely operate on their own in order to safely manufacture their products (Reniers, 2010). However, according to Reniers (2010), because chemical plants often cluster themselves in order to process the laws and regulation together, there is a higher risk of external domino effects. These external domino effects are incidents with hazardous substances that because of the clustering of chemical plants create bigger fires, explosions or toxic dispersion (Reniers, 2010). Storage and usage of hazardous materials happens at divergent locations and activities, such as LPG-stations or storage tanks (Versteeg, 1988; Landucci, Antonioni, Tugnoli & Cozzani, 2012).

Through storage, production, transportation and usage of hazardous substances, three main risks may occur: fires, explosions and/or toxic dispersion (Ovidi, Van der Vlies, Kuipers, & Landucci, 2020). According to Ovidi et al. (2020), when determining the risk of incidents with hazardous substances, the weather and the type of risk

(to humans, the environment or buildings) must be taken into account. Furthermore, according to Liu, Saat and Barkan (2014), incidents that occur on rails or ships often have more effects of risk compared to incidents on roads, since trains and ships transport multiple tanks at once. Alongside the example of the train, Liu et al. (2014) analyzed five elements of an incident with hazardous substances. These elements contain the derailment of a train transporting hazardous substances, the exact number of cars that get derailed, the number of cars with hazardous substances that get derailed, the amount of hazardous substances that gets released by derailment and the consequences of the released amount of hazardous substances (Liu et al., 2014). In Table 1 these five elements are shortly summarized.

Table 1. Five elements of an incident with the transport of hazardous substances by rails

Freight-train derailment rate	Incidents with hazardous substances transported on railroads mostly occur due to derailment of trains.
Number of cars derailed	In order to measure the severity of the incident, the number of cars can be looked at and is affected by the cause of the incident, the speed of the train, the length of the train and the point of derailment.
Number of tank cars derailed	Another factor is the amount and placement of tank cars within the train in a derailment incident.
Number of tank cars released contents	Not all tank cars release their content when derailment occurs, however there is a correlation between the speed of the train and the estimated release probability.
Release consequence	The types of consequences of a release of hazardous substances are human impact, environmental impact, costs for property damage, litigation or remaining forms of financial impact.

Source: Liu, Saat and Barkan (2014)

Within this framework various hazardous substances, activities with hazardous substances and possible incidents with hazardous substances within clusters and within infrastructure are outlined. However, law and policy on how to ensure external safety is partly place-dependent. Law and policy within the Netherlands is relevant within this research, and this is accommodated in the empirical part, within chapter 4.

The risks that coexist with activities with hazardous substances within the spatial environment and its residents creates overlap with several spatial planning aims and objectives, such as the creation of safe and livable areas. This overlap, in addition to the changing of the current law to the Environment and Planning Act, creates a support base for the exploration of the spatial planner and the role(s) that the spatial planner has and is desired to fulfill.

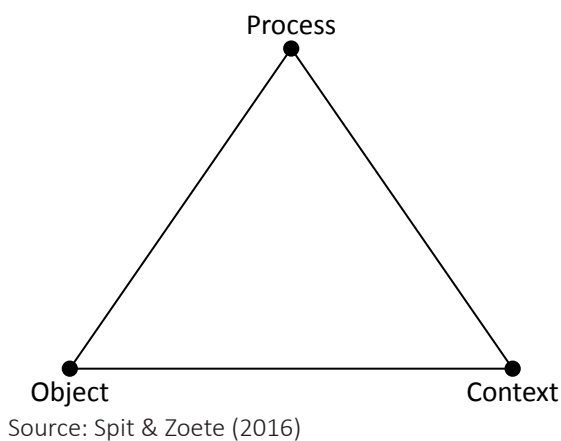
The second section of the theoretical framework is focused on academic literature about the role of the spatial planner. The selected literature shows the various facets, sectors and alleged roles that the planning field consist of, followed by the interpretation that spatial planner have of their role.

2.2 Role of the spatial planner

The role of the spatial planner is a topic that many academics have written about. Because of the versatility of this role, one view does not necessarily provide a complete image. In this paragraph of the theoretical framework, the distinction between generalists and specialists within the field of planning is outlined through the framework of Dawkins (2016) and the various facets and sectors are outlines through Spit and Zoete (2016), Voogd et al. (2012) and Othengrafen and Levin-Keitel (2019). In the second part of this paragraph of the theoretical framework a typology is compiled from three perspectives. First of all, from the basis of Voogd et al. (2012) an overview is given from the alleged roles of the planner and the tools that go with these roles, supplemented with tool insights from Zoete and Spit (2016). The second perspective is that of Othengrafen and Levin-Keitel (2019), who provide the reader with various clusters that capture different roles of the spatial planner through the lens of German cities. The third and final perspective is the framework of Fox-Rogers and Murphy (2015) that entails self-perceptions of the role of the planner, researched within Ireland.

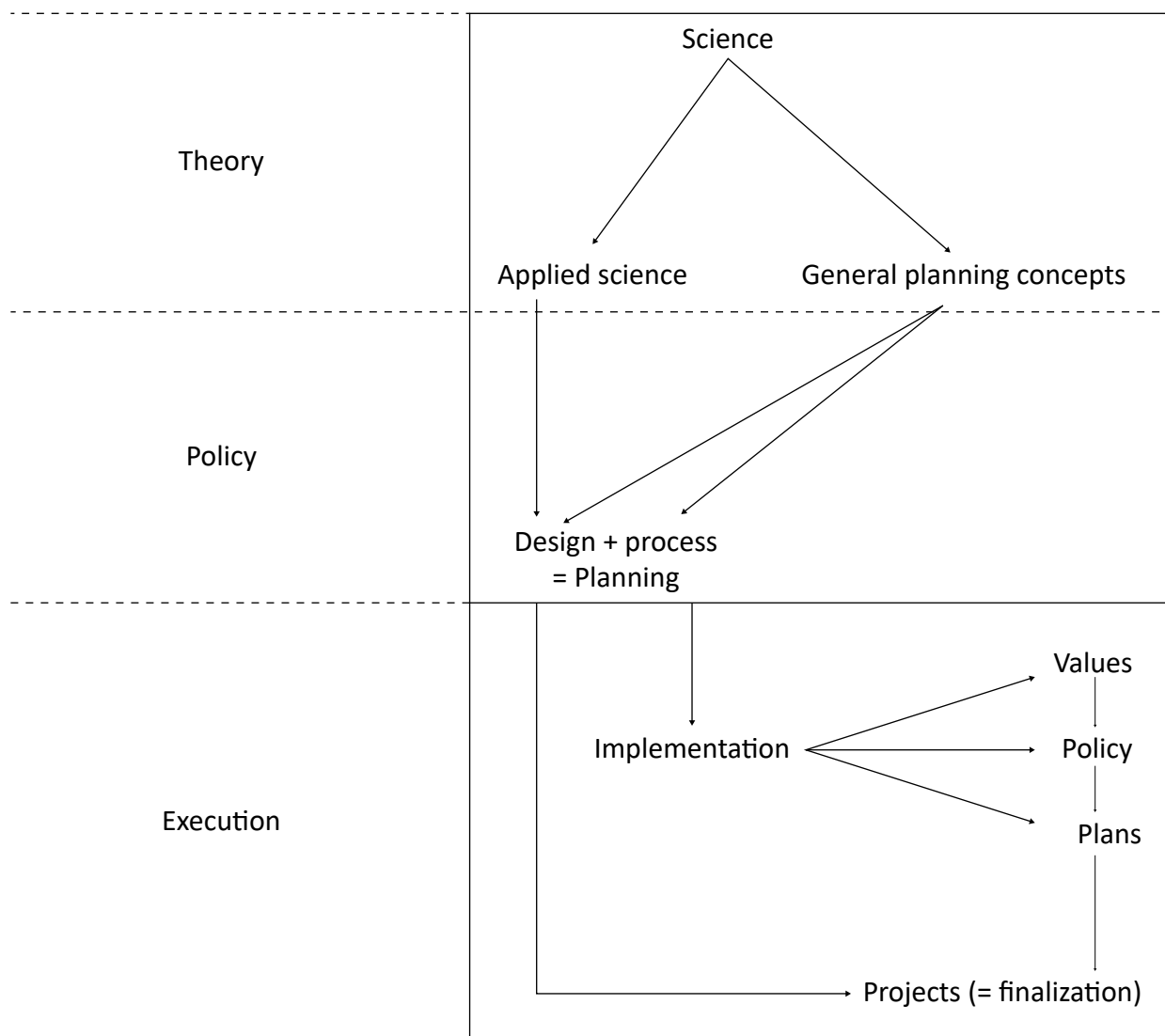
Spatial planning is creating plans for the future, in a future that is not yet set out, which makes the field of spatial planning a very uncertain one (Spit & Zoete, 2016). According to Spit and Zoete (2016) the field in which the spatial planner operates is characterized by three dimensions: process, object and context (see Figure 2). The first dimension, that of the process, consist of the actors, resources, interests and organization of spatial projects. The second dimension, which is the object, represents the spatial projects itself. The variables that correlate with this corner of the triangle are the location, the kind of project and how much there is going to be built. The third dimension, that of the context, relates the process and the object through law, regulation and policy, but also through social, cultural and economic trends.

Figure 2: Planning triangle



According to Voogd et al. (2012), the spatial planner does not only fulfill several roles (as a designer, jurist, economist, director), but also fulfills these role within the concept of six facets that spatial planning consist of, also known as sectoral specialisms: 1) retail and real estate, 2) (public) housing, 3) green and rural areas, 4) environment (sustainability), 5) traffic and infrastructure, 6) and water management. However, according to Spit and Zoete (2016) this division is quite distinctive. Within the Dutch planning system, a division is made between sector planning and facet planning (Spit & Zoete, 2016). The sectors are shaped by government agencies that create programs, rules and regulation for the various facets of planning. The facets of planning are the different areas in which these programs, rules and regulations are transformed into action-based plans. According to Spit and Zoete (2016) these facets are 1) recreation, 2) agriculture, 3) defense/military, 4) housing, 5) traffic and transportation, 6) nature. These facets consist of spatial policy and economic policy. The spatial planner fulfills its role through the different facets of planning. According to Spit & Zoete (2016, p.24) this role is defined as translating planning theory into concepts and research which can be used as a means to create planning policy that is integrated in the design and process of spatial planning. These are also the three phases of planning: theory, policy, execution (see Figure 3). However, Spit and Zoete (2016) describe in their book that spatial planners either fulfill their role in all three phases, while some spatial planners only focus on one. Furthermore, the execution of spatial planning as described by Spit and Zoete (2016) is assembling substantive (design) and procedural (process) components in order to create plans.

Figure 3: Work area of the spatial planner



Source: Spit & Zoete (2016)

According to Othengrafen and Levin-Keitel (2019, p.115) not only the various ‘fields of action’ are researched, but also how frequently the fields of actions emerge. Fields such as land-use planning, housing and integrated urban development are very frequently reemerging within the researched planners, while fields as economic promotion and urban renewal are on the bottom of the chart (Othengrafen and Levin-Keitel, 2019). According to Othengrafen and Levin-Keitel (2019), the majority of the responding spatial planners work in all of the fields of action shows, which makes them, in the medium-sized German cities, ‘generalists’.

2.2.1 Generalists and specialist planners

According to Dawkins (2016), an author that has researched the topic of generalists in an in-depth manner, spatial planners are generalists with specialisms and in the US there is even special education with this very paradigm. Dawkins (2016) mentions that spatial planning context-dependent and that there are multiple types of knowledge and skills required for planning practice. These skills are embedded in two categories: verbal and written communication and technical skills (Dawkins, 2016). Another statement from Dawkins (2016, p.416) that might be relevant within this research is that “while planners working for general purpose governments are more likely to be involved in traditional physical planning activities and engaged with the public, private sector planners are engaged in more specialized technical planning activities”. The real distinction from the literature of Dawkins is the assessment of knowledge and skills that spatial planners are involved with from the point of their education, and according to Dawkins (2016) these types of knowledge and skills are part of the skillset of generalist planners, however spatial planners might also specialize in one or few of them. These types of knowledge that generalist planners obtain or the specializations (Table 2) are collected through quantitative data collection and they are not further explained within the literature, leaving it open to interpretation.

Table 2: General planning knowledge/specializations

Understanding of the rationale for and purposes of planning
Understanding of the planning process and connections between planning and implementation
Understanding of the ethical dimensions of urban planning, including awareness of the AICP Code of Ethics
Understanding of the legal context within which planning occurs
Understanding of the history of the planning profession
Understanding of basic economic theory and its application to planning
Understanding of the political context within which planning occurs
Understanding of environmental processes and the interactions between the built environment, human activity, and environmental change

Source: Dawkins (2016)

2.2.2 Framework of the role of the spatial planner

According to Voogd et al. (2012) the spatial planner has multiple roles within the integrality and broadness of the field. In this sense, the spatial planner has the role of a designer, jurist, economist and/or a director, which all contains its own tools (projected in Table 3). The designer role of the spatial planner originates from the essential role of problem solver, which is executed through adjustments in the (public) space (Voogd et al., 2012). This part of the role of the spatial planner is not scientific or objective, according to Voogd et al. (2012), because designing in order to solve problems is, among other things, place and time dependent. The role of the spatial planner as a jurist is in line with the laws and restrictions that function as tools (see Table 3), in order to implement policies, or legal certainty of projects. Furthermore, laws in the shape of permits and licenses are of great importance for spatial planners in order to build or not to build in specific areas (Voogd et al., 2012). The economist role of the spatial planner has to do with, mainly in the cases of urban planning, marketing of cities, renewals and activities where large economic interests are involved. The final role that spatial planners are supposed to fulfill, is that of the director, according to Voogd et al. (2012). In order to create enthusiasm about a new design, legal opportunities and funding for investing in these new plans, political cooperation is necessary (Voogd et al., 2012). These administrative processes are essential in order to verify and implement spatial plans in a strategic way, which is therefore an indispensable part of the role of the planner.

Table 3: Specification of tools used by spatial planners

Role	Tools
Planner as designer	Sketch paper and markers
Planner as jurist	Laws and restrictions
Planner as economist	Knowledge on real estate, exploitation plans and feasibility analysis
Planner as director	Political support, negotiation tactics, coalitions and administrative agreements

Source: Voogd et al. (2012)

The different roles of the spatial planner described by Voogd et al. (2012) have additional tools that correlate with the roles. The various tools described by Voogd et al. (2012) are very concrete, while Spit and Zoete (2016) describe the tools used by spatial planners by category. In order to implement plans, the spatial planner uses various tools in order to create a support base with involved actors, such as policymakers, policy executioners, politicians and corporate stakeholders. According to Spit and Zoete (2016) there are three sets of tools that helps the spatial planner create this support base:

- 1. Classic policy instruments.** This set of instrument consist of all the rules and regulation, such as the law and policy documents.
- 2. Modern instruments.** These instruments are mainly economic/financial means.
- 3. Postmodern instruments.** This set consist of contracts, intangible incentives and steering through lectures. Currently, the third mentioned tool is the one that spatial planner use the most (Spit & Zoete, 2016).

Another perspective on the role of the spatial planner is that of the framework of Othengrafen and Levin-Keitel (2019), who were able to characterize six different clusters of this role, with additional components of these spatial planners, such as gender, age, position within the organization, and their education. With every cluster a percentage is presented that shows how many of the respondents within the research are aligned with the components of that specific cluster. Cluster 3: Reactive pragmatist and cluster 5: compensatory moderators, are the clusters with the highest appearance rate among the German respondents who participated in this research (Othengrafen and Levin-Keitel, 2019, p.120). What stands out is that these two clusters are mostly role descriptions of spatial planners working on project level with an educational background in planning. The cluster with the lowest occurrence percentage is that of cluster 6: Innovative designers (Othengrafen and Levin-Keitel, 2019). Due to the earlier mentioned statement of the authors, it cannot be ruled out that spatial

planners can be categorized in more than one clusters, due to the 'generalist' nature of the field.

The final framework is that of Fox-Rogers and Murphy (2015) that shows seven different roles of the spatial planner, outlined from self-perceptions of spatial planners from Ireland. The role perception of 'planner as mediator' occurred the most within this research and is described in the literature as mediating between various interests and outcomes, and as a spatial planner listens and decides what is best (Fox-Rogers and Murphy, 2015). 'Planner as administrator' is described as a role where policy and administrative duties are on top of the agenda. Another role is that of the 'planner as advocate', which occurred least amongst the respondents in the research. This role is described as community-building and social reform (Fox-Rogers and Murphy, 2015). Not all roles are described in-depth within the literature, therefore some are free for interpretation.

Within Table 4 all the roles of the spatial planner from the frameworks of Voogd et al. (2012), Othengrafen and Levin-Keitel (2019) and Fox-Rogers and Murphy (2015) are put together in a short overview, with its main characteristics.

Table 4: Roles of the spatial planner from literature

Role of the spatial planner/source	Characteristics
Planner as designer	Problem solver for spatial challenges; Thinking of future consequences; Non scientific or objective which outcome is best
Planner as jurist	Legal compulsion for implementation of spatial investment or to counter unwanted spatial activity; Protecting property and interests due to law and policy
Planner as economist	Guiding plans with great economic interest; Altering part of the economic reality
Planner as director	Political cooperation for implementing plans; Creating a support base from politicians
Voogd et al. (2012)	
Local-specific analysts	Planning through analysis and data collection; Planning through legally binding plans
Experienced generalists	Planning by using plans and concepts towards spatial and strategic control; Planning through policy advise by analyzing data
Reactive pragmatists	Planning through legally binding plans; Planning by weighing conflicting interests; Planning through enforcing the status quo
Project-based planners	Planning through implementation with a 100% consent; Planning through legally binding plans
Compensatory moderators	Planning through process-coordination with a 100% consent; Planning by weighing conflicting interests; Planning through communicating with specific target-groups; Planning through policy advise
Innovative designers	Planning through implementation with a 95% consent; Planning through initiating new concepts and ideas with a 100% consent; Planning through innovations with a 90% consent; Planning through communicating with specific target-groups
Framework Othengrafen and Levin-Keitel (2019)	
Planner as mediator	Mediating between conflicting interests for the common good; Balancing outcomes
Planner as administrator	Administrative aspects such as policy is the key aspect to planning
Planner as liaison/facilitator	Creating easy access to difficult legal sources; Making the planning process more accessible through better communication and access
Planner as professional advisor/expert	The planner is not a decision maker, but recommend advise or expertise to those in charge (elected representatives)
Planner as advocate	Reforming way of planning for the common good; Community benefits and social reform
Planner as 'social gatekeeper'	Not elaborated within literature, apart from the managerialism (public bureaucracy structures) with a twist of social protection.
Planner as 'facilitator' of development	Facilitating development from private capitol or private interests; Neoliberal political and economic position
Framework Fox-Rogers and Murphy (2015)	

The final section of the theoretical framework is focused on the policy arrangement approach. This approach outlines various arrangements that occur between policy-makers and other actors, rules and discourse among policy processes and the interdependency between an actors' resources and their power.

