

Master's Thesis

**MSc. Public Administration –
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Policy Work on Fire

A study of the Dutch Firework Policy Tightening and the Efficacy of Citizen Engagement and Awareness-raising Measures

Abstract

This paper investigates the extent to which citizen engagement and awareness-raising approaches can contribute to citizens' perceived legitimacy of the Dutch firework policy tightening. Based on the theoretical knowledge presented in existing literature, specific hypotheses are distilled. Briefly worded, the assumption is that citizen-engagement positively impacts citizens' perceived legitimacy. However, this relationship is assumed to be mediated by conflicts of interests, whose negative impact can be positively moderated by awareness-raising projects. The findings of the in-depths study of, primarily, the outcomes of a publicly accessible case-related online consultation and twelve interviews do not confound the existing theories. However, new insights can be added and the given hypotheses require for refinements. Particularly concerns about the policy's effectiveness appear prominent.

Table of Contents

1. Introduction.....	3
1.1. Research Question and Main Concepts.....	3
1.2. Research Goals.....	4
1.3. Setup of the Paper.....	5
2. Case – The Dutch Firework Policy Debate.....	5
2.1. Firework-related Hazards	5
2.2. Developments around the Dutch Firework Policy.....	8
2.3. Relevance of the Case	12
3. Concepts and Theoretical Framework	14
3.1. Citizen Engagement.....	14
3.2. Awareness-raising.....	15
3.3. Legitimacy	15
3.4. Risk-informed Policy Making.....	16
3.5. Communication, Cooperation and the Interplay of Reciprocity, Trust and Reputation	17
3.6. Hypotheses and Conceptual Model.....	21
3.7. Main Hypotheses.....	25
3.8. Alternative Hypothesis	27
4. Research Design and Methodology.....	28
4.1. Case Selection.....	28
4.2. Data Collection.....	29
4.3. Operationalization	31
4.4. Analytical Strategy for the Interview Transcripts	35
5. Analytical Presentation of the Findings	39
5.1. Findings from the Citizen Consultation	39
5.1.1. The Issue of Illegal Fireworks.....	40
5.1.2. Implications for Firework Businesses	41
5.1.3. Awareness-raising and Safety Concerns.....	42
5.1.4. Cultural Implications.....	42
5.1.5. Interim Conclusion based on the Outcomes of the Online Consultation	43
5.2. Finding from the Interviews	43
5.2.1. Citizen Engagement and Awareness-raising Approaches.....	44
5.2.2. The Potential of Awareness-raising Approaches	44

5.2.3.	Preventing an abrupt Change	45
5.2.4.	The Importance of Communication	46
5.2.5.	Providing Real-life Insights and the Importance of Lucidity.....	47
5.2.6.	Public Support and the Challenge of Extensive Outreach	48
5.2.7.	Community Feeling and a Sense of Policy Ownership.....	50
5.2.8.	Conflicting Interests and the Complexity of the Topic	50
5.2.9.	A Change of Mindset	53
5.2.10.	The Challenge of Managing Policy Violations and the Doubts about Effectiveness	53
5.2.11.	Strategic Considerations for the Citizen Engagement and Awareness-raising Projects.....	55
5.2.12.	Suspect Limited Scope of Motivation for the Initiation of the Policy Tightening	55
5.3.	Implications for the Hypotheses	56
6.	<i>Discussion and Conclusion</i>	57
6.1.1.	Implications for the Literature and the Dutch Firework Policy Case	58
6.1.2.	Limitations and Suggestions for Optimization	60
6.1.3.	Takeaways for Public Administration and Policy Making	60
6.1.4.	Suggestions for Future Research.....	61
	<i>Acknowledgments</i>.....	62
	<i>References</i>	62
	<i>Appendices</i>.....	67
	Appendix I - Overview of Interview Requests and Response Rate	67
	Appendix II – Explanation of the Motives for the Interview Requests.....	71
	Appendix III - Coding Scheme for the Interview Transcripts.....	75

Policy Work on Fire

A study of the Dutch Firework Policy Tightening and the Efficacy of Citizen Engagement and Awareness-Raising Measures

1. Introduction

The lightening of fireworks, especially around the turn of the year, is a highly debated topic that has made it into the policy making sphere. Next to beautifully ornamenting night skies, presenting the highlight of the New Year's evening tradition for many people, the usage of fireworks brings along controversies. In fact, the impacts of firework activities touch upon many different fields, such as public health issues, different kinds of nuisance, physical and property damages, environmental and atmospheric pollution, illicit trade, safety and security issues and continuing. Evidently, various, partially conflicting, interests, surrounding the topic of fireworks, are present. Touching upon various intertwined, globally acknowledged socio-political challenges, it can be stated that the decisions of individuals whether to use fireworks or not, as well as which kinds and in what manner, have an impact on the common good. Consequently, the issues related to fireworks qualify as social dilemma, demanding for collective action to be solved. Altogether, it appears apparent that the debate on fireworks also raises ethical, organizational and policy questions. Addressing the topic from a governmental perspective, strategies on how to provide the best policy framework possible, navigating all actors involved, needs to be developed. Otherwise put, what is required, is an appropriate governance solution that takes into consideration the multifacetedness of the at first glance seemingly narrow issue of firework usage. In this way, it presents a challenge that can be placed in the policy-making environment, embedded in the overarching field of public administration.

1.1. Research Question and Main Concepts

The contemporary Dutch firework policy debate depicts a domestic case where the firework-related risks are addressed with a respective policy tightening to become effective towards the end of 2020 (Van Veldhoven - Van der Meer, 2020). Aiming to counteract the hazards, especially the injury rate, this tightening entails restrictions with regards to the availability and the usage of certain categories of consumer fireworks (Van Veldhoven - Van der Meer, 2020). However, the policy tightening itself does not guarantee for the desired effects to happen. As the full surveillance, as well as the handling of all policy violations, especially during the turn of the year, is almost impossible to ensure, it appears crucial that citizens perceive the policy tightening to be legitimate, increasing the chance for respective abidance. Others frame it even more drastically, saying that for the desired policy effects to be realized, an underlying change in culture is required (Verkuijlen during the podcast interview of NU.nl by Nederpelt & Verkuijlen, 2020). With a general interest in interactive problem solving possibilities, particularly the degree of effectiveness of *citizen engagement* and politically driven *awareness-raising* approaches, the research question investigated in this paper reads as follows:

To what extent can citizen engagement and awareness-raising approaches contribute to citizens' perceived legitimacy of the Dutch firework policy tightening?

While awareness-raising measures provide information to citizens (IFHOHYP, 2011), citizen engagement projects present an opportunity for citizens to get involved in the actual decision making procedures. Not only does citizen engagement provide “*an adequate opportunity for public input and comment*” (SFERTF, as cited by Berardo, Heikkila & Gerlak, 2014, p. 700), but the inputs gathered at the same time improve the policy makers’ understanding of the given societal needs and concerns, eventually allowing to deliver more appropriate policy responses (Figueiredo Nascimento, Cuccillato, Schade & Guimarães Pereira, 2016, p.3). Consequently, the familiarization with the existing scientific theories behind the concepts of citizen engagement and awareness-raising form a starting point. Presenting the dependent variable of this research, also existing theoretical knowledge about legitimacy is inquired. What appears particularly interesting at this place, is the division of legitimacy into three kinds which are input, throughput, and output legitimacy (Scharpf, 2019 and Schmidt, 2012), all of them being applicable to different aspects of the studied case. Interestingly, when policy decisions are taken in a comprehensively risk-informed manner, they appear to be more robust towards stressful and uncertain future scenarios (Mendoza, Matthews, Stakhiv, Kucharski, Gilroy, 2018). This can positively impact citizens’ perceived legitimacy of the policy overall, as well as increase the chance for the desired outcomes to be long dated. Attempting to solve a social dilemma, a regulating policy change which should serve as an incentive for individuals to adjust their behavior accordingly, can play an important role navigating towards collective action. However, what is indispensable to achieve and successfully manage collaboration, is communication. Not least for that reason, insights about the logic of collective action, as well as the interplay of reciprocity, trust and reputation (Ostrom, Ostrom, Aligica & Sabetti, 2014) are also considered when examining the coherences of the main concepts.

1.2. Research Goals

The general goal of this study is to examine the possible impacts of interactive problem solving approaches, that proactively address and engage with the citizens, on the successful and risk-informed tightening of the Dutch firework policy. As discussed in more detail in the section on relevance of the following chapter, this research intends to be of societal, as well as of scientific relevance. The in-depth examinations of citizen engagement and awareness-raising possibilities can deliver insights contributing to the further development of the real-life policy framework that navigates citizens towards collective action, beneficial for the common good. Consequently, a successful effectuation of the policy tightening would imply for a change of underlying culture that results from an informed understanding and allows for a shift towards a more considerate behavior of individuals with regards to firework activities. Ultimately, firework related hazards, as well as negative impacts can be reduced significantly.

Regarding the scientific relevance, existing knowledge in the fields of citizen engagement, socio-political awareness-raising, legitimacy, as well as conflicts of interests, is tested, applying it to the case of the contemporary Dutch firework policy debate. Despite the low level of external validity that the outcomes of this single case study have, they will either strengthen or falsify the theories presented in the existing literature, as well as supplementing

the body of knowledge by adding new findings. Apart from that, this research may deliver inspiration and serve as relevant gateway for related future research.

Altogether, this paper aims to examine to what extent citizen engagement and awareness-raising approaches can contribute to citizens' perceived legitimacy of the Dutch firework policy tightening.

1.3. Setup of the Paper

To begin with, the following paper introduces relevant aspects of the studied real-life case. Following, the theoretical background, distilled from existing literature, is discussed and forms the basis for the development of the hypotheses to be examined. Subsequently, the research design and the methodologies applied in this study are discussed. Thereupon, the findings of a case-related internet consultation, as well as of twelve semi-structured interviews held are presented analytically before finally drawing the conclusions.

2. Case – The Dutch Firework Policy Debate

At first sight, the topic of the Dutch firework policy might appear narrow. However, once one has immersed oneself into this topic, it quickly becomes explicit that it is anything but a monodisciplinary matter, and that the debate touches upon many relevant and intertwined aspects.

2.1. Firework-related Hazards

Causing an increase of gas- and particle concentrations, fireworks present an unusual source of atmospheric pollution (Vecchi, Bernardoni, Cricchio, D'Alessandro, Fermo, Lucarelli, Nava, Piazzalunga, Valli, 2008). Next to gases and organic components, the proportion of metal particles measured in the air rises substantially when fireworks are being used (Vecchi et al., 2008). Also, the inorganic anion perchlorate, which is contained in many fireworks, is considered problematic, as it adversely impacts the ecology by for example by for example polluting the ground- and surface water (Sijimol & Mohan, 2014). Research of the Indian Central Pollution Control Board, which has measured the impact of the Diwali festival firework activities on the ambient air quality, draws particular attention to the major short-term rise of the PM₁₀ concentration (Nasir & Brahmaiah, 2014). Here, 'PM' is an abbreviation for 'particulate matter' and the '10' refers to size of fine materials that are smaller than 10 µm (Rijksinstituut voor Volksgezondheid en Milieu, n.d.a). Nasir and Brahmaiah (2014) found that the PM₁₀ accumulation in the atmosphere multiplied by 35 times during the Diwali day as compared to a day without the festive firework activities. As those particulate matters are absorbed via the respiratory passages, they can cause critical cardiovascular, as well as lung- and breathing conditions (Nasir, Brahmaiah, 2014). Whilst the Netherlands does not exceed the European particulate matter threshold values (Rijksinstituut voor Volksgezondheid en Milieu, 2015), the health risks caused by PM₁₀ pollution are still a recognized issue (Rijksinstituut voor Volksgezondheid en Milieu, n.d.a). The Dutch institute for public health and the environment (in the following referred to as RIVM) even warns that the effects of air

pollution in general decrease the average life expectancy by a mean value of thirteen months, as compared to a situation of clean air quality (Rijksinstituut voor Volksgezondheid en Milieu, 2015).

Also, injuries are a common firework-related hazard. Here, for example, a scholarly study in the U.S. has investigated the impacts of a relaxation of firework policies on the number and severity of related pediatric burn injuries between 2006 and 2012 (Myers & Lehna, 2017). The results show a minor rise in the number of injuries from 4.28 per 100,000 population in 2006 to 5.12 per 100,000 population in 2012, yet a major aggravation of their severity (Myers & Lehna, 2017: 79). Consequently, the research criticizes the insufficiency of precautionary measures and stress the importance of preventive actions (Myers & Lehna, 2017).

The main Dutch lobbyist organization for public health and security in the Netherlands (GGD GHOR Nederland, 2018) has commissioned a summarizing information pamphlet. To be looked upon as an exemplary form of awareness-raising approach, this fact sheet provides an overview of the effects that fireworks have on public health, differentiating between four categories. The first category contains the injuries caused by fireworks. It appears striking that several hundreds of people are in need for medical treatments at every turn of the year, whereof averagely one person per year dies. Approximately fifty percent of the patients are below the age of twenty and also many bystanders, who do not even engage in firework activities themselves, are affected. another proportion equal in size presents affected bystanders. The second category concerns hearing defects, where an estimated number between 800 and 1600 people per year suffer from permanent damages to their hearing. Thirdly, the issue of fine particles and environmental risk is addressed. Again, it becomes clear that fireworks bring chemical substances and heavy metals, such as barium and copper, into the atmosphere which will eventually get inhaled, or find their way into the soil. Peak measurements during the New Year's Eve celebrations in the Netherlands have shown that the fine dust accumulation multiplied by 40 at peak times. Furthermore, the cases of poisonings, as well as the death rate rises evidently with increased fine dust concentrations. The fourth and last category draws attention to the issue of firework-related disturbances, stress and anxiety. Two thirds of the Dutch citizens experience fireworks to be annoying and irritating. (GGD GHOR Nederland, 2018).

The few just mentioned findings are only exemplary. However, they show that, even though the obvious atmospheric contamination caused by fireworks is of short duration (Vecchi et al., 2008), the harmful immediate, mid- and long-term effects on the health and the ecological system are concerning. To visualize the sudden increase of the atmospheric fine material concentration, the graph below presents the values measured during at the turn of the year, 2019/2020, in the Netherlands (Compendium voor de Leefomgeving, Rijksoverheid, 2020).

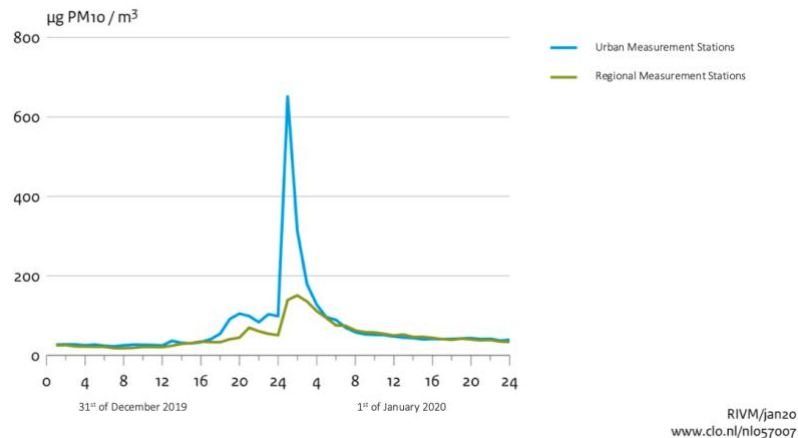


Figure 1: Fine material concentration around the turn of the year 2019/2020 (Luchtmeetnet, 2020).

This specific turn of the year exceeded the mean historical values, measured over a period from 1994 to 2020. More specifically, the average value of fine particle pollution in cities, represented by the blue line (the green line represents the regional outcomes), amounted 651 $\mu\text{g}/\text{m}^3$, as compared to a mean value of 532 $\mu\text{g}/\text{m}^3$ during the mentioned past period. Next to that, it is interesting to mention that private persons in the Netherlands are exclusively allowed to set off fireworks between 6:00pm on the 31st of December and 2:00am on the 1st of January. However, the measurement outcomes provide evidence that people also made use of fireworks outside of that legally determined period. (Compendium voor de Leefomgeving, Rijksoverheid, 2020).

In order to get an overview of the frequency of the occurrences of inconvenience around the turn of the year, in 2011, the Dutch Green-Left party (GroenLinks) started an initiative offering a reporting point for citizens, particularly for firework-related disturbances. Having received 48.000 reports in 2017 and 53.000 in 2018, the purpose of the initiative is regarded to be accomplished and therefore ended in the meantime (de Jonge, 2019a). Another option to report firework-related disturbances has been offered by the municipality of Helmond in form of an application (app) available for citizens (de Jonge, 2019b). This app is called “App Melden Vuurwerkoverlast”, which means ‘app to report firework-related nuisance’. It was developed for municipalities and governments by the company “IMAGEM”, which recognizes the responsibility of municipalities to ensure a safe and nonhazardous living environment for the citizens in general, but also during festive days, such as the turn of the year (IMAGEM, n.d.). The app gathers real time and location-specific data from submitted reports that, in combination with other sources, allows to recognize patterns, as well as to derive trends that can be used to plan and provide informed prognosis (de Jonge, 2019b). Overall, it presents a possibility for publicly accessible crowdsourcing, which allows citizens to contribute anonymously to the gathering of relevant information, serving as a basis to take responsive and data-driven decisions. (IMAGEM, n.d.). Another interesting citizen engagement, respectively citizen science project, called “Samen Meten”, which translates to ‘Measuring Together’, has been initiated by the RIVM. The RIVM recognizes and supports the growing possibility to measure the quality of air and water, as well as noise interferences with the help of sensors that are easily accessible and available for an affordable price (Rijksinstituut voor Volksgezondheid en

Milieu, n.d. b). More specifically, the ‘Measuring Together’ project deploys low-cost sensors that can monitor the air quality and that are available for the general public (Wesseling et al., 2019, p.2). The overall aim is to build an infrastructure and channels of communication to pool data with the help of citizens’ contributions. The collected data then is brought together in an open knowledge portal. Due to the citizens’ input, a clearer picture of their needs can be drawn and combined with their feedback taken into account for further analysis. (Wesseling et al., 2019, p.2ff.). Here, it is interesting to mention that it was found that air pollution is not only an environmental issue, but can also be linked to approximately “400.000 premature deaths in the EU each year” (Wesseling, Ruiter, Blokhuis, Drukker, Weijers, Volten, Vonk, Gast, Voogt, Zandveld, van Ratingen & Tieleman, 2019, p.1). Overall, the just introduced projects and possibilities for collective contribution proactively involve citizens and can thus be seen as forms of citizen engagement.

Continuing, there are more firework-related issues and challenges to be considered, such as property damages and the problematic of illegal fireworks, including the related trade. According to estimations of the Dutch national insurances union, the damage of insured housing and cars of private people alone, amounted approximately fifteen million Euros at the turn of the year 2019/ 2020 which presents a peak, as compared to the preceding years (Verbond Van Verzekeraars, 2020). On the basis of past experiences, insurers know that most of such damages are caused by deliberate vandalism and illegal fireworks (Verbond Van Verzekeraars, 2020). As stated by the Dutch national police, the possession and usage of illegal fireworks in the Netherlands is categorized to be an economic, as well as an environmental delict, whereby the latter is listed to be one of the most common ones of its kind (Politie, n.d. b).

On top of all that, there are many other interesting aspects relevant for the firework policy debate, which however unfortunately exceed the scope of this study. These are, for example, the potential technological innovations that could serve as substitutes for fireworks, but also the illegal and black markets, including trade flows in which customary delivery services are deceived and abused to unknowingly unlawfully deliver illegal fireworks (NPO, BNNVARA, 2016). Generally, there is a whole firework-related industry, making use of natural resources, as well as human resources, including research and development conducted by highly skilled experts. Also, the firework-consumers spend relatively big amounts of money every year, purchasing such fireworks. A speaker of a NU.nl podcast on the topic of a possible ban of fireworks in the Netherlands mentioned that in 2019 alone, approximately 77 million Euros were spent domestically, sarcastically describing it as literally shooting and burning money in the air (Nederpelt & Verkuijlen, 2020). Furthermore, one could also discuss trade-offs with regard to moral responsibilities when setting off fireworks to celebrate while other parts in the world seriously struggle with extensive conflagration, or when calling it a tradition while barely, or not at all, honoring the actual original tradition behind it.

2.2.Developments around the Dutch Firework Policy

All things mentioned in the previous section considered, it might not appear surprising that a recent report from the I&O Research institute states that 85 percent of the Dutch citizens perceive firework activities as irresponsible if continued in the present manner (Kanne & van

Engeland, 2020). Two thirds of the Dutchmen even position themselves in favor of a general ban of fireworks (Kanne & van Engeland, 2020). The following graph provides an overview of the extent to which Dutch citizens would support several change propositions for the current Dutch firework policy over a period from 2015 to the beginning of 2020.

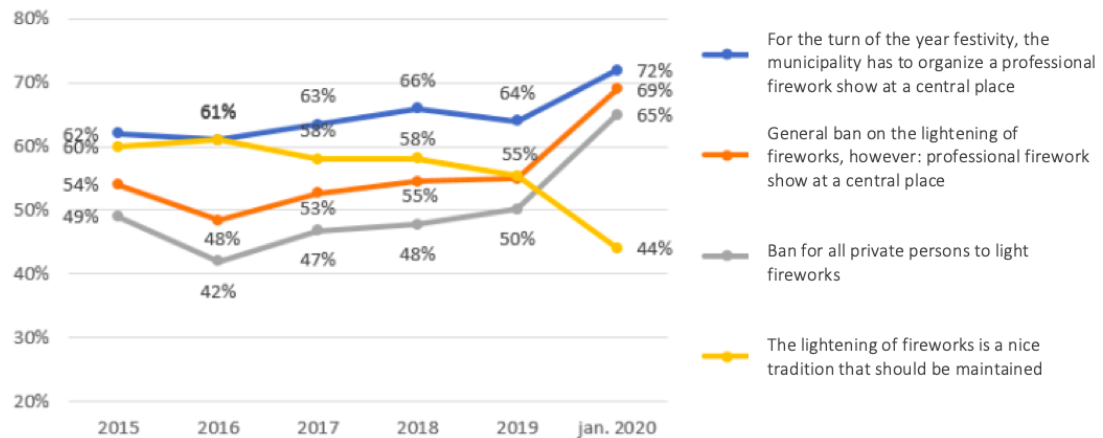


Figure 2: Graphical overview of the percentage of support for several different options of a Dutch firework policy tightening and a (general) firework ban (I&O Research Institute, Kanne & van Engeland, 2020)

The blue characteristic curve presents the proposition of an obligation for municipalities to organize professional firework-shows at a central place at the turn of the year, which is the latest general preference. The orange line presents the option to generally forbid the setting-off of fireworks, with the exception of professional firework-shows at a central place. The grey line presents the proposition of a clear ban of firework activities for private consumers. The yellow curve presents the point of view that fireworks are a nice tradition that should be maintained. (Kanne & van Engeland, 2020). Interestingly, this is the only curve showing a decrease, which implies that the standpoint it presents is becoming less popular. Even though there is a clear trend towards supporting a ban of fireworks in the Netherlands, or at least a tightening of the Dutch firework policy, there still remain opponents. Some of the latter even found action groups, such as the citizens' initiative for firework tradition of the so-called "Zena Fan-Shop" (Spies, n.d.) to voice their convictions and alternative suggestions.

The following, relatively extreme example of the riots that occurred as a reaction to the withdrawal of the permission to continue the New Year's bonfire tradition in the village of Scheveningen, belonging to the municipality of The Hague, further illustrates the topic-related socio-cultural tensions and challenges. Between the 27th and 31st of December, a number of the Scheveningen-citizens prepare a competition between two massive bonfires, one at the Southern part of the beach and another one at the Northern part of the beach. Tens of thousands of pallets are carried to both spots on the beach in order to be stacked, aiming to be the highest of the two piles. At the turn of the year, the piles are set on fire, which is a famous Dutch New Year's event, attracting visitors from all over the country, as well as international visitors. An entire organizing team, multiple volunteers and sponsors contribute to the yearly happening. Also, a safety plan is created in cooperation with the municipality, the police and the fire department. Originally, this tradition emerged from the illegal custom to burn Christmas trees that got established in Scheveningen in the forties and fifties. (Kenniscentrum Immaterieel

Erfgoed Nederland, n.d.). During the turn of the year 2018/2019, the enormous bonfires, in combination with strong winds, caused a shower of dangerous burning sparks over the surrounding neighborhoods. Consequently, the municipality imposed stricter requirements for the subsequent year, which eventually were too restrictive to continue the event at the turn of the year 2019/2020. What aggravated this “monopoly decision” (Nederpelt, 2019) is the fact that no alternatives was offered, nor developed. As a reaction to that, some proponents of the bonfire tradition reacted with violence (Nederpelt, 2019). An incident towards the end of 2019 in the Duindorp-district, close by Scheveningen, presents one example. Between 50 and 60 people set off fireworks, lighted dumpsters and pallets on fire, as well as caused other intentional damages. The police intervened with road blocks and the arrestation of twelve people (NOS Nieuws, 2019). Thus, paradoxically, the sequel of the municipality’s order, on the one hand does fulfil its intention to protect the local population from the risks of the big bonfires, yet, on the other hand, exposes it to the new risks of riots that emerge as a reaction to the protective measures (Niederpelt, 2019). Furthermore, this example makes clear that governmental regulations alone are no guarantee to effectively solve the problem at hand.

During the NU.nl podcast (Nederpelt & Verkuijlen, 2020), Ruud Verkuijlen, spoke as representative of the national Dutch police, presenting a couple of relevant points that are worth mentioning at this juncture. To begin with, he clarified that a partial ban of fireworks would lead to an increase of alternative purchases abroad (e.g. from Belgium or Germany). Verkuijlen encouraged, the registration of firework-trade streams, as well as to consider the provision of alternatives, for example technical innovations. Continuing, he emphasized that a partial ban would facilitate drawing particular attention to the remaining illegal cases as they would become more conspicuous. Generally, however, it is utopian to believe that all cases of illegal firework activities can be processed, especially concerning the cases during the turn of the year itself, which includes the common incidence of setting off fireworks outside of the legally established time frame. What is needed in the first place according to Verkuijlen, is a change in culture, referring to a more responsible behavior of individuals. He appealed to the social coexistence, explaining that topic-related regulations are established in its favor and should therefore be respected and abided (Verkuijlen during the podcast interview of NU.nl by Nederpelt & Verkuijlen, 2020).

In a video called “Hoe vuurwerk zo'n slecht imago kreeg” (NOS op3, 2019), which translates to ‘why fireworks got such a bad image’, this conflict of interests between proponents and opponents of fireworks is acknowledged as well. Besides that, the video presents some developments that can be considered part of the reason why there is a general trend of growing support for a tightening of the firework policy.

To begin with, the tradition to set off fireworks at the turn of the year in the Netherlands began post World War II, when Indian immigrants brought along and introduced the originally Asian tradition. With a rise in welfare, consumer fireworks became more commonly established from the seventies onwards. Already at that point in time, it was known that setting off fireworks bears risks, which was further underlined in television campaigns that were extended over the decades. However, the consideration to actually ban fireworks was no topic of discussion, yet. Only the distinction between legal and illegal fireworks was already legally defined. At some point, a limitation of noise to prevent hearing damages was legally

determined as well. As a consequence, the range of fireworks available on the market decreased, which led to an increased use of ornamental fireworks, as well as an unintended increase of illegal firework trade. In 1993, a firework policy was introduced which gave more clarity about the firework-related rules. For example, all kinds of fireworks that were imported to the Netherlands needed to be registered.

In 2000, a dramatic accident happened in the municipality of Enschede, where 177 tons of fireworks of a commercial firework storage exploded. 23 People died, approximately 1000 people suffered from injuries and an entire residential district was destroyed. This severe incident motivated a tightening of the firework policy, which was put forward in 2002 and included stricter regulations concerning the production, the trade, the transportation, the storage and the actual setting off of fireworks. Even though, many people got injured by fireworks and doctors and nurses already then postulated measures that would improve the given conditions, the usage of consumer fireworks remains to be a wide-spread custom. As touched upon above, in 2013, the time frame during which it is allowed to set off fireworks was limited to the hours between 6pm and 2am during the night of the turn of the year. On top of that, some municipalities introduced firework-free areas in which the usage of any fireworks is completely forbidden. Over time, additional rules and precautionary measures were established, such as wearing goggles, or the attachment of fuses to the fireworks themselves. With growing knowledge and more intensive analysis, including surveys, more data-driven statistics providing information about the firework-related issues could be published. Altogether, that provided food for thought and stimulated considerations from a more critical point of view.

Since 2014, the support for a ban of fireworks started to grow. Especially since the ocular-hospital (Oogziekenhuis), the Dutch Eye Specialist Society (Nederlands Oogheelkundig Gezelschap), the doctors for youth health of the Netherlands (Artsen Jeugdgezondheidszorg Nederland) signified their support in reinforcing combination with the so-called firework declaration (vuurwerk manifest), that was signed by many individuals and companies, more attention has been brought towards a possible ban of fireworks. Next to the health related hazards, there also are further motivations to support stricter rules, some of which are mentioned above. These include, but are not limited to the atmospheric pollution, nuisance, property damages, anxiety and perturbed animals. In 2017, the risks became further emphasized when the investigation committee of the security council advised to forbid firework rockets and pop fireworks. Despite all that, the group of firework proponents remains with a strong voice. A great majority of this groups are people who enjoy, honor and want to maintain the firework tradition, as well as the companies that assure a livelihood with the firework-related business. Here, it might be interesting to mention that the firework tradition in the Netherlands, is officially considered as immaterial and cultural heritage (NOS op3, 2019).

Consequently, at the beginning of 2020, the Dutch cabinet, recognizing a need for change, announced to start consultations concerning the restraining of the current firework policy, amongst others, in cooperation with the Dutch investigation committee for security (NOS Nieuws, 2020a). Meanwhile, the Dutch council of ministers decided to forbid the usage of F3 fireworks, including rocket- and pop- fireworks, for consumers as from the coming turn

of the year 2020/2021 (Rijksoverheid - Ministerie van Justitie en Veiligheid & Ministerie van Infrastructuur en Waterstaat, 2020).

In order to understand what is meant by F3 fireworks, it is worth to shortly explain the categorization of fireworks. This categorization ranges from F1 to F4, whereby F1 refers to fireworks with a very low risk, F2 to fireworks with little risk, still considered to be qualified for private use, F3 to fireworks with medium risk, mostly used professionally and lastly F4, referring to highly dangerous fireworks that are exclusively determined for professional use (Politie, n.d. a). As part of the policy tightening process, the Dutch Ministry for Infrastructure and Water Management conducted an online consultation in the month of March 2020, where organizations and private persons could share their related opinions and suggestions (ANP PDC Parlementaire Monitor, n.d.). Such a consultation can be considered to be a form of citizen engagement, the outcomes of which will be analyzed in more detail in the ‘Results and Discussion’ section. On top of that, at the beginning of February 2020, two members of the second chamber have put forward a bill, which still is in the process of discussion, claiming a general and total ban of consumer fireworks (Tweede Kamer Der Staten Generaal, n.d). Next to hinting at some of the above introduced firework-related issues, the Dutch Prime Minister, Mark Rutte, also expressed his discontent about the unsafe working conditions to which community- and public service workers are exposed to due to the excessive use of fireworks (NOS Nieuws, 2020b). More generally, Rutte stated in 2019 that a solution needs to be found which prevents the damages to the largest extent possible while leaving enough room for the continued existence of traditions (NOS op3, 2019).

Zooming into the political arena, the attitudes of the country’s parties about Dutch firework policy debate are of interest as well. Most Dutch parties support a ban or a tightening of the firework policy. During a NU.nl podcast (Nederpelt & Verkuijen, 2020) interview, Klaas Dijkhof, the leading ‘people’s party for freedom and democracy’ (VVD) politician, mentioned that his party is traditionally not fond of the abolition of customs (Nederpelt & Verkuijen, 2020). As the party’s name already says, there is a preference to leave such decisions a matter of the free society’s responsibility. However, even the VVD announced to be open to discuss the ban of fireworks. (Dijkhof during the podcast interview of NU.nl: Nederpelt & Verkuijen, 2020). According to the status of January 2020, only the ‘party for freedom’ (PVV) is hesitant to take up position on that issue at all and the ‘forum for democracy’ (FVD) states to only support stricter controls (NU.nl podcast: Nederpelt & Verkuijen, 2020). According to Kanne (as cited by NOS Nieuws, 2020a) it appears striking that the voters of all major parties, such as for example the FVD, the PVV, the VVD and the ‘Christian democratic appeal’ (CDA), are all majoritarian in favor for a total, or at least a partial ban. Overall, it can be concluded that the standpoints of the political parties holding seats in the second chamber are divided, yet that the majority in the chamber is in favor of a ban for the heavier consumer fireworks (NOS op3, 2019).

2.3. Relevance of the Case

As shown that the topic of firework-related issues and respective policy changes is a contemporarily relevant matter of debate among Dutch citizens, as well as in the political arena. Also, the motivations to discuss a tightening of the firework policy, as well as the possibility

of a complete ban became apparent in the previous paragraphs. A successful tightening of the policy would counteract the above-introduced firework-related hazards, as well as contribute to a reallocation of different kinds of resources. By the end of the day, it requires for a shared effort by the political and general community, protecting, maintaining and creating intangible and material facilities in everyone's interest, forming an underlying civic and political relationship between all individuals and contributing to the common good (Hussain & Waheed, 2018). However, the successful effectuation of such a change in policy remains a challenge. Even though, there are objective scientific findings on the mal-effects of firework activities, as well as clear trends, predicting a majority of the Dutch population to be supportive of the policy tightening, this does not put aside the appearance of individual's and other stakeholders' subjective, contextual, or situational perceptions, causing the presence of opposing attitudes and behaviors. The policy change requires for a holistic approach, as well as considerate strategies to actually achieve a sustainable change in the underlying culture. Consequently, the aim to investigate to what extent citizen engagement and awareness-raising approaches can contribute to citizens' perceived legitimacy of the Dutch firework policy makes obvious the substantive relevance, referring to the "real-world societal importance" (Toshkov, 2016, p. 289), of this particular case study.

More specifically, the motivation to study citizen engagement and awareness-raising approaches initially was a line of thinking emerging from a personal interest. Looking at all the risks that come along with the lightening of fireworks, a subjective sense of absurdity arose. Common sense led to wonder whether this could be any different if all, or at least the majority of citizens were informed about a more complete picture of all the consequences that come along with the firework activities. Consequently, possible methods to create such pictures, while at the same time involving and engaging with the general public, appeared to be citizen engagement- and awareness-raising approaches, which is widely confirmed by the theoretical findings of previous studies, as described in more detail in the theoretical framework section. Even though the policy tightening is certain to be enforced as from the end of 2020, which was yet to be discussed at the point in time when the working processes for this research paper started, the relevance of the interest in the successful accomplishment of the desired outcomes remains. Put differently, the question is whether the tools of citizen engagement and awareness-raising are deployed strategically and to their full potential. Depending on the outcome, inferences valuable for real-life executions can be drawn to possibly make use of such tools more efficiently.

Next to its substantive relevance, this research is also of scientific relevance. The scientific relevance refers to the testing of existing theories and the generation of "new theoretical ideas and hypothesis" (Toshkov, 2016, p. 290). More specifically, existing knowledge in the field of legitimacy, citizen engagement and socio-politically driven awareness-raising, as well as considerations concerning the emergences and resolution of conflicts of interests will be applied and tested in the realm of the given case. The findings will be examined concerning compliances and deviations with the existing knowledge, as well as possible new insights will be added. As this research is a single case study, it is necessary to bear in mind that possible newly discovered causal mechanisms, or the suggestion of novel concepts can "contribute to general arguments that might prove useful for the explanation of

other cases” (Toshkov, 2016, p.305), yet present a low level of external validity (Toshkov, 2016, p. 304). Hence, it requires for further testing and counter-checks with other cases before being able to decide whether such new findings could be generalized beyond the studied case or not.

In the following section, the main concepts, as well as the relevant theoretical background will be clarified based on the related secondary literature. Also, the hypothesis, specifying anticipated outcomes and causal mechanisms, will be distilled and elaborated.

3. Concepts and Theoretical Framework

3.1.Citizen Engagement

Citizen engagement is a top-down approach by governing authorities or institutions that invites citizens to get involved in decision making procedures. It serves to pool information, as well as enhances ideation processes (Lodewijckx, 2019), “providing an adequate opportunity for public input and comment” (SFERTF, as cited by Berardo, Heikkila & Gerlak, 2014, p. 700). Whereas citizen engagement is initiated by governments and of formal nature, it is not to be confused with citizen participation, referring to a more informal bottom-up approach with the initiatives taken by the citizens (Lodewijckx, 2019). As this research investigates the possibilities for governments to successfully implement a policy change, wherein government acts as an active initiator, an elaboration of citizen participation within the realm of the given case goes beyond the scope of this paper.

Forms of citizen engagement, which amongst others include civic engagement, public participation, citizen science and Do-It-Yourself approaches (Figueiredo Nascimento et al., 2016, p.3), invite the citizens to participate in the policy-making process to some degree. Furthermore, citizen engagement fosters an interactive exchange between political authorities and the general public, allowing to gather insights, and to increase the chances for a mutual understanding, considerations and the mediation of ambiguities. Such mutual understanding can eventually “help to remove barriers to joint action” (Chwe; Kim & Bearman; Oliver & Myers, as cited by Berardo et al. 2014, p.700). Optimally, citizen engagement measures contribute to well-considered, deliberate decisions of both, the citizens, as well as the governing institutions (Lodewijckx, 2019). On top of that, it enhances the trust between citizens and institutions, and also the trust amongst citizens. Trust building can be positively associated with cooperation which can ultimately contribute to lowering the costs of solving collective action problems (Burt; Coleman; Dolsak & Ostrom, as cited by Berardo et al. 2014, p. 700).

Through being involved in a way, even a sense of policy outcome ownership can be built (Figueiredo Nascimento et al., 2016, p.3). In fact, Figueiredo Nascimento et al. (2016, p.3) find that citizen engagement does contribute to an increase in legitimacy, accountability and transparency of governance. This is also linked to the fact that citizens’ inputs gathered improve the understanding of societal needs and concerns and consequently allow to deliver better responses to these demands (Figueiredo Nascimento et al., 2016, p.3). Kisić & Tomka (2018, p. 9) highly say that citizen engagement “carries the hope of creating better, more just societies of tomorrow.”

3.2.Awareness-raising

Awareness-raising provides relevant information to citizens, creating the opportunity to fill possible knowledge-gaps, and to create a certain extend of a common basis of knowledge, as well as for discussion. It includes, but is not necessarily restricted to, extensive informative and educative campaigns (IFHOHYP, 2011). Next to that, awareness-raising also includes other forms, such as directly talking to people, holding events, giving work-shops et cetera. Commonly, the aim of awareness-raising is to spread knowledge and information about certain topics “to increase society’s sensitivity”(IFHOHYP, 2011, p. 8) towards them. It is important to be aware that, when it comes to the acquisition of knowledge, especially regarding topics that involve bigger groups, or possibly society as whole, there is a shared responsibility throughout the learning process, for the ones imparting, as well as for the ones learning (Kisić & Tomka 2018).

Furthermore, awareness-raising also is of tremendous strategic power. Studies have shown that “awareness about certain issues actually can influence respective policy-making processes” (Powell, Edelstein & Blanck, 2015). Also, the deployment of politically driven educational awareness-raising campaigns can accelerate the pace at which targeted changes are perceived to be legitimate (Powell et al., 2016, p. 243). Furthermore, it is found that ratification considerably raises awareness (Powell et al., 2016, p. 237).

3.3.Legitimacy

When it comes to resolving public policy problems, which, in democracies, are commonly seen as a form of *coordinated action* (Strebel, Kübler & Marcinkowski, 2018, p. 488), citizen expect coherence with the norms they hold. If this is given, the likelihood for citizens to accept policy outcomes increases, even if the contents are personally perceived to be undesirable. No matter, whether the outcomes of decision-making processes are desired or not, citizens take the democratic quality of the former very seriously (Strebel, Kübler & Marcinkowski, 2018). Here, the internal functioning of governance arrangements is generally expected to follow a majoritarian logic, whereby the implementation should be controlled by outside actors (Strebel, Kübler & Marcinkowski, 2018, p. 507). Overall, citizens care about their options “to participate in collective decision making” (Tyler; Bengtsson & Mattila; Esaiasson et al., as cited by Strebel, Kübler & Marcinkowski, 2018, p. 489) on the one hand, as well as about the substantive quality of the outputs, on the other hand (Strebel, Kübler & Marcinkowski, 2018).

Consequently, to allow for democratic input, as well as to provide satisfying output, present two common possibilities to enhance the legitimacy of outcomes (Strebel, Kübler & Marcinkowski, 2018). Here, *input legitimacy* refers to ‘government by the people’ and *output legitimacy* to the ‘government for the people’ (Scharpf, as cited by Tallberg & Zürn, 2019, p.491). More specifically, whereas input legitimacy refers to the ‘participatory quality’ (Scharpf, as cited by Schmidt, 2012, p.4) and can be assessed by the “responsiveness to citizen concerns” (Schmidt, 2012, p.2), output legitimacy can be gauged by the “effectiveness of [...] policy outcomes” (Schmidt, 2012, p. 2) and refers to the ‘problem-solving quality’ of the regulations (Scharpf, as cited by Schmidt, 2012, p.4). What happens in-between input and output is referred to as *throughput* and can be judged by analyzing the “efficacy, accountability, transparency, inclusiveness and openness to interest consultation” of the governance process

(Schmidt, 2012, p. 6). As a side-note, this might remind of the concept of *res publica* where matters of public affairs are decided through open considerations and public deliberation (Ostrom et al., 2014, p.264). Overall, one could say that ‘input’ is of, or by the people, ‘throughput’ with the people, and ‘output’ for the people (Schmidt, 2012, p. 3). It is interesting to notice that, while the quality of input and output can compensate each other, implying for possible trade-offs, little or poor throughput will have a delegitimizing effect overall (Schmidt, 2012).

Generally, legitimacy can be defined as the “*relational property, determined by the beliefs and perceptions of audiences about the exercise of authority*” (Hurd & Reus-Smit as cited by Tallberg & Zürn, 2019, p. 586). Typically, such beliefs and perceptions are measured in individuals’ levels of confidence and trust in governing authorities, as well as organizations, and studied through data collected on public- and elite opinion (Caldeira & Gibson; Norris; Bühlmann & Kunz; Voeten; Dellmuth & Tallberg, as cited by Tallberg & Zürn, 2019, p. 586). To avoid confusion, here a small interjection : as beliefs are normative, whereas perceptions are descriptive, it will in the following solely be referred to *perceived legitimacy*.

What is of interest in this particular study is, the relationship between the governing authorities and the citizens governed. Dellmuth and Tallberg (2018) have found that *social trust*, which can be understood to be an individual predisposition regarding the trust people grant to others, generally, or on an interpersonal level, functions as an antecedent factor, influencing the perceived legitimacy of national and international institutions. This is especially determined by cooperative expectations, which are higher for people who trust easily, resulting in an increased perception of collective political institutions to be legitimate (Dellmuth and Tallberg, 2018).

Not only does legitimacy contribute to an increased perception of democracy, it also increases the capacities of political institutions to establish new norms and regulations (Tallberg & Zürn, 2019). Correspondingly, studies have found that even when adjustment costs are high, legitimacy contributes to compliance and generally is a cheaper means to ensure the latter compared to coercion (Chayes & Chayes; Zürn & Joerges, as cited by Tallberg & Zürn, 2019, p. 582). Hence, it appears apparent that actors in the political arena calculatedly strive to manifest the perceptions of appropriateness of their executions and implementations, referred to as legitimization (Tallberg & Zürn, 2019, p. 585).

Here, Boswell (2008) highlights the importance of expertise and knowledge utilization. One means to strategically derive and enhance legitimacy, as well as to substantiate preferences, is the commitment to expert knowledge application (Boswell, 2008). Next to that, it is interesting to notice that non-technological scientific knowledge is mostly sustained through norms and considered to be a public good (Dasgupta, 2014, p. 121). Commonly, governing authorities establish entire networks of experts that are regarded to be politically independent and scientifically reputable in order to bestow legitimacy (Boswell, 2008, p. 485).

3.4.Risk-informed Policy Making

Risk-informed policy-making refers to risk-informed decision making, including “identifying the vulnerabilities, formulating options to reduce or eliminate vulnerabilities, and conveying the information so that stakeholders and decision makers can negotiate tradeoffs

appropriately.” (Mendoza et al., 2018, p. 20). More specifically, it involves three main elements which are the assessment, the management and the communication of risk (Mendoza et al., 2018).

When it comes to risk-related information gathering, it needs to be taken into account that risk has multiple dimensions, also including the perspectives and ascribed values of communities involved. To ascertain those values, as well as to determine the risks to the most complete extent possible, requires a procedure that involves the different stakeholders, who usually hold various, and possibly conflictual interests, early in the analysis process before related assessments take place. (Amendola, 2001, p.17f.). Also, the “risk assessment needs to be contextualized in the socio-cultural environment”, requiring for a participatory procedure that ensures to be in communication with stakeholders and social parties (Amendola, 2001, p.28).