2.3 Policy arrangement approach

The policy arrangement approach that is used as an analytical framework for this thesis was co-founded by Arts and Van Tatenhove who describe this framework in addition to power relations in *Policy and power: A conceptual framework between the 'old' and 'new' policy idioms* (2005). This approach emerged from the basis of existing policy approaches that were, among other things, reflected on and criticized. According to Arts and Van Tatenhove (2005, p.341) a policy arrangement is 'the way in which a policy domain is shaped, in terms of organisation and substance, in a bounded time-space context'. The authors describe that policy can therefore be identified by substance, organization and a time-space context. According to Arts and Van Tatenhove (2005, P.345) there are four dimensions of a policy arrangement: '1) to allow more or new actors to participate in policy making or in coalition formation; 2) to reshape power relations, for example by adding to, or withdrawing, resources from a policy arrangement; 3) to reformulate the rules of the game on the basis of which policies are made; and 4) to reformulate the policy discourse concerned, for example by redefining its core concepts'. Furthermore, Arts and Van Tatenhove (2005) distinguish multiple types of policy arrangements, both national (domestic) and international: the etatist arrangements, (Neo-)corporatist arrangements, (Neo-)liberal arrangements, Civic arrangements, Private arrangements, Network arrangements, Interactive arrangements and Intergovernmental arrangements (international).

The framework of the policy arrangement approach is compiled out of four concepts that shape the conceptual framework: policy coalitions, 'rules of the game', policy discourses and resources. The last concept, resources, is bounded with the concept of power, according to Arts and Van Tatenhove (2005). The first concept is that of policy coalitions. Policy coalitions are groups of 'players' that share the same ideas, resources, interpretations of the rules of the game and who therefore share the same goals (Arts & Van Tatenhove, 2005). Within these shared processes, a policy coalition might be against a certain approach or support it. It is also possible to have multiple policy coalitions and in some cases these coalitions work together on ideas they agree on.

The 'rules of the game' as defined by Arts and Van Tatenhove (2005, p.342) are 'institutions as sets of rules that guide and constrain the behaviour of individual actors'. Furthermore, there is a division between informal conventions of political life and formal constitutions and organisational structures that are examined through the 'rules of the game' within this framework. According to Arts and Van Tatenhove (2005) the 'rules of the game', which generally are the rules that define how the game is played, is seeking for the appropriate behavior. This is described as follows: 'which norms are legitimate, how issues may be raised; agendas set; interests articulated; policies formulated; decisions made; and measures implemented, e.g. by which procedures, by which allocations of tasks, and by which division of competences between actors and organisations.' (Arts & Van Tatenhove, 2005, p.342). Therefore, there are three aspects that surround these 'rules of the game': 1) the rules define which actors are politically 'right', 2) the rules define the interrelations between actors, and 3) the rules delineate the boundaries of policy coalitions.

The policy discourse concept of the framework is concerned with interpretation of policy by actors. Arts and Van Tatenhove (2005, p.343) define the policy discourse as 'dominant interpretative schemes, ranging from formal policy concepts to popular story lines, by which meaning is given to a policy domain.'

The fourth concept of the policy arrangement approach has to do with the resources that are used by actors and according to Arts and Van Tatenhove (2005) these resources is interconnected with the concept of power. This means that the usage, distribution, capacity and production of resources by and among actors differs throughout political layers, cases and social phenomenon (Arts & Van Tatenhove, 2005). This shows the linkage to the political domain of society which is defined as 'the setting in which different groups (from state, civil society and market) produce and distribute resources (power and domination), rules (rules of the game), and meaning (discourses) to shape public life.' (Arts & Van Tatenhove, 2005). Within the political domain of soci-

ety, or the policy domain, the author distinguish three types of power that occurs when assessing the usage, distribution, capacity and production of resources. The first type of power is relational power, which is also known as 'agent power'. Relational power means that outcomes are achieved through interactions with other so-called 'agents'. This first layer of power consist of two subgroups: transitive and intransitive power. Transitive power relates to achieving outcomes by an agent, while most other are against this particular outcome. Intransitive power means the opposite, when agents form the 'joint practices' on certain goals that is led by a community of actors. The second layer of power is called dispositional power, which is not about achieving certain outcomes, but more about the capacity of the actor in which he or she is acting. The positions within the organization these actor are working in determine what resources they have and therefore what type of action they can take. The third layer of power is the structural power, which encompasses how the macro-societal structures determine the position and nature of the actors, and therefore what they achieve.

Through these four concepts, it is possible to create an analysis of a certain process/phenomenon/case, because of its inclusive nature and focus on the changing culture of policy, such as modernisation of the political field and the shift from government to governance (see examples from Hehn, 2016; Ter Harmsel, 2016).

However, there is also some critique on the policy arrangement approach. The Dutch scholar Maarten Hajer (2003) poses that the founders (Jan Van Tatenhove, Bas Arts and Pieter Leroy) of the policy arrangement approach can improve the conceptual framework by two aspects. The first aspect considers the concept of political modernisation that is described in the policy arrangement approach, to be, according to Hajer (2003), too political-sociologically written, because of the linkage with Giddens. Hajer (2003) mentions about this matter that if this were to be more political-theoretical, people working in practice who are struggling with the changing political nature might benefit. The second part of Hajers' critique is related to the five challenges that are composed within the article *The policy arrangement approach and the 'institutional void'*. These challenges are 1) new political spaces/institutional void, 2) radical uncertainty, 3) (cultural) diversity, 4) interdependence and 5) trust/identity. According to Hajer (2003) deserve the first three challenges much more (empirical) attention and the fifth challenge is missing completely from the policy arrangement approach. The fourth challenge (interdependence) is adequately explicated, according to Hajer (2003). Hajer (2003) ends the article by saying that despite his critique, the policy arrangement approach does provide meaningful and interesting contribution to the political developments and policy fields.

3. Methodology

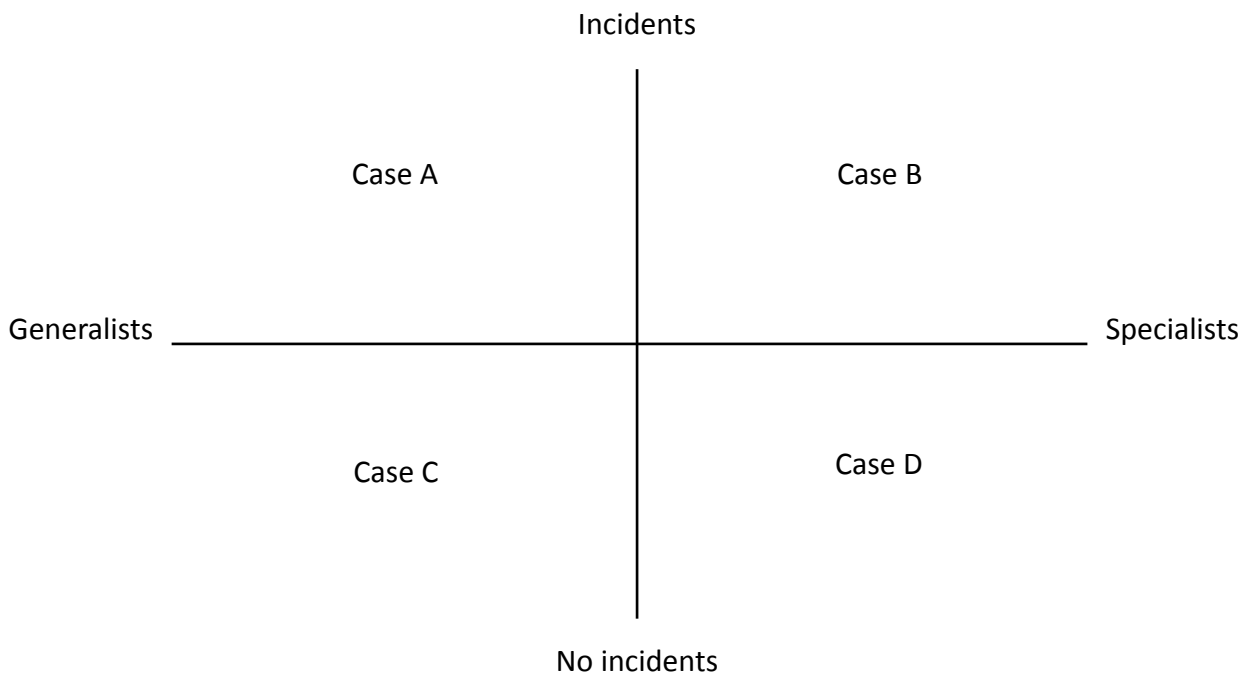
This chapter outlines the methodology of the research through the theoretical background of the case study design, different case criteria, the selection of the cases, the methods for data collection, the processing of the data, the operationalization and finally some expectations beforehand. The outline for the methods that are used is drawn from the case study design from the perspective of Flyvbjerg (2006) and Yin (2003). According to Yin (2003, p.20), there are five key elements to a case study design: 1) a study's questions, 2) its propositions, if any, 3) its unit(s) of analysis, 4) the logic linking the data to the propositions, and 5) the criteria for interpreting the findings. The first key element, regarding the study's questions, is linked to the various methods. According to Yin (2003), case study research is most suitable for 'how' and 'why' questions. The main research question and all of the four sub-questions within this research start with 'how', which indicates that the case study design is a suitable framework. The second element of a case study, according to Yin (2003), is propositions within a research. Within this thesis there is a proposition that poses that implementation of external safety policy is part of the role of the spatial planner, while planners in practice encounter this aspect of the spatial field through outsider, technical professional(s). Another proposition is that implementing external safety policy is not part of the role of the spatial planner. Through the cases, these propositions will either be verified or falsified. The third element, described by Yin (2003), has to do with the unit(s) of analysis. Within this thesis, the researched units of analysis are four different building projects in various municipalities in the Netherlands encountered within the guidelines of the Environment and Planning Act. The differing dimensions are municipalities in which incidents with hazardous substances have occurred as opposed to municipalities in which this has not happened and municipalities in which generalist planners work on the projects as opposed to specialist planners working on these projects. Furthermore, within the cases there is a multitude of units of analysis consisting of the implementation of external safety regulation, the role of the spatial planner and the different tools that have been used within the projects. The final two key elements proposed by Yin (2003) are dealing with the data and criteria of the research findings. The example that has been given in the book of Yin (2003) shows that it is possible to do this through linking different patterns from cases. However, it also described that this part of the case study design is not yet fully developed.

3.1 Case criteria

In order to generalize from the basis of the case study design, the selection of the case study or case studies is of great importance, since the extent of atypical or extreme cases may provide certain arguments to get the point across (Flyvbjerg, 2006; De Pater, 2014). According to Flyvbjerg (2006), the researcher might also use the approach of the critical case, which is selected through the 'most likely' cases to falsify certain hypotheses and 'least likely' cases to verify them. A third approach mentioned by Flyvbjerg (2006) is to create a paradigmatic case study design, which focuses on generalizations of the researched society. The selection of the cases is therefore a key aspect of creating scientific generalizations. For this thesis the cases will be selected on the basis of the information-oriented selection of maximum variation cases. Within this selection, three or four cases (in this masterthesis it is four cases) are selected through the various criteria with, in this case two different dimensions among them. These differing dimensions are the characteristics of the involved planners (generalists or specialists) and whether incidents with hazardous substances have occurred within the municipality (see Figure 4), as introduced in chapter 2. In this sense, the four cases are divided as follows:

- Case A: a municipality where incidents with hazardous substances have occurred and where generalists are part of the spatial process.
- Case B: a municipality where incidents with hazardous substances have occurred and where specialists are part of the spatial process.
- Case C: a municipality where no incidents with hazardous substances have occurred and where generalists are part of the spatial process.
- Case D: a municipality where no incidents with hazardous substances have occurred and where specialists are part of the spatial process.

Figure 4: Criteria cases



Source: (Own work)

The first dimension that is applied within the case criteria has to do with the occurrence of incidents with hazardous substances within the municipality. This distinction is made in order to compare municipalities in which spatial planners have experience with external safety matters or not. It is evident that in municipalities where incidents with hazardous substances have occurred, there is (in most cases) more activity with these substances, such as production or transportation. This might have influence on the role of the spatial planner and the responsibility the spatial planner has on external safety matters. Incidents within this research are defined as the awareness of both lethal and non-lethal incidents due to the production, transportation or storage of hazardous substances, which makes it an important agenda-point for the municipality.

The second dimension that is applied within the case criteria is that of the different involved actors. Within some projects, generalists are responsible for multiple spatial themes, when in other cases, the municipality has specialists at their disposal. In order to compare this dimension, at least two cases are selected that have these specialists within their organization, presumably at larger municipalities, and at least two cases are selected by municipalities where generalists work, perhaps at smaller municipalities. Generalist planners are, as pointed out in chapter 2.2.1, knowledgeable and skilled in a variety of themes, while specialists are focused on one or few themes.

3.2 Case selection

When looking for different cases, the case criteria need to be considered. The first criteria is that of generalists and specialists, for which the limit lies on 100.000 residents per municipality. To clarify, when a municipality is smaller, consisting of less than 100.000 residents the assumption was made that mostly generalist planners work within this organization. When the number of residents exceeds the 100.000 residents, the assumption was made that municipalities have specialists planners within their organization. Through the second criteria I consider whether incidents with hazardous substances have occurred or not. In order to establish this, an analysis with, for example LexisNexis, was carried out. Eventually every municipality within the Netherlands can be categorized within one of the four cases, however, not all municipalities are considered for research. Because of the qualitative nature of this thesis, various municipalities from every province in the Netherlands was selected and respondents were contacted. The final case selection was aligned with the willingness to correspond from the respondents. The municipalities that have reached the final selection are Barendrecht (case A), Amersfoort (case B) and Enschede (additional to case B), Blaricum (case C), Breda (case D) and Den Bosch (additional to case D).

3.3 Data collection

The qualitative research methods used for this case study design are a literature review, document analysis and semi-structured interviews. In order to grasp some of the key concepts of this research, executing a literature review is of main importance, because it will aid in giving a complete outlook on existing theories and ideas compiled by academics (Bryman, 2016). Therefore, a literature review functions as the starting point for this research. According to Bryman (2016) a literature review is used to compile existing information on the topic and the application of concepts and theories. Besides that, the literature review also provides insights on authors who have made contributions to the topic and whether there are controversies (Bryman, 2016). In order to create a sufficient literature review for a masterthesis, it is important to write about the key authors and the main concept, rather than summarizing every piece of literature on the topic and to be critical on the literature that has been written (Bryman, 2016). The literature that is used for this masterthesis is concerned with external safety, the role of the spatial planner and the policy arrangement approach.

Furthermore, a document analysis is compiled consisting of policy-documents, laws and newspaper articles, in regards to the role of the spatial planner, external safety and the Environment and Planning Act. To analyze documents, it is important to set out four steps for the data contained in documents: finding, selecting, appraising and synthesizing (Bowen, 2009). In order to interpret different documents, it is key to separate content analysis and thematic analysis, which means that the reader understands the concepts from the document (content), but also recognizes overarching topics throughout documents (thematic) (Bowen, 2009). Therefore, the reader must establish what the purpose of the document is and what the target audience is (Bowen, 2009). A newspaper has the purpose of informing citizens, while a policy document has the purpose of guiding the implementation of law and policy. The ministry of internal affairs and kingdom relations has compiled the national environmental vision (in Dutch: *Nationale Omgevingsvisie (NOVI)* (2020), which is a policy document that provides a long-term vision for future spatial development, which is a starting point of the policy analysis. Within the cases, policy documents on lower governmental levels, such as municipal and/or provincial, are inquired from the specific locations, also because of the special focus on policy documents from the analytical framework of the policy arrangement approach. Furthermore, in order to start this research, it is important to gain insights on the different themes and definitions of external safety and the role of the spatial planner. The RIVM provides insights, which are made especially for practitioners, through the environmental safety manual (in Dutch: *Handboek omgevingsveiligheid*). This manual provides the reader with methods, measures and legal guidance about external safety (RIVM, n.d.). Hereby, the method of sampling of theoretical concepts creates an additional building block, because non-peer feedbacked literature from the RIVM could just as peer-feedbacked academic literature be of theoretical relevance in defining external safety (Bowen, 2009). Concretely, when looking at newspapers and the focusing on discourse, various key terms were used within the search for the four cases. These terms are: the name of the municipality, incident, hazardous materials, external safety, Environment and Planning Act and planner/planning.

Finally, for more qualitative, in-depth inquiry, semi-structured interviews were executed. The semi-structured interviews were collected through recordings, in order to transcribe them thoroughly. According to Adams (2015) semi-structured interviews provide many advantages to inquiries, for example when a researcher needs answers to open-ended questions to people (in this case actors and/or stakeholders in building projects) who can be fully honest in an one-on-one setting, which is not always the case in (focus) groups (Adams, 2015). However, planning and preparing interviews is very important, because it takes a lot of time, effort and analyzing (Adams, 2015). The respondents for the interviews are selected through the municipalities and involved stakeholders. According to (Adams, 2015), when arranging these interviews, it is sensible to find one person in the government agency (municipality) or corporate stakeholder (such as the manager) with whom the researcher can make contact with. When arranging other interviews within that organization, the researcher is able to send a letter in advance to explain the research and other components of the research and the contact within the organization is able to show this letter to others within the organization, in order to create legitimacy. After that, it is easier to call members of this organization. Furthermore, when arranging an interview, find a timeslot at the end of the day, because that interview might then be the last appointment of the day for the respondent, which provides them with all the time and freedom to finalize the interview (Adams, 2015).

When preparing the interviews, it is important to draft questions. According to Adams (2015), this can be done through six guidelines: 1) create enough time to draft, edit and peer-feedback (by colleagues) the questions before the interviews, 2) keep the list of topics as short as possible, 3) write some close-ended questions for the respondents, because they might lead to open-ended conversation (by asking 'why' and 'how'), 4) when respondents do not speak the same language, arrange for a translator, 5) create an environment where respondents feel free to speak their mind by removing stigma (by providing them with examples of prefatory comments), 6) when an interview moves from topic one to topic three, remove the existing order in which the interview was prepared and feel free to rearrange the interview in a way that fits the conversation. When starting the interview, the interviewer must ask permission to record the interview (Adams, 2015). If the respondent does not grant the interviewer permission to record the interviews, the interviewer must be ready to take notes, either on paper or via a digital device (Adams, 2015). According to Adams (2015) the interviewer must use quotation marks when something is said verbatim by the respondent and when a certain expression is used when saying something. The interviewer can place brackets around this remark for clarification. When the interviewer wants to use certain quotes from the respondent, the interviewer must also ask for permission for this (Adams, 2015). According to Adams (2015, p.502) the interviewer must not only be prepared, but must also be verbally qualified, on which he writes the following: "When asking questions, tone is extremely important. SSI interviewers should take a casual, conversational approach that is pleasant, neutral, and professional, neither overly cold nor overly familiar. In this relaxed, comfortable setting, probing is accomplished without the interviewer sounding astonished by anything said, interested but not shocked."

The four cases that were inquired within this case study design, consist of the three described methods. The order of the methods are the same in which they are described, which means that in every case there is an outlook on the existing academic literature, followed by document analysis of the specifications and finally the semi-structured interviews were executed in order to deduct certain aspects of the research. However, while these semi-structured interviews were prepared (with academic literature and document analysis on the specific case), there was still room for open questions and open endings. This openness is needed in order to create an image of the role of the spatial planner in specific examples and not to hold on to much on the roles described in the theoretical framework (2.1.2). The outcomes of this method and this research in its totality must be assessed with an objective and open-minded lens.

3.4 Data processing

In order to analyze and compare the data from the four cases an operationalization is made. The data processing that stems from the theoretical framework and from labeling fragments of empirical data within the operationalization is coded and every cases can be classified within one or more codes. However, with every category there is an open code option that is used when the answers given or data found does not match with the theory or empirical data in advance.

3.5 Operationalization

The operationalization is structured through the policy arrangement approach, because the cases (A-D) are also analyzed through this analytical model. Furthermore, the content of the operationalization is extracted from the theoretical framework (chapter 2). The purpose of the operationalization is to create concrete measurable concepts for the empirical section of this research, which translates into objectives for the literature review and document analysis and questions for the interviews.

Actors and coalitions

Table 5: Operationalisation ‘Specialisms (or generalist) of spatial planning’

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From the theory of Dawkins (2016) the following aspects of generalist planners or specializations are drawn up:</p> <ol style="list-style-type: none"> 1. Understanding of the rationale for and purposes of planning 2. Understanding of the planning process and connections between planning and implementation 3. Understanding of the ethical dimensions of urban planning 4. Understanding of the legal context within which planning occurs 5. Understanding of the history of the planning profession 6. Understanding of basic economic theory and its application to planning 7. Understanding of the political context within which planning occurs 8. Understanding of environmental processes and the interactions between the built environment, human activity, and environmental change 	<p>Due to the open interpretations of the mentioned theoretical concepts of Dawkins (2016), the concepts are operationalized as follows:</p> <ol style="list-style-type: none"> 1. Protecting the goals and interests of citizens and the municipal organization 2. Knowing how to execute the planning process from beginning to end by practitioners 3. Advocating for certain rights in order to do right by citizens and the municipal organization 4. Legal planner 5. Historical planner 6. Economical or financial planner 7. Political or administrative planner 8. Environmental planner 	<p>What is your educational background?</p> <p>Are you specialized in any field within the spatial planning sphere?</p> <p>What is your current function at the municipality?</p> <p>What are your day-to-day tasks and assignments within the municipality?</p>

Table 6: Operationalisation ‘Coalitions and collaborations with the spatial planner’

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From empirical data the following actors are part of the coalitions and collaborations:</p> <p>Environmental expert, Initiator, Urban designer, Financial expert, Environmental service, Safety region, Province, VNG, License issuer, Policy maker, Municipal council, Other municipalities, Executive board, Traffic engineers, Consultancy firm, Residents, Project leader, Developer, Investor, Real estate agents, GGD, Fire department, Water board, Real estate lawyers, Real estate specialists, Archaeologists, ProRail, NS real estate, Ministry, Professional officers, VVE, Alderman, Housing association, Rijkswaterstaat</p>	<p>Within the actor analysis, the actors are categorized within the way or manner of collaboration:</p> <ul style="list-style-type: none"> ◇ Influencers ◇ Decision-makers ◇ Suppliers/executers ◇ Users/customers <p>Furthermore, the actors are within the way or manner of collaboration also classified within a type of influence:</p> <ul style="list-style-type: none"> ◇ Knowing ◇ Thinking along ◇ Cooperate ◇ Co-decide <p>The actors listed in this operationalization can acquire a different way or manner of collaboration and a differing classification of influence in each case.</p>	<p>What actors within the municipality are you working with? What is the nature of this collaboration?</p> <p>What actors outside of the municipality are you working with? What is the nature of this collaboration?</p> <p>What actors are involved with creating and/or implementing external safety policy?</p> <p>What is your role within this part of the field as a spatial planner?</p>

Rules of the game

Table 7: Operationalisation 'Changes in regard to external safety policy'

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From empirical data the following changes are compiled:</p> <ol style="list-style-type: none"> 1. Respondents do not experience change 2. To re-write municipal policy 3. The manner of the system (going from calculation models to a qualitative approach) 4. More integral collaborations 	<p>Based on answers from the respondents within the interviews, the empirical concepts have been selected and classified (see Appendix A 'Rules of the game' and Appendix B).</p>	<p>How does the municipality anticipate on the external safety policy under the Environment and Planning Act?</p> <p>Are there certain work appointments that influence implementation of Environment and Planning Act and the external safety policy?</p>

Table 8: Operationalisation 'Changes in regard to the Environment and Planning Act'

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From empirical data the following changes are compiled:</p> <ol style="list-style-type: none"> 1. Respondents do not experience change 2. Change of organization 3. Change of collaboration 4. Change of participation 5. Change in digitalization 	<p>Based on answers from the respondents within the interviews, the empirical concepts have been selected and classified (see Appendix A 'Rules of the game' and Appendix B).</p>	<p>How does the municipality anticipate on the Environment and Planning Act?</p> <p>What is going to change for you as a spatial planner with the enactment of the Environment and Planning Act?</p> <p>Are there certain work appointments that influence implementation of Environment and Planning Act and the external safety policy?</p>

Table 9: Operationalisation 'Unwritten rules'

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From empirical data the following unwritten rules are compiled:</p> <ol style="list-style-type: none"> 1. No unwritten rules 2. No in-depth rules/policy on sustainability themes, therefore municipality must draw up its own policy: biodiversity, green growth, circular economy, energy, climate adaptation. 3. Mobility: No state law/regulation, focus on cycling, walking and electrical transportation. 4. Health theme: Currently no policy for this theme, therefore focus on exercise, a movement friendly environment, health policy, 'Sport- en Leefstijlakoord. 5. Unwritten rules are almost culture, rules you follow but are not written within rules/policy, and even though they appear, they are always substantiated within the frames. 	<p>Based on answers from the respondents within the interviews, the empirical concepts have been selected and classified (see Appendix A 'Rules of the game' and Appendix B).</p>	<p>Are there any unwritten rules within the municipality that might be of influence to the enactment of the Environment and Planning Act and the external safety policy?</p>

Discourse

Table 10: Operationalisation ‘Interpretation of the role of the spatial planner’

Theoretical or empirical concepts	Operationalization
<p>From the theory of Voogd et al. (2012) the following roles of the planner are compiled:</p> <ol style="list-style-type: none"> 1. Planner as designer 2. Planner as jurist 3. Planner as economist 4. Planner as director <p>From the theory of Othengrafen and Levin-Keitel (2019) the following roles of the planner are compiled:</p> <ol style="list-style-type: none"> 1. Local-specific analysts 2. Experienced generalists 3. Reactive pragmatists 4. Project-based planners 5. Compensatory moderators 6. Innovative designers <p>From the theory of Fox-Rogers and Murphy (2015) the following roles of the planner are compiled:</p> <ol style="list-style-type: none"> 1. Planner as mediator 2. Planner as administrator 3. Planner as liaison/facilitator 4. Planner as professional advisor/expert 5. Planner as advocate 6. Planner as ‘social gatekeeper’ 7. Planner as ‘facilitator’ of development 	<p>Voogd et al. (2012)</p> <ol style="list-style-type: none"> 1. The spatial planner as problem solver through design for spatial challenges keeping future consequences in mind, without an objective or scientific basis. 2. The spatial planner using law and regulation to enforce certain spatial actions for an ultimate goal or to protect interest and property. 3. The spatial planner works on guiding plans in order to fulfill great economic interests and also to change parts of the economic reality. 4. The spatial planner reaches a support base from politicians in order for them to approve the implementation of these plans. <p>Othengrafen and Levin-Keitel (2019)</p> <ol style="list-style-type: none"> 1. The spatial planner works on data collecting and analysis (local-specific) in order to make legally binding plans. 2. The spatial planner works on plans and concepts in order to gain strategic and spatial control and provides policy advise. 3. The spatial planner is enforcing the status quo, and uses legally binding plans and weighs conflicting interests. 4. The spatial planner creates legally binding plans through 100% consent of what is implemented. 5. The spatial planner is coordinating the process with a 100% consent through weighing conflicting interests, policy advise and through communicating with specific target-groups. 6. The spatial planner is initiating new concepts and ideas with a 100% consent through innovations with 90% consent, communicating with specific target-groups and using implementation with a 95% consent. <p>Fox-Rogers and Murphy (2015)</p> <ol style="list-style-type: none"> 1. The spatial planner is mediating between conflicting interests for the common good in order to balance the outcomes. 2. The spatial planner mainly focuses on administrative aspects, like policy. 3. The spatial planner facilitates easy access by communication and reducing difficulties with legal sources. 4. The spatial planner has the role of recommending advise or expertise (not a decision-maker). 5. The spatial planner works for social reform and community benefits for the common good. 6. The spatial planner is working as a bureaucrat, with a social twist. 7. The spatial planner facilitates private capital and interests within the planning process through the neoliberal political and economic position.

Interview questions from the operationalisation of ‘Interpretation of the role of the spatial planner’ are:

- ◇ How would you define or describe the role of a spatial planner?
- ◇ Why does this define the role of the planner for you?

Resources

Table 11: Operationalisation 'Resources/instruments that spatial planners use'

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From the theory of Spit and Zoete (2016) the following instruments of the planner are compiled:</p> <ol style="list-style-type: none"> 1. Classic policy instruments 2. Modern instruments 3. Postmodern instruments <p>From the theory of Voogd et al. (2012) the following instruments of the planner are compiled:</p> <ol style="list-style-type: none"> 1. Sketch paper and markers 2. Laws and restrictions 3. Knowledge on real estate, exploitation plans and feasibility analysis 4. Political support, negotiation tactics, coalitions and administrative agreements <p>From the Environment and Planning Act (IPLO, n.d., a) the following instruments of the planner are compiled:</p> <ol style="list-style-type: none"> 1. Environmental vision 2. Programs 3. Decentralized rules 4. General state rules 5. Environmental permit 6. Project decision 	<p>Spit and Zoete (2016)</p> <ol style="list-style-type: none"> 1. Rules and regulation, law and policy documents. 2. Economic or financial means. 3. Contracts, intangible incentives, steering through lectures. <p>The instruments described by Voogd et al. (2012) are linked to the role of the planner.</p> <ol style="list-style-type: none"> 1. Instruments of the spatial planner as designer. 2. Instruments of the spatial planner as jurist 3. Instruments of the spatial planner as economist. 4. Instruments of the spatial planner as director. <p>IPLO (n.d., a)</p> <ol style="list-style-type: none"> 1. A vision of future strategies and developments. 2. When protecting, managing, utilizing and developing the physical environment, sometimes by implementing existing policy towards the new situation. 3. Containing the environmental plan. 4. Containing the Ob, Bkl, Bal and Bbl. 5. Necessary permit when initiatives are submitted that go against state rules. 6. Used in procedures of complex projects. 	<p>What resources do you use as a spatial planner?</p>

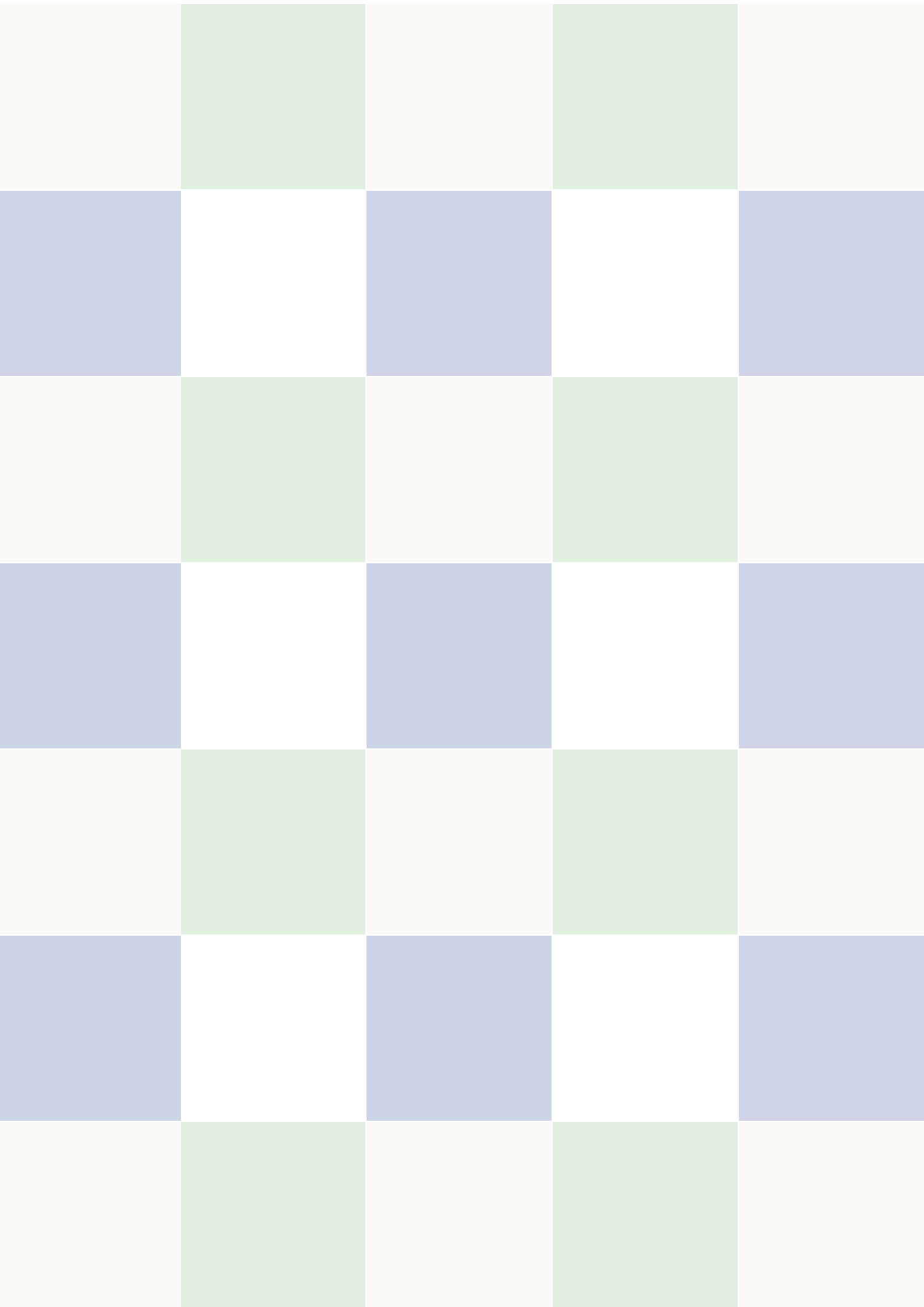
Table 12: Operationalisation 'Resources for data collection external safety'

Theoretical or empirical concepts	Operationalization	Interview question(s)
<p>From empirical data the following resources of data on external safety are compiled:</p> <ol style="list-style-type: none"> 1. Own knowledge 2. Resources from experts within the municipality 3. Resources and contacts from the environmental service 4. Resources and contacts from the safety region 5. Resources and contacts from the province 6. Resources and contacts from the state 7. Resources and contacts from corporate resources 	<p>Based on answers from the respondents within the interviews, the empirical concepts have been selected and classified (see Appendix A 'Resources' and Appendix B).</p> <p>Examples of these classifications are:</p> <ol style="list-style-type: none"> 1. Mentions of being specialized within the field of external safety. 2. Mentions of experts on external safety working at the municipality. 3. Mentions of collaborations and or help from the environmental service. 4. Mentions of collaborations and or help from the safety region. 5. Mentions of collaborations and or help from the province. 6. Mentions of collaborations and or help from the state, such as RIVM or the ministry. 7. Mentions of collaborations and or help from corporate resources such as consultancy firms. 	<p>By who or what organization (public or private) is the municipality informed on external safety matter?</p> <p>What appointments are made about the collaboration between the municipality and other actors concerning external safety?</p> <p>Are the resources/ instruments from RIVM used by the municipality for external safety matters?</p>

3.6 Expectations

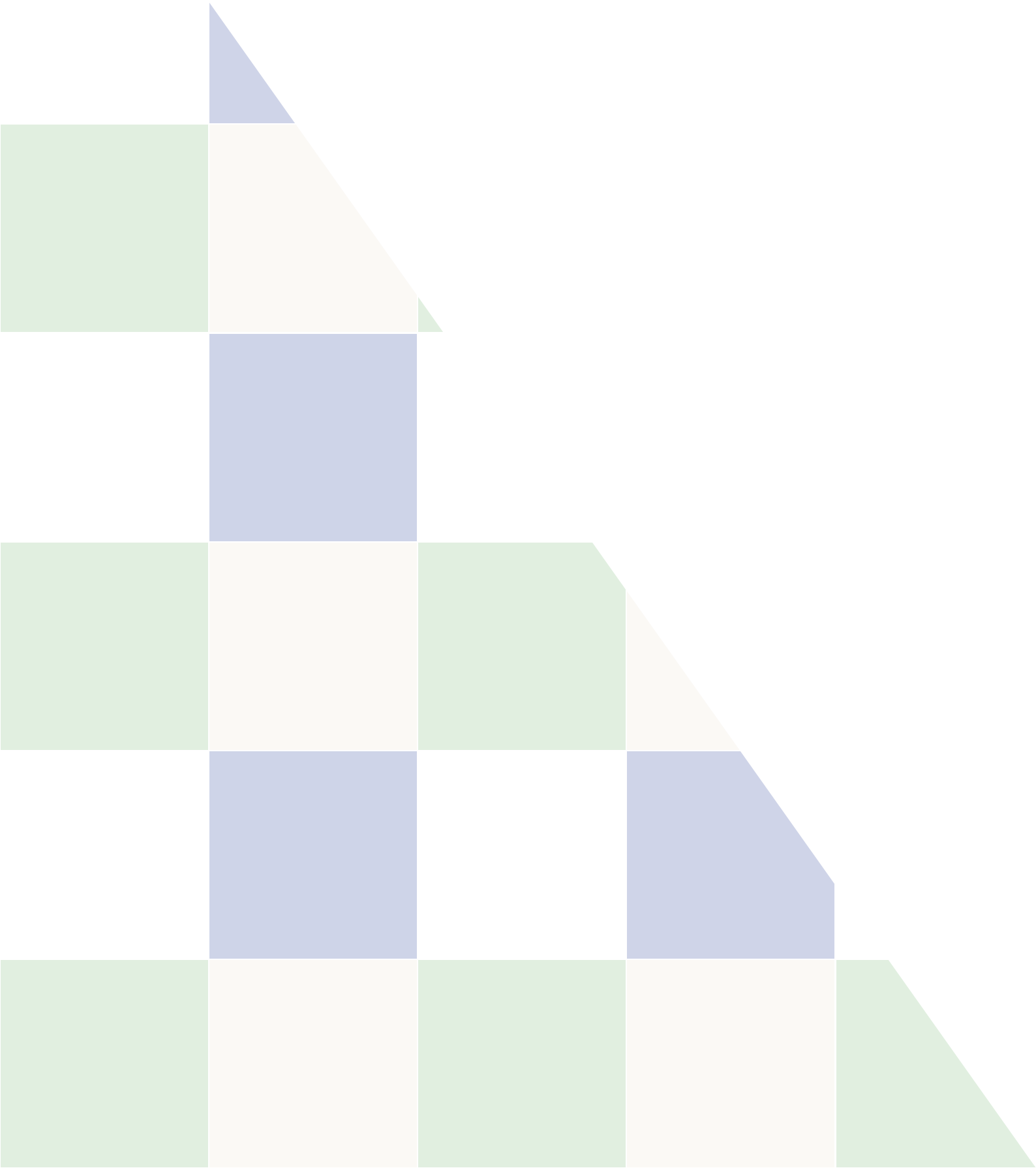
From the point of the theoretical framework and gained data, there are some expectations that account for some choices that were made. These expectations are:

- Small municipalities (< 100.000 residents) mainly consist of generalist planners and larger municipalities (> 100.000 residents) contain also specialists planners.
- Spatial planners from small municipalities define their role differently from spatial planner from larger municipalities.
- Municipalities that have experienced incidents with hazardous substances have a higher regard for external safety than within municipalities that have not experienced incidents with hazardous substances.
- It is expected that external safety is implemented within the organization in larger municipalities (>100.000 residents) and within smaller municipalities (<100.000 residents) external safety is implemented with expert from outside the municipality.