Overall, risk-informed decision making should support the comparison and recommendation of an appropriate plan, program, or activity to enhance system robustness for stressful futures that involve uncertainties (Mendoza et al., 2018).

3.5.Communication, Cooperation and the Interplay of Reciprocity, Trust and Reputation

In the realm of political science, collective action is a frequently discussed and reoccurring topic. It presents a common challenge in the context of social dilemmas, yet at the same time also a possibility to resolve such (Ostrom, Ostrom, Aligica & Sabetti, 2014). With regard to collective action, Ostrom et al. (2014, p. 28) take Mancur Olson’s *The Logic of Collective Action* as a basis, presenting the problem of collective action as the “*indivisibility of a public good and the structure of individual incentives created by the failure of an exclusion principle*” (Ostrom et al., 2014, p. 28). *Social dilemmas* refer to all kinds of interdependent situations in which individuals face a set of feasible alternatives amongst which there are options that lead to a maximization of short-term self-interest, yet that leave all other participants worse off and are thus not desirable with regard to the common good, nor the long-term perspective (Ostrom et al., 2014).

Apposite to one of the aspects, making part of the case investigated in this research, Ostrom et al. (2014) further clarify the *rational choice theory*, as well as the phenomenon of *social dilemmas*, presenting the example of pollution control. Pollution control can be categorized as a public good of which everyone would benefit. Yet, contributing appears costly, which is why individuals would prefer others to pay for the good instead. Even though everyone would profit from the pollution control, if everyone adheres to the so-called equilibrium strategy, the good will not sufficiently, or not all be provided. (Ostrom et al., 2014, p. 122). It becomes clear that individuals are not automatically incentivized enough to act within the meaning of the common interest, unless an advantage of sufficient magnitude can be derived (Ostrom et al., 2014, p. 28).

When it comes to the governmental management of natural resources, collaborative decision-making processes are the increasingly preferred approach (Gerlak, Lubell & Heikkila, as cited by Berardo et al., 2014, p. 697). Allowing for cooperation and coordination, involving various stakeholders (Gerlak, Lubell & Heikkila, as cited by Berardo et al., 2014, p. 697), collaborative decision making increases the level of transparency and creates learning

opportunities amongst the participants (Ansell & Gash; Backstrand; Bingham, Nabatchi & O’Leary; Huxham & Vangen; McGuire, as cited by Berardo et al. 2014, p. 697). Furthermore, the collaborative dialogues and discussion can establish trust (Innes, as cited by Berardo et al. 2014, p. 698), as well as reduce conflicts of interests among different participants (Cronin & Ostergren, as cited by Berardo et al. 2014, p. 698).

Not only does the just-mentioned pursuit of self-interest lie in human nature but also the ability to learn, which can serve as an advantage in situations involving conflicts of interest. Acquiring knowledge and practices increases the likelihood to overcome the cognitive genetic incapability for unbiased and objective analysis. Such knowledge and practices can refer to relevant contents about issues at hand, yet also to general social rules, heuristics and norms, including reciprocity. Also, enforced rules present a relevant tool, as they are commonly followed when understood and perceived to be legitimate (Ostrom et al., 2014, p. 123). It becomes obvious that the question whether awareness-raising contributes to the perceived legitimacy is none of farfetched origin. Here, it is also interesting to shortly mention what Dasgupta (2014) says about external effects. These are characterized as the effects on people who were not at all involved in the decision-making process. If harming, such external effects are negative and if wholesome or beneficial, they are referred to as positive external effects (Dasgupta, 2014).

Continuing, it is found that especially when common resources are being depleted, people seek for structural changes, which also include the change of rules (Samuelson & Messick, as cited by Ostrom et al., 2014, p.135). The just-mentioned rules refer to what Ostrom (as cited by Ostrom et al., 2014, p. 138) calls ‘artifacts’ that are related to specific actions in determined situations. Rules, including actual laws, can either be established by public institutions, or by private associations, whereby the latter do not hold the authority for legal enforcements. Optimally, rules function to increase reciprocity, clearly and overtly determining mutual commitments. What can also happen however, is that if the costs and benefits are spread iniquitously, the assigned authority destroys the reliance on positive norms (Ostrom et al., 2014, p. 138). Norms refer to internal valuations, which are either added or subtracted to the objective cost of action, depending on whether it is positive or negative (Ostrom et al., 2014, p. 137). The latter depends on the individual which means in return that the very same norms might be perceived to be positive by some people, whereas they appear to be negative for others. Such a difference in perception presents a challenge as it bears potential for conflicts.

Moving on, Ostrom et al. (2014, p.126) investigate how the combination of reciprocity, reputation and trust could present a contribution to avoid yielding the temptation of myopic self-interest. At this place, temptation refers to the option not to cooperate for the sake of an “increase in benefit any co-operator would receive for switching to not cooperating” (Ostrom et al., 2014, p.125). One important factor that highly increases the likelihood for cooperation is communication. Inducing reinforcing processes, communication allows for several benefits, such as the exchange of mutual commitment; an increase in individual trust, affecting the expectations one holds of other people’s behavior; the addition of “values to the subjective payoff structure”; a “reinforcement of prior normative values” and the development of group identity (Ostrom et al., 2014, p.133). Another benefit of communication is the transformation of “information from those who can figure out an optimal strategy to those who do not fully

understand what strategy would be optimal” (Ostrom et al., 2014, p.133). Powerful positions of specific actors can be justified through expertise knowledge (Radelli, as cited by Berardo, 2014, p.702). However, to solely rely on expertise may hinder engagement (Ozawa, as cited by Berardo, 2014, p. 702) and convey the impression to undermine conflicts of interests which could arise when other actors’ inputs are considered and become part of the debate. Conflicts of interests can for example present tensions between citizens and the government, between the differing points of view of individuals and groups, as well as individual trade-offs between selfish short-term benefits and the long-term common good of the general public. Generally, communication and exchanges across various actors can distinctly reveal such conflicts of interests, which require to be handled constructively with careful, strategic considerations and integrity.

Nonetheless, outcomes of comparisons between communication versus non-communication experiments positively confirm that more action within the meaning of the common good could be accomplished when communication has happened (Ostrom et al., 2014, p.133). Frey and Bohnet (as cited by Ostrom et al., 2014, p.143) find that an opportunity to see each other, allowing for face-to-face communication can significantly increase the level of trust which ultimately results in increased levels of cooperation. However, with some cases of failure remaining, it also becomes clear that communication alone does not guarantee for conflict-free collective action to happen (Ostrom et al., 2014, p.133). Thus, what needs to be established are mechanisms, such as monitoring, sanctions and the option of exclusion that amplify individuals trust that others too, will meet their commitments (Ostrom et al., 2014). This can also be regarded as a precipitated approach to overcome remaining conflicts of interests. In order to establish such a system, individuals are even willing to contribute with fees that allow to fine other subjects if necessary (Ostrom, Walker & Garner, as cited by Ostrom et al., 2014, p. 135). Interestingly, and confirming what was mentioned earlier, a combination of sanctions and the possibility to communicate improved the outcomes of ventures in which multiple actors were involved distinctively (Ostrom et al., 2014, p. 135).

This leads to the discussion of *reciprocity*, which commonly refers to the tendency that positive actions of others lead to positive responses (with the same principle applying for negative actions). On top of that, reciprocity can serve as strategy to be used in social dilemmas in multiple ways. These are the identification of who else is involved, the evaluation of whether others cooperate conditionally or not, the making of a decision to initially enter a cooperation with others who are trusted to be conditional cooperators, and lastly the decision to refuse a cooperation with those who are not reciprocating and the punishment of betrayers (Ostrom et al., 2014, p.138). Similarly to what was discussed earlier about the initial levels of trust, people who are truly intending to cooperate also expect higher levels of cooperation than defectors do (Orbell & Dawes, as cited by Ostrom et al., 2014, 142).

Presenting a basic norm, reciprocity is taught in all societies (Beckker, Blau, Gouldner, Homans, Oakerson, Ostrom, and Thibaut & Kelley, as cited in Ostrom et al. 2014, p. 138) and cultures, which obviously can differ in many aspects and provide many unique incidences. The latter fact also explains why there is not one universal reciprocity norm that everyone applies in all situations, but many different kinds, which also affect the trust of individuals, widely determining their willingness to cooperate (Ostrom et al., 2014, p. 138ff.). Such differences

can present another potential source of conflicts. Yet, as soon as many individuals reciprocate, an incentive to derive a reputation of “keeping promises and performing actions with short-term costs but long-term net benefits” (Keohane, Kreps, Milgrom, North & Weingast, and Miller, as cited by Ostrom et al., 2014, p. 143) is being created.

Reciprocity can also be looked at as an identity that individuals create, projecting their norms and intentions (Ostrom et al., 2014, p.146). Building the basis of mutually productive social exchanges (Ostrom et al., 2014, p.143), such reciprocity consequently influences the perceived trustworthiness, or more specifically, the expectations of individuals towards the honesty and reliability of the other people’s actions (Dasgupta, as cited by Ostrom, 2014, p. 143). Dasgupta (2014) even claims that trust forms the very basis for cooperation. Besides communicating, it appears strategically relevant to agree upon a shared formula, respectively a set contribution for everyone, as that puts participant’s reputation at stake, incentivizing them to meet the agreement (Ostrom et al., 2014, p. 145). Eventually, reciprocity, reputation and trust form an inseparable and positively reinforcing triangle which determines the levels of cooperation and the related ultimate net benefit (Ostrom et al., 2014, p. 143f.). However, if one variable of the triangle decreases, it will also negatively impact the other variables involved in this particular model. (Ostrom et al., 2014, p. 144).

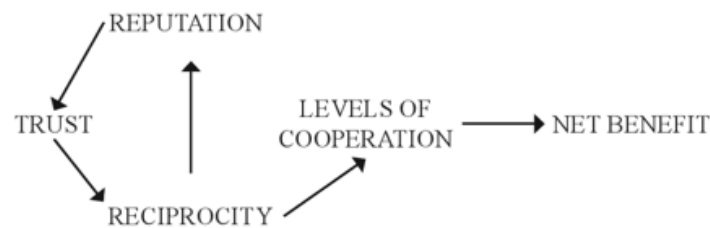


Figure 3: The Core Relationship (Ostrom et al., 2014, p. 144)

Again, Ostrom et al. (2014, p. 152) stress that additional external institutional support in form of sanctions and monitoring remains a necessity, especially with regard to solving common-pool resource problems, where a compromising approach towards certain conflicts of interests can lead to disastrous long-term consequences. Also, culturally embedded sanctions can work as they are the punishment if consensual agreements, which can understand to be social codes of conducts, are not implicitly followed (Dasgupta, 2014).

Common pool resources, are large-scale man-made or natural resources for which it is difficult to ensure excludability, which consequently commonly creates an area of tension, contemplating rational trade-offs and conflicts of interest on the individual- versus, as well as on the group-level (Gardner, Ostrom, Walker, 1990). Next to common pool resources, there are also the categories of private, public and club goods, which are worth introducing at this place, seen that the case under investigation, by the end of the day, affects all the four kinds. Thus, private goods are based on the principle of rivalry, which means that they are excludable, whereas public goods are nor rivalrous, nor excludable and therefore also known as collective goods (Dasgupta, 2014, p.69). Goods that can be collectively consumed, yet are excludable, for example through a membership fee, are known as club goods (McNutt, 1999). It is interesting to notice that when being produced, consumed or used, as well as disposed of,

paradoxically most, if not all, of the so-defined private goods, ultimately impact the other types of goods, which slightly relativities the term *private* good.

3.6. Hypotheses and Conceptual Model

The following section uses the above introduced theoretical background as a fundament to study the extent to which citizen engagement and awareness-raising can contribute to citizens' perceived legitimacy of a tightening of the Dutch firework policy. It will also become clear what is meant when talking about *sustainable* interactive problem solving possibilities in this particular context.

To begin with, the need for a policy tightening has to be recognized. Yet, for it to be implemented, as well as abided by the citizens, it is indispensable that such a tightening of the policy is perceived to be legitimate by at least the majority of stakeholders involved. The tightening of the policy presents the desired output. As mentioned above, the input and throughput legitimacy can enhance the general perception of the output to be legitimate. In those stages, communication is essential. Citizen engagement and awareness-raising are both elements that present forms of communication, allowing for a certain degree of exchange between citizens and governing authorities and institutions.

Being initiated by the government, showing interest in citizens' opinions and knowledge, citizen engagement aspires the mutual understanding and fosters the trust of citizens towards the governments. Consequently, it also serves to pool information from the citizens' perspective, allowing to formulate policies that are in coherence with people's norms, which again increases the perceived legitimacy of the policies. Here, the link with risk-information gathering becomes obvious, as the identification of the respective community's values, as well as socio-cultural contextualization form part of the risk-informed decision-making process (Amendola, 2001, p.28). What enhances the democratic quality of this process, is the fact that citizens, through forms of citizen engagement, participate in it (hence the democratic element) (Tallberg & Zürn, 2019), which again contributes to the desired perceived legitimacy. To ensure that the decisions taken by the citizens are well-considered, they need to be provided with a solid knowledge base. Underlining the latter statement, it is at this place worth to interpose the critique by Ostrom et al. (2014, p. 153) that "we are producing generations of cynical citizens with little trust in one another, much less in their governments", appealing for the provision of additional knowledge for citizens as a necessity to resolve social dilemmas, which themselves present a wide-ranging form of conflicts of interests.

This draws the link to awareness-raising. While the insights gained through citizen engagement can be used as a feedback effect to adapt the kind of information distributed through awareness-raising, awareness-raising itself primarily presents possibilities to provide public access to information that the citizens need in order to make those well-considered decisions. In other words, approaching conflicts of interests, awareness-raising can also be strategically deployed as a manipulative tool, contributing to the neglect of personal preferences or short-term interests for the sake of the common good. Thus, one purpose of awareness-raising is to fill knowledge-gaps, creating a common basis of knowledge, which consequently increases society's sensitivity towards the covered contents (IFHOHYP, 2011). On top of that, awareness can impact the culture and societal values overall and consequently

even citizens' desires and policy needs (Powell, Edelstein & Blanck, 2015). As mentioned above, involving expertise knowledge in decision-making processes can also contribute to the perceived legitimacy (Boswell, 2008). Here again, awareness-raising is a way to share such kind of knowledge with the general public, in a simplifying and clarifying manner. If educational awareness-raising campaigns are politically driven, their effects can increase the pace at which targeted changes are perceived to be legitimate (Powell, Edelstein & Blanck, 2016) and as such can present a persuasive tool contributing to the resolution of conflicts of interest.

It can be argued that citizen engagement is a possibility for citizens to affect the policy-making processes with their input, and can thus be considered as a possibility to influence the perceived input legitimacy. Awareness-raising however, which does not only include the knowledge provision, but also information about current processes to ensure a certain degree of transparency, can be considered to impact the perceived throughput legitimacy. Yet, as these two processes can impact each other, so do they both affect the perceived input-, and throughput legitimacy. Knowing this, awareness-raising and citizen engagement approaches can be seen as a form of an interactive model (Weiss, 1979). This means that policy makers try to build interconnections, amongst others through mutual consultations, with different kinds of people involved in a policy area. The aim is to gather convergent information of present knowledge and opinions to progressively develop a respective policy response (Weiss, 1979, p. 428f.). Furthermore, awareness-raising and citizen engagement are not only possibilities to enhance the perceived legitimacy, but also a great chance to achieve a change in norms and overall culture of the society in question.

Here, it is interesting to discuss what sustainability in the particular context of the policy tightening means. In general terms, it refers to the long-term success of the desired policy tightening, which is why the terms 'sustainable' and 'successful' can be used interchangeably in the context of the case under investigation. Hence, one important aspect is that citizens actually accept and abide the regulation, which is more likely to happen if a just-mentioned modification of culturally embedded social norms succeeds. Another aspect is the long-term perspective and the problem-solving quality of the policy tightening itself. Here, again the risk-information gathering comes into play, which if well-conducted, distinctively increases the policy's robustness towards stressful and uncertain future scenarios (Mendoza et al., 2018). In return, this positively effects the perceived legitimacy of the output overall. Here, Tallberg, Sommerer, Squatrito & Lundgren (2016, p. 1079) distinguish between output, which refers to the policy itself, and outcome, referring to its implementation and the consequential actions, as well as the behavioral changes of the target group.

Continuing, it is worth to look at the policy problem of the case designating it as a social dilemma to be solved with collective action, requiring for communication. Both, citizen engagement and awareness-raising are forms of communication and research has found that "communication has a strong positive effect on cooperation in social dilemmas" (Balliet, 2009, p.53). Hence, it is apparent to return to the model introduced by Ostrom et al. (2014), on which this line of thinking heavily leans on.

A tightening of the firework policy contributes to prevent, or at least to diminish the above introduced hazards and would ultimately affect the society as a whole. Yet, as, again,

there are conflicts of interests which become obvious through diverging opinions, including opponents to whom such a policy tightening would thus counteract their personal interests, and combined with the fact that firework activities affect the common good, the discussion can be regarded to be a social dilemma. To begin with, there are trade-offs between short-term fun, celebrating tradition et cetera, versus harming medium- and long-term consequences. Admittedly, for firework-related businesses, a policy tightening might even cause existential issues. However, alternatives can be developed, and possibly subsidies could be dedicated. Evaluating this particular aspect however, goes beyond the scope of this paper. The challenge is to manage the conflicts of interests, ensuring that the temptations of yielding self-interests can be overcome. To solve this issue, collective action, coordinated through a related policy tightening, enforcing respective rules, is demanded. Such rules, which can be seen as a form of external control mechanism, would in this case be the final formulation of the policy tightening, imposing to collectively decrease, or even stop the production, trade and setting off of consumers: fireworks.

As explained before, it is important that the tightened policy is perceived to be legitimate for a successful implementation of the policy. Here, awareness-raising measures can be used as a tool to arouse and manipulate the general perception of the problem. This goes hand in hand with the finding that “*engagement is also associated with knowledge and policy learning*” (Carlson; Carpenter & Kennedy; Dietz & Cummings; Scholz & Lubell, as cited by Berardo et al. 2014, p. 700). People need to understand and acknowledge the root causes of the issue, as well as why it is beneficial for them to counteract it, which goes hand in hand with realizing the resulting necessity to contribute. For instance, when evaluating which categories of the above introduced goods are negatively affected by fireworks, namely all of them, it becomes clear that the firework-related issues and hazards cannot be regarded isolated, but impact the society as whole. To name a couple of examples, damaged cars present an impact on private goods, the pollution or damaging of private parks and theatre buildings presents an instance of affected club goods, water and the atmosphere that also becomes polluted, as well as the public health hazards illustrate impacts on public goods, and lastly, the common goods of which fish stocks affected by the contaminations present a sample. To be aware of this, is not least important due to the earlier-mentioned fact that people typically seek for change once they realize that common resources are depleted (Samuelson & Messick, as cited by Ostrom et al., 2014, p.135).

Whereas Ostrom et al.’s model, as depicted in ‘Figure 3’, was created observing the behavior and interactions of individuals, the primary focus of this research lies more on the interplay between citizens and the government. Yet, it is not to be forgotten that both obviously are groups of individuals. Nevertheless, to apply the model of Ostrom et al. to the case of the Dutch firework policy issue, the meaning of its subparts will slightly change. Therefore, the components of the model will concisely be translated case-specifically in the following.

To begin with, *trust* refers to the levels of social trust (Dellmuth and Tallberg, 2018) that citizens have in other fellow-citizens, fulfilling their cooperative expectations. Next to that, the perceived legitimacy can be understood as citizens’ trust towards governing authorities, providing the best policy formulation possible, while considering all relevant perspectives, which anon hints at being risk-informed. This directly leads to the next point

which is *reputation*. In the realm of this particular case, it refers to the government's reputation to be reliable in producing the just-mentioned legitimate outcomes. Reputation is also related to the perception of required actions, or non-actions to be good, right and necessary, or in other words, to be legitimate. If such a reputation can be established it becomes part of the social culture in form of a norm, to which all, or at least a great majority of its members commit. Generally, people are prone to adhere to social and personal norms (Dasgupta, 2014, p.49). By not adhering to such norms, in turn the reputation of the individuals, as part of the society, can be put at stake. As a side note, the latter again stresses that such a policy change does not only concern a tightening of the policy, but also an underlying change in the social culture. Obviously, for the mentioned actions, or non-actions to be established as norm, it also matters how many people commit to it, which leads to the third component of the triangle – reciprocity. Here, reciprocity refers to 'the more, the more', meaning the more people act accordingly to the new policy, the more others will start doing so likewise, again increasing the chance for it to become a generally valid norm. Dasgupta (2014, p. 48) describes this as a social propensity, where people respond to good behavior by good behavior in return. Amongst others, such propensities can be developed and amplified through forms of education (Dasgupta, 2014, p. 48), of which awareness-raising can be one of the measures.

It becomes obvious that also in the case-specific 'translated' version of the model, trust, reputation and reciprocity form a mutually reinforcing and intertwined triangle. Altogether, it is determined by ways of communication between the government and the citizens, as well as among citizens, including the exchange of information, as well as the observations of others' behavioral patterns. Moving on, the 'levels of cooperation' in this case, will be translated to the citizens' willingness to accept and abide the policy tightening, which again depends on the perceived legitimacy. Finally, the 'net benefit' in the context of this research refers to the successful prosecution of the desired collective action, or non-action, as a reaction to an implemented policy tightening, deemed to be right. Once more, this goes together with respective norms that become socio-culturally embedded. It could be framed to be a shared formula and set contributions, manifested in the tightened policy.

The below-shown figure presents a visualized summary of the main coherences, when assuming that the theory pans out optimally. Overall, citizen engagement provides insights to the policy-makers about citizens' respective perspectives, needs and expectations, as well as possibly reveals conflicts of interests and new relevant aspects or risks that were not yet taken into account. Furthermore, it enhances the feeling for citizens to be heard by the political arena, and even invite to co-create to a certain extend. On top of that, awareness-raising measures will lead to a clearer understanding of the issue by the citizens. Altogether, this provides opportunities to establish trust, as well as to optimize the basis of information available to develop an encompassing and considerate policy solution, which will then hopefully be widely accepted, evocating an incremental and sustainable, as opposed to myopic, change in culture.