PART 2

Results



4. Changing external safety policy

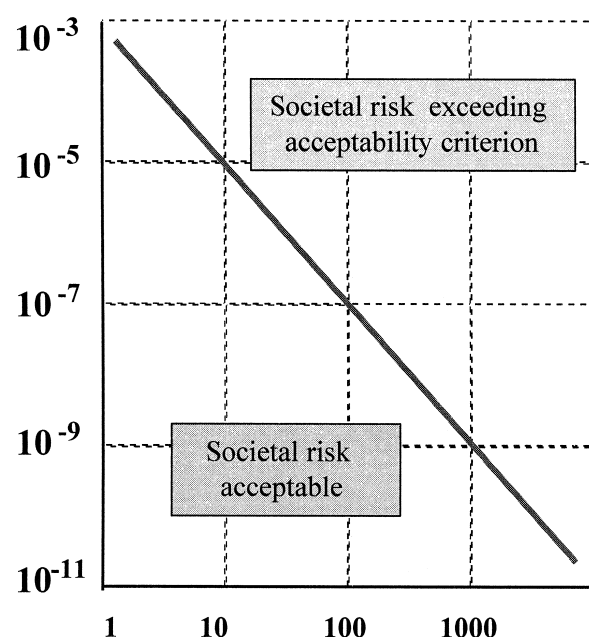
From the theoretical framework (chapter 2.1) the relation between external safety theory and policy has been defined. External safety is relevant in every country, however, besides European regulation (Seveso II) which can be equipped by each country, the Netherlands therefore has its own national policy that needs to be followed (RIVM, 2014). In this chapter there is a short overview of the current Dutch external safety policy and an overview of the external safety policy under the Environment and Planning Act. This is done in order to answer the theoretical sub-question: How is external safety defined within (academic) literature and Dutch law and policy?

4.1 Existing external safety policy

The types of activity that are relevant in the Dutch external safety context are the establishments where the production, storage and usage of hazardous substances occur and the transportation of hazardous substances on rails, roads and water, and transportation of hazardous substances through pipelines (RIVM, 2014). Anything related to aircrafts, fireworks and nuclear incidents and radiation are part of different laws/regulation in the Netherlands (RIVM, 2014). Dutch policy on external safety is currently focused on probability calculation, in two different ways. The first way is that of the individual risk (in Dutch: *plaatsgebonden risico*), which is the chance per year that someone dies as a direct result of an incident with hazardous substances at a certain facility (RIVM, 2014). Legally binding risk acceptability criteria for individual or local risks are defined in external safety acts. Another probability calculation is that of the social risk (in Dutch: *groepsrisico*), which is the cumulative chance in which 10, 100 or 1000 people at once die as a direct cause of an incident with hazardous substances at a certain facility, measured by the not legally binding orientation value (in Dutch: *oriëntatiewaarde*), however, authorities should explain how they manage societal risks e.g. through additional safety measures (RIVM, 2014). With the changes a norm/standard is calculated in which contour people are save, and in what contour there is a direct risk of people dying in the case of an incident with hazardous substances (RIVM, 2014).

Concerning facilities with hazardous substances, the calculations are involved by the surrounding objects, precisely the function within these objects (Bottelberghs, 2000). These objects can be categorized into vulnerable objects and less vulnerable objects (Bottelberghs, 2000). Vulnerable objects are houses, large offices, schools or hospitals (RIVM, 2014), and less vulnerable objects are functions where people reside for a shorter time, such as sport facilities (Neuvel & Jaarsma, 2015). The difference between these two object are further distinguished by both physical and psychic abilities, translated as self-reliant (Neuvel & Jaarsma, 2015). Finally, the objects are distinguished by locational factors, such as the amount of people that are present and the amount of escape routes (Neuvel & Jaarsma, 2015). When it comes to individual risks (in Dutch: *plaatsgebonden risico*) the limit value (in Dutch: *grenswaarde*) of a vulnerable object is 10^{-6} and for less vulnerable objects this is the target value (RIVM, 2014). In the case of the societal risk (in Dutch: *groepsrisico*), the measured orientation value (in Dutch: *oriëntatiewaarde*) is 10^{-5} per year when the risk of the facility is that 10 people die in case of an incident, 10^{-7} per year when the risk of the facility is that 100 people die, and 10^{-9} per year when the risk of the facility is that 1000 people die (RIVM, 2014; Figure 5).

Figure 5: Risk contours per year



Source: Bottelberghs, 2000

4.2 External safety policy under the Environment and Planning Act

When the Environment and Planning Act is enacted (presumably on January first 2023) a new national external safety policy is implemented as well. Some aspects of the current situation stay the same, but for other aspects there will be some differences. What stays the same is the individual risk (in Dutch: *plaatsgebonden risico*) and its limit value (in Dutch: *grenswaarde*) for incidents with hazardous substances (IPLO, n.d., c). However, what is going to change is instead of the societal risk, municipalities need to start working with focus areas (in Dutch: *aandachtsgebieden*), instead of vulnerable objects and less vulnerable objects, there will be three categories of locations and buildings with the categorizations of less vulnerable, vulnerable and highly vulnerable, and finally, the RRGs, a register for risk situations of hazardous substances, is replaced with the REV, which is the register external safety risks (IPLO, n.d., c). The various alterations are outlined in the upcoming paragraphs.

The first change in the new external safety policy in the Netherlands is the replacement of the societal risk with the focus areas (IPLO, n.d., c). The focus areas are defined as areas in which people inside buildings are insufficient protected against the effects of incidents with hazardous substances (IPLO, n.d., d). The external safety policy will consist of three kinds of focus areas correlating with the three types of hazards: fire focus areas, explosion focus areas and toxic dispersion focus areas (IPLO, n.d., d). Within the environmental plan these focus areas can be captured (which is not mandatory), in order for the authorized supervision to advise certain measures in order to protect its citizens, but the substantiation of the areas is most important (IPLO, n.d., d). In some cases, this means architectural measures, keeping a certain distance from the risk source or ensuring escape routes (IPLO, n.d., d). Within a focus area it is possible for a municipality to indicate a regulation area (in Dutch: *voorschriftengebied*), which means that in case of a new building project, additional architectural measures are required in order to establish safety (IPLO, n.d., d). These buildings requirements for explosion or fire are compulsory on locations in focus areas where buildings are allowed that fall in the category very vulnerable objects, such as primary schools or hospitals (IPLO, n.d., d).

The second alteration is regarding the highly vulnerable buildings, which is an addition to the existing types of objects. The categorization is determined by the Bkl within the municipal environmental plan and environmental vision (IPLO, n.d., e). This categorization is applied on building in which the self-reliance of the users/residents are low, such as elementary schools, prisons and residents with 24-hour healthcare (IPLO, n.d., e).

The REV contains all data on external safety within the Netherlands, and this data can be accessed by a viewer such as the '*Atlas Leefomgeving*'. The REV shows on a digital platform all the risk concerning storage, production, usage and transportation (rails, roads, water, pipelines) of hazardous substances in the Netherlands (IPLO, n.d., f). The responsible parties for the data collections are the municipalities, provinces and in some case the ministry (IPLO, n.d., f).

4.3 Conclusion

When looking at the current external safety policy and the policy that is compiled for the Environment and Planning Act, there are not that many differences to the definition, including the theory described within the theoretical framework. The aspect about the Dutch external safety policy that differs from the current situation towards the new situation is the approach, which is shifting from quantitative to qualitative with a special emphasis on the substantiation. The risk calculations and models are making room for a more open approach, given that focus areas are not mandatory for municipalities to establish within the environmental plan or environmental vision. In environmental plans, municipalities should explain and motivate how they provide protection in focus areas. They should require additional safety measures for new spatial development. When they allow new 'very vulnerable' buildings, then they should include building requirements for explosion and fire for those locations in their environmental plans.

5. Introduction to the Dutch cases

5.1 Specializations and generalists

From the literature of Dawkins (2016) the various types of knowledge and skills most generalist planners obtain from their education and use within practice, or the one or few types that specialist planners are experts in, create the framework for the respondents of the cases and additional municipalities. Throughout the four cases the categorization is outlined by means of this framework which is also visible in the Appendix A. The expectation is that the generalist planners in most cases work at the smaller municipalities, while the specialist planners are part of organizations from larger municipalities (see chapter 3).

5.2 Incidents

Another expectation and case criteria is that of the occurrence of incidents. The occurrence of incidents is researched through a news analysis and within the four cases is outlined whether incidents have occurred, and what kind of incidents they were. In order to create a complete image of the case and the area, the location of the municipalities that are researched is shown within a map, displaying the amount and kinds of activities with hazardous substances. These activities might be related to the occurrence and nature of incidents.

5.3 Actors and coalitions

The first theme of the policy arrangement approach is the actors and coalitions (Arts and Van Tatenhove, 2005). Throughout this theme the various actors that collaborate with the spatial planner (or specialized planner) is displayed through an actor analysis. This analysis shows not only with whom the planner collaborates, but also the manner in which this collaboration takes place. This analysis consist of four types of influence: knowing, think along, cooperate, co-decide. Besides the types of influence, there are also four ways of collaboration: influencers, decision-makers, suppliers/executers, users/customers (Ministerie van algemene zaken, n.d.).

5.4 Rules of the game

The rules of the game consist of three aspects that are researched throughout the analysis of the cases. Containing the way that the Environment and Planning Act is changing external safety policy with practitioners, the way that the Environment and Planning Act causes changes with the role of the spatial planner and whether there are unwritten rules within municipal organization that factor into the Environment and Planning Act. These aspects are not drawn from theory, these are aspects that became evident through the respondents.

5.5 Discourse

Within the theoretical framework various theories regarding the perceived role of the spatial planner are outlined. These theories provide multiple categories of role perceptions of the spatial planner and between these theories there are some similarities, but also some differences. From the empirical data, in this instance the interviews with the spatial, legal and environmental planners of the four case municipalities, many perceptions on the role of the spatial planner come to light. The spatial planners that were interviewed for this particular sub-question were first asked about their own role within the organization they work in and what that role means. After this description the spatial planners were asked to give their own definition of the term 'spatial planner' and what their roles are. Both the respondents from the four case municipalities as the additional spatial planners' views on the role of the spatial planner are outlined one by one throughout the cases.

5.6 Resources

Through the frameworks of Spit and Zoete (2016) and Voogd et al. (2012) every case is analyzed on the various resources and instruments that are used by spatial planners. Besides these theoretical instruments, there are also six core instruments that are part of the Environment and Planning Act that are also part of this analysis, in order to comprehend the extent in which spatial planners and their specific municipal organization are prepared for the upcoming law. These core instruments are introduced in the following paragraph. Another aspects of resources is the way data is collected about external safety by either the executing planner of the ex-

ternal safety theme, the environmental expert or the advisory contact from the environmental service. These data collection components are not drawn from theory but display experiences presented by the respondents.

Within the Environment and Planning Act, six core instruments are developed in order to guide practitioners into utilizing and implementing this law (IPLO, n.d., a). These instruments are as follows:

1. Environmental vision: As explained before, this document provides an overview of the strategies of the physical environment and its future developments. There is an environmental vision on three levels of government: on municipal level (environmental vision municipality), on provincial level (environmental vision province) and on national level (national environmental vision) (IPLO, n.d., a).
2. Programs: This instrument is created in order to protect, manage, utilize and develop the physical environment by composing measurements, which for some areas is mandatory and in some cases municipalities or provinces work together on these programs (IPLO, n.d., a).
3. Decentralized rules: Decentralized rules are compiled out of the environmental plan, water board regulation and the (provincial) environmental regulation and apply to specific areas. These rules apply for initiatives from citizens and private businesses, but also provide guidelines and frames for testing of licenses (IPLO, n.d., a).
4. General state rules: Consisting of the Omgevingsbesluit, environmental decree, which encompasses all the regulations the different governmental layers need comply with, the Bkl, decree quality living environment (in Dutch: *Besluit kwaliteit leefomgeving*), which entails all the state rules that apply for decentralized governments, and the Bal, the decree for activities within the physical environment (in Dutch: *Besluit activiteiten leefomgeving*) and the Bbl, the decree for buildings within the physical environment (in Dutch: *Besluit bouwwerken leefomgeving*). The Bal and the Bbl encompass contain all state rules in regard to activities within the physical sphere (IPLO, n.d., a).
5. Environmental permit: Initiatives that civilians or businesses submit within the municipality are not always according to state rules. Therefore, in cases concerning monuments for example, a permit is necessary (IPLO, n.d., a).
6. Project decision: This is a procedure for complex projects from the state, province or water board (IPLO, n.d., a).

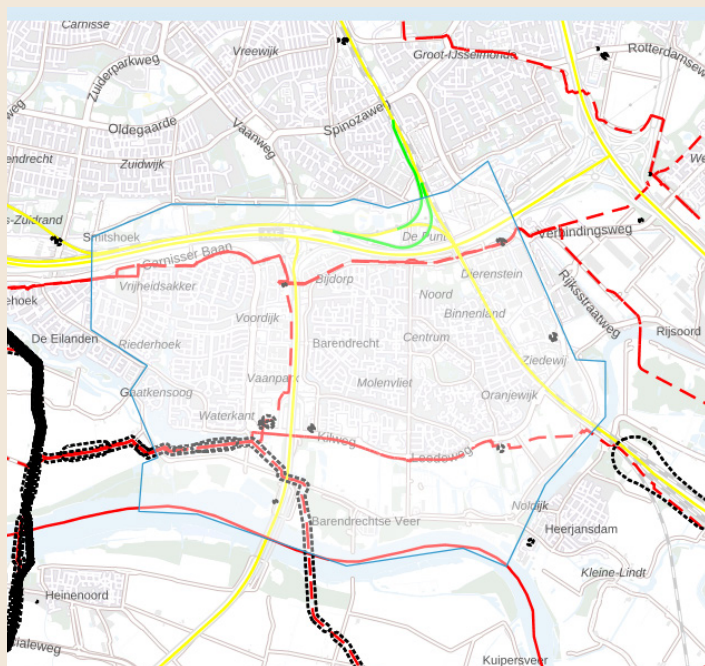
Case A

Generalists/specialists

The municipality selected for case A is Barendrecht, which lies within the province of Zuid-Holland and is part of BAR-Organization, a partnership between Barendrecht, Ridderkerk and Albrandswaard. The environmental service DCMR Milieudienst Rijnmond (Omgevingsdienst NL, n.d.) and the safety region Rotterdam-Rijnmond (Rijksoverheid, n.d.) are affiliated with the municipality of Barendrecht. The municipality of Barendrecht has 48.714 residents (CBS, 2022) which means that, given the criteria from chapter 3, it is a small municipality (< 100.000 residents) which means that it is expected that there are mainly generalist planners within the municipal organization. According to the analysis and during the interview with the spatial planner from the municipality of Barendrecht, this expectation was justified given that the spatial planner works as a generalist within spatial projects at the municipality containing multiple tasks (Appendix A: 'Spezialization'; D. Amesz, personal communication, April 25 2022).

Incidents

According to the news inquiry on LexisNexis, there are high risks within the municipality of Barendrecht due to the 'Kijfhoek', where hazardous substances are being transported (Koster & Onnink, 2018, August 8; AD Rotterdams dagblad, 2018, August 4). According to a local newspapers, some accidents have occurred, Figure 6: Activities with hazardous substances



Source: Atlas leefomgeving, n.d.

one accident regarding dumped chemical waste (Menheer, 2013, December 7) and an incident at the train station in Barendrecht with a fire hazard (Menheer, 2013, April 13). Figure 6 also shows that there is some activity with hazardous substances within and surrounding the municipality, such as transportation of hazardous substances on rails.

Rules of the game

Changes concerning external safety policy and implementation were found within policy documents. Within the policy document '*Integraal veiligheidsbeleid 2020-2024*' it says that when implementing environmental safety within the environmental vision, there is aid from VRR and the DCMR, which is done through looking for a possibility to recalibrate the current policy on environmental safety and to create environmental plan rules (Gemeente Barendrecht, 2019). The transportation of hazardous substances will be extended by the national government (who has the authorized supervision (in Dutch: *bevoegd gezag*)) and according to the policy document the municipality of Barendrecht is going to critically assess this matter (Gemeente Barendrecht, 2019). There is also the matter of renovation within the Kijfhoek, where multiple incidents have happened. In order to prevent this, the municipality of Barendrecht is going to work together with the municipality of Zwijndrecht, ProRail and the ministry of I en W (Gemeente Barendrecht, 2019).

According to the respondent from the municipality of Barendrecht the main changes occurring due to the Environment and Planning Act is the collaboration between actors (D. Amesz, personal communication, April 25 2022). This means that more actors are going to be involved in spatial projects, such as the GGD for the health theme, the water board, actors from environmental themes (including external safety), the environmental service and the safety region. According to the respondent not only more actors will be involved, but the manner and timing are also going to change. When the Environment and Planning Act is enacted, there is going to be an environmental table (in Dutch: *omgevingstafel*), which entails that when an initiative is taken to the municipality the actors are going to deliberate about the concept before any license is given, before the designs are created. This way the spatial planner can prevent problems or objections in the final phases of the process (D. Amesz, personal communication,

April 25 2022). However, according to the respondent, this might entail that the starting phase of the project will take up more time than it did before the enactment of the Environment and Planning Act. There are no unwritten rules according to the respondent.

Resources

From the interview with the respondent became clear that the resources used, as a spatial planner, are mostly policy and the political resources in order to create a support base (D. Amesz, personal communication, April 25 2022). These resources can be categorized in the second and fourth instrument within the framework of Voogd et al. (2012) and the ‘classic policy instruments’ from the framework of Spit and Zoete (2016). Furthermore, the respondent mentioned his work on the environmental plan, which is part of the ‘decentralized rules’ from the Environment and Planning Act (IPLO, n.d., a).

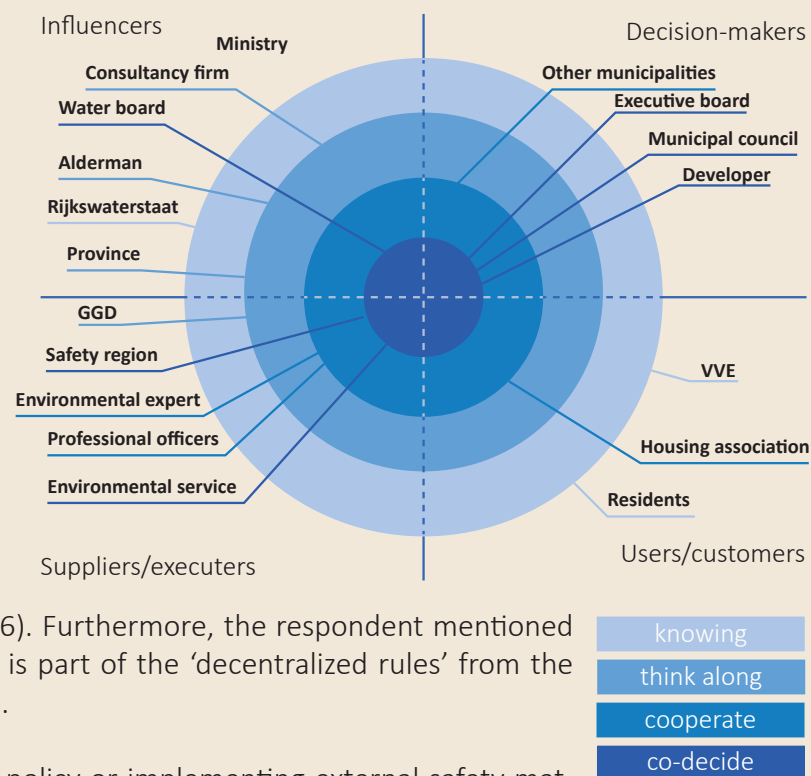
Besides that the respondent is not drafting policy or implementing external safety matters, he mentioned that the data surrounding this theme is collected by environmental experts within the municipality through sources and contacts from the environmental service, the safety region, the province and consultancy firms, such as Antea Group in Rotterdam (D. Amesz, personal communication, April 25 2022).

Discourse

The respondent from case A gives a wide description of the term ‘spatial planner’, which from his point of view is that of a generalist, that reaches out to experts for in-depth information on the various spatial themes (D. Amesz, personal communication, April 25 2022). However, he describes a division between planners at larger municipalities and planners at smaller municipalities, whereas planners at larger municipalities are working on very specific aspects of the planning process, while those working at the smaller municipalities have more than one specific element in their daily duties. The respondent from the municipality of Barendrecht also describes the possibility of a specialist planner, such as a legal planner, who would be focused on the legal aspects of the spatial processes. When referring to the more generalist planner, he describes the importance of maintaining contact with the involved actors, specifically those within the political layer of the municipality, considering the public interest that the municipality has in mind. According to the respondent, developers usually have a more commercial interest, and he sees it as part of his role to maintain the interests and ambitions of the public realm. Translating this description to the theory presented in chapter 2.2.2, it becomes clear that this one role descriptions fits into multiple frameworks, and even within some frameworks it fits into multiple categories. From the analysis (Appendix A) becomes clear that the description from the respondent of the municipality of Barendrecht aligns with the ‘planner as mediator’, ‘planner as administrator’ and ‘planner as liaison/facilitator’ from the framework of Fox-Rogers and Murphy (2015). From the framework of Othengrafen and Levin-Keitel (2019) there are agreements with the cluster ‘reactive pragmatists’ because of the various interests that the spatial planner needs to implement and the fact that this cluster is all about creating legally binding plans. From the third framework there are alignments with ‘planner as jurist’ and ‘planner as director’ (Voogd et al., 2012), the first one aligns with the example the respondent provided of specialisms within the field of planning, and the planner as director because of the political support base that the planner is supposed to require.

Actors and coalitions

Figure 7: Actor analysis Barendrecht. Source: Own work



Case B

Generalists/specialists

The municipality selected for case B is Amersfoort, which is located in the province of Utrecht. The environmental service RUD Utrecht (Omgevingsdienst NL, n.d.) and the safety region Utrecht (Rijksoverheid, n.d.) fall under the jurisdiction of the municipality of Amersfoort. The municipality of Amersfoort has 158.590 residents (CBS, 2022) which means that the municipality aligns with the expectation of a large municipality (> 100.000 residents), considering that there are mainly specialist planners working at the municipal organizations. The spatial planners from the municipality of Amersfoort that participated with the interviews are specialized in the legal context of the planning field (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022).

Incidents

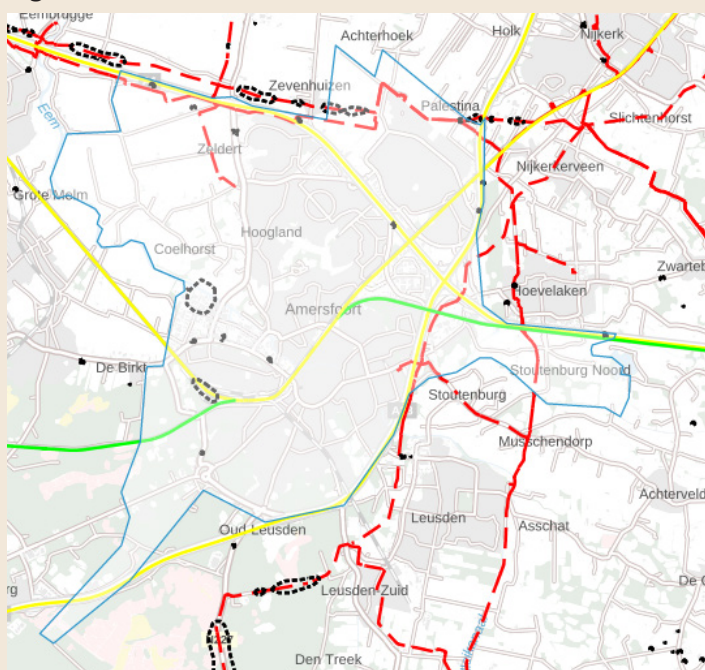
Within the municipality of Amersfoort multiple incidents with hazardous substances have occurred. An incident concerning hazardous substances leaking out of a track is only one example (Transport online, 2022, February 14). According to local newspapers *De Stentor* and *Amersfoortse Courant* there is a lot of resistance within the municipality because the Dutch state is planning to increase the amount of cargo trains with hazardous substances within

Amersfoort (Willemse, 2021, April 9, a; b), transportation that is already present prominently within the area (see Figure 8).

Rules of the game

Even if the external safety policy within some municipalities in the Netherlands are compliant with the national policy that comes with the Environment and Planning Act, in most municipalities changes to the current external safety policy are necessary to align with the new law. During the interview with the environmental service RUD Utrecht the respondent, an external safety advisor, recalls that it is not clear how things are going to change when the Environment and Planning Act is enacted (E. Ader, personal communication, May 3 2022). According to the respondent, he provides the municipalities within the region with advise on external safety matters through calculations and with the new policy this is, in a way, more free. He suspects that in some cases the old policy is going to be used, such as in the municipality of Amersfoort because it is densely populated. Furthermore, the respondent is able to advise about the architectural measures, but he is unable to make them mandatory. According to the respondent these measures are expensive and they have a low support base, which could lead to developers not implementing them.

Figure 8: Activities with hazardous substances



The respondents from the municipality of Amersfoort recall two changes for the role of the planner in regard to the Environment and Planning Act: changes in collaboration and changes in participation. The changes in collaboration align with the view described in case A, regarding the environmental table (in Dutch: *omgevingstafel*) and the way the collaboration takes place at the start of spatial projects (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022). The spatial planners of the municipality of Amersfoort have created a participation guide in order to establish the manner and amount of participation with different kinds of projects (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022). The respondent describe that when a project is very small, such as placing a dormer, there is little participation needed. Furthermore, when the environmental plan is finished the amount of work for spatial planner does not become less and the amount of actors that are going to have to remain

involved when the new law is enacted is still high (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022).

Resources

During the interview with the spatial planners from the municipality of Amersfoort became clear that the instruments and resources that are used the most are law and policy, which is justified concerning their specialism (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022). Therefore, the categorization of these instruments fit in with the 'classic policy instruments' from Spit and Zoete (2016) and 'laws and restrictions' from Voogd et al. (2012). Furthermore,

since the daily operations of the respondents are focused on the environmental plan, another categorization is that of the 'decentralized rules' from the Environment and Planning Act.

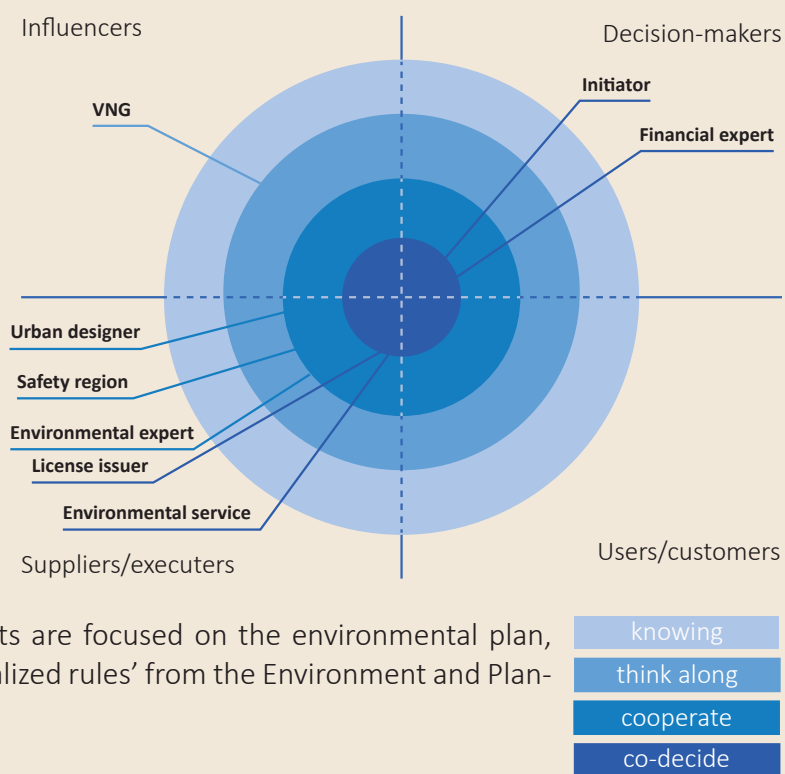
Data collected for external safety policy and implementation with the municipality of Amersfoort is mainly going through the resources and contacts of the environmental service, the safety region and the state (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022).

Discourse

During the interview two spatial planners attended. According to the respondents the role of the spatial planner is to be broadly oriented, which means that the spatial planner has knowledge on all the spatial aspects, but the amount of knowledge per spatial aspect is limited (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022). The broadness of the knowledge a spatial planner is required to possess is particularly important when complying with the law, and especially with the Environment and Planning act, according to the respondents. Furthermore, the role of the spatial planner is to correctly manage the spatial processes, through data and information collection and by removing all conflicts, if there are any. The description that is given aligns with the clusters 'local-specific analysts' and 'experienced generalists' (Othengrafen and Levin-Keitel, 2019) due to the data collection aspect and because of the way the respondents describe the execution of policy by steering the spatial process. There is an alignment with the concept of 'planner as jurist' (Voogd et al., 2012) and the description given in the interview, because knowledge of and complying with spatial law is leading with the Dutch spatial planners working in the public realm. With the framework of Fox-Rogers and Murphy (2015) the alignment is with 'planner as administrator'.

Actors and coalitions

Figure 9: Actor analysis Amersfoort. Source: Own work



Case C

Generalists/specialists

The municipality selected for case C is Blaricum, which is part of the province of Noord-Holland, and of the BEL-Combination, a partnership between Blaricum, Eemnes and Laren. The environmental service Flevoland en Gooi & Vechtstreek (OFGV) (Omgevingsdienst NL, n.d.) and the safety region Gooi en Vechtstreek (Rijksoverheid, n.d.) are under the jurisdiction of the municipality of Blaricum. The municipality of Blaricum currently contains 12.359 residents (CBS, 2022) which makes this the smallest municipality that is researched. According to the criteria from chapter 3, Blaricum is a small municipality (< 100.000 residents) which also indicates that there are expected to be mainly generalist planners within this municipal organization. From the interview and the analysis of the municipality of Blaricum, this expectation was justified since the spatial planner works as a generalist within spatial projects at the municipality containing multiple tasks (K. Loman, personal communication, May 2 2022).

Incidents

According to a news analysis on LexisNexis, no accidents have occurred within the municipality of Blaricum. Furthermore, in order to establish the situation concerning external safety, policy has been inquired. The policy document 'Beleidsvisie externe

veiligheid', elaborates on the fact that, not just within the municipality of Blaricum, but within the whole region of Gooi and Vechtstreek there are fewer risks with hazardous substances compared to other regions (Hermens, 2010). Within the municipality of Blaricum, the only risks are that of three sources labeled as 'relevant to emergency services', but there is no storage or production with hazardous substances within these municipal borders (Hermens, 2010). The interpretation of the external safety policy is not yet clear, looking at policy, since it is all written from the perspective of the current policy. The new policy, in line with the Environment and Planning Act, has not yet been implemented within policy documents. Some form of transportation of hazardous substances and through pipelines is seen in Figure 10.

Rules of the game

Despite the expectations described in chapter 3 surrounding changes caused by the Environment and Planning Act on external safety policy and the role of spatial planner, not all respondents agree with this expectation. According to the respondent from the municipality of Blaricum not much is going to change for her as a spatial planner, since the municipality in which she works already imbedded participation in project proposals. Participation is one of the prominent aspects of the Environment and Planning Act, however this aspect is free of form (K. Loman, personal communication, May 2 2022). The respondent uses the following words for this:

Figure 10: Activities with hazardous substances



Source: Atlas leefomgeving, n.d.

“We denken met zijn allen dat we heel anders moeten werken met de Omgevingswet. Ik denk dat het meevalt. Want als wij een project hebben, dan is één van de eerste dingen die we opvragen, heb je geparticipeerd en hoe heb je dat gedaan? De vorm van participatie is niet omschreven in de Omgevingswet, wel dat het moet gebeuren. Maar als je het doet op jouw manier, en daar volgt nog steeds een negatieve reactie vanuit de omgeving, dan is er eigenlijk nog niks aan de hand. Het is voor de rest, is het min of meer een gedachte wijziging van de Raad. De Raad hebben heel sterk vaak iets van jongens, wij bepalen de regels, wij bepalen wat er gaat komen, maar nu worden ze eigenlijk op het tweede spoor gezet. Want eerst ga je participeren en daarna ga je eigenlijk naar de Raad. Wezenlijk anders dan Omgevingswet, nee, voor mijn gevoel niet, en dat is iets wat wij wat ik eigenlijk ook intern roep” (K. Loman, personal com-

munication, May 2 2022).

Resources

According to the respondent from the municipality of Blaricum, the resources used the most are laws and policy (K. Loman, personal communication, May 2 2022). This is done through APV's and data on the Environment and Planning Act. An APV is a document in which regulation regarding public order and safety of a certain area is captured. In the example of the respondent, it is a way to meet the needs of (most) residents and to protect standards and values. Data on the Environment and Planning Act is used in order to prepare for the entry of the new law. Currently, the old law is still in place to help planners to review plans. As a preparation of

the Environment and Planning Act and the new municipal council, a contour document is created by the BEL-Combination (the partnership between the municipalities of Blaricum, Laren and Eemnes), in which dilemmas are described, and what aspects of current processes should remain in the following term. Some of these aspect might return within the environmental plan (in Dutch: *omgevingsplan*). A future resource that planners will use is the DSO (in Dutch: *Digitaal Stelsel Omgevingswet*), the digital system in which all publications and decisions are public and where practitioners work in. These instruments can be categorized by 'classic policy instruments' from Spit and Zoete (2016) and the 'laws and restrictions' from Voogd et al. (2012). Money is a factor that the spatial planner from the municipality of Blaricum is circling around. When it comes to building more houses, housing refugees, preparing for the new Environment and Planning Act, the shortage of employees, it all correlates with finances. This can be categorized with the 'modern instruments' of Spit and Zoete (2016). Finally, the focus is currently on creating an environmental plan, which can be categorized with the 'decentralized rules' from the Environment and Planning Act.