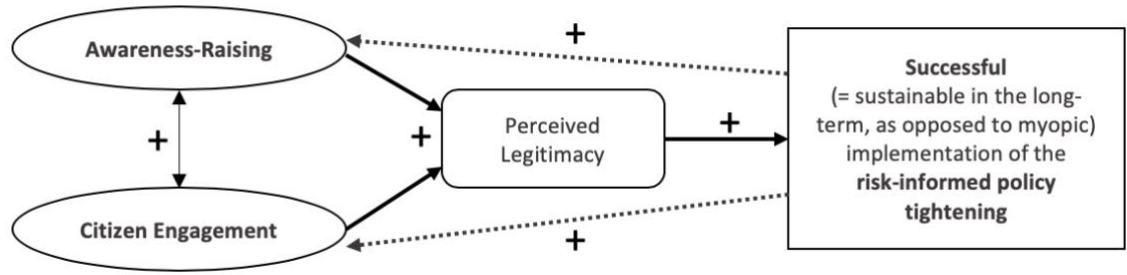


Figure 4: Summarizing Visualization of Coherences

The ultimate outcome presents the major motivation to investigate its underlying precondition – citizens’ perception of the policy tightening to be legitimate. Consequently, and due to the limited scope of this research, the focus will lie on the question to what extent citizen engagement and awareness-raising can contribute to the perceived legitimacy, which presents the prerequisite for the introduced long-term outcome as desired by the policy-makers. As touched upon above, this is because the policy tightening needs to be perceived as legitimate as a precondition to induce the underlying change of culture. In return, the latter is key for the successful long-term decrease, or even diminishment of the firework-related issues that present the initial motivation for the tightening in the first place. Hereafter, the respective hypotheses distilled on the basis of the discussed backgrounds will be presented.

3.7. Main Hypotheses

Main Hypothesis I: Citizen engagement positively affects the perceived legitimacy.

Explanation: Inviting citizens to participate in the policy-making process to some degree, citizen engagement provides and “*opportunity for public input and comment*” (SFERTF, as cited by Berardo et al., 2014, p. 700). The interactive exchange between the political authorities and the general public enhances the ideation process (Lodewijckx, 2019) and allows for a better understanding of the societal needs and demands which also promotes trust (Figueiredo Nascimento et al., 2016, p.3). Consequently, this drastically increases the chance to deliver a policy response that is tailored to those demands (Figueiredo Nascimento et al., 2016, p.3), as well as increases the levels of trust between the citizens and the policy-makers. Through being involved in the process to a certain extent, even a sense of policy outcome ownership for citizens can be created. Altogether, this positively affects the perceived legitimacy of the policy.

Main Hypothesis II: The effect of citizen engagement on the perceived legitimacy is mediated by conflicts of interests.

Main Hypothesis II. a): As citizen engagement increases, so do the conflicts of interests.

Main Hypothesis II. b): The rise in conflicts of interests ultimately negatively affects the perceived legitimacy.

Explanation: Citizens as individuals, or in form of representative groups, hold different opinions about the same kind of topic, which lead to the emergence of tensions and conflicts

of interests. Through the interactive exchanges between the governing institutions and the citizens during citizen engagement processes, these conflicts of interests are revealed and become more obvious. On top of this, many of the citizens' standpoints are not aligned with the government's point of view. As the government nonetheless works towards, or even adopts a policy that it deems to be right, citizens with opposing interests will feel unheard and ignored, which fuels the conflicts of interests, as well as diminishes the perceived legitimacy, or destroys any chance for it to be established in the first place. Consequently, when citizen engagement is mediated by conflicts of interests, it negatively affects the perceived legitimacy.

Main Hypothesis III.: Awareness-raising moderates the effect of the conflicts of interests on the perceived legitimacy, reducing the negative impact of such conflicts of interests on the perceived legitimacy.

Explanation: Assuming that the policy presents the best solution possible, taking all kind of aspects into consideration, awareness-raising measures can be used strategically “to increase society's sensitivity” (IFHOHYP, 2011, p.8) towards the issues approached by the policy solution. By providing relevant information, knowledge-gaps can be filled and a common basis of knowledge is created. This allows for citizens holding interests that conflict with the policy's contents to develop an understanding for the policy to actually be legitimate, despite their personal interests. On top of that, awareness-raising campaigns that are politically driven can accelerate the pace at which targeted changes are perceived to be legitimate (Powell et al., 2016, p. 237). Overall, awareness-raising can thus positively impact the perceived legitimacy-decreasing effects of the conflicts of interests, ultimately increasing the perceived legitimacy.

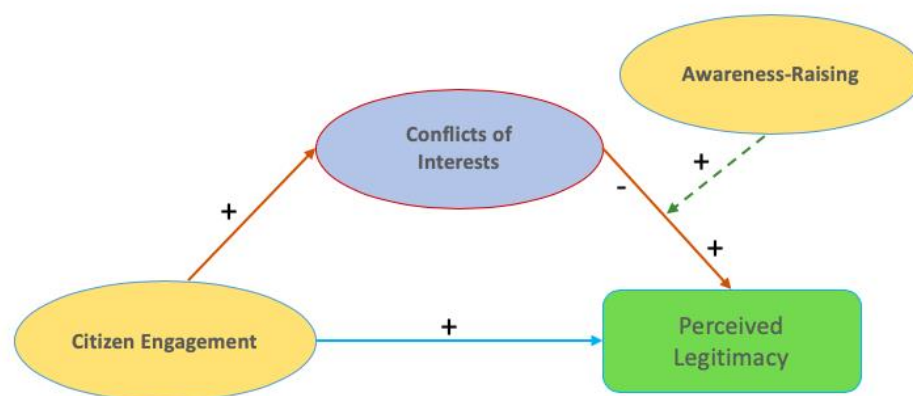


Figure 5:: Model of the Hypotheses

Altogether, the optimistic assumption is that citizen engagement reveals conflicts of interests, which are constructively moderated through the tool of awareness-raising measures. Together, citizen engagement and awareness-raising measures ultimately increase the perceived legitimacy of policies.

3.8. Alternative Hypothesis

Citizen engagement reveals conflicts of interests, which cause destructive tensions that cannot be moderated by awareness-raising measures in a manner that reduces the negative impact on the perceived legitimacy.

To avoid confusion, it is to be mentioned that 'Figure 5' does not intend to be a modified version of 'Figure 4'. Whereas 'Figure 4' presents a summary of the body of literature presented, 'Figure 5' visualizes the hypothesis, including the additional assumed coherence with the conflicts of interests.

Further clarifying, the perceived legitimacy refers to the perceived legitimacy of a policy tightening of the Dutch firework policy by the citizens. The conflicts of interest refer to the fact that citizen engagement efforts aiming for collaboration do not eliminate the occurrence of conflicts. Repeating what was mentioned earlier, one of the motivations to deploy citizen engagement approaches is to pool information from the citizens' perspective in order to formulate policies that are in coherence with community norms. However, it has to be kept in mind that there is not one perspective or norm that is unitarily valid for all citizens, but multiple, possibly conflictual, ones. So, the conflicts of interests related focus in the context of this research lie in the clashes amongst citizens, as well as between the citizens and the governments, rather than on the individual level where primary and secondary interests (Lo & Field, 2009) collide. In fact, "quality engagement coexists with conflict" (O'Leary and Bingham, as cited by Berardo et al., 2014, p.701). Yet, conflicts, or more specifically conflicts of interest, are not necessarily of negative nature, but can also lead to productive exchanges and reconsiderations. Also, awareness-raising measures, sharing relevant information, as well as expert's findings and estimations, can help to make the policy-making process more understandable and transparent in a constructive manner. As Ostrom et al. (2014, p. 263) say: "The conduct of any viable enterprise depends on knowledge, skill and intelligibility among those who constitute the enterprise." However, if such conflicts of interest are not openly discussed, nor receive any attention, they can be rather precarious. Citizen who do not see their interests reflected in the policy tightening, might feel unheard and even ignored. This might lead to responses of defiance and will certainly not contribute to the perceived legitimacy of the policy tightening. In this case the effects of citizen engagement would be rather destructive, as opposed to being of added value as primarily intended by the initiators (Ostrom et al., p. 246).

With regards to the variables used in the hypotheses, it becomes clear that citizen engagement functions as independent variable and the perceived legitimacy as dependent variable. In this particular context the relation between the two is partially mediated by the conflicts of interests. Presenting a constructive possibility to deal with conflicts of interests, awareness-raising as a qualitative moderator variable determines the ultimate effect on the perceived legitimacy. How those variables are operationalized will be discussed in the 'Research Design and Methodology' section.

4. Research Design and Methodology

4.1. Case Selection

This qualitative research project presents a single-case study, focusing on the concepts of citizen engagement and awareness-raising, as well as their interplay and effect on citizens' perceived legitimacy of a tightening of the Dutch firework policy. In other words, the project presents an intensive study of multiple concepts and variables of a single case (Toshkov, 2016). The mechanisms and causal relationships of the above-introduced concepts will be applied to the specific case of the Dutch firework policy debate. Being of revelatory (Ishak & Bakar, 2014, p.31), as well as explorative character, the research will focus on the explanation of causal mechanisms, rather than purely on the outcome (Toshkov, 2016).

More specifically, the overall universe or population of this research is the Netherlands, including social workers, companies, all citizens and residents, as well as the government, with a particular focus on the latter two. The case under investigation, which at the same time presents the basic unit of observation and analysis (Toshkov, 2016, p.109), is the contemporary Dutch firework policy debate. The subsets selected as samples (Toshkov, 2016, p. 111) are on the one hand, the interview respondents, amongst which representatives of relevant ministries, legal experts, developers of citizen engagement projects and tools, a field research institute, as well as several municipalities. On the other hand, also the participants' responses of an online consultation on the tightening of the firework policy, initiated by the 'Ministry of Infrastructure and Water Management' (Parlementaire Monitor, ANP & PDC, n.d.), will serve as samples. The outcomes of this online consultation are divided into responses by organizations and responses by private persons.

Altogether, this research project presents a single case, studying several variables (Toshkov, 2016, p.125), with the help of multiple informative sources and the analysis of well-considered samples. The main motivation to choose for a single case study design, is the context-specific real life relevance of the contemporary firework policy debate in the Netherlands. Allowing for a holistic approach, a single case study "explores a real-life, contemporary bounded system [a case] ... through detailed, in- depth data collection involving multiple sources of information" (Creswell, 2013, p. 97). This intention to unveil insights, applicable for the real-life case, outweighs the occurrence of a low external outcome validity that could otherwise be guaranteed to a greater extent when applying a comparative, multiple-case research design. What could however be interesting for future researches, exceeding the scope of this project, is the comparison with other countries, such as Ireland or Australia, that handle firework activities much more restrictively, to examine what can possibly be learned and integrated from their examples.

The motivation to set up this research stems from a general interest in the broader phenomena of the concepts presented, combined with the assumption that a tightening of the firework policy serves a positive contribution for the common good. Moreover, the interest in that particular policy emerged from personal experiences and observations during several changes of the year that appeared to be careless and paradox. Such experiences involved firework-related accidents, provocative fights among citizens, as well as with police officers and social workers, malicious damages, public places that were left behind covered in trash

and sceneries with a heavily smoggy atmosphere. These aspects of the research motivation were discussed in more detail in the section about the *case*. The country-specific choice can be explained by the momentary residence situation of the researcher, which is in The Hague, as well as by the fact that it currently is a frequently discussed topic in the Dutch socio-political arena.

4.2.Data Collection

The above introduced four variables (citizen engagement, conflicts of interests, awareness-raising and perceived legitimacy) and their relationships will be analyzed within the realm of, and applied to the case of the contemporary Dutch firework policy debate in order to evaluate to what extent citizen engagement and awareness-raising can contribute to citizens' perceived legitimacy of a tightening of the policy.

At the very beginning, naturalistic observations during the turn of the year were made and many conversations with different Dutch citizens and long-term residents were held. To actually start the research project, relevant existing theoretical knowledge about the above discussed concepts was distilled from a selection of secondary literature as presented in the *concepts and theoretical framework* section. Next to that, discussed in the *case* section, real-live case-specific information was collected from openly accessible data of domestic research institutes and ministries, as well as from investigative journalists, different kinds of news sources, documentaries and podcasts. Altogether, that formed the basis to derive the related hypotheses, as well as to collect further primary data, aiming at the expansion of insights, as well as at the deductive testing of those hypotheses (Mosley, 2013, p.7).

For this purpose, semi-structured interviews with representatives of relevant ministries, legal experts, developers of citizen engagement projects and tools, a field research institute, as well as municipalities were held. More specifically, the representatives interviewed were, an environmental expert and a risk and society researcher from the RIVM; a research advisor from the I&O research institute; an advanced law research student who also is involved in environmental policy research projects; an assistant professor of the Tilburg law school, the marketing director and the market manager of IMAGEM; the head of political affairs, administration and events of the municipality of The Hague, two executive representatives of the municipality of Leiden with functions related to public affairs and safety; a safety advisor from the municipality of Enschede; a juridical advisor for safety and living of the municipality of Maastricht; an advisor for external safety of the science center, InfoMil; and finally a strategic concernment and safety advisor of the municipality of Rotterdam. Elaborations about the motivations for the specific interview contacts choices, as well as a response rate overview can be found in the appendices.

Altogether, 36 ministries, organizations, municipalities, companies, stakeholder associations and experts were contacted with the request to be interviewed. Ultimately, twelve interviews with fourteen people could be conducted. Two of the interviews were held independently from each other with representatives of the same institution, the RIVM. Strictly speaking that means that eleven of the initial 36 requests were successful, translating to a response rate of 30,56%. It is to be considered that the timing of the interview requests happened to be just towards the beginning of the COVID-19 crisis in the Netherlands, which

was strongly prioritized by many of the potential interviewees and thus impacted the response rate. Generally, it is difficult to evaluate possible biases as “low response rates produce bias only to the extent that there are differences between responders and non-responders”, which logically cannot be observed (Rindfuss, Choe, Tsuya, Bumpass, & Tamaki, 2015, p. 798). Further elaborations on the motivations for the specific interview contacts choices, as well as a response rate overview can be found in the appendices.

The reason to prepare and work with semi-structured interview questions is that they allow for respondent-tailored adjustments, to spontaneously pick up on unexpected and unforeseen, yet interesting segues, as well as to pose deepening follow-up questions. Overall, this gives the opportunity to transform the interview into more natural, highly informative conversations, rather than following strictly prescribed patterns in whose frame interviewees commonly do not feel invited to narrate and report their experiences freely. The sampling process for the interviews is not fully randomized, but presents a careful and purposive (Mosley, 2013, p.13) selection of representatives and experts who could contribute with insights and information relevant for the research. Here, it is to be considered that interviews present an opportunity to get access to information, such as shared experiences, motivations and the reasons for expectations et cetera, that could not be distilled in such depth from publicly accessible sources (Mosley, 2013, p.9). In other words, interviews allow to gather ‘rich data’ that contributes to the creation of a more complete picture of the studied state of affairs (Becker, as cited by Maxwell, 2005, p.167). Altogether, the points mentioned present the motivations behind the choice to collect additional data through interviews instead of surveys. Furthermore, the possibility to capture discursive and complex information channeled towards the specific concepts and their hypothetical coherences of this particular research project explains why the gathering of data beyond the existing sources is determined to be of vital importance.

Applying a triangular measurement approach (Maxwell, 2005, p.169), the research in addition also includes an analysis of a case-related online consultation, initiated by the Dutch ‘Ministry of Infrastructure and Water Management’ (Parlementaire Monitor, ANP & PDC (n.d.)), as well as a concise consideration of process-tracing elements, such as the development of policy support trends. Concludingly, the outcomes of this approach were analyzed and coded for significant patterns to eventually discuss them, as well as to draw final conclusions.

Certainly, the contemporary Dutch firework policy debate is influenced by many factors which, due to a limited scope, cannot all be taken into account. Hence, it cannot be avoided that several limitations and risks of data distortion remain. With regard to the interviews, it is important to keep in mind that some evidence provided by the interviewees might be intentionally misleading or held back to remain unexposed (Toshkov, 2016). In order to widely avoid concerns about discretion and confidentiality, it was determined whether shared data is preferred to be processed anonymously through an informed consent form upfront. Even though, the interviewees were selected strategically, due to the qualitative character, there is no guarantee that their shared insights are typical, which is referred to as “*key informant bias*” (Pelto & Pelto, as cited by Maxwell, 2005, p.135). Since, the researcher interacted with the interviewees when asking them questions, the additional validity threat of a self-report bias is present as well (Maxwell, 2005, p.170). In order to minimize the latter, questions were kept rather short and simple, and leading questions were avoided. Next to that,

there also is an *actual* influence that the researcher has on the interviewees, causing so-called “reflexivity” issues, which naturally cannot be eliminated (Hemmersley & Atkinson, as cited by Maxwell, 2005, p. 166).

Moving away from the validation issues of interviews, the influence that the researcher, as subjective individual, has on the study overall, is known as “reactivity” (Hemmersley & Atkinson, as cited by Maxwell, 2005, p. 165). Continuing, it needs to be noted that mechanistic inferences about the interactions and causal relationships of the concepts are not empirically observable and therefore in the strict sense remain uncertain (Toshkov, 2016, p.151). Also, in single case studies, it continues to be difficult to state with certainty whether direct coherences are actually causal or just collateral (Toshkov, 2016, p.305). Overall, all sources bear a chance to be biased or incomplete. With regards to the sampling frame, the determination of a saturation point (Ishak & Bakar, 2014, p.30) presents another challenge, as it is impossible to know whether and when all possible aspects and coherences of the phenomena of interest are unveiled and covered. Yet, as multiple overlaps and repetitions could be found, there is reason to be confident that the number of participants in combination with the other data analyzed allows for case-specific explanations. Furthermore, the fact that this research investigates a contemporary issue can lead to the struggle of lacking relevant information that might not yet be classified (Toshkov, 2016). However, the main limitation of qualitative single-case studies is that the sampling procedure is none of strenuous randomization (Ishak & Bakar, 2014, p.29) and that the findings consequently cannot be considered to be valid for other cases as well (Toshkov, 2016). Hence, the level of generalizability, respectively the external validity, is relatively low and requires for further testing across other cases to be increased, whereas the internal validity is of solid nature (Toshkov, 2016).

4.3. Operationalization

The main concepts addressed are *citizen engagement* as independent variable and the *perceived legitimacy* as dependent variable. On top of that, conflicts of interests will be studied as mediating variable between the citizen engagement and the perceived legitimacy, and awareness-raising as moderating variable between the conflicts of interests and the perceived legitimacy. In order to detect, measure and classify the just-mentioned abstract concepts of the research-specific hypotheses in the empirical world, forms of measurable variables will be determined (Toshkov, 2016, p. 96 & 100f.). Here, it needs to be distinguished between indicators, which can be translated into measurable variables directly, and detectors, which are not precisely measurable but help to detect the presence or absence of the concepts. In political sciences, it is commonly seen that concepts are intangible, abstract, or even dispositional and lack of direct correspondence with observable indicators. (Toshkov, 2016, p. 101). With regard to the concepts of this particular project, it thus will mostly be worked with detectors as a means of measurement. Exemptions present the indications of an actual presence of citizen engagement and awareness-raising projects, as well as the number of conflicting interests identified.

Citizen engagement can be directly identified through the presence of citizen engagement approaches, such as case-related consultations, ‘Do It Yourself’ (DIY) possibilities, citizen science and invitations for collaborations that are initiated by the

government and allow for citizens to engage in the decision making process to a certain extent. In the interviews, it here was asked whether there was familiarity with any topic-related citizen engagement projects or whether suchlike are developed or even already established and made available. Continuing, there also are more indirect and abstract ways that can indicate the presence of citizen engagement. Gaventa & Barrett (2012, p.2399) analyzed 100 studies conducted across 20 countries which, amongst others, all focused on the dynamics and meanings of citizen engagement. Finding 800 examples of citizen engagement outcomes, the authors distill 4 main categories, which are the ‘the construction of citizenship’; ‘the strengthening of practices of participation’; ‘the strengthening of responsive and accountable states’; and ‘the development of inclusive and cohesive societies’ (Gaventa & Barrett, 2012, p.2399). Each of those categories presents desired or positive outcomes, as well as risks or negative outcomes, which are listed in the table below.

Positive	Negative
<i>Construction of citizenship</i>	
Increased civic and political knowledge	Reliance on knowledge intermediaries
Greater sense of empowerment and agency ¹	Disempowerment and reduced sense of agency
<i>Practices of citizen participation</i>	
Increased capacities for collective action	New capacities used for “negative” purposes
New forms of participation	Tokenistic or “captured” forms of participation
Deepening of networks and solidarities	Lack of accountability and representation in networks
<i>Responsive and accountable states</i>	
Greater access to state services and resources	Denial of state services and resources
Greater realization of rights	Social, economic, and political reprisals
Enhanced state responsiveness and accountability	Violent or coercive state response
<i>Inclusive and cohesive societies</i>	
Inclusion of new actors and issues in public spaces	Reinforcement of social hierarchies and exclusion
Greater social cohesion across groups	Increased horizontal conflict and violence

Table 1: Outcomes of citizen engagement (Gaventa & Barret, 2010, p.2400)

It can be argued that any occurrence of the above categorized outcomes, could point towards the presence of citizen engagement. At the same time, the fact that all of the positive outcomes listed would positively impact the perceived legitimacy qualifies this approach to be interesting for this study. Here, a couple of exemplary links will be drawn with points discussed in earlier sections. The “greater sense of empowerment and agency” (Gaventa & Barret, 2010, p.2400) reminds of the sense of policy outcome ownership (Figueiredo Nascimento et al., 2016, p.3). An “increased capacity for collective action” (Gaventa & Barret, 2010, p.2400) goes hand in hand with the necessity for collective action in order to reach outcomes in the interest of the common good (Ostrom et al., 2014). The “enhanced responsiveness and accountability” (Gaventa & Barret, 2010, p.2400) underlines the opportunity “for public input and comment” (SFERTF, as cited by Berardo, Heikkila & Gerlak, 2014, p.700) for citizens, as well as the opportunity to deliver better policy responses for the government (Figueiredo Nascimento et al., 2016, p.3). Lastly, the positive outcome of a “greater social cohesion across groups” (Gaventa & Barret, 2010, p.2400) can be linked to the finding that citizen engagement project can contribute to mutual understanding that helps “to remove barriers to joint action” (Chwe; Kim & Bearman; Oliver & Myers, as cited by Berardo et al. 2014, p. 700).

Whether or not *awareness-raising* approaches are deployed can be determined through whether or not case related socio-politically driven, deliberate information spreading initiated

by the government are present. Such spreading of information can happen in form of campaigns, info sheets, events, workshops, as well as through direct conversations. This was also discussed during the interviews. Depending on the interviewee, it was asked for the familiarity with any awareness-raising projects known as such, about the familiarity with other forms of case-related educative, about cautionary information noticed or whether such projects are applied or developed and if so, what suchlike entail. Furthermore, also the assumed reasons for the general trend (Kanne & van Engeland, 2020) towards supporting the Dutch firework policy tightening was discussed, supposing that answers could possibly hint at awareness-raising measures. Most operationalization approaches for the variable of awareness-raising, as developed in the realm of other research projects, stem from education-related fields and are not found to be appropriate for this specific context.

Generally, changes in behavior and social values can be indications of actual awareness-raising impacts. Yet, it appears difficult to confirm these impacts in the short-run as the manifestation of such changes requires to be observed over a longer period of time (O'Loughlin & Wegimon, 2007, p. 31f.). Basically, whenever intended case-related learning processes (Kisić & Tomka, 2018) can be identified, it may present an indicator for awareness-raising to happen. Here, in the interviews it was asked for the personal, as well as the representative collective point of view on the topic of fireworks, as well as whether that might have changed over time. What should not be forgotten is that, similarly to what was mentioned for citizen engagement, the outcomes of awareness-raising are commonly a “product of complementary efforts by many different initiatives” (O'Loughlin & Wegimon, 2007, p. 31).

Conflicts of interests can be detected by identifying a number of clashing interests. In the context of this research, this refers to the differing interests on the individual level between citizens, and on the group level between representative groups of citizens, amongst different political parties and experts, as well as between the government and citizens. One straight forward way to identify conflicting interests, is to compare the standpoints of different agents to evaluate whether they align or show inconsistencies that point towards conflicts of interests. Thus, this presents a further motivation to have asked interviewees for their points of views about the Dutch firework policy debate. More globally speaking, attention should be paid to any kind of tension and goal conflict, arising from contradictions between interests (Worren, 2018, p. 120). Another point that should raise particular alertness towards potential conflicts of interests are any signs of lacking objectivism (Lewicka-Strzańska, 2018), which can be especially interfering in the realm of public issues that are concerned with the common good, commonly requiring the undermining of some individual circumstances and perspectives. Here, Worren (2018, p.120) talks about competing demands of different stakeholders which result in conflicting logics. Another point to consider, which in the realm of this study can play a role, particularly for firework-related businesses, are incompatible demands with regards to commodity acquisition and control (Worren, 2018, p.120). What also serves as an indication for conflicts of interests is the occurrence of careless, or even intended violations of the existing policy and governmental, case-related security advises. What remains difficult to unveil are possible deliberately undermined conflicts of interests, as well as possible confusions of misunderstandings, caused by a lack of information and, or communication, that are nonetheless accounted to be actual conflicts of interests. Nonetheless, to understand conflicts

of interests “as a deviation from policy paths that have as their ultimate goal the greater good, or, at the very least, the effective provision of a public good” (Ochoa & Graycar, 2015, p.89) that consequently invites a policy (Ochoa & Graycar, 2015, p.89), the importance to pay attention to them becomes distinct once more.

The *perceived legitimacy* of the policy tightening can be operationalized by the levels of citizens’ trust, or as Dellmuth and Tallberg (2018) suggest the “*confidence*” towards the government and its law-making bodies. Again, the interview question about the general opinion on the firework activities in the Netherlands, was included with the ulterior motive that respondents could touch upon points that allow to gain insights about their perceived legitimacy of the policy tightening. Furthermore, the statistics about the current trends regarding the extent to which the policy tightening finds support (Kanne & van Engeland, 2020) serve as an indication. On top of that, respondents were asked about what they assume to be the reasons for that trend to be widely, supportive of the policy tightening which implicitly leaves room to express whether the trust in the government might also play a role. Zooming in, different levels of legitimacy perception can be established.

Firstly, simply recognizing the contents of the policy tightening to be legitimate form the basis. Secondly, actively supporting the policy tightening despite possibly opposing personal interests. Thirdly, on top of the just mentioned two, ratifying the policy tightening and taking actions to convince others of the legitimacy of the tightening. Levi, Sacks & Tyler (2009, 354ff.) operationalize legitimacy into value-based legitimacy, which entails a “*sense of obligation or willingness to obey authorities*” and consecutively translates into “*actual compliance with governmental regulations and laws*”, referred to as behavioral legitimacy. Similarly to the above-mentioned manifestation of behavioral changes, such a willingness or actual compliance is only measurable in the medium or long-term and post policy adaption, which exacerbates to make valid claims, outcomes could not yet be observed over a longer period of time. Another point to be considered is that the outcomes can differ per individual, which would require for a sophisticated individual-level methodology (Weatherford, 1992, p. 149). This is generally difficult to establish and exceeds the scope of this paper.

Furthermore, the coherences between the concepts as presented in the three main hypotheses are challenged. Firstly, whether citizen engagement does indeed positively affect the perceived legitimacy is detected by gathering insights on whether citizen engagement approaches increase citizens’ trust towards policy making bodies and on whether they cause a sense of “*policy ownership*” (Figueiredo Nascimento et al., 2016, p.3). Specific indications for the latter would be if citizens identify their own topic-related attitudes with the policy, and, or develop a sense of responsibility for it. As mentioned above, the interviews discussed whether respondents know, provide or develop any topic-related citizen engagement projects, as well as for the related motivations and hopes, either as provider or participant. Furthermore, it also was directly asked whether citizen engagement approaches do or can impact citizens’ perceived legitimacy of the Dutch firework policy tightening.

Secondly, whether the relationship between citizen engagement and perceived legitimacy is mediated by conflicts of interests is indicated by the number of clashing interests that emerge or become revealed through citizen engagement approaches. Indications can for instance be withdrawn from an analysis of case related citizen consultation responses. Whether

such conflicts of interests ultimately negatively affect the perceived legitimacy can be detected through possible uttered frustration about a non-alignment of interests or the feeling of being unheard, as well as through emerging mistrust in the democratic policy making processes. In the interviews, it was specifically discussed whether citizen engagement approaches can also increase or unveil conflicts of interests and whether that in return would negatively impact the perceived legitimacy.

Thirdly, whether awareness-raising, as a moderating variable, can decrease the negative impact of conflicts of interests on the perceived legitimacy can be detected through an increasing alignment of interests, indicated by changes of point of views from dissenting to compliant. Here, interviewees were asked about their familiarity with any topic-related awareness-raising projects, as well as whether suchlike impact the perceived legitimacy, and possibly serve as contributing means to solve or reconcile conflicts of interests.

With regards to citizen engagement and awareness-raising, it needs to be kept in mind that each initiative is unique and would optimally require to be assessed individually, tailored to the respective motivations and objective (O'Loughlin & Wegimon, 2007, p.30). Also, in order to measure their range, the number of people reached could be traced back. However, both of the just mentioned exceed the scope of this research. Generally, all outcomes can be influenced by moral and ethical ascendancies on people's behaviors and perspectives, possibly distorting their true intrinsic point of views.

Next to the possible weak point mentioned above, there would technically be more room for improvement. One further method of data collection considered was to start country-wide surveys to get a more profound picture of citizens' opinions, attitudes and perceptions concerning the Dutch firework policy tightening. In order to investigate the effects and coherences amongst citizen engagement and awareness-raising, as well as with citizens' perceived legitimacy and on how they can impact and navigate related conflicts of interests in more depth, it could be interesting to look into marketing psychology, as well as the human psyche and cognitive patterns. This could possibly be informative with regards to exploiting the potential of using citizen engagement and awareness-raising projects as strategic tools to a fuller extent. However, the limited scope of the study did not allow to include this kind of research here, yet it may be considered for related future research.

4.4. Analytical Strategy for the Interview Transcripts

In order to be able to present the outcomes of the interviews in a structured manner, as well as to analyze them in conjunction with the theory, a coding scheme was developed. This scheme is divided into five tables. The first four tables (table 9-12) present superordinate themes, which are citizen engagement (table 9), awareness-raising (table 10), conflicts of interests (table 11) and the perceived legitimacy (table 12). On top of that, the tables are segmented with further subordinate themes, which are respectively chosen indicators and detectors. For each theme several representative listings and quotes were distilled. The fifth table (table 13) presents other emergent themes that appeared frequently and were not considered beforehand, yet are estimated to relevant for the research project.

To begin with, the interview transcripts were carefully studied on the basis of the above introduced operationalization approaches. During the interviews, relevant and striking

statements were highlighted, and notes were taken when connections with the theories could be discovered. Afterwards, it was pondered which of those operationalization approaches were most suitable for the actual contents of the interviews, how they could be adjusted appropriately, as well as whether any other themes should be added. Once determined, the transcripts were carefully read multiple times again to extract the statements highlighting, provoking, or challenging the themes. In the following the choice of themes will shortly be justified.

For the concept of *citizen engagement*, the first subordinate theme covers the ‘citizen engagement projects mentioned’, serving to create an overview of actual firework-related citizen engagement projects present. The following three themes lean heavily on the operationalization approach of Gaventa and Barret (2010, p.2400), as introduced above. They all are adjusted according to the patterns noticed in the interview transcripts. Firstly, the theme *increased civic and political understanding & giving audience* is an adjusted version of Gaventa and Barret’s (2010, p.2400) “increased civic and political knowledge” category of the “construction of citizenship rubric”. The addition of ‘giving audience’ stems from the repeated remarks on how impactful it can be if people do, or do not feel heard. Secondly, the theme *signs of acknowledging the necessity for collective action & solidarity* presents an adjusted version of Gaventa and Barret’s (2010, p.2400) “increased capacities for collective actions” category of the “practices of citizen participation” rubric. Thirdly, the theme *responsive and accountable state and municipalities* presents an adjusted version of Gaventa and Barret’s (2010, p.2400) rubric on “responsive and accountable states”. Since, this particular research project investigates a domestic case, *states* obviously had to be changed to the singular form of *state*, and *municipalities* is an addition that appeared to be appropriate as local governments also play an important role in the context of this research, as well as because some respective representative were amongst the interviewees. The last subordinate theme for the concept of citizen engagement is *reach* as interviewees frequently drew attention to the challenge of actually reaching a sufficient number of people for the projects to be of any meaningful effect at all.

For the second concept, which is *awareness-raising*, again, the first subordinate theme covers the *awareness-raising projects mentioned*, serving to create an overview of actual firework-related awareness-raising projects present. The other subordinate theme covers the *changes in attitude/ behavior* as this typically presents the underlying goal of awareness-raising and thus yields information with regards to its level of success.

With regard to the third concept, *conflicts of interests*, once more, the first subordinate theme simply presents the “conflicts of interests mentioned” to get an idea which kinds of conflicts and potential conflict herds are to be considered in the context of the Dutch firework policy debate. The second subordinate theme chosen are “policy violations” as such unveil a very obvious form of conflict of interest.

The last concept, *perceived legitimacy*, is divided into four subordinate themes. Firstly, *trust/ confidence in the government/ the policy tightening* leans on Dellmuth and Tallberg (2018) who determine confidence to be indicative for legitimacy. Secondly, *signs of recognizing/ obeying/ supporting the tightened policy contents* simply make show whether the policy is respected and supported or not. Thirdly, the theme of *compliance with the*

governmental regulations is basically taken over from Levi, Sacks and Tyler's (2009, 354ff.) approach of operationalizing legitimacy into value-based legitimacy. The fourth and last subordinate theme *sense of policy ownership* leans heavily on the idea of "policy ownership", as presented by Figueiredo Nascimento et al. (2016, p.3). Here, it refers to incidences where a direct connection between citizens' input and policy content can be seen, as well as to some kind of freedom of choice created for the citizens to feel in control to a certain extent.

Other frequently emergent themes, deemed to be relevant and presented in the last table, are the *ignorance* of facts by individuals, the *age* of people using fireworks, also disregarding the related policy, and the frequently put forward remark that a successful policy change is a 'matter of time'.

In the following, exemplary excerpts of the coding scheme tables (table 9-13) will be presented. A completed version of the coding scheme is to be found in the Appendix III. Generally, it needs to be mentioned that overlaps occurred and that many of the statements assigned to one particular concept, or subordinate theme could as well be linked to another.

Table 2

Superordinate Theme: Citizen Engagement

Subordinate Themes	Listing/ Representative Statements
Citizen engagement projects mentioned	<ul style="list-style-type: none"> • Surveys • Air quality measurement (citizen science) • (Geo-tracked) applications to submit (anonymous) reports
Increased civic and political understanding & giving audience	<i>"Because you engage the citizens in the process, they really learn about it and also we believe that the municipality learns what the people think and what they perceive as the truth."</i> (Representative 1 of the RIVM)
Signs of acknowledging the necessity for collective action & solidarity	<i>"It is a bit of a social dilemma. It's fun to use fireworks, but if we all do it, it starts to become a problem. Collaboration by everybody is needed to tackle that problem, which is quite difficult."</i> (Representative 2 of the RIVM)
Responsive and accountable state and municipalities	<i>"Communication between citizens and the government can have a big impact. [...] Most of the time, such communication is one-way. [...] ...you never get to hear whether the problem could be solved."</i> (Representative 1 of IMAGEM); <i>"...let citizens know what is happening..."</i> (Representative 2 of IMAGEM)
Reach	<i>"But looking at how many people we [the RIVM in the context of the citizen science "measuring together" project] reach, that's a relatively</i>

small group as compared to the Netherlands as a whole.”
(Representative 1 of the RIVM)

Table 3

Superordinate Theme: Awareness-Raising

Subordinate Themes	Listing/ Representative Statements
Awareness-raising projects mentioned	<ul style="list-style-type: none"> • Talking to people face-to-face • (Social media) campaigns • Take groups of citizens to accompany the social workers to become a clearer picture of how it is like
Changes in attitude/ behavior	<p><i>“It’s a hot topic and people talk about it a lot. Only a couple of years ago, more people were against a tightening as they perceived it to be part of a tradition and wondered why that would be taken away from them, whereas in many countries it’s not actually allowed at all. Over the time, all this information just rippled down in society.”</i> (Representative 1 of the RIVM)</p>

Table 4

Superordinate Theme: Conflicts of Interests

Subordinate Themes	Listing/ Representative Statements
Conflicts of interests mentioned	<p><i>“...when people express different opinions and values about it, it’s going to be more contentious and there will be more conflict. You will see that value systems are not usually compatible.”</i> (Legal expert 2)</p>
Policy violations	<p><i>“...this week, I have heard about 15 fireworks going off. It’s constant throughout the year and that shows how stubborn the community of people is who wants to continue to be able to use them.”</i> (Legal expert 2)</p>

Table 5

Superordinate Theme: Perceived Legitimacy

Subordinate Themes	Listing/ Representative Statements
Trust/ confidence in the government/ the policy tightening	<p><i>“The survey has shown that the majority supports a ban, which justifies the decision [...] you have the majority of the city supporting you.”</i> (Representative 1 of the municipality of Leiden)</p>

Signs of recognizing/ obeying/ supporting the tightened policy contents	<i>“...we did some research after the New Year’s Eve. 70% are supportive of a ban in the entire city”</i> (Representative 1 of the Leiden municipality)
Compliance with the governmental regulations	<i>“So, there is a public call for banning fireworks altogether, or according to how the Dutch government proposed it.”</i> (Representative of the municipality of Maastricht)
Sense of policy ownership	<i>“People should be given the tools to make decisions for themselves. But of course, the government should ensure the safety of the citizens, as well as the environment, even before the citizens can make their decisions.”</i> (Representative 1 of IMAGEM)

Table 6
Other Emergent Themes

Other Emergent Themes	Listing/ Representative Statements
Ignorance	<i>“People don’t want to know and that way close themselves off to perfectly logical arguments.”</i> (Legal expert 1)
Age	<i>“When I go outside during New Year’s Eve, I am always a little bit scared as there are so many teenagers just throwing around fireworks.”</i> (Representative 1 of the RIVM)
Matter of time	<i>“...many people respected it [ban of fireworks in the city centre], but not everybody – it will take some time.”</i> (Representative 1 of the municipality of Leiden)

5. Analytical Presentation of the Findings

5.1. Findings from the Citizen Consultation

In the month of March 2020, Dutch organizations and private persons were invited to share their opinions, comments and suggestions about the tightening of the Dutch firework policy, which at this point in time was yet in the planning stage, via an online consultation, facilitated by the Dutch ministry for infrastructure and water management (ANP PDC Parlementaire Monitor, n.d.). The change of policy determines a ban of the so-called F3 fireworks for regular consumers to be enforced as from December 2020 onwards. The main motivation for this

policy tightening, as stated by the minister for the environment and living, is a desired decrease of injuries caused by fireworks. (Van Veldhoven - Van der Meer, 2020).

The opportunity for companies and citizens to raise their voices through an online consultation can be considered a form of citizen engagement. Respondents submitted their remarks either in form of rather concise comments or more elaborately by uploading multi-paged letters. As proponents commonly do not feel the urge to speak up once it is known that what they supported will most likely be implemented anyways, the great majority of the responses of the consultation criticizes the policy tightening, pointing out what are believed to be weak spots. This is not to say that the related risks are negated, yet a lot of skepticism, doubts and objections become obvious, underlining the conflicts of interests surrounding the Dutch firework policy debate. In the following the most commonly raised points as well as some significant remarks are summarized and presented.

5.1.1. The Issue of Illegal Fireworks

One point that appeared in many of the reactions draws attention towards the issue of illegal fireworks. The main concern is that the decrease of the variety of allowed fireworks will amplify the usage and import of illegal fireworks. In fact, not the legal fireworks appear to be the main problem, but the illegal fireworks, as well as the access to the German and Belgian market. Here, a respondent further remarks that such a shift would also imply a governmental loss of control over the products. More specifically, a reference is made to the control tests that are executed with the legal fireworks in order to ensure that they fulfill certain safety requirements. Such tests are obviously not performed with the non-registered illegal fireworks, exacerbating to maintain a certain extent of control over the safety standards. Another respondent gives voice to the related frustration with an undertone of sarcasm, stating that through this policy tightening, the Dutch legislation is responsible for a doubling of illegal fireworks imported from abroad. (ANP PDC Parlementaire Monitor, n.d). Another comment describes that where positive effects are expected, they exactly turned out to be negative. (ANP PDC Parlementaire Monitor, n.d).

Also, a representative (Van Essen, 2020) of the Dutch police responded to the online consultation, clearly stating that the police supports a ban of the F3 fireworks. However, again, the issue of illegal fireworks was acknowledged. On top of that, the police sees a problem regarding the handling of policy violations and the exposure of illegal firework usage if the category of F2 fireworks, of which some are hard to distinguish from the F3 category, remains legal for consumers. What would solve this problem according to Van Essen (2020) is a general ban of fireworks, including a particular prohibition of illegal consumer fireworks. (Van Essen, 2020). Here, another related question, concerning why the selling and lightening of the F3 fireworks will be prohibited for consumers, yet not so their possession, was raised in one of the responses. Other solving approaches suggested by a firework business owner are for example a stricter handling of the possession of illegal fireworks, even categorizing it as illegal possession of firearms, a legally determined obligation to wear safety goggles when using fireworks, as well as the introduction of summary proceedings for attacks on social workers (ANP PDC Parlementaire Monitor, n.d).

With regards to the issue of attacking and disrespecting social workers, a responder who attended a group of regulars with the spokesman of the Dutch ambulance personnel reports that the latter clarified that no cases of firework attacks towards the ambulance personnel occurred during the preceding turn of the year. Consequently, it is clarified that this kind of violence was solely directed at the police. Further, it is criticized that the police does not take sufficient counter actions, mentioning to even have seen several publicly accessible videos where the police absurdly endures disrespectful treatments or leisurely lets pass violations of law. In fact, multiple respondents stress that the handling of policy violations, but also the mutual respect among citizens and towards social workers is key. If that cannot be achieved, any further measure would present a case of putting the cart before the horse. (ANP PDC Parlementaire Monitor, n.d).

5.1.2. Implications for Firework Businesses

Continuing, there are some strong voices coming from the direction of firework-related businesses. In the reaction of the company Lesli Vuurwerk B.V. (ANP PDC Parlementaire Monitor, n.d) it is stated that the company has a big stock of consumer fireworks, amongst which there are many that are announced to be forbidden as from the end of the year of 2020, whereas they are common commodities in many other European countries. Stressing that the company does not see a necessity for that policy tightening, a further problem becomes obvious, which is that the company will not be able to participate in the related European-wide trade anymore, which is perceived to be an encroachment of the European free trade regulation. (ANP PDC Parlementaire Monitor, n.d). Counteracting, the complaints by businesses, a representative of the Dutch association for case law (Du Perron, 2020) mentions that the considerations to ban F3 fireworks were announced in July 2019 already which provided sufficient preparation time for affected businesses. Also, in the official explanatory note on the policy tightening, possible negative impacts on firework businesses are not neglected. Yet, it is stated that such disadvantageous effects on the businesses do not outweigh the desired positive effects of the policy tightening on the public health and safety. (Van Veldhoven - Van der Meer, 2020).

Furthermore, the ban is limited to consumer usage (Van Veldhoven - Van der Meer, 2020), which means that the trade within Europe of those fireworks from Dutch sellers would still be possible if not treated as consumer fireworks, but exclusively for professional purposes. What however, contemporarily intensifies restrictive impacts on businesses in general, is the current COVID-19 crisis. Here, some firework sellers call attention to the fact that they are already weakened through a decreased demand, which is identified to be consequence of the COVID-19 crisis and therefore request a postponement the enforcement of the firework policy tightening for at least one more year (ANP PDC Parlementaire Monitor, n.d). Based on another background, such a request finds further support from private consumers who stocked up with fireworks for the coming turn of the year. One responder even announces that one could almost feel invited to violate the policy change if it gets adopted without a transition period that takes such realities into consideration (ANP PDC Parlementaire Monitor, n.d). Consequently, this can be understood to be a hint towards possible cases of self-justice that might occur as a reaction.

5.1.3. Awareness-raising and Safety Concerns

With regards to awareness-raising approaches, a firework shop owner shares an interesting observation, doubting that the policy tightening will lead to the desired outcomes. What this person experiences frequently, is that customers, who also are firework consumers, do not read the instructions attached to fireworks attentively or not at all. Therefore, the suggestion to make use of explanatory pictures instead of textual warnings is presented. Furthermore, the shop owner states that people are commonly not aware of the fact that many fireworks tend to fall over, whilst they are supposed to stand stably, nor that this can simply be prevented by setting them off jammed in-between rocks. (ANP PDC Parlementaire Monitor, n.d). What becomes clear through this example is that awareness-raising is indeed considered to be important, yet that the kind of information and the manner in which it is presented and communicated are vital and might need to be adjusted in the given real-life awareness-raising approaches. Here, another firework seller stresses that the main problem with regards to injuries and damages are incorrect manners of lighting techniques, especially seen by younger people. In the response it is further stated that the root of this issue is not to be projected on the products themselves, but that it rather shows a failure of education in the Dutch society. (ANP PDC Parlementaire Monitor, n.d).