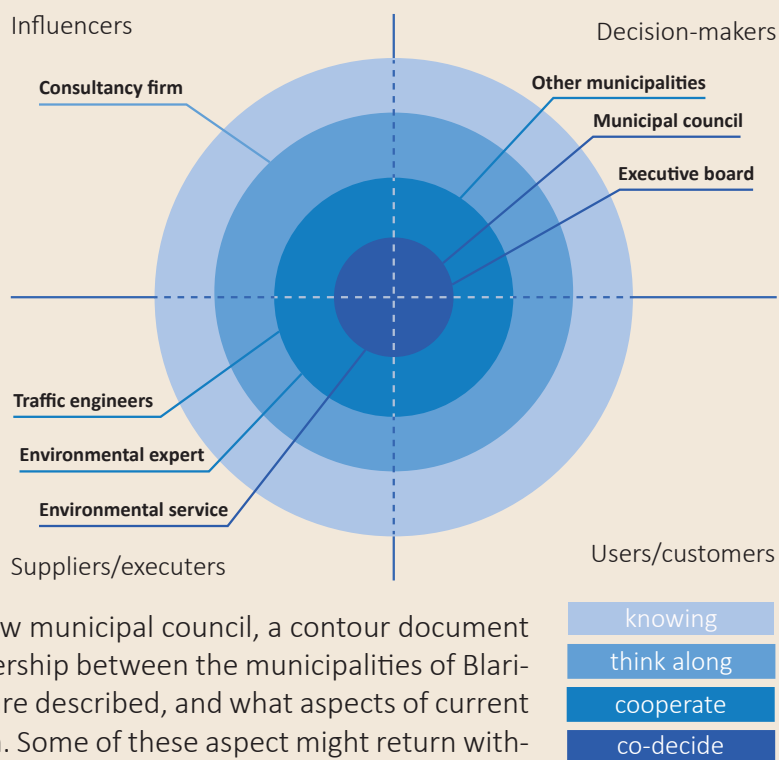
According to the respondent, data regarding external safety is gathered by an employee within the municipality through resources and contacts of the environmental service, the state en consultancy firms (K. Loman, personal communication, May 2 2022).

Discourse

During the interview with the respondent, the spatial planner from the municipality of Blaricum did not directly show any descriptions for the role of the planner as is outlined in this chapter. Therefore, the role of the spatial planner in this case is set out by the role that the respondent fulfills herself. This role is that of assaying plans that are registered at the municipality on the policy frames of all spatial themes, and the degree of participation (K. Loman, personal communication, May 2 2022). This aligns with the 'planner as jurist' from Voogd et al. (2012), 'planner as administrator' from Fox-Rogers and Murphy (2015) and with the cluster of 'experienced generalists' from Othengrafen and Levin-Keitel (2019).

Actors and coalitions

Figure 11: Actor analysis Blaricum. Source: Own work



Case D

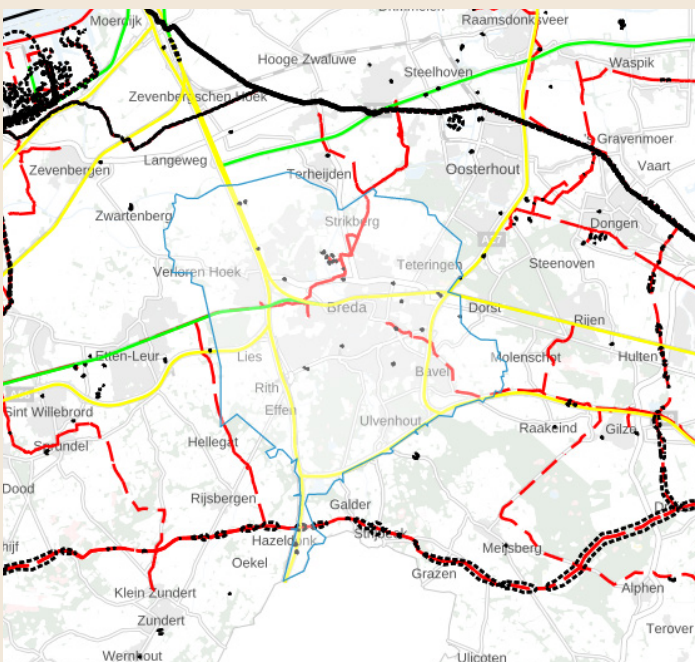
Generalists/specialists

The municipality selected for case D is Breda, which is situated within the province of Noord-Brabant. The environmental service Midden- en West-Brabant (OMWB) (Omgevingsdienst NL, n.d.) and the safety region Midden- en West-Brabant (Rijksoverheid, n.d.) fall under the jurisdiction of the municipality of Breda. The municipality of Breda has 184.702 residents (CBS, 2022) which indicated that Breda is expected to be a large municipality (> 100.000 residents), meaning that there are mainly specialist planners working at this municipal organizations. The spatial planner from the municipality of Breda is, in contrast with the expectation, a generalist planner, executing multiple tasks in the spatial field within the municipality (J. Kennes-Curfs, personal communication, 2022).

Incidents

Through the news analysis of LexisNexis, no incidents seem to have occurred within the municipality of Breda. However, there is some activity within and surrounding the municipal borders (see Figure 12). According to figure 12 hazardous substances are transported over rails, roads and water, and additionally there are also pipelines forwarding hazardous substances.

Figure 12: Activities with hazardous substances



Source: Atlas leefomgeving, n.d.

Rules of the game

According to the environmental expert of the municipality of Breda a lot will change when the new external safety policy is applied, because instead of working with the societal risk, there is more room for a qualitative approach without numbers and models (R. van Nispen, personal communication, May 18 2022). Another remark that this respondent makes, is that because of the Environmental and Planning Act external safety, among other themes, is going to be inserted within projects more integral and more in the beginning of the process. This way external safety experts are able to create preconditions which allows external safety to be discussed before the design phase. According to the respondent this may influence the location on which houses are built, which means that locations can be selected with less or zero risk sources. The respondent does recall that the attention of the external safety experts at the municipality of Breda are turned to the energy transition, which is high on the agenda because of both national and European policy goals and that in most cases the respondent reaches out to the environmental service for external safety matters.

For the spatial planner of the municipalities of Breda, the Environment and Planning Act brings upon change within the collaboration between actors, also due to the environmental table (in Dutch: *omgevingstafel*) mentioned in case A and case B, and the way that these actors come together at the beginning of spatial processes, instead of at the end when applying changes can cause problems (J. Kennes-Curfs, personal communication, May 9 2022). Another change for the role of the spatial planner is the way that municipalities include participation within the process. According to the respondent from the municipality of Breda participation is very important, but the Environment and Planning Act leaves it up to the municipalities to formulate the manner and amount of participation (J. Kennes-Curfs, personal communication, May 9 2022).

About the unwritten rules, the spatial planner from the municipality of Breda says that unwritten rules are like culture, and that they occur within the municipality, and even if these rules are not established within policy, they are substantiated within the frames (J. Kennes-Curfs, personal communication,

May 9 2022).

Resources

The instruments used by the spatial planners of the municipality of Breda are policy and law, categorized within the frameworks of Spit and Zoete (2016) and Voogd et al. (2012) (J. Kennes-Curfs, personal communication, May 9 2022). The respondent of the municipality of Breda is working on the environmental plan, categorized by the 'decentralized rules' from the Environment and Planning Act.

Data that is gathered on external safety is mainly coming from resources and contacts of the environmental service, the safety region, the state and from the knowledge of the environmental expert in the municipality of Breda (R. van Nispen, personal communication, May 18 2022).

Discourse

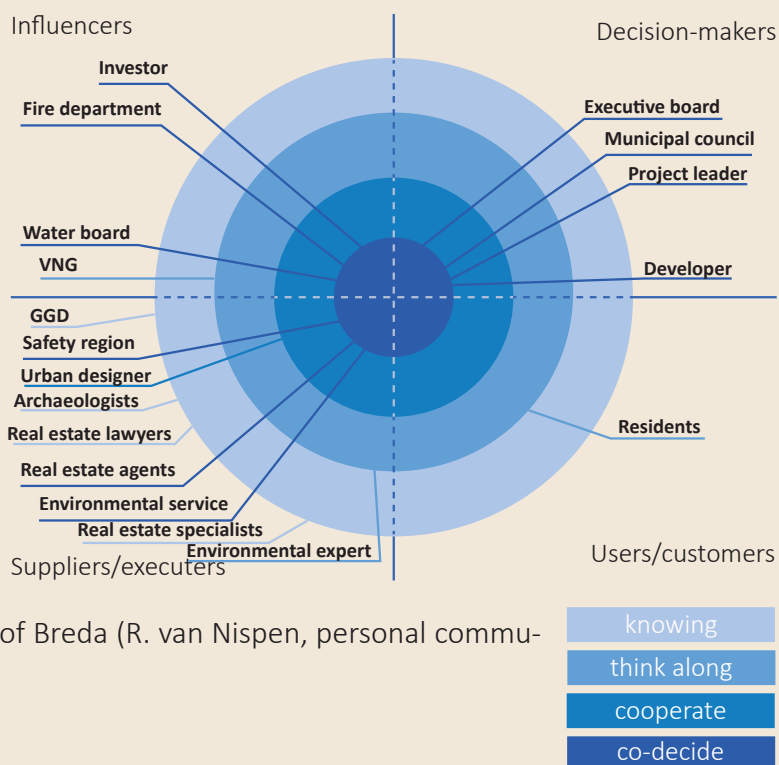
The spatial planner from the municipality of Breda has a different view on the role of the spatial planner. According to the respondent, the spatial planner is a generalist that looks at the living environment from a high scale level, higher than an architect (J. Kennes-Curfs, personal communication, May 9 2022). The respondent says that the spatial planner is:

"Iemand die met een brede blik kijkt naar die leefomgeving, naar die ruimtelijke ordening, en hoe functies en gebruik samenkomen, invloed op elkaar hebben en dat ziet en benoemt, en dan hoeft die planoloog niet de kennis te hebben van dat specialisme, maar het wel signaleert, wat bijvoorbeeld een knelpunt kan zijn of dat het een kans kan zijn om het samen te voegen, hè, waar zitten die win-win kansen dat dat ja dus een beetje van bovenaf zeg maar bekijkt hoe die leefomgeving in elkaar zit." (J. Kennes-Curfs, personal communication, May 9 2022).

The respondent from the municipality of Breda describes the spatial planner is someone that will thrive on the scale level of the environmental vision. Furthermore, when initiatives are registered at the municipality that is not in agreement with the zoning plan, the role of the planner is to create an integral approach with the advice the various disciplines provide on the spatial themes. Finally, the respondent describes the spatial planner as someone that brings actors together, lets them communicate and seeks out collaborations in order to tackle certain bottlenecks or to attain opportunities. When connecting this to the theory, this description is partly aligned with 'planner as liaison/facilitator' (Fox-Rogers and Murphy, 2015), with an additional aspect of not only facilitating the possibilities of a successful project or process, but facilitating collaboration. Another alignment is the 'planner as jurist' (Voogd et al., 2012) and the 'planner as administrator' (Fox-Rogers and Murphy, 2015), because of the component of creating a support base for initiatives that are, from the perspective of local policy and frames, not allowed. From the framework of Othengrafen and Levin-Keitel (2019) there is an alignment with the cluster 'experienced generalists', because of the strategic and control aspects of the cluster that aligns with the description about the initiatives. However, from the citation of the respondent and the aspects of the scale levels becomes clear that not the whole description can be aligned with the frameworks. The description goes beyond the frameworks that is not so much practical, but more a conceptual matter.

Actors and coalitions

Figure 13: Actor analysis Breda. Source: Own work



Additional case B

An additional municipality within case B is Enschede, located in the province of Overijssel, which aligns with the same criteria as Amersfoort. The municipality of Enschede contains 160.640 residents (CBS, 2022) and the respondent from the municipality of Enschede is specialized as an environmental planner (J. van der Steege, personal communication, May 23 2022).

Rules of the game

According to the municipality of Enschede the last external safety policy has been established in 2014 and needs to be rewritten completely when the Environment and Planning Act is coming (J. van der Steege, personal communication, May 23 2022). In regard to the Environment and Planning Act there is a change in organization. An entire project group has been created for the different 'tracks' of the Environment and Planning Act, which all contain a chairman and various deadlines and goals (J. van der Steege, personal communication, May 23 2022). These different tracks are created because of the high amount of work that needs to be done in order to prepare for the new law. According to the respondent from the municipality of Enschede, there are some unwritten rules as well, considering that for some important themes, there is no state policy (Appendix A; J. van der Steege, personal communication, May 23 2022). Therefore the municipality of Enschede is creating its own policy for in-depth sustainability themes, mobility and health.

Discourse

The aspect that comes up the most in the respondents' description is that spatial planners are bound by complying with the law and making sure that spatial plans and projects are within the policy frames of the municipality (J. van der Steege, personal communication, May 23 2022). In some cases this means searching for the edges of the law in order to enable developers or other executing actors to fulfil their plans. According to the respondent, spatial planners are involved from the beginning of these plan, often also with the design aspects, and always with the legal aspects. Hereby, the spatial planner facilitates the involved actors in order to balance the various interests.

When looking at theory, this aligns with all three frameworks. The alignment with Voogd et al. (2012) lies with the 'planner as designer' and 'planner as jurist', with Fox-Rogers and Murphy (2015) the alignment is found with the 'planner as liaison/facilitator' and 'planner as administrator', and with the framework of Othengrafen and Levin-Keitel (2019) the alignment lies with the clusters 'experienced generalists' and 'reactive pragmatists'.

Resources

The instruments used by the environmental planner from the municipality of Enschede are mainly the 'modern instruments' concerning the limited means of the municipality (J. van der Steege, personal communication, May 23 2022). Furthermore, the respondent is working with policy and the design aspect ('sketch paper and markers' and 'laws and restrictions' (Voogd et al., 2012)) and the preparation of the Environment and Planning Act through the environmental vision and programs. With the municipality of Enschede this data collection is, besides the existing knowledge of the respondent, going through resources and contacts of within the municipality, the environmental service and the safety region (J. van der Steege, personal communication, May 23 2022).

Additional case D

The additional municipality within case D is Den Bosch, which is located in the same province as the municipality of Breda and aligns with the same criteria. The municipality of Den Bosch contains 156.538 residents (CBS, 2022). The planners from the municipality of Den Bosch, however, are specialized in environmental themes (J. van der Pluijm & C. Vleer, personal communication, May 11 2022).

Rules of the game

The environmental planners of the municipality of Den Bosch expect changes regarding the Environment and Planning Act, but changes surrounding external safety policy is not a part of this. According to the respondents the current external safety policy of the municipalities of Den Bosch, Tilburg and Eindhoven are used as guidelines for the national external safety policy, with the extra vulnerable buildings and specification of area's with risk categories (J. van der Pluijm & C. Vleer, personal communication, May 11 2022). For the spatial planners of the municipality of Den Bosch, the Environment and Planning Act brings upon change within the collaboration between actors, also due to the environmental table (in Dutch: *omgevingstafel*) mentioned in case A, case B and case D and the way that these actors come together at the beginning of spatial processes, instead of at the end when applying changes can cause problems (J. van der Pluijm & C. Vleer, personal communication, May 11 2022). From the perspective of the municipality of Den Bosch there also seems to come organizational changes due to the Environment and Planning Act. According to the environmental planners from the municipality of Den Bosch the high work load is a short term effect of the new law and once the environmental plan is finished and all the frames and rules are set out, the amount of work is going to be much lower and most of it is going to be digitalized (J. van der Pluijm & C. Vleer, personal communication, May 11 2022). However, the respondents mention that the work load is aligned with how these rules and frames are formulated, and in the extent to which the assessment

framework is built through the digitalization of the Environment and Planning Act.

Discourse

Two environmental planners participated in the interview and their view on the role of the spatial planner is broad and they say that all the spatial disciplines are part of the spatial planners' field, which brings forth challenges (J. van der Pluijm & C. Vleer, personal communication, May 11 2022). The respondents describe the role of the planner as a role that facilitates initiatives or projects within the frames of the law (and policy). This aligns with the 'planner as jurist' (Voogd et al., 2012) and with the 'planner as administrator' and the 'Planner as liaison/facilitator' (Fox-Rogers and Murphy, 2015). From the framework of Othengrafen and Levin-Keitel (2019) there seems to be no alignments.

Resources

The instruments used by the spatial planners of the municipality of Den Bosch are policy and law, categorized within the frameworks of Spit and Zoete (2016) and Voogd et al. (2012) (J. van der Pluijm & C. Vleer, personal communication, May 11 2022). Additionally, the respondents from the municipality of Den Bosch use the economic resources of the framework of Voogd et al. (2012) and the 'general state rules' of the Environment and Planning Act.

With the municipality of Den Bosch this data is also coming from the knowledge of the environmental planners, and resources and contacts from the environmental service, the safety region, the province and the state (J. van der Pluijm & C. Vleer, personal communication, May 11 2022).

6. Comparing the cases

Within this chapter the empirical data from the cases are compared in order to answer the three empirical sub-questions introduced in chapter 1. This is done through the same analytical framework from the various cases, meaning that this chapter is divided between 'Actors and coalitions', 'Rules of the game', 'Discourse' and 'Resources'. The first empirical sub-question regarding changes influenced by the Environment and Planning Act is set out within the paragraph labelled as 'Rules of the game'. The second empirical sub-question regarding the role of the spatial planner is outlined within the 'Discourse' paragraph, containing the perceptions of all the respondents from the four cases and the two additional cases. This final empirical sub-question, in which all the cases are compared on the basis of the Environment and Planning Act, is answered at the end of this chapter and considers all of the above.

6.1 Actors and coalitions

The analysis of the actors and coalitions of the four cases contains a more in-depth outlook on the generalist skills and the specialist planner, and the collaboration between the spatial planner and other actors concerning the day-to-day activities and those collaborating on external safety issues with either the spatial planner or the environmental expert within the municipal organization. Within the actor analysis two dimensions are set out, as explained within the introduction to the Dutch cases (chapter 5). Within this paragraph the most notable collaborations and comparisons are explained.

Within the four cases and the two additional cases, the interviewed spatial planners have all been asked about their role in order to determine whether they are generalist or specialist planners. According to the analysis (see Appendix A), in three of the four cases, the respondent was a generalist planner and in one case the respondent was a specialist planner. The generalist planners from the municipalities of Barendrecht, Blaricum and Breda are categorized as generalists due to their description of their role within the municipal organization, their educational background and their day-to-day tasks. As an example, the respondent of case A described his role as project leader and the tasks containing this role were to implement policy, to create a support base with the elected representatives, to look at the environmental processes, to lead the process towards implementation and to mediate between the various interests (D. Amesz, personal communication, April 25 2022), which can be linked to the framework of Dawkins (2016) and considering the multiple agreements, the spatial planner is more a generalist than a specialist. The spatial planners from the municipality of Amersfoort are categorized as specialist planner, due to their description of 'legal planners', which is justified due to their daily tasks and their roles (W. Juijn-Dorst, N. Ludeking & C. Heezen-Jansen, personal communication, May 17 2022). The two additional cases both contain specialist planners, environmental planners to be exact. According to the literature of Dawkins (2016) these descriptions align with specialisms, considering the singularity (see Table 2). Based upon the expectations this aligns.

The respondents from the four cases have mentioned actors that are part of the collaboration between them and within the process of external safety implementation (see Figure 7, 9, 11, 13). Few particularities stand out, such as the collaboration with the VNG, which is mentioned by the respondents from the case B and case D (the larger municipalities). The VNG 'thinks along' with the municipalities, according to the respondent, however, the VNG is not mentioned by the respondents from case A and case C. Another remark is the role of 'other municipalities' towards the spatial planners. Other municipalities occurs in case A and case C, due to their partnerships with surrounding municipalities. In both cases, the partnership means that each municipality keeps their own municipal council and executive board, but with important and regional matters they make decisions together. With all the cases there is a collaboration with the environmental service and (apart from case C) the safety region due to their external safety needs, but the province is only included in case A (and additional case D (see Appendix A; Figure 7). Finally, what stands out is the low number of users/customers within the actor analyses, which in case A consist of the VVE, the housing association and residents, and in case D consist only of residents.

6.2 Rules of the game

The rules of the game in the context of this research is focused on three elements: changes in regard to external safety policy for the executing actor, changes in regard to the Environment and Planning Act for spatial planners and unwritten rules. This paragraph highlight these three elements in order to answer the first empirical sub-question: How does the Environment and Planning Act change current aspects of external safety regulation/implementation and that of the role of the spatial planner in practice?

The changing manner of the system of external safety policy, which entails a more qualitative approach in the situation under the Environment and Planning Act, is the aspect of change that has come forward the most throughout the cases, namely with case B, case C and case D. This aspect leaves the calculative approach behind and provides room for a different form of interpretation. Another change in regard to external safety is that municipalities, according to respondents from case A and additional case B (the municipality of Enschede), need to re-write their municipal policy on the matter. This is said to be a challenge given the amount of work and timeline (J. van der Steege, personal communication, May 23 2022). According to the environmental expert from case D another change is that external safety is more integrally integrated within future spatial projects due to the shift of collaboration forms (*Omgevingstafel*), however this is only mentioned within case D. What stands out is the view on change from the additional case D, because according to the respondent, not much is going to change in regard to external safety, given its similarities with their current policy (J. van der Pluijm & C. Vleer, personal communication, May 11 2022). Since only the respondents of additional case D see it this way, it is unlikely that this is the case in the other municipalities.

Most of the cases agree on the changing aspects of collaboration when the Environment and Planning Act is enacted (case A, case B, case D and additional case D). The remaining cases have not mentioned anything about this, mainly because the respondent of case C does not expect much to change when the Environment and Planning Act is enacted at all. And according to the respondent from additional case B the changes that come with the new law are aligned with a change in organization, due to the project groups that were created within the municipal organization of Enschede in order to guide the changing of the law. Additional case D agrees with the statement that the organization might change due to the Environment and Planning Act, however, this is due to reducing need for experts once the environmental plan and the digital systems are in place and the frames are operational. Finally, both case B and case D expect changes surrounding the process of participation due to the new law. Case A and case C have not mentioned anything about participation, partly because according to the respondent of case A, the municipality already implemented participation within projects.

When asking about unwritten rules within the municipalities, most respondents had to think for a moment. Respondents from four of the six cases responded with the statement that there were no unwritten rules among their municipal organization (case A, case B, case C and additional case D). According to the respondent from case D, unwritten rules are like culture, and when there are unwritten rules, they may not be established within policy, but these rules are substantiated within the frames (J. Kennes-Curfs, personal communication, May 9 2022). Also the respondent from additional case B mentioned unwritten rules and provided the description of unwritten rules as 'lack of national policy'. This 'lack of national policy' occurred, according to the respondent, at several in-depth themes within the frames of sustainability, mobility and health (see Appendix A; J. van der Steege, personal communication, May 23 2022).

In conclusion, the changing factors concerning the Environment and Planning act are focused within policy, whether it needs to be re-written or whether it has not been written at all, changes in collaboration (both in external safety and for spatial planners), changes in organization, participation and digitalization, and in some cases even in the system. What stand out is that the views on this matter differ en that in some cases, change is not even expected at all.

6.3 Discourse

Finding the description of the role of the spatial planner is part of the core aims of this research. Within the

paragraph 'discourse', the way that the spatial planners have described and perceived this role is further researched and compared. This is done in order to answer the second empirical sub-question: How is the role of the spatial planner defined within (academic) literature and practice in the Netherlands?

The first two roles of the planner that aligns with every case (all six of them) is the role of the 'planner as jurist' from Voogd et al. (2012) and the 'planner as administrator' from Fox-Rogers and Murphy (2015), due to its implications with policy and law. This means that spatial planners working at municipalities are certainly in some form working on or with policy. Besides that the 'planner as liaison/facilitator' from Fox-Rogers and Murphy (2015) aligns with the described role in four out of six cases (case A, case D and the additional cases), also containing bureaucratic characteristics and working with policy, with the additional element of communication and creating easy access. Another role that occurs often is that of the 'experienced generalist' from Othengrafen and Levin-Keitel (2019), containing elements of leading and controlling spatial processes and policy advise (case B, case C, case D and additional case B).

Furthermore, there are some roles of the spatial planner that occur few times, such as 'reactive pragmatist' (Othengrafen and Levin-Keitel, 2019) in case A and additional case B, and the 'planner as designer' (Voogd et al., 2012) in case D and additional case B. The roles of the spatial planner that have only occurred once are the 'planner as mediator' (Fox-Rogers and Murphy, 2015) in case A, the 'planner as professional advisor/expert' (Fox-Rogers and Murphy, 2015) in additional case D, the 'local-specific analysts' (Othengrafen and Levin-Keitel, 2019) in case B, the 'planner as economist' (Voogd et al., 2012) in additional case D and the 'planner as director' (Voogd et al., 2012) in case A.

Throughout, none of the spatial planners have described the role of the spatial planner in a way that it fits only one of the concepts provided by the frameworks. The least amount of concepts that fit with the descriptions given by the respondents is three, and two of the spatial planners description fit into six of the concepts provided by the literature. Another particularity is that the description given by the spatial planner from case D, provides a description that is so broad, it includes some of the concepts from the theoretical framework but also emerges from it, containing details that have not been assessed in any of the frameworks.

In conclusion, the role of the spatial planner is plural, given that despite the similarities between some concepts, most respondents provide a wide description of the role of the planner. From the descriptions becomes clear that law and policy has a prominent place within the role of the spatial planner, followed by communication within bureaucratic systems and gaining control throughout spatial and strategic plans.

6.4 Resources

Throughout the empirical chapter, the role of the spatial planner, the changes influenced by the Environment and Planning Act and the manner in which municipalities handle external safety implementation and policy is outlined. This paragraph provides the final step of the analytical model, containing the resources that are necessary for practitioners to achieve these implications. First the resources (or instruments) that are used by the spatial planners are established. In the second part of this paragraph the focus is one data that is gathered by practitioners in order to implement or create municipal policy on external safety.

The instruments that are used by all the respondents are the 'classic policy instruments' (Spit and Zoete, 2016) and the 'laws and restrictions' (Voogd et al., 2012), align with the outcome of the role of the spatial planner. These instruments guide the spatial planner with implementing municipal and state policy. An instrument that is used within four of the six cases is the 'decentralized rules' (IPLO, n.d., a), containing the environmental plan, one of the core instruments within the Environment and Planning Act. The spatial planner are creating this instrument themselves, considering the completion of this environmental plan is free for all Dutch municipalities (IPLO, n.d., a). The 'modern instruments' (Spit and Zoete, 2016) are utilized by the respondents from case C and additional case B, considering lots of aspects within the field of planning is determined by finances. Instruments that only occurred once are 'sketch paper and markers' (Voogd et al., 2012) in additional case B, 'knowledge on real estate, exploitation plans and feasibility analysis' (Voogd et al., 2012) in additional case D,

'political support, negotiation tactics, coalitions and administrative agreements' (Voogd et al., 2012) in case A, 'environmental vision' and 'programs' (IPLO, n.d., a) in additional case B and 'general state rules' (IPLO, n.d., a) in additional case D. With every case, for every spatial planner the amount of instruments used are between three and six, similar to the amount of roles of the spatial planner (see 'Discourse', chapter 7).

Data collection regarding external safety within every case is done through resources and contacts from the environmental service and the safety region. In most of the cases there is knowledge concerning external safety within the municipal organization, either by specialized planners or an external safety expert (case C, case D and the additional cases). The respondents from case B, case C and case D also mention utilizing resources and contacts from the state, such as the ministry or the RIVM. In some cases, resources and data is gathered through consultancy firms, such as with case A and additional case D.

6.5 Conclusion

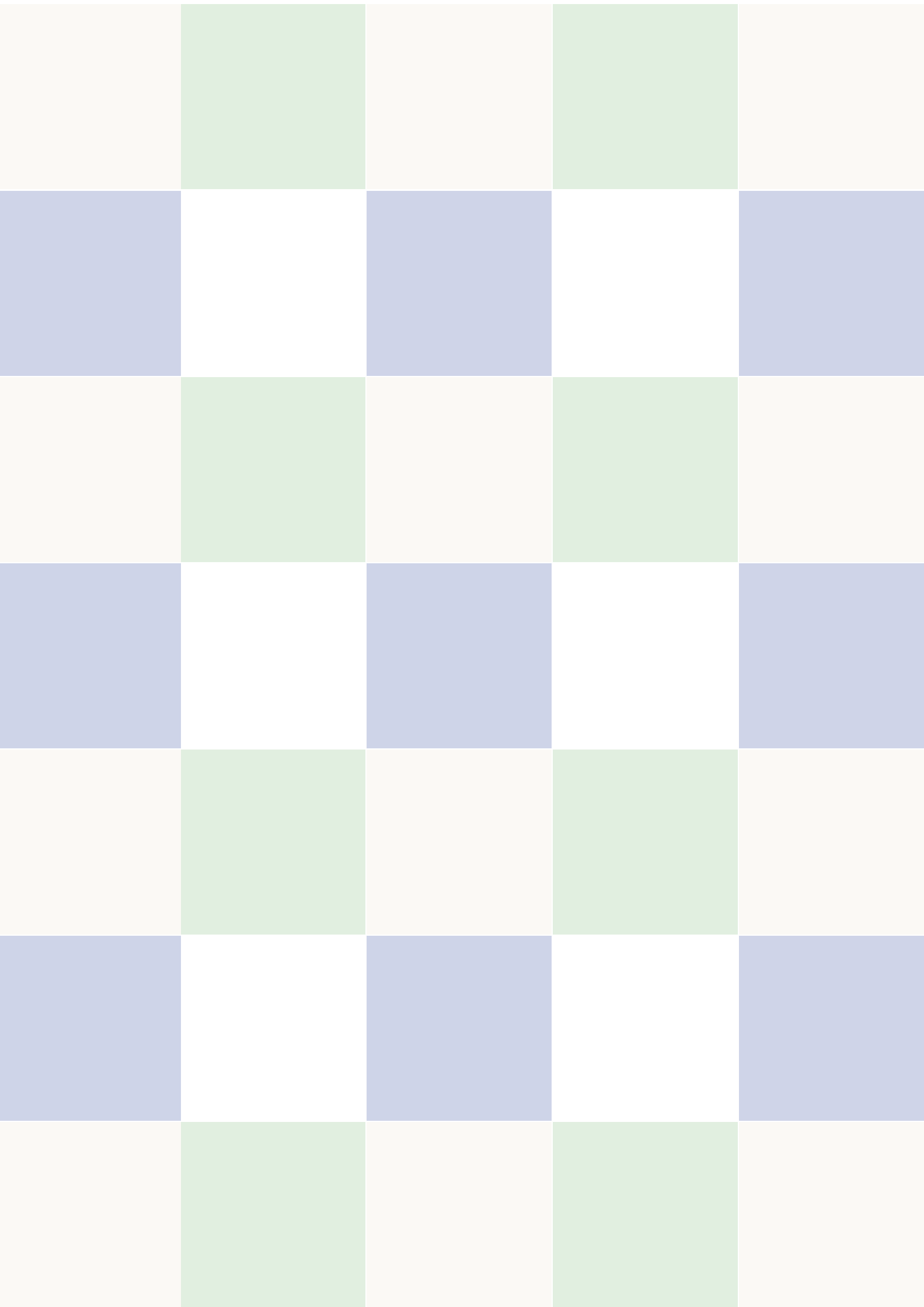
Chapter 6 contains the comparison of the empirical data between the four cases and the two additional cases. Within the paragraphs of 'Rules of the game' and 'Discourse' two empirical sub-questions have been answered, but the chapter contains more data than is necessary for these two questions. The analytical framework used to organize the cases and the comparison has the purpose of answering the final empirical sub-question: How do the implications of the Environment and Planning Act relative to external safety/the role of the spatial planner compare between different municipalities and how can we explain this?

The Environment and Planning Act is embedded within the data that is outlined throughout the cases. The aspects that were mentioned in the interviews in regard to changes influenced by the Environment and Planning Act are not minor things, but contain complete changes of organization, the way actors collaborate, the system in which external safety is embedded and in some cases even writing policy on themes when this is missing from the national policy agenda. Despite that some respondents do not expect that much change, in most cases the implications effect their role and their skillset either on short term or on long term.

The changing aspects of collaborations between spatial planners and others within spatial processes has been mentioned before. In the actor analyses from the four cases can be seen that the amount of actors they collaborate with and the manner in which this collaboration takes place is extensive as it is. The focus of the Environment and Planning Act on collaboration through for example the environmental table (in Dutch: *omgevingstafel*), which is going to bring forward more interests in a time with already many important topics (energy transition, housing, refugees), according to the respondents from case C and additional case B.

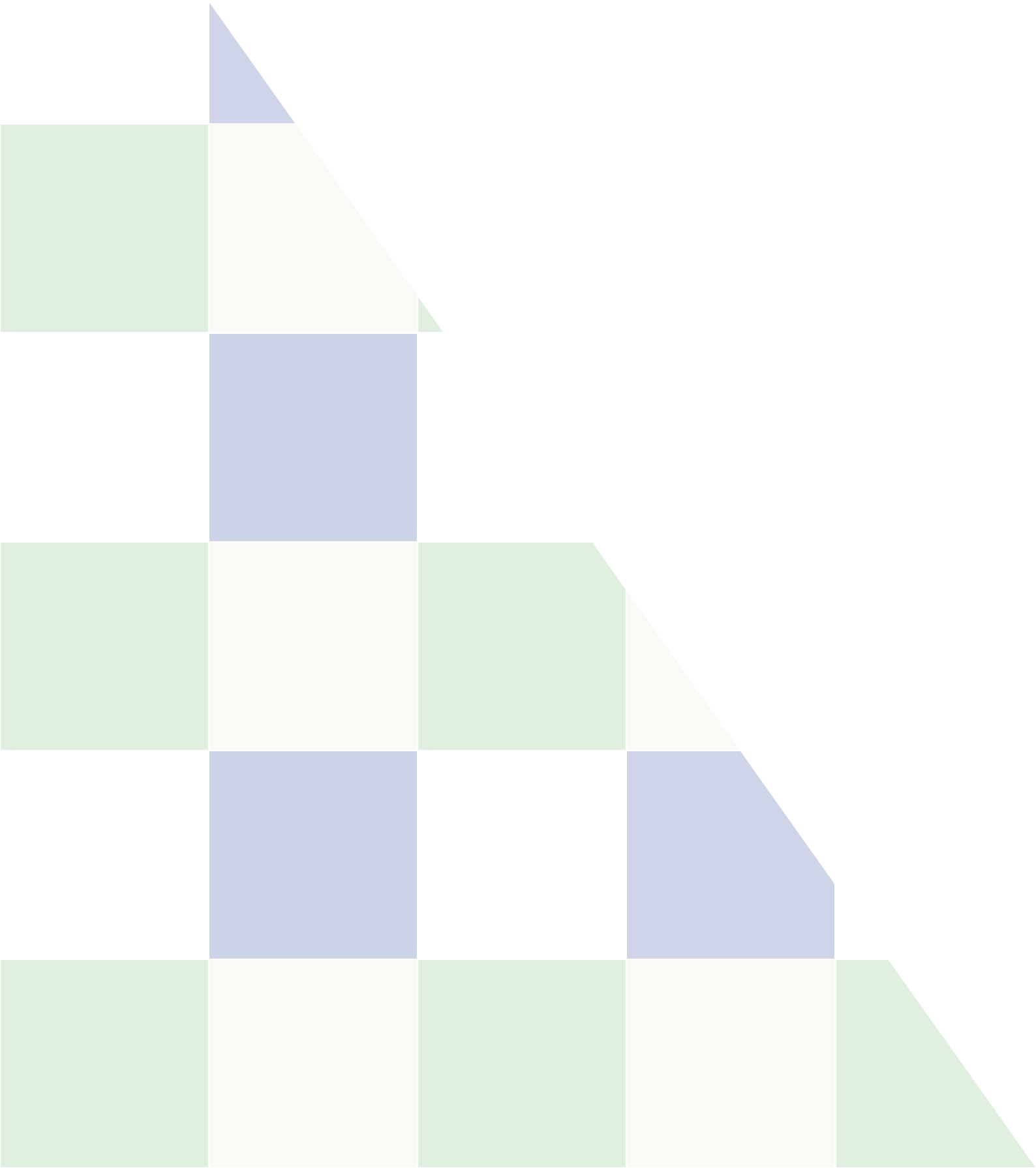
The role of the spatial planner which is outlined by the descriptions of the respondents is undeniably broad and plural, despite some of the respondents being specialized in one or few aspects of the field (such as environmental themes in the additional cases). This shows that besides the role that some planners comply with on a daily basis, does not necessarily mean this matches their perception of the role. Considering the importance of law and policy, the Environment and Planning Act creates implications that effect their daily work, which becomes clear given the instruments that are used/created according to the respondents. The environmental plan and environmental vision are going to be instruments that spatial planners use on a daily bases, if their current functions remain as if, and considering many of the respondents are already working on/with these instruments, this means that the preparation for the Environment and Planning Act is on full speed.

When it comes to external safety, in most cases there are certain experts taking the wheel on this task, either as environmental experts or as environmental planners. According to the data collection analysis (Appendix A), there is already an exchange between the environmental service and the safety region and in most cases there are experts within the municipal organization. How the Environment and Planning Act is going to further implicate the role of the spatial planner and external safety can be noticed once the law gets enacted.