5.1.4. Cultural Implications

According to another consultation participant, the firework-related safety issues are not the actual root cause, but should be looked at as an example of an underlying societal problem. Disrespectful and inconsiderate misbehaviors leading to firework related accidents are described to be a mentality issue that commonly occurs in combination with the excessive consumption of drugs and alcohol. Provocatively, a comparison with football events is made where the same kind of incidences can be observed regularly, which however does not lead to a prohibition of alcohol consumption at such events, let alone to an abolishment. Overall, at this place, the policy tightening is perceived to be nothing but symbolic politics. (ANP PDC Parlementaire Monitor, n.d). In another response, a link is drawn to the black Piet discussion that emerged over the last couple of years, stating that to forbid more and more will lead to a feeling of being bound in chains, yet will not solve the underlying problem, requiring for a change of people's attitudes and behaviors (ANP PDC Parlementaire Monitor, n.d). Referring to the published statistics, showing that a majority of the Dutch population is in favor of a firework policy tightening, a firework work shop owner exasperatedly claims that this is a form of cherry picking by the media, holding back the positive results of surveys that asked whether people would want to retain the fireworks as known (ANP PDC Parlementaire Monitor, n.d). Additionally, in a letter response, Van de Beek (2020) critically remarks that the minister announced a related research in the month of December in 2019, whereas in January 2020 the policy tightening got announced without any further consultation. In fact, several consultation participants require more collaboration with the firework branch or announce to be willing to participate in policy- and issue-related ideation processes (ANP PDC Parlementaire Monitor, n.d). For this purpose, it might be interesting for the government to consider the establishment of a publicly-accessible crowd-sourcing platform. Furthermore, a representative of the Dutch retail business association (Weide, 2020) criticizes that not all measures implemented up to

present are evaluated sufficiently before additional new ones are introduced. That way, it cannot be identified whether the earlier established measures actually do lead to the desired outcomes (Weide, 2020).

Unsurprisingly, also the argument of fireworks being a valued tradition is raised. The owners of a firework shop describe fireworks to be “so much more than just the banging” as it gives color to the festivity, underlining the feeling of community (ANP PDC Parlementaire Monitor, n.d). One respondent suggests to consider the introduction of a firework certificate for whose acquirement one has to pass a course that teaches how to safely light fireworks and that can be taken away whenever the rules are violated or intentional inconsiderate and disrespectful is shown. That way the firework tradition can be maintained and the safety could widely be guaranteed. (ANP PDC Parlementaire Monitor, n.d).

5.1.5. Interim Conclusion based on the Outcomes of the Online Consultation

Altogether, the responses to the online consultation show that the problems surrounding fireworks, as well as a consequential policy tightening are actually widely perceived to be legitimate, yet with a big *but*. There is widespread skepticism with regards to the enforcement of a policy tightening. The expectation is that the handling of infringements cannot be carried out efficiently enough to actually see the desired effects. Furthermore, the policy tightening is likely to even enhance illegal and black-market activities as people increasingly seek for substitutes. This reasoning becomes especially underlined considering that already during the preceding years, there was a lack of capacities to efficiently handle such infringements. What further impairs the perceived legitimacy of the firework policy tightening is that the decision was made despite the multiplicity, and partially opposing, interests present, which leaves many with a feeling of being unheard. The various shared ideas for further solution approaches and improvements however show that there is a general willingness to contribute to the development of a policy formulation that is more comprehensive and long-sighted.

5.2. Finding from the Interviews

The following section presents a carefully considered and representative selection of the interview outcomes. As a preliminary point, it needs to be mentioned that overlaps between the concepts investigated in this research occur frequently, which is why they are discussed interdependently instead of strictly separated in a consecutive order. This also implies that several points elaborated on could equally well be associated with others of the designed subtitles, designed for this particular section.

What appears particularly striking, is an overlap of citizen engagement and awareness-raising approaches. More specifically, this happens when citizen engagement projects comprise awareness-raising or vice versa. In fact, in the realm of this research, all citizen engagement projects implicitly, or even explicitly, aim to raise topic-related awareness at the same time, whereas not all projects, that in the first place intend to be awareness-raising approaches, do provide opportunities for citizens to be actively involved. Hence, in the context of this research, it can be stated that citizen engagement cannot be looked at separately from awareness-raising, whereas awareness-raising does not always include the engagement of citizens.

5.2.1. Citizen Engagement and Awareness-raising Approaches

To begin with, the kinds of citizen engagement projects that appeared during the interviews will be introduced. One common and straightforward method is to make use of the tool of surveys, which are typically held online. In the age of technology, applications (apps) to submit reports anonymously, that can even involve the function of geo-tracking, are a frequently considered means. *“Citizens can simply install the app on their phone and they can say that they experience nuisance from fireworks and from which kind of fireworks”* (Representative 2 of IMAGEM). Next to that, the classical methods of personal face-to-face conversations, as well as gatherings for collective ideation, in this case particularly municipalities with citizens and firework business-owners, was mentioned multiple times. Furthermore, there are organized clean-up activities and possibilities to request firework-free areas, or to initiate firework-free neighborhoods. Last but not least, there is the subcategory of citizen engagement projects, which is citizen science, such as the “measuring together” project, where citizens can contribute to collect data on air quality.

Awareness-raising approaches mentioned during the interviews were talking to people face to face, as well as informative and warning campaigns, commonly published on social media platforms. Next to that, warnings, calls for caution and instructions for fireworks use can be found on many website, with an increasing frequency around the turn of the year. Furthermore, the topic of firework usage is also discussed at schools, at the fire brigade, especially addressing the youth, as well as in community centers in form of other public information sessions. Other straight-forward approaches are the distribution of warning-signs spread throughout city centers, the mass distribution of safety goggles, as well as eye-opening pictures of severe injuries, caused by incorrect firework usage, shown on the packaging of fireworks. What also serves to raise awareness, albeit unintentionally, are examples of accidents, including drastic disasters. The municipality of Maastricht for example learned from observing what caused difficulties in the four bigger Dutch cities, which are Amsterdam, Rotterdam, Utrecht and The Hague. As a reaction, and on the further basis of firework related complaints, the city council of Maastricht discussed a ban of fireworks in the city, as well as the alternative of a central firework show (Representative of the municipality of Maastricht). Other statements bring attention to the awakening effect that such just-mentioned drastic incidences can have. *“Unfortunately, it always takes tragic accidents with fatalities to make people realize the danger of consumer fireworks.”* (Representative of the municipality of Rotterdam). Furthermore, firework-related accidents, *“...such as the fire in Arnhem where a father and his son died”* (Representative of the I&O Research Institute), can also create *“...moral and emotional incentives...”* (Representative of the I&O Research Institute). Obviously, such events find a lot of press attention which can also serve as means to raise awareness. Lastly, the publication of statistics about firework-related property damages and injuries can be of awareness-raising effect.

5.2.2. The Potential of Awareness-raising Approaches

That indeed the assumption that the access to, as well as the acquirement of more information and knowledge about the topic holds potential to change or manifest related attitudes of people is confirmed by the following example: *“Now, that I am working with this policy issue in more*

depth, my opinion has changed.” (Representative 1 of the municipality of Leiden). In this particular case, it increased the interviewee’s perceived legitimacy of the current policy tightening, even considering a further tightening. With regards to the point of manifestation, the other representative of the municipality of Leiden remarks the following: *“People who didn’t make up their mind yet – you need to try to reach those. Those who did make up their minds, you won’t change their opinion.”* (Representative 2 of the municipality of Leiden).

However, persistent awareness-raising approaches can be very impactful. Whereas, a majority of people used to be against a firework policy tightening, and in favor of preserving the tradition, this picture shifted as the awareness about all kinds of firework activity related consequences established more over time (Representative 1 of the RIVM). In fact, the creation of understanding through conveying information and granting insights, can play a key role in contributing to a perceived legitimacy of the policy tightening. The citizen science project “measuring together” for example allows people to engage in the work of the scientists who developed it, allowing to gain a better understanding of the their work, as well as of the addressed topic itself (Representative 1 of the RIVM). Exemplarily, this citizen engagement project shows that, as mentioned above, such indeed serve as awareness-raising measures at the same time. This also becomes obvious in the following comment:

In my understanding citizen science is usually fairly successful in raising awareness and illustrating the risks of fireworks to individuals who would not usually process such risks in their daily lives, and citizen science helps to manifest the immediacy to them. (Legal expert 2)

Furthermore, insightful feedback effects can happen between the initiators, or hosts of citizen engagement projects, such as municipalities, and the citizens. More specifically, citizen engagement does not only present an opportunity for citizens to get involved and to make comment, but it can, in return, also be highly informative for the party from which it emanates, giving some indication of the actual opinions, needs and expectations of the citizens. With regards to projects that involve measurements, it can even unveil which areas might not yet have been considered while actually being affected (Representative 1 of the RIVM). On top of that, as the awareness created leads to an increased understanding, it can positively impact the perceived legitimacy (Representative 1 of the RIVM). *“Such projects [citizen engagement projects] can also contribute to a better understanding of the necessity to tighten the policy”* (Representative of the municipality of The Hague). Eventually, this then also becomes reflected in people’s behavior which was hinted at as follows: *“That way, you become more aware of the problem which may lead to a decrease in individual’s use of fireworks.”* (Representative 2 of the RIVM). However, opposing this, the occurrence of deliberate ignorance, is a phenomenon observed as well. *“People don’t want to know and that way close themselves off to perfectly logical arguments.”* (Legal expert 1).

5.2.3. Preventing an abrupt Change

Given that the policy tightening affects a longstanding tradition which is culturally embedded, it appears to be relevant to consider gradual approaches. Especially in reaction to the voices who would like to see the firework tradition unchanged, the creation of a *“transition possibility”* (Legal Expert 2) is important. More specifically, this refers to the provision of

alternatives, such as professional firework shows at central places, as well as the usage of new technologies, such as light drones that replace the common fireworks entirely. Here, the municipality of Rotterdam invites citizens “...to share ideas about alternative ways, welcoming and celebrating a new year.” (Representative of the municipality of Rotterdam). In order to be able to get a more realistic picture of how it would be like to decrease or even stop the use of fireworks, as well as to get used to it, occasional real-life scenarios initiated by citizens can serve as contribution to smoothen a shift. In some municipalities, firework-free neighborhood areas were initiated, which also can serve as example for citizens, allowing them to imagine how the situation could look like without firework activities (Legal expert 2). An example presenting an actual consideration of incremental processes comes from the municipality of Leiden: “For people who violated the ban, we could have fined them. However, we only warned them as it was the first year.” (Representative 1 of the municipality of Leiden).

5.2.4. The Importance of Communication

Moving on, the importance of communication is worth being discussed. An elaboration of a representative of the municipality of Leiden illustrates how potent clear communication, open conversations and giving audience to people can be. With clarity, the municipality informed the citizens and businesses, including firework sellers, about its plans to implement rules, restricting firework activities in certain areas, as well as transparently announced that those rules will expand for the entire city center in the future. At the same time however, showing interest in the reactions, the municipality also requested the respective concerns and interests of the citizens and businesses. The combination of informing and asking about the perspective of others allows to plan for the future without having to speculate whether further restrictions will follow or not, as well as gives audience to the citizen’s and business owner’s voices. It appears apparent, that especially the firework sellers were not pleased about the content of the announcements. Yet, the open approach and bilateral communication could be appreciated and contributed to a higher degree of acceptance. (Representative 1 of the municipality of Leiden). Not only does such communication create a certain degree of transparency that contributes to building trust, but also gives the chance to plan and prepare more farsightedly. The latter also avoids, or at least decreases the likelihood, for citizens to be taken by surprise which could otherwise lead to undesired tensions, holding high potential for conflicts. Here, a representative of the RIVM interviewed, with reference to the citizen science project “measuring together”, explains why a certain degree of lucidity is highly recommended to the participating municipalities:

...we strongly advise to set a goal what to do with the data, what the possibilities and the potential are, what you are not going to do. Otherwise, there can be a disappointment and that can lead to conflicts. [...] You can imagine that if people are in the disappointed state, they are a lot more prone to enter a conflict. There are many emotions... (Representative 1 of the RIVM)

Altogether, entering open conversations with citizens is a sign of giving audience to their concerns, as well as presents an opportunity to approach mutual understanding, which even when not managed to be aligned, can contribute to the perceived legitimacy of the decisions taken by the government and municipalities. “I don’t think that talking to people will

ever decrease legitimacy in a way. Even if you talk to people who are not supportive of your decision, they simply feel heard. So, I think it always increases legitimacy.” (Representative 2 of the municipality of Leiden). However, what might appear obvious, yet should be underlined is that communication does not work as one-way street. *“Communication between citizens and the government can have a big impact. [...] Most of the time, such communication is one-way. [...] ...you never get to hear whether the problem could be solved.”* (Representative 1 of IMAGEM). It is thus very important to *“...let citizens know what is happening...”* (Representative 2 of IMAGEM). Further supporting this argument, such responsiveness even finds appreciative recognition on social media, where it happens to be complimented by citizens (Representative of the municipality of Maastricht) .

On top of all that, the increased mutual understanding, as well as the understanding of the firework-related issues discussed themselves, which are likely effects of open and clear communication, bear the additional potential to translate to a sense of solidarity.

We want to celebrate with each other and not against each other. That’s the positive message that we want to send out. [...] Also, when you get to talk to each other, you will understand why people do, or don’t like it and you can connect to each other and that’s the most beautiful part about getting people together. [...] People who are willing to talk to each other will make the change. (Representative of the municipality of Enschede)

5.2.5. *Providing Real-life Insights and the Importance of Lucidity*

What appears important, is the creation of understanding of the given matter. For this purpose, it can be effective to provide the possibility to gain real-life insights. On top of that, communication and rules should be formulated as clearly and straight forward as possible in order to avoid uncertainty and misinterpretations.

Some immediate firework-related issues can be experienced at the turn of the year or even throughout the year. In order to convey a clearer picture of those issues, the municipality of Enschede thought of a form of citizen engagement, inviting groups of citizens to accompany the social workers. Additionally, *“it informs about what and why we are doing what we are doing, as well as about what you can do yourself. [...] This will make more understandable to them why certain things are dangerous.”* (Representative of the municipality of Enschede). At the same time, providing such real-life insights, can function as “tool”, leading citizens to take more informed and well-considered decisions. Overall, ensuring a certain degree of comprehension and understanding presents an important foundation to implement the policy tightening. *“So, first people need to understand and then a policy can be established. If there is support, people will participate and obey, and for those who don’t, there then are penalties.”* (Representative of the I&O Research Institute). Next to underlining the previously discussed point, this statement also hints at the topic of sanctions which can serve as an effective and necessary rule-completion, creating an additional incentive to obey the policy, even when not perceiving it to be legitimate and, or when doubting its efficiency.

Picking up the point of the dubious efficiency of the policy, the following statement hints at the difficulty, or almost impossibility of an all-encompassing handling.

If you want to enforce such a policy, you need to give the citizens a tool to easily report incidences against this legislation, because for the police and surveillance, it is impossible to be everywhere at once. (Representative 2 of IMAGEM)

Furthermore, this statement advises to develop a possibility for citizens to easily report any kinds of related policy violations, for example via an app. Not only would that support the police, but at the same time present a form of citizen engagement. Recognizing and striving to solve the inefficiency issue, the municipality of Rotterdam shows an example of a more rigorous approach. To begin with, *“Rotterdam decided to explore the legal possibility of introducing a local ban.”* (Representative of the municipality of Rotterdam). However, *“the city board had a possibility to make exceptions on this ban. In designated areas the lighting of fireworks was allowed”* (Representative of the municipality of Rotterdam). Unfortunately, it soon became apparent that those exceptions made the local bans rather ineffective, leading to an increasing support for a total ban (Representative of the municipality of Rotterdam).

...a complete ban would make the handling and maintenance much easier as it would become more obvious when someone is not obeying the regulations. Also, clearer rules increase the number of people actually listening to the government. It can basically be compared to a parent-child relationship – people are asking for clear rules. In fact, a ban also would make it easier for parents to explain to their children that they shouldn't use fireworks as it simply is forbidden by law (Representative of the municipality of Rotterdam).

Also touching upon parent-child-relationships, one of the legal experts interviewed observed that it appears to be a common picture to see kids or teenagers lightening fireworks in public areas. Many do so in a circumspect manner, leading to the impression that they are likely to actually have gotten the permission by their parents, under the condition to be careful with the fireworks and polite to the people who might be around. (Legal expert 2). Here, a full ban would also solve the parents' conflict of whether or not to allow the lightening of fireworks to their children.

Together, those examples show that any kind of exceptions can negatively impact the effectiveness of the policy and that the definiteness of rules consequently is very important, or even indispensable.

In both, the city board and the city council this ban was regarded as a necessary step, as taking responsibility when all other measures to make New Year's Eve safer have failed. [...] Legal ground for this ban is protecting the public order. (Representative of the municipality of Rotterdam)

5.2.6. Public Support and the Challenge of Extensive Outreach

Interestingly, there are statistics showing a general tendency of people being in favor of the policy tightening (I&O Research Institute, Kanne & van Engeland, 2020). However, at the same time it appears that it is a challenge for related citizen engagement and awareness-raising projects to ensure extensive outreach, which is important for them to be meaningful.

The aforementioned straight-forward approach of Rotterdam is also justified by having taken such national surveys, which showed that *“the support for a ban is historically large”* (Representative of the municipality of Rotterdam), into account. Also, a survey from the

municipality of Leiden “...has shown that the majority supports a ban” (Representative 1 of the municipality of Leiden). This trend implies for a certain level of trust in the governmentally enacted policy tightening. The following two statements show that there also is a significant amount of people who do not only prefer the current policy tightening, but who would even favor a further tightening towards a full ban. “...we did some research after the New Year’s Eve. 70% are supportive of a ban in the entire city” (Representative 1 of the Leiden municipality). “So, there is a public call for banning fireworks altogether, or according to how the Dutch government proposed it.” (Representative of the municipality of Maastricht).

However, what appears to be a challenge for awareness-raising and citizen engagement projects, which include surveys, is to actually ensure a meaningful scope of reach. This is underlined by the following, rather self-critical statement. “But looking at how many people we [the RIVM in the context of the citizen science “measuring together” project] reach, that’s a relatively small group as compared to the Netherlands as a whole.” (Representative 1 of the RIVM). Also the other interviewee, representing the RIVM touches upon that issue:

But the point is that citizen science is confined to a particular group of people. So, you cannot rely on citizen science alone. Maybe it raises awareness, but more collaboration with other environmentalists, doctors and other scientists is to be considered. This way, one might be able to influence the public opinion. But on its own, citizen science is very limited to a small group of people. (Representative 2 of the RIVM)

That citizen science- and citizen engagement projects in general can only be part of an approach to increase the perceived legitimacy for the policy tightening, as well as to foster the relatedly desired underlying change of culture, also becomes clear in the following statement: “Overall, the government listens to all kinds of signals. As only a small part of the citizens participates in citizen engagement projects, it would also be weird if the impact of such initiatives would be very big.” (Representative of the I&O Research Institute). In order to reach more people across different generations, the usage of different channels as means of communication is to be considered. “Also, we know that different age groups need different approaches, such as more social media for the younger age groups.” (Representative of the municipality of Enschede).

This statement draws additional attention to the importance of reaching out to young people who can be considered to be an especially important target group with regards to the firework-related issues and policy debate. In fact, the aspect of age deserves some more attention: “At some point the ministry of justice and security commissioned an analysis about the change of people’s opinions from the WODC (Wetenschappelijk Onderzoek- en Documentatiecentrum, translating to “Scientific Research and Documentation Centre”), where age and education turned out to play significant roles.” (Representative of the I&O Research Institute). As just mentioned, it appears that the focus is especially on teenagers and younger adults: “When I go outside during New Year’s Eve, I am always a little bit scared as there are so many teenagers just throwing around fireworks.” (Representative 1 of the RIVM). Or, expressed with even more emphasis: “...the country has been held hostage by a group of 15-35 year old boys who insist to light their fireworks whenever they want.” (Legal expert 2).

The following statement presents an unconventional idea to raise awareness in an active manner, while additionally reaching out to youngsters and adolescents, while at the same time connecting citizens across generations. “...some “neighborhood fathers”, who are key figures,

like a dad or a grand-father who is known in the neighborhood and has some respect, helps the youths to clean up together afterwards.” (Representative 2 of the municipality of Leiden).

5.2.7. *Community Feeling and a Sense of Policy Ownership*

Amongst other effects, some citizen engagement initiatives manage to additionally create a sense of responsibility, and strengthen the community feeling. On top of that, being involved in the ideation and decision-making processes can even create a sense of policy ownership. That also applies to the following project:

...we brought about 350 people together from all over the municipality to talk about fireworks and celebrating New Year’s Eve, what people like and don’t like and how we can change the problems. On that basis, we developed six or seven plans on which people could vote. (Representative of the municipality of Enschede)

Furthermore, this citizen engagement project presents an example of information exchange between citizens and municipality which is directly translated into variety of possible plans to vote on. On the one hand, this shows that the insights shared by the citizens are heard, and on the other hand, it creates a certain range of choice amongst which it can be voted democratically. Next to that, it presents an opportunity for the participating citizens to create a sense of policy ownership.

5.2.8. *Conflicting Interests and the Complexity of the Topic*

Although it is worth striving for taking into account a full range of perspectives, it cannot be avoided that tradeoffs have to be made. However, it becomes obvious that: *“Once you start involving citizens, you will also face more different arguments and interests. It can actually lead to fragmentation.”* (Legal expert 1). Or in other words: *“If people speak up and different opinions and dissents become obvious, a debate with hardened standpoints can emerge.”* (Representative of the municipality of The Hague). Those statements underline that citizen engagement can actually unveil different views surrounding the multilayered topic, which at the same time makes the related conflicting interests more obvious.

As a side note, citizen engagement does not only help to unveil differing, possibly conflicting, interests, but also to identify wrong assumptions. The municipality of Enschede for example, found that the assumption that the elderly would appreciate the areas they live in to be firework-free zones, is not necessarily correct. In fact, it appeared that many of them were requesting not to forbid fireworks in their neighborhoods, as it actually brings them joy to watch the fireworks. (Representative of the municipality of Enschede). This example underlines that assumptions can be misleading and that communication, happening in the realm of citizen engagement, can indeed unravel biases that could, when being ignored, fuel the conflicts of interests. However, it is too simple to conclude that communication could fully prevent conflicts, as perceptions remain to be a subjective matter that can differ between individuals. In this way, and opposing the previous example, the municipality of Maastricht happens to receive an increasing number of firework-related complaints specifically from areas in which elderly homes and hospitals are located. (Representative of the municipality of Maastricht). Overall, for the policy debate to be real, putting up with a certain degree of conflicting interests, can be considered a necessity.

I think at the moment, the debate in the policy sphere is rather technocratic, like how much does it cost, how much of an impact does that have on the environment, is it worthwhile? But it can't only be that. It also needs to be a political discussion and when it becomes more of a political discussion, when people express different opinions and values about it, it's going to be more contentious and there will be more conflict. You will see that value systems are not usually compatible. ...that is why it is by the end of the day not about the informational awareness, it's about values. (Legal expert 2)

Interestingly, that statement also expresses that an important root-cause of the conflicts, can be found in the clashing underlying value systems of individuals. At the same time, moving towards an alignment of those underlying value systems, or at least approaching compromises, presents one of the core challenges of the policy debate. Here, again a relevant means is to spread information in order to create understanding. However, it also needs to be clearly stated that awareness-raising projects as a solving approach can be effective to a certain degree, yet are unlikely to suffice by themselves (Representative of the I&O Research Institute).

Generally, with regards to the conflicts of interests, it needs to be mentioned that it is in the nature of things that “*there are different opinions*” (Representative 1 of the municipality of Leiden). The most obvious confrontation is presented by the arguments speaking in favor of the policy tightening, and those speaking against it. In the following, respective arguments that appeared during the interviews will concisely be introduced.

To begin with, the points raised that speak in favor of fireworks and rather against the policy tightening, are that fireworks look beautiful, contribute to a festive atmosphere, that they are fun for kids, create a sense of belonging, present the basis of existence for firework-related businesses, and that they are part of a tradition. Concerning to the latter point, the representative of the municipality of Maastricht remarked the following, with a slight undertone of sarcasm:

Of course, there are people who say that we have done that for a long time and that it is a tradition, but to me that is not a good argument. Slavery has also been going on for a long time and nobody argues that this was bad to abolish. (Representative of the municipality of Maastricht)

This comment draws the bridge towards the arguments speaking in favor of the policy tightening and against fireworks.

*...the reporting about it [firework activities] is getting more critical year after year, especially with regards to the amount of money spent on it, the amount of damage to property and individual people. If you then compare this to other events and see how much damage comes out of it, it becomes harder and harder for people to justify. [...]
...the broader spectrum of society thinks this is outrageous from a financial point of view, domesticated animals, the amount of garbage and waste and also just the cost of it – it's insane. (Legal expert 2)*

Further points made repetitively, are that many people and animals get scared of fireworks, as well as feel importuned by the related nuisances, including noise, pollution and a significant decrease in air quality. What also plays a role, are concerns about the damaging or even full destruction of buildings, including those monumentally old character. As touched upon above, the financial implications cause aversions as well:

...it costs a lot of money for the fun we have which is out of proportion. [...] In 2003, NYE cost the municipality 200.000 Euros. That became less and less over the years – because of the municipality's efforts but also because people do not tolerate it. (Representative 1 of the municipality of Leiden)

Next to that, the usage of illegal fireworks and the related illegal markets are heavily criticized. Lastly, people are displeased with the pressure emergency services and the police are exposed to through the intentional violation of rules and the deliberate attacks directed at such social workers, presenting threats that hinder them to do their jobs at their best. A representative from the municipality of Maastricht was talking to a policemen who shared his experience, reporting that “...*New Year's Eve feels like walking into a war zone*” (Representative of the municipality of Maastricht).

Overall, the trade-off between those pro- and con-arguments, could be described as “...*a bit of a social dilemma. It's fun to use fireworks, but if we all do it, it starts to become a problem. Collaboration by everybody is needed to tackle that problem, which is quite difficult*” (Representative 2 of the RIVM). Or in other words: “*There are different points of views. From a collective point of view, it's quite stupid that fireworks are allowed. From an individual point of view, it's a tradition and it's fun*” (Representative 2 of the RIVM).

Moving on, it also is worth considering that “...*the ministry of justice and security warned that a further tightening would be established if the current rules would not be obeyed.*” (Representative of the I&O Research Institute). One underlying message of this statement is that a policy tightening would not have been necessary in the first place, if the given regulations were to be obeyed by everybody. “*Usually, there is just a handful of people who are spoiling it for everyone, not obeying the rules*” (Representative 1 of IMAGEM).

Similarly, a further major problem is the incorrect usage of fireworks themselves, which makes, the otherwise safe products, dangerous to use (Representative of the Kenniscentrum InfoMil, Ministry of infrastructure and water management). What also can be observed frequently, is that fireworks are being used by individuals who are under the influence of drugs or alcohol and as a consequence not in state to take full responsibility for their actions (Representative 1 of IMAGEM). So, what needs to be contrasted in the context of conflicts of interests, is the conscientious usage of fireworks versus a careless, incautious handling that is, to a large extent, responsible for the restrictions, affecting everybody.

However, it is important to mention that this way of argumentation can only be considered to be valid when disregarding the environmentally damaging impacts of fireworks. Yet, clearly, that should not be the case. Here, one of the legal experts interviewed, remarks that it should be considered to actually present the connection of firework activities and environmental issues in a more distinct manner (Legal expert 1).

The following statement presented once more stresses, that the safety of the citizens and the protection of the environment, are topics that should be treated uncompromisingly. At the same time, it also points out the importance to educate citizens in a way that allows them to take informed decisions autonomously.

People should be given the tools to make decisions for themselves. But of course, the government should ensure the safety of the citizens, as well as the environment, even

before the citizens can make their decisions. [...] If there is more awareness, people would choose carefully. [...] There will be more responsibility if they have the tools to make well-considered decisions. (Representative 1 of IMAGEM)

Overall, the underlying challenges aiming to decrease destructive conflicts of interests, are the trade-off between determining, clear rules and a certain degree of freedom of choice, as well as the related responsibility to educate the citizens in a way that this freedom will be used in an informed and considerate manner.

5.2.9. A Change of Mindset

By the end of the day, it comes down to the individuals to obey the rules, as well as to use fireworks in the correct manner. Hence, it appears desirable to convey a sense of responsibility, possibly even effecting a change of mindset.

In fact, the more people realize the momentousness of their individual decisions for the public welfare and consequently apply a mindset in the sense of the medium- and long-term common good, the less encroaching the government needs to be in the policy-making process and the more freedom for autonomous decisions can be granted to the citizens.

The tradition of a free policy on fireworks is longstanding and is for a lot of people a fundamental Dutch right. It is acknowledged that some people misuse this freedom. [...] ...but if you try to change deeply rooted traditions you will always have people who will say “but we have always done that”, “it’s a nice tradition” etc.. It’s a change of behavior, including all kinds of cognitive mechanisms. But maybe what people think is more emotion-based, which makes it difficult. (Representative 2 of the RIVM)

Thus, it needs to be stated distinctly that heretofore, the afore-described picture must yet be regarded as naïve wishful thought, considering that effectuating such a transformation takes a lot of time, presenting a protracted process. Also, the interviewed representative of the municipality of Enschede confirms that a change of mind-set and culture is needed, which is likely to be a lengthy processes that could take several years (Representative of the municipality of Enschede). One of the representatives of IMAGEM brought further attention to the fact that the tradition of lightening fireworks is almost perceived as cultural heritage by many citizens, underlining that indeed a gradual change of culture is required in order to prevent hurting individuals’ emotions attached to the tradition. (Representative 2 of IMAGEM).

5.2.10. The Challenge of Managing Policy Violations and the Doubts about Effectiveness

The past and current situation show that the handling of firework activities, violating the policy is seemingly impossible to guarantee. Given that the policy tightening does not prescribe a full ban, still raises doubts. The fact, that people often seem to get away with policy violations enhances the feeling of having one’s fill, as implicitly suggested by the following statement. “...this week, I have heard about 15 fireworks going off. It’s constant throughout the year and that shows how stubborn the community of people is who wants to continue to be able to use them.” (Legal expert 2). As the Netherlands borders with Belgium and Germany, the continuous possibility for firework acquisitions throughout the year remains relatively

unimpeded (Representative of the municipality of Maastricht). That such constant firework usage can happen at all in such a manner, brings back the discussion of the doubts that arise with regards to the effectiveness of the policy, rather than the legitimacy of the tightening itself.

Questions like, is the policy adaptive enough, is it effective, is it legitimate are really interesting. [...] In the firework case, the enforcement is the crucial part of the policy as this is how you get citizens to stop. If the enforcement is too much, there is a high chance that the group of opponents grows stronger. If you enforce it too little, the policy will hardly be effective. It's a tricky thing. (Legal expert 1)

Again, it becomes obvious that the securing of a strict management of policy violations plays a key role for the real-life efficiency of the ratio legis. Here, the representative of the municipality of Rotterdam criticizes:

National policies are not going far enough though, because large scale lightening of certain types of fireworks is still allowed. [...] Because of the exceptions that were made, this ban was not very effective. [...] Those who oppose the ban will indeed criticize the ban. Not really the legitimacy but rather the effectiveness. (Representative of the municipality of Rotterdam)

Yet, as the effectiveness appears to be problematic, even people who are otherwise in favor of the policy tightening, can be left behind with a feeling of frustration (Representative 1 of the RIVM). Generally, a tendency for polarization and radicalization, also in the context of other socio-political topics, can be observed (Representative of the municipality of Maastricht). Furthermore, the representative of Maastricht remarks it to be unfortunate that such polarized views tend to undermine, that there also is a large group of individuals who do use fireworks according to the rules and in a safe and considerate manner (Representative of the municipality of Maastricht). Yet, what appears to be a pattern, similarly to what was mentioned for the outcomes of the online consultation, is that people who are against the tightening tend to raise their voices more than the people who are in favor of it.

The reactions [to a ban of fireworks in the city center of Leiden] were different. Some people were really happy with it, others angry. Of course you see more of the negative reactions as people who are supportive of the ban don't feel the urge as much anymore to raise their voice. (Representative 1 of the municipality of Leiden)

Opposing the just mentioned, another interviewee shared the presumption that the currently broadly criticizing light shed on the topic of firework usage creates some kind of social pressure that prevents the people, who are not in favor of the policy tightening, from speaking up as well (Representative 2 of the RIVM).

Overall however, it becomes clear that the motives for the policy tightening are widely acknowledged and that the perceived legitimacy of the latter remains barely disputed. Interestingly, at the same time, it also becomes obvious that the policy tightening does not yet persuade the general public. What a brought majority regards to be dubious is the actual effectiveness of the policy. The exceptions the tightened policy still includes fail to provide straightforward clarity, as well as complicate the strict handling of violations, which the past has already proven to be a major challenge. Consequently, in the context of policy-making, it needs to be distinguished between the perceived legitimacy of the policy itself and the confidence citizens have in its efficiency.

5.2.11. Strategic Considerations for the Citizen Engagement and Awareness-raising Projects

What deserves some attention, are some general strategies worth considering when developing and executing citizen engagement-, as well as awareness-raising projects. The first point worth mentioning, especially with regards to awareness-raising projects, is the scarcity of clock time (Tolle, 2018) that people typically face.

People are limited in time of course and need to decide what they want to invest their energy in. They have to choose what kind of information they want to read. [...] The problem is that the trade-off of time and what information to take in, is simply how the human brain works – we have limited capacity... (Representative 2 of the RIVM)

Secondly, what appears to be important to ensure for citizen science projects, involving the collection of technical data, is to reach a large representative group of participants. Optimally, independent experts should be involved in the development of the projects, as well as in the analysis and examination of the gathered data, increasing the likelihood for the outcomes to be acknowledged as legitimate (Representative 1 of the RIVM). Furthermore, the larger the group of participants, contributing to respective data collection, the higher the validity of the outcomes will be and the less room for uncertainties remains (Representative 2 of the RIVM).

Third, and last, the timing appears to be highly relevant:

If governments invite stakeholders to participate and to deliberate in the making of policies, you have to be really careful about the way it's done. It can be seen to be merely legitimizing the government's actions that have already been planned. The timing is very important. It cannot happen after, or in the middle of the process where you already are sure what you're going to do. [...] ...it needs to be done at the right moment. Otherwise it's just a pro forma thing... (Legal expert 1)

This statement draws particular attention to the sincerity of citizen engagement approaches. In order to ensure that citizens' contributions can actually be considered in the decision-making processes, the right timing is crucial. If this is failed to be managed, or if the citizen engagement project indeed is just a pro forma approach as a matter of fact, then there is a high likelihood that its effects are contrary to the effects desired. Citizens would feel deceived, which could possibly intensify aversions built towards the government, or lead to the development of the latter.

5.2.12 Suspect Limited Scope of Motivation for the Initiation of the Policy Tightening

It appears suspect why the motivations for the policy change as published by the minister for the environment and living of the ministry for infrastructure and water management (Van Veldhoven - Van der Meer, 2020), are limited to a desired decrease of injuries and general nuisance. As it became clear, there are many more aspects, such as the atmospheric pollution and other environmentally harming impacts, property damages, the considerably high amounts of money spent, illegal firework markets etc., that should also be of addressed concern. Another reason why this limitation of presented motivations for the policy tightening can be determined as unstrategic is that it does not draw the picture of being comprehensively risk-informed. On top of that, people generally tend to acknowledge such coherences and even consider them as motivation to decrease or quit lightening fireworks

With regards to the impacts of fireworks on the environment, people also started to wonder whether it would not be a smart idea to stop polluting the air so intensively during the change of the years when facing the challenge of climate change and excessive CO2 exhaustions. (Representative of the I&O Research Institute)

Hence, the just discussed limited presentation of motivations can be regarded as an unemployed opportunity to impact citizens' perspective and behavior expediently.

5.3. Implications for the Hypotheses

The presented findings mostly support the main hypotheses, yet require for some adjustments, respectively the addition of certain conditions. To begin with, the adjusted form of the first main hypothesis reads as follows: Citizen engagement, when timed before final decisions are taken, positively affects the perceived legitimacy.

With regards to the second main hypotheses, it can be confirmed that the effect of citizen engagement on the perceived legitimacy is mediated by conflicts of interests. However, it needs to be kept in mind that the concept of conflicts was chosen to be focused on in this research, and thus, does not allow to infer that it is the only mediator. For the remaining part of the second hypothesis some rephrasing is required. It appears too simplified to state that an increase of citizen engagement leads to a respective increase of the conflicts of interests. What happens, is that through citizen engagement various, partially conflicting, standpoints are unveiled. As such become more obvious and part of the public debate, they can turn into conflicts of interests that are fraught with tension. Yet, this does not automatically imply a negative effect on the perceived legitimacy. Conflicts of interests can also lead to the detection of new aspects not yet considered. Also, they actually indicate that voices are being heard, which, generally speaking, rather positively impacts the perceived legitimacy. Obviously, decisions taken do not realize all interests present, which can cause a feeling of being unheard and frustration for a share of people, ultimately translating to a negative impact on their perceived legitimacy.

The third main hypothesis needs to be reconsidered slightly. As mentioned earlier, awareness-raising is also entailed in citizen engagement projects. Furthermore, as just explained, it is not the conflicts of interests themselves that negatively impact the perceived legitimacy, but the frustration that may arise when one's interests are not implemented in the policy decisions. The findings presented above also clarify that awareness-raising can indeed nudge individuals' development of a related standpoint into a certain direction, or motivate to develop such a standpoint in the first place. This however only appears to apply to those who did not yet develop a hardened attitude, but who are still making up their minds or are doubting between several perspectives. Even though this cannot be stated as clearly for the reverse, awareness-raising does not appear to have negative effects on the perceived legitimacy. Consequently, the third main hypothesis needs to be reformulated as follows: Awareness-raising and citizen engagement projects may moderate the negative impact of conflicts of interests on the perceived legitimacy through directing, or redirecting citizens' standpoints, leading to an increased alignment of interests. Ultimately, that decreases the emergence of frustration and thus reduces its negative impacts on the perceived legitimacy. Next to that, and

as just mentioned, awareness-raising approaches can not only influence citizens' perceived legitimacy to moderate the effects of conflicts of interests, but also independently from that.

With regards to the alternative hypothesis, it can be said that it appears too radically pessimistic and can hence be considered as rejected.

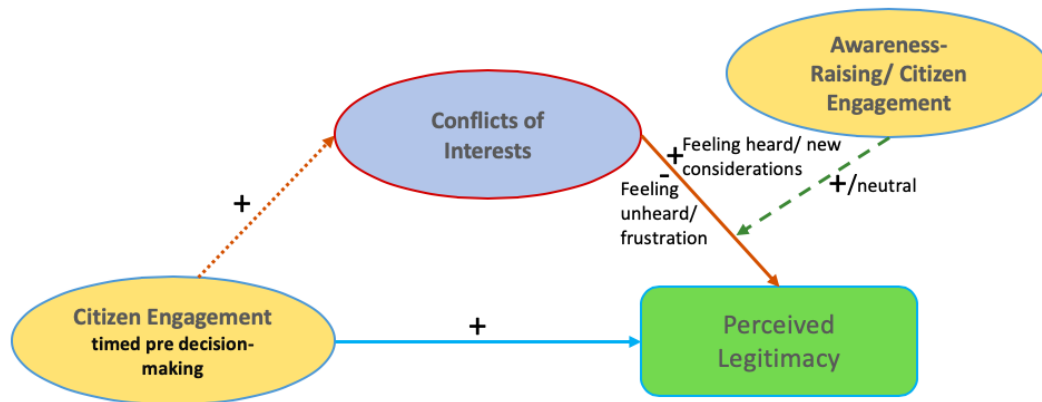


Figure 6: Conceptual model on the basis of the research conducted

6. Discussion and Conclusion

The topic of fireworks might appear narrow at first sight. However, as it becomes clear in this paper, it actually is intertwined with many other relevant subjects and related issues that affect the common good and demand for collective action to be tackled. On top of that, the usage of fireworks can be examined and framed from many different perspectives. Accordingly, it appears apparent that there are various, partially conflicting, interests and opinions present. Hence, a strategically well-considered governance approach, taking into account the complexity of the topic, is required. With a particular interest in public administration and policy-making, the contemporary Dutch firework policy debate is intriguing to study. In order to achieve such collective action, eventually navigated by a respective policy, it is indispensable that the citizens perceive this policy as legitimate. Consequently, the research question investigated in this paper was the following: *To what extent can citizen engagement and awareness-raising approaches contribute to citizens' perceived legitimacy of the Dutch firework policy tightening?*

Based on the study of existing literature about the concepts involved, as well as about risk-informed policy making, social dilemmas and collective action, presumptions were formulated. The expectations were that citizen engagement would positively affect the perceived legitimacy. However, there was reason to assume that this coherence could be mediated by conflicts of interests, which would ultimately negatively affect the citizens' perceived legitimacy. Yet, this negative impact was expected to be moderated by awareness-raising approaches which would consequently positively influence the perceived legitimacy. The results of the research, including the analysis of a topic-related internet consultation, as well as of twelve semi-structured interviews, indeed show that both, citizen engagement and

awareness-raising approaches, can positively impact citizens' perceived legitimacy of the Dutch firework policy tightening.

6.1.1. Implications for the Literature and the Dutch Firework Policy Case

This study makes affirmatively obvious that citizen engagement and awareness-raising approaches contain great potential. Next to the aspects of providing a possibility for participation, spreading information and creating understanding, these approaches have many side effects, such as building trust and fostering a sense of solidarity etc., that accelerate their positive impact on the perceived legitimacy.

Given that the particular case of the Dutch firework policy tightening also affects related traditional and cultural values, it appears to be especially important to strive for citizens to perceive the tightening as legitimate. This is especially of interest as legitimacy does not only contribute to an increased perception of democracy, but also increases the capacities of political institutions to establish new norms and regulations (Tallberg & Zürn, 2019). With regards to the extent to which the underlying culture, including norms and value systems, will actually be impacted by citizen engagement and awareness-raising projects in the context of this specific case can, at this point, not be stated. This is because such processes are gradual and thus can only be judged when evaluating the respective developments over the course of a longer period of time.

Generally, the perceived legitimacy can be understood as citizens' trust towards governing authorities (Hurd & Reus-Smit as cited by Tallberg & Zürn, 2019, p.586), providing the best policy formulation possible, while considering all relevant perspectives. Here, the findings have shown that a differentiation should be considered. On the one hand, there is the citizens' perceived legitimacy of the actual contents, as well as the motivations standing behind the policy tightening itself. On the other hand, there also is the effectiveness of the policy which the citizens do, or do not perceive to be legitimate, separately from the first-mentioned. What appears to be a reoccurring pattern is that the policy tightening as such is understood and widely perceived to be legitimate. However, citizens doubt its effectiveness. More specifically, this refers to doubts about the actual problem solving quality (Scharpf, as cited by Schmidt, 2012, p.4) of the policy tightening. This is mostly because of the exceptions that the tightened version still involves. In the past, such exceptions have already proven to be obstructive for the enforcement and handling. To put it differently, this just discussed differentiation relates to the distinction between output and outcome. Whereas output refers to the policy itself, outcome, refers to its implementation and the consequential actions, as well as the behavioral changes of the target group that the policy suggests (Tallberg et al., 2016, p.1079). While citizen engagement and awareness-raising measures appear to challenge the perceived output legitimacy (Schmidt, 2012, p.2), they do contribute positively to an increased perceived throughput legitimacy (Schmidt, 2012, p.6). The latter effect can be determined to be fundamentally valuable given that only the quality of the input- and output legitimacy can compensate each other, whereas little or poor throughput would have a delegitimizing effect overall (Schmidt, 2012). Altogether, citizen engagement and awareness-raising measures can essentially contribute to citizens' perceived legitimacy of the Dutch firework policy tightening.

Yet, by themselves, they do not guarantee for success, requiring to be combined with other strategies.

Overall, given that this research does not unveil any contradistinctions with regards to the existing literature presented in this paper, it can be interpreted as increasing the validity of this existing literature. Furthermore, the findings widely confirm the initial main hypotheses, which are primarily based on the theory distilled from the literature discussed in this paper. However, for both, the literature discussed, and the initial main hypotheses, some additions could be unveiled and will be suggested in the following.