PART 3

Concluding section



7. Conclusion

During this research various perspectives have been featured surrounding the three main themes, containing the role of the spatial planner, the Environment and Planning Act and external safety in the Netherlands, in order to answer the main research question ‘How can the role of the spatial planner in regard to external safety be understood within the context of the transition towards new instruments and regulations of the Environment and Planning Act in the Netherlands?’. Through the theoretical sub-question regarding external safety policy in the Netherlands and the three empirical sub-questions capturing the variety of data collected through a case study design, guided by the analytical model of the policy arrangement approach, this research concludes as follows.

Chapter 4 described the current situation of external safety policy in the Netherlands in addition to the situation that will be implemented when the Environment and Planning Act is enacted. The definition of external safety in the existing policy and the upcoming policy corresponds with the described theoretical literature in chapter 2.1, considering the types of hazards (fires, explosions and toxic dispersion) described by Reniers (2010), which falls under the involuntary risks as described by van der Vlies (2011). The aspect that differs between the current and upcoming external safety policy is the manner of intended integration and the establishment of risks and measures, due to the focus areas. This aspect, along with the addition of highly vulnerable buildings/locations and the REV show a shift within policy. For the academic literature this means that external safety as a concept is not changing, but the way that this is applied within the Dutch context does. An example of this, is the literature from Bottelberghs (2000), containing not only academic literature on external safety, but also implicates with the focus on Dutch policy, which starting January 1st 2023 will be largely outdated.

Looking at the over-all data and the answers to the various empirical sub-questions, it can be said that the role of the spatial planner in practice, both the generalist planners and the specialist planners, are not defined as narrow. The multiple answers that were received from the interview questions regarding the definition of the role of the spatial planner, but also the instruments (resources) that are used tell the same conclusion: there is no singular definition of the role of the spatial planner, it is open for interpretation, and even though the spatial planners all work at Dutch municipalities, there are some differences between the way that this role is perceived, even before the enactment of the Environment and Planning Act. Even the specialist planners respond with a pluralistic description of the role of the spatial planner, even when this does not comply with their own daily duties (see Appendix A). However, considering that there are specialist planners within the public realm (case B, additional case B and D), the literature on this matter seems to be a bit of. According to Dawkins (2016), the specialized (technical) planners are usually based within the private sector, while the spatial planner based within governmental organizations are more focused on so-called ‘traditional physical planning activities’.

During this research, three generalist planners (case A, case C and case D), three environmental planners (additional case B and D) and two legal planners (case B) participated in doing the interviews. Apart from the environmental planners, none of these spatial planners were much involved in external safety policy and/or implementation. This was left to either an external safety expert at the municipality or the environmental service and safety region. This was an expected finding (see chapter 3).

The respondents in the case studies agree that the external safety policy will bring changes within their municipal organization. For the spatial planners there also seems to occur several changes to their role when the Environment and Planning Act is enacted. The spatial planner describe some changes that effects their role. The role of the spatial planner, that was outlined in the ‘Discourse’ paragraph of chapter 6, shows great resemblance with bureaucratic tasks concerning policy, communication and controlling spatial systems. However, due to the changes that are described, such as the focus on integral collaboration with all disciplines and adding forms of participation, the role of the spatial planner seems to shift towards other concept of

the theoretical framework, such as ‘compensatory moderators’ described by Othengrafen and Levin-Keitel (2019). This concept of the theoretical framework is focused on the process-coordination and weighing all the different interests, which has similarities to the process described about the environmental table (in Dutch: *omgevingstafel*), but is also focused on the advice from experts and communication, all key elements that the Environment and Planning Act is about (IPLO, n.d., b). But, there also seems to be a shift towards the ‘planner as advocate’ described by Fox-Rogers and Murphy (2015) which describes a situation where spatial planner create a support base for those who do not through social reform and by support the community and the common good, concepts of the frameworks (among other) that were not included by the descriptions given by any of the respondents in the current situation. This complies with the shift towards a more prominent role of participation within spatial projects (IPLO, n.d., b).

When looking at the role of the spatial planner in light of the Environment and Planning Act, both the regulations and used instruments are shifting in order to prepare for the enactment of the upcoming law. As for the role of the spatial planner itself, it is broad and differs per case (and within cases, such as the difference between case B and additional case B) and presumably, considering the changes that were described by the respondents themselves when the Environment and Planning Act is enacted, this role will either change or become even broader. Looking back at the literature, the framework of Fox-Rogers and Murphy (2015) does not comply with the outcomes in the Netherlands (in the assessed cases/municipalities). Within this academic literature, the role of the spatial planner that is most common, was the role of the ‘planner as mediator’ (40%), when in the Dutch cases, this role only occurred once. The role of the ‘planner as administrator’ complies with all the respondents of the Dutch cases, while in the case of Ireland, this was only compliant with 25% of the cases (Fox-Rogers and Murphy, 2015). There were also three roles that did not comply with any of the Dutch cases, such as the role of the ‘planner as advocate’, ‘planner as ‘social gatekeeper’ and ‘planner as ‘facilitator’ of development, however, the role of the planner seems to shift toward the ‘planner as advocate’ when the Environment and Planning Act is enacted.

The framework of the German cases shows that the role of the planner as ‘reactive pragmatists’ and ‘compensatory moderators’ are most common, which does not comply with the Dutch cases (Othengrafen and Levin-Keitel, 2019). The role of the planner as ‘reactive pragmatists’ occurs twice, in case A and additional case B, and the role of the planner as ‘compensatory moderators’ occurs in none of the cases (Appendix A). What stands out is that the role of the planner of this framework that is most compliant with the Dutch cases is the role of the planner as ‘experienced generalist’, which entails that Dutch planners main concern is to create strategic and spatial control by plans and concepts, using data from analysis and policy advise. This role complies with the German cases in an average amount, relative to the other roles (Othengrafen and Levin-Keitel, 2019).

About the main question of this research can be said that for the spatial planners without a specialization in environmental themes, external safety policy and/or implementation is not directly part of their set of skill., and that even though generalist planner contain broad skills and knowledge (Dawkins, 2016), external safety requires somewhat of a more technical outlook. Since the role of the spatial planner is broad generalist planners do not (always) have basic knowledge about external safety. This concludes that external safety policy and/or implementation is not directly part of the role of the spatial planner, however, due to the coming of the Environment and Planning Act, this could shift, given that there is more room for integrality and collaboration with more actors (and experts) through the environmental table (in Dutch: *omgevingstafel*).

7.1 Discussion

This research, like any other, requires some self-reflection. Due to this self-reflection, six main points have come up that have influenced the course of this research. The first point is the originating from the methodology chapter. The methods that are used in this research are qualitative, considering the case study research, interviews, literature review and document analysis. From the basis of the case criteria, whether municipalities contain generalist planners or specialist planners due to the size of the municipality was an expectation, an assumption, and the criteria that incidents with hazardous substances have occurred or not, was in fact proven due to the news analysis, the four cases and the two additional cases were chosen (also due to respondent

availability). However, no generalization can be made because of these research methods, despite the case criteria and collected data.

However, this is not the only point of discussion considering the case criteria. The cases that have been chosen for this research are based upon the two case criteria. Furthermore, there are two additional cases to the four main cases which fall under the same case criteria, expecting that there would be similarities between the main cases and their additional cases (case B (Amersfoort) + additional case B (Enschede and case D (Breda) + additional case D (Den Bosch)). Going through the data and the results, these similarities were not always there. Differences have been noticed within the main cases and their additional cases, which makes the case criteria questionable.

Another point of discussion is the fact that the Environment and Planning Act has not been enacted. The enactment has been postponed a few times and the date is now set on January first 2023 (see chapter 1). However, since this is the current status, the data that is collected does not account for the situation will arise when the Environment and Planning Act is actually enacted.

In searching for the role of the spatial planner various factors were considered. However, whether these factors are statistically coherent can only be researched through quantitative research. Therefore, the coherence and possible causality cannot be determined through this (qualitative) research, but a follow-up inquiry could bring more disclosure.

The discussion continues because of the researched spatial planners. This research is focused on the Environment and Planning Act and its influence on spatial planners and their role, however, the respondents, the cases, the spatial planners that have been interviewed are all based within the public realm. Not all spatial planners work at municipalities. The spatial planners based at corporate actors, housing associations, consultancy firm, etc., have not been researched due to lack of time and resources. Another factor has to do with the amount of spatial planners that were interviewed per municipality. With case B and additional case D two spatial planners participated, but with the remaining cases one spatial planner was interviewed. These aspects might have a certain influence on the results and the obtained data.

The final point of discussion has to do with the interview with the respondent of case C and the description of the role of the spatial planner that was given. When asking about the role of the planner, the respondent did not directly answer this question which made it a little bit more challenging to categorize this case in the analysis of the discourse concerning the role of the planner (Appendix A). The main focus of this interview was the Environment and Planning Act and the way that the municipality of case C is handling this situation. This differs from the manner in which the other respondents answered this question, however, due to the respondents explanation during the rest of the interview, the categorization was completed.

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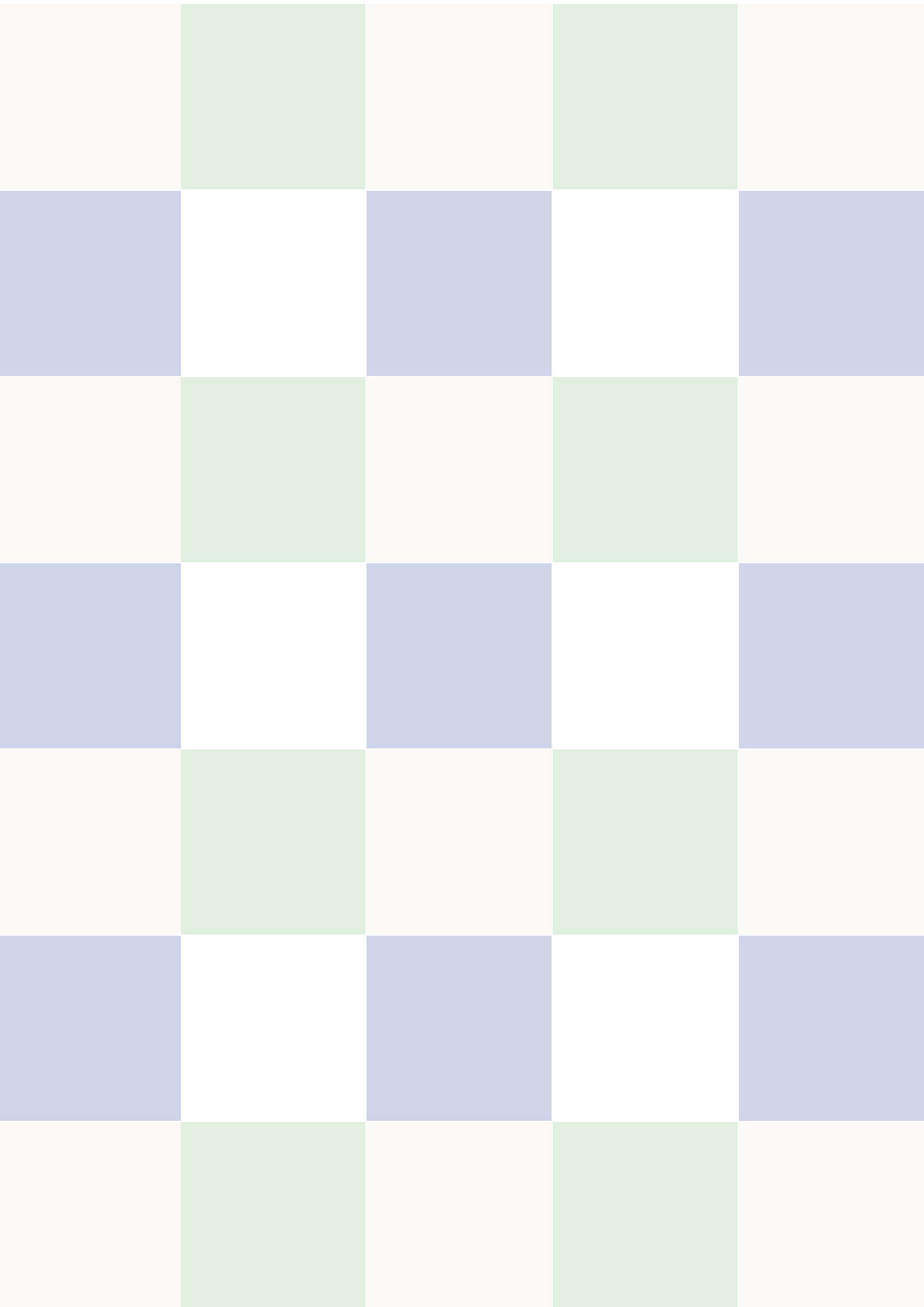
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APV: Algemeen Plaatselijke Verordening (General Local Ordinance)
Bal: Besluit activiteiten leefomgeving (Decree activities living environment)
Bbl: Besluit bouwwerken leefomgeving (Decree buildings living environment)
Bkl: Besluit kwaliteit leefomgeving (Decree quality living environment)
DSO: Digitaal Stelsel Omgevingswet (Digital System Environment and Planning Act)
GGD: Gemeentelijke of Gemeenschappelijke Gezondheidsdienst (Municipal or Community Health Service)
IPLD: Informatiepunt Leefomgeving (Information point living environment)
NOVI: Nationale Omgevingsvisie (National Environmental Vision)
Ministerie van I en W: Infrastructuur en Waterstaat (Infrastructure and Water board)
REV: Register externe veiligheid (Register external safety)
RRGS: Register risicosituaties gevaarlijke stoffen (Register risk situations hazardous substances)
RIVM: Rijksinstituut voor Volksgezondheid en Milieu (National Institute for Health and Environment)
SSIs: Semi-structured interviews
VNG: Vereniging van Nederlandse Gemeenten (Association of Dutch municipalities)
VRR: Veiligheidsregio Rotterdam Rijnmond (Safety region Rotterdam Rijnmond)
VVE: Vereniging van Eigenaren (Association of home-owners)
Wro: Wet ruimtelijke ordening (spatial planning act)



Analysis

Appendix A



Actors and coalitions

Specialization

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
Understanding of the rationale for and purposes of planning	X			X	X	
Understanding of the planning process and connections between planning and implementation	X			X	X	
Understanding of the ethical dimensions of urban planning	X				X	
Understanding of the legal context within which planning occurs	X	X		X	X	
Understanding of the history of the planning profession		X			x	
Understanding of basic economic theory and its application to planning				X		
Understanding of the political context within which planning occurs	X			X	X	
Understanding of environmental processes and the interactions between the built environment, human activity, and environmental change	X		X			X
Specialized planner		X	X			X
Generalist planner	X			X	X	

Coalitions and collaborations

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
Environmental expert	CO	CO	CO	CO		
Initiator		CD	CO		CD	
Urban designer		CO	CO		CO	
Financial expert		CD	CO			
Environmental service	CD	CD	CD	CD	CD	CD
Safety region	CD	CO	CO		CD	CO
Province	TA					K
VNG		TA			TA	
License issuer		CD				
Policy maker			CO			
Municipal council	CD		CD	CD	CD	
Other municipalities	TA			CD		K
Executive board	CD			CD	CD	
Traffic engineers				CO		
Consultancy firm	TA			TA		TA
Residents	K				TA	
Project leader					CD	CD
Developer	CD				CD	CD
Investor					CD	
Real estate agents					CD	
GGD	TA				K	
Fire department					CD	CD
Water board					CD	
Real estate lawyers					K	
Real estate specialists					K	
Archaeologists					K	
ProRail						
NS real estate						K
Ministry						K
Professional officers	CO					CD
VVE	K					
Alderman	TA					
Housing association	CO					
Rijkswaterstaat	K					

Knowing = K

Think along = TA

Cooperate = CO

Co-decide = CD

Rules of the game

Changes in regard to the external safety policy

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
Respondents do not experience changes						X
To re-write municipal policy	X		X			
The manner of the system (going from calculation models to a qualitative approach)		X		X	X	
More integral collaborations					X	

Changes in regard to the Environment and Planning Act

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
Respondents do not experience changes				X		
Change of organization			X			X
Change of collaboration	X	X			X	X
Change in participation		X			X	
Change in digitalization						X

Unwritten rules

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
No unwritten rules	X	X		X		X
No in-depth rules/policy on sustainability theme's, therefore municipality must draw up its own policy: biodiversity, green growth, circular economy, energy, climate adaptation.			X			
Mobility: No state law/regulation, focus on cycling, walking and electrical transportation.			X			
Health theme: Currently no policy for this theme, therefore focus on exercise, a movement friendly environment, health policy, 'Sport- en Leefstijlakoord.			X			
Unwritten rules are almost culture, rules you follow but are not written within rules/policy, and even though they appear, they are always substantiated within the frames.					X	

Interpretation role of the spatial planner

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
'Planner as mediator'	X					
'Planner as administrator'	X	X	X	X	X	X
'Planner as liaison/facilitator'	X		X		X	X
'Planner as professional advisor/expert'						X
'Planner as advocate'						
'Planner as 'social gatekeeper''						
'Planner as 'facilitator' of development'						
'Local-specific analysts'		X				
'Experienced generalists'		X	X	X	X	
'Reactive pragmatists'	X		X			
'Project-based planners'						
'Compensatory moderators'						
'Innovative designers'						
'Planner as designer'			X		X	
'Planner as jurist'	X	X	X	X	X	X
'Planner as economist'						X
'Planner as director'	X					

Resources (and power)

Resources/instruments that spatial planners use

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
'Classic policy instruments'	X	X	X	X	X	X
'Modern instruments'			X	X		
'Postmodern instruments'						
'Sketch paper and markers'			X			
'Laws and restrictions'	X	X	X	X	X	X
'Knowledge on real estate, exploitation plans and feasibility analysis'						X
'Political support, negotiation tactics, coalitions and administrative agreements'	X					
'Environmental vision'			X			
'Programs'			X			
'Decentralized rules'	X	X		X	X	
'General state rules'						X
'Environmental permit'						
'Project decision'						

Resources for data collection external safety

	Case A	Case B	B (Add)	Case C	Case D	D (Add)
Own knowledge			X	X	X	X
Resources from experts within the municipality	X	X	X	X	X	
Resources and contacts from the environmental service	X	X	X	X	X	X
Resources and contacts from the safety region	X	X	X	X	X	X
Resources and contacts from the province	X					X
Resources and contacts from the state (RIVM, ministries)		X		X	X	
Corporate resources (consultancy firm)	X					X