To begin with, Figueiredo Nascimento et al. (2016, p.3) find that citizen engagement does contribute to an increase in legitimacy, accountability and transparency of governance. In fact, the findings confirm that citizen engagement measures do positively impact citizens' perceived legitimacy. Yet, this is only the case when the provision of citizen engagement possibilities is timed before the final decision are taken. Concerning the aspect of the right timing, Amendola (2001, p.17f.) says that different stakeholders, who usually have various, and possibly conflicting interests, should be approached early in the analysis process before the assessment takes place. Although Amendola (2001, p.17f.) refers to risk-informed policy making, it can be inferred that this also appears valid for citizen engagement projects. Furthermore, when decisions are taken without the people being involved in the decision-making process, these decisions turn into an external effect on individuals. For those who are not supportive of the decisions, this external effect will then be perceived as negative (Dasgupta, 2014), ultimately decreasing the perceived legitimacy.

Continuing, as Schmidt (2012) has found that input legitimacy can be assessed by the "responsiveness to citizen concerns" (Schmidt, 2012, p.2), so do the findings of this research show that feedback and responsiveness by the government or other initiators of citizen engagement projects is very important in order ensure that citizens actually feel heard. What also deserves to be pointed out, is that some citizen engagement measures can foster a sense of solidarity. Next to increasing the chances for mutual understanding, helping to "remove barriers to joint action" (Chwe; Kim & Bearman; Oliver & Myers, as cited by Berardo et al., 2014, p.700), there are citizen engagement projects which even bring together different generations. What should generally be emphasized more clearly with regards to citizen engagement is that such projects appear to be a form of awareness-raising at the same time. In some cases that is intentional and in others, it may happen as a side-effect.

As presumed, the findings confirm that the relationship between citizen engagement and citizens' perceived legitimacy of the policy tightening can be mediated by conflicts of interests. This happens as soon as clashing standpoints become unveiled and part of the policy debate. If decisions are taken that do not reflect certain standpoints, which is almost inevitable, those who advocate suchlike might feel unheard and frustrated, which may negatively impact their perceived legitimacy of the policy tightening. However, conflicts of interests do not automatically imply for a negative impact. In fact, when people do feel heard, the opposite applies. Furthermore, such conflicts can lead to reconsiderations that present an opportunity to improve the policy formulation.

Awareness-raising approaches are found to be capable to nudge the development of citizens' attitudes towards the given topic. In return, that also implies that awareness-raising can moderate the possible negative effects of conflicts of interests. However, this nudging effect appears to only function for those citizens who do not have manifested, or even hardened, their standpoints, but also for those who are yet doubting between several perspectives. Awareness-raising approaches can manage to direct, or redirect citizens' standpoints, contributing to an increased alignment of the latter. In such cases, the awareness-raising approaches can indeed moderate the negative effects of conflicts of interests, transforming them into positive impacts on the perceived legitimacy.

Altogether, the theoretical background, built from existing literature that this study is based on, appears to be predestined for the achievement of the case-specific desired long-term outcome. More precisely, this is the successful implementation of the Dutch firework policy tightening, including a respective change in underlying culture. Yet, the reality does not always present the optimal and constant circumstances that theories tend to presuppose and consequently does often not unfold as predicted. More specifically, also the investigated case of the Dutch firework policy debate shows that the real-life controversies require for additional considerations, as just presented above.

6.1.2. Limitations and Suggestions for Optimization

As touched upon in the data collection section, this study faces some limitations and possible biases. If the limited scope of this paper, as well as the time frame for this research were to be extended, several points could be optimized.

To begin with, the research question investigated could also be applied to other countries. Following, the outcomes could be compared, which would help to determine the actual generalizability of the findings, increasing their external validity.

In order to increase the internal validity, more interviews could be held. Representatives that should optimally be included are experts from the health sector, such as oculists or doctors, working in the casualty department of hospitals during New Year's Eve, social workers and citizens, or groups of citizens. Additionally, it could be insightful to talk to representatives of all the major political parties, as well as the minister for the environment and living, who put forward the suggestion of the policy tightening. With regards to reaching out to citizens, and in order to gain a more detailed picture of individuals' thoughts and perceptions, surveys could be started, targeting Dutch citizens and residents from different age groups, as well as from different cities and rural areas. For the sake of limiting self-report biases, as well as reflexivity and reactivity issues, the cooperation and help of other researchers could be considered. Possibly, such a collaboration could even turn as synergy that allows to develop research strategies not yet considered. Lastly, it would be interesting to observe the further procedure of the case over a longer period of time that goes beyond the date of policy enactment.

6.1.3. Takeaways for Public Administration and Policy Making

As this research investigates the case of the contemporary Dutch firework policy debate, some of the findings can be translated into relevant takeaways for the policy makers involved. What becomes obvious is that citizen engagement and awareness-raising projects can serve as

impactful strategic tools. With regards to their development and planning, all of the existing theories presented, as well as the additional findings of this research are worth considering. However, it needs to be emphasized that especially the timing of when to actually approach citizens should not be underestimated. Also, if there are intentions to attempt avoiding conflicts, they may be reconsidered. Commonly, it is in the nature of things that conflicts of interests occur and, when given audience, they can actually be insightful and prevent from overlooking important aspects that would otherwise not be taking into account. Furthermore, the connectedness of the firework related issues to other topics, such as environmental and public health challenges, should be clarified with more emphasis to the general public. Finally, concerning the policy tightening itself, and given the related challenge of handling its violations, it might be worth examining an even stricter policy tightening, implying a full ban of fireworks for consumers at any time.

6.1.4. Suggestions for Future Research

Concerning future research, this paper may deliver ideas, serving as stepping stone for related future research. In the following some concrete examples will be suggested. What appears interesting, would be to connect the topic investigated, particularly citizen engagement and awareness-raising, to the field of behavioral sciences, such as behavioral economics and marketing psychology. It could be examined how the existing knowledge about the behavioral and psychological patterns of individuals, could be used strategically to enhance the desired influencing effects of awareness-raising and citizen engagement projects in inconspicuous manners. Also, the optimal use of language and ways of framing could bare yet unexploited potential that could possibly even increase the scale of reach.

Another aspect that might be worth examining is an even more collaborative way of governance that goes beyond the provision of citizen engagement measures. Possibly, new channels for expertise could be opened up, amongst others, increasing the degree to which policy formulations are comprehensively risk-informed. More specifically, such an approach refers to collaboration between traditional policy-makers and non-traditional parties. Traditional policy makers could be public agencies, as well as legislative official, whereas non-traditional parties could be represented by private entities, businesses, interest groups, non-governmental organizations etc.. Even though, this is likely to bring more complexity to the case, it also might allow to consider a fuller spectrum of relevant perspectives which eventually can contribute to a more objective approach. The just mentioned can be relevant for the body of theory in general, as well as for the specific context of the discussed case. Generally, what comes into mind with regards to bringing together different fields of expertise and involving agents of different backgrounds in the context of policy making, are collaborative governance, as well as science-policy interface approaches, promoting dialogue and ensuring the availability of a brought base of knowledge and insights.

What could also be interesting, is to investigate to what extent the Dutch firework policy debate is influenced by lobbying activities that represent distinct interests, not within the meaning of the common good, or even by the possible presence of incidences of corruption. More specifically, aspects such as an unjustified power to prevent or accelerate certain

processes and decisions, as well as the deliberate undermining of the possibility of consensus formation or of the development of pioneering innovations could make part of such influences.

On a final note, it might be worth investing in finding out whether technological innovations, such as light drone shows, could serve as accepted substitute for the original firework tradition. If this is estimated to present an opportunity, the research and development of such innovations could possibly be stimulated by public research funding.

Concludingly, it can be stated that this research expands the body of knowledge and existing literature. Furthermore, this paper may be of added value for all authorities and policy makers involved in the optimization process of the Dutch firework policy. It may also serve as an inspiration for future research, as well as a wake-up call for individuals to consider the far-reaching impacts of the seemingly minor choices they make.

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Appendices

Appendix I - Overview of Interview Requests and Response Rate

The table below presents an overview of people and organisations contacted for interviews. For the ones that actually were interviewed, it also states how they are referred in the research paper above.

Table 7
Overview of People contacted

Organization (Role)	Date of Interview Request	Response	Date of Interview & how person is referred to
Dutch government (general, with request to be forwarded to the ministry of internal affairs)	2 nd of April 2020	<ul style="list-style-type: none"> Forwarded to the ministry of internal affairs No further response 	-

Area Health Authority: GGD GHOR Vlevoeland (general)	2 nd of April 2020	Refusal because of priority on COVID-19 crises	-
Institute of health and environment: RIVM – National Institute for Public Health and the Environment, Centre for Environmental Quality; Communication (1. Environmental system analyst, author & Innovation officer environmental monitoring 2. Researcher Risk & Society)	2 nd of April 2020 Follow-up for 2 nd interview: 16 th of April 2020	Confirmation, including suggestions for sources and further potential interviewees	1.) Environmental system analyst, author & Innovation officer environmental monitoring: 16 th of April 2020 → referred to as: Representative 1 of the RIVM 2.) Researcher Risk & Society: 21 st of April 2020 → referred to as: Representative 2 of the RIVM
Tilburg University, Tilburg Law School (Full professor)	2 nd of April 2020	Refusal	-
iBestuur online (general)	2 nd of April 2020	Refusal with suggestion for other potential interviewee	-
Dutch firework manifesto initiative: Vuurwerkmanifest.nl (general)	2 nd of April 2020	Refusal	-
Parliamentary monitor: Parlementairemonitor – PDC Informatie Architectuur (general)	2 nd of April 2020	Refusal with suggestion for relevant sources	-
I&O Research, Research office for the government and non-profits (Senior research advisor)	2 nd of April 2020	Confirmation	15 th of April 2020 → referred to as: Representative of the I&O Research Institute
Utrecht University School of Law (Law Research Student with special interest in environmental issues)	2 nd of April 2020	Confirmation	11 th of April 2020 → referred to as: Legal expert 1
IMAGEM (Marketing director; Market manager – government)	2 nd of April 2020	Confirmation	16 th of April 2020 → referred to as: Representative 1 of IMAGEM

			(Marketing director) Representative 1 of IMAGEM (Market manager – government)
Municipality of The Hague (Head of political affairs, administration and events)	2 nd of April 2020	Confirmation for response to interview questions in written form	1 st of May 2020 (in written form) → referred to as: Representative of the municipality of The Hague
Municipality of Leiden (Safety – Cluster public affairs, handling and safety & executive staff)	2 nd of April 2020	Confirmation	7 th of May 2020 → referred to as: Representative 1 of the municipality of Leiden (Safety – Cluster public affairs, handling and safety) Representative 2 of the municipality of Leiden (Executive staff)
Law Enforcement in the Netherlands – National Police (general)	2 nd of April 2020	No response	-
People's party for freedom and democracy: Volkspartij voor de vrijheid en democratie (general, with request to be forwarded to the parliamentary party leader)	2 nd of April 2020	No response	-
Dutch municipality association: Vereniging Nederlandse Gemeenten (general)	2 nd of April 2020	No response	-
Tilburg University, Tilburg Law School (Associate Professor, Public Law & Governance)	4 th of April 2020	Refusal with suggestion for other potential interviewees	-

Utrecht University, School of Law (Associate Professor, Law, Economics and Governance; Utrecht Centre for Accountability and Liability Law)	4th April 2020	No response because of illness	-
Concernment association for pyrotechnic: Belangenvereniging Pyrotechniek (general)	4th of April 2020	No response	-
Dutch fire brigade, Central office Amsterdam-Amstelland (general)	16th of April 2020	Refusal with suggestion for other potential interviewee	-
Municipality of Enschede (Safety advisor)	16th of April 2020	Confirmation	24th of April 2020 → referred to as: Representative of the municipality of Enschede
Municipality of Arnhem (Safety administration advisor)	16th of April 2020	Refusal for Interview; Sharing of case-related documents from the municipality of Arnhem	-
Municipality of Maastricht (1st contact: Senior concernment associate for quality of housing and living; Interviewee: Jurist, Advisor for safety and living)	16th of April 2020	Forwarding to Jurist, Advisor for safety and living: Confirmation	30th of April 2020 → referred to as: Representative of the municipality of Maastricht
Expert in Public Health and Integral Health	16th of April 2020	No response	-
Tilburg University, Tilburg Law School (Full Professor, Public Law & Governance)	23rd of April 2020	No response	-
Association for event fireworks: Vereniging Evenementenvuurwerk Nederland (general)	23rd of April 2020	No response	-
NOS op3 (on behalf of the “Hoe vuurwerk	23rd of April 2020	No response	-

zo'n slecht imago kreeg" ("How fireworks got such a bad image") video)

Dutch government (general, with request to be forwarded to the ministry of justice and safety)	29 th of April 2020	No response	-
Dutch government (general, with request to be forwarded to the ministry of infrastructure and water management)	29 th of April 2020	Confirmation to respond in written form (science center: InfoMil, advisor for external safety)	7 th of May 2020 (in written form) → referred to as: Representative of the Kenniscentrum InfoMil, Ministry of infrastructure and water management
Tilburg University, Tilburg Law School – Public Law and Governance (Assistance Professor)	29 th of April 2020	Confirmation	4 th of May 2020 → referred to as: Legal expert 2
Municipality of Tilburg (general)	29 th of April 2020	No response	-
Municipality of Groningen (general)	29 th of April 2020	No response	-
Municipality of Súdwest-Fryslân (general)	29 th of April 2020	No response	-
Municipality of Teylingen (general)	29 th of April 2020	No response	-
Municipality of Terschelling (general)	29 th of April 2020	No response	-
Municipality of Amsterdam (general)	29 th of April 2020	No response	-
Municipality of Rotterdam (Concernment advisor, safety affairs, team for strategy)	29 th of April 2020	Confirmation	7 th of May 2020 (in written form) → referred to as: Representative of the municipality of Rotterdam

Appendix II – Explanation of the Motives for the Interview Requests

To begin with, it is to be mentioned that all of the requests were made based on the motivation to gather shared experiences, opinions and thoughts about the following:

- The perceived legitimacy of the firework policy tightening, including elaborations about why certain perspectives are represented, as well as why they might have

changed over time. Here, as well the personal standpoint as a citizen, as well as the collective point of view was of interest.

- The acquaintance with/ the development and set-up of/ the participation in topic-related citizen engagement projects and their impact on the perceived legitimacy of the firework policy tightening
- Conflicts of interests concerning the tightening of the Dutch firework policy
- The acquaintance with/ the development and set-up of/ the participation in topic-related awareness-raising projects and their possible effect on the conflicts of interests, as well as on the perceived legitimacy of the firework policy tightening
- The reasons for a general trend of an increasing support of the firework policy tightening

Another aspect that was welcomed, were recommendations of relevant sources. Additional motives for approaching the chosen contacts are listed in the table below.

Table 8

Overview of the Motives for the Interview Requests of the Selected Target Groups

Target Audience	Motive for Contacting
Dutch government: ministry of justice and safety	Being responsible for the legal frameworks and ensuring a safe living together, contacting the ministry of justice and safety appeared to be obvious. Furthermore, it was of interest to find out more about the ways, as well as the extent to which the ministry collaborates with other parties, such as experts, municipalities, businesses and citizens.
Dutch government: Ministry of internal affairs	Being responsible for the constitutional democracy, the ministry of internal affairs appeared to be interesting to contact with regards to the handling of the topic-related conflicts on interests, as well as find out more which specific efforts are made to ensure that a firework policy tightening will be perceived to be legitimate by the brought majority of the Dutch society.
Dutch government: ministry of infrastructure and water management	To approach the ministry of infrastructure and water management was recommended by another contact as this ministry is, amongst others, increasingly concerned with environmental issues and the maintenance of safety standards in general.
People's party for freedom and democracy: Volkspartij voor de vrijheid en democratie	The party leader of the Dutch party for freedom and democracy, which is one of the major parties in the Netherlands, talked very openly about the Dutch firework policy debate during a topic-related podcast (Nederpelt & Verkuijlen). Thus, that appeared inviting for contacting, hoping to be able to collect insights about the party's standpoint and respective strategies, the related proceedings in the second chamber more generally, as well as information about the ways the citizens and companies, holding different opinions are being considered.

Institute of health and environment: RIVM – National Institute for Public Health and the Environment, Centre for Environmental Quality	As an independent organization, the RIVM does research in the field of public health and the environment, which are both highly relevant with regards to the Dutch firework policy debate. Furthermore, the institute developed a topic related citizen science project (“samen meten” (Rijksinstituut voor Volksgezondheid en Milieu, n.d. b)) which, being an example of a citizen engagement approach, presented an additional motivation for this particular contact.
Dutch fire brigade	One acknowledged and feared risk of firework activities is the causation of fires. Carrying out the necessary firefighting operations, the fire brigade has first-hand knowledge about such incidences as well as what leads to them and possibly how people react and what kind of consequences might be drawn. To collect more such first-hand information presented the motivation for this particular contact approach.
Dutch national police	A commonly discussed issue is the attacking of social workers with fireworks, especially police men. Next to that, the police handles firework-related policy violations, investigates illegal and black-market activities, as well as serves as a contact point for complaints. To inquire more in-depth first-hand insights about any, or if possible, all of these topics, explains the motivation to approach the national police in this particular context.
Area Health Authority: GGD GHOR Vleeland	This contact was motivated by the organization’s focus on public health services and safety in the Netherlands. It engages with all kinds of related stakeholder which is why its contributions were also of particular interest concerning the questions of conflicts of interest surrounding the topic.
Municipalities & Dutch municipality association: Vereniging Nederlandse Gemeenten	Next getting an idea of how topic-related approaches of municipalities coincide or vary, it was of interest how they interact with the citizens, as well as to gather information about whether they act in close dialogue with the national government and possibly receive related support by the latter.
Health Experts	To contact health experts could have been interesting as firework activities are responsible for many minor, as well as severe and even deadline injuries. However, in times of COVID-19, it was advised by many parties independently from each other to abstain from doing so, which was respected by the researcher.
Legal experts	As a policy tightening obviously presents a legal matter, the opinions of experts about the current approach, as well as their estimations with regards to the ultimate effectiveness and possible flaws, respectively potential room for improvements, were of interest.

iBestuur online	This approach was motivated by the intention to gather more insights about possible online citizen engagement and awareness-raising possibilities.
IMAGEM	IMAGEM was contacted as this company developed an application for municipalities that, among other functions interesting for the analysis of the problem analysis, allows for citizens to easily report firework-related nuisances (IMAGEM, n.d.).
I&O Research, Research office for the government and non-profits	The I&O research institute has published a number of case-related articles and statistics about which more background information were of interest.
Parliamentary monitor: Parlementairemonitor – PDC Informatie Architectuur	As the organization does with all kinds of policy developments in Europe, it stays on top of things regarding the Dutch firework policy debate and provides interesting and most recent updates. A specific interest for this contact, was the collection of more insights about the conflicts of interests, as well as the possible forwarding to other relevant interviewees.
NOS op3	NOS op3 published a video called “Hoe vuurwerk zo’n slecht imago kreeg” (NOS op3, 2019), which translates to “How fireworks got such a bad image”. In this video some firework related history, the development of the firework policy, as well as related campaigns and several attitudes are summarized. Obviously, this implies the presence of a topic-related, broadly holistic pool of information, including the general atmospheric picture. The latter, in combination with the potential opportunity to be forwarded to other relevant contacts, presents the main motivation for this particular request.
Firework companies & Concernment association for pyrotechnic: Belangenvereniging Pyrotechniek	The intention was to gather insights about the perspectives that businesses depending on fireworks have on the related policy tightening. Furthermore, it was of particular interest which issues businesses concern to face as a consequence of the tightening. Another reason to reach out, was the interest to hear if, or to what extent the government invested and opened up for solution-focused dialogues with the firework-related businesses throughout the policy adjustment process.
Dutch firework manifesto initiative: Vuurwerkmanifest.nl	To contact the “Vuurwerkmanifest.nl” was of interest as the organization reconciles all kinds of reasons that speak in favour for a policy tightening. Another motivation for this particular request was to gather more background information about the online petition for a full ban of consumer fireworks.

Appendix III - Coding Scheme for the Interview Transcripts

The table below provides an overview of the interview outcomes, with particular regards to the main concepts investigated. To avoid confusions it is to be mentioned that the representative statements chosen, which mostly appeared in similar manners independently from each other, do not only include positively confirming quotes but can also include such that challenge the respective themes. A more elaborate description of the coding scheme can be found in the section on the *analytical strategy for the interview transcripts* and the analysis of its contents is presented in the section on *findings and discussion*.

Table 9

Superordinate Theme: Citizen Engagement

Subordinate Themes	Listing/ Representative Statements
Citizen engagement projects mentioned	<ul style="list-style-type: none"> • Surveys • Holding face-to-face conversations with citizens and firework-related businesses • Organized clean-up activities • Invitation for ideation regarding alternatives • Possibility to request a firework-free areas • Air quality measurement (citizen science) • Firework-free neighborhood initiatives • (Geo-tracked) applications to submit (anonymous) reports
Increased civic and political understanding & giving audience	<p><i>“I don’t think that talking to people will ever decrease legitimacy in a way. Even if you talk to people who are not supportive of your decision, they simply feel heard. So, I think it always increases legitimacy.”</i> (Representative 2 of the municipality of Leiden)</p> <p><i>“In my understanding citizen science is usually fairly successful in raising awareness and illustrating the risks of fireworks to individuals who would not usually process such risks in their daily lives, and citizen science helps to manifest the immediacy to them.”</i> (Legal expert 2)</p> <p><i>“It definitely gives voice to the people who have been up until now fairly reserved about their feelings about it.”</i> (Legal expert 2)</p> <p><i>“...if we can engage them [the citizens] in our work, then maybe we can increase the understanding of our work to increase the knowledge about air quality and the relation between health and air quality.”</i> (Representative 1 of the RIVM)</p> <p><i>“Because you engage the citizens in the process, they really learn about it and also we believe that the municipality learns what the people think and what they perceive as the truth.”</i> (Representative 1 of the RIVM)</p> <p><i>“Citizens feel heard more, as well as taken seriously. Such projects [citizen engagement projects] can also contribute to a better</i></p>

understanding of the necessity to tighten the policy.” (Representative of the municipality of The Hague)

Signs of acknowledging the necessity for collective action & solidarity

“If governments invite stakeholders to participate and to deliberate in the making of policies, you have to be really careful about the way it’s done. It can be seen to be merely legitimizing the government’s actions that have already been planned. The timing is very important. It cannot happen after, or in the middle of the process where you already are sure what you’re going to do. [...] ...it needs to be done at the right moment. Otherwise it’s just a pro forma thing...” (Legal expert 1)

“...some “neighborhood fathers”, who are key figures, like a dad or a grand-father who is known in the neighborhood and has some respect, helps the youths to clean up together afterwards.” (Representative 2 of the municipality of Leiden).

“So, we have seen mayors of different municipalities have been given the freedom to experiment with firework-free neighborhoods. [...] ...neighborhoods could gather signatures. If they had about 1000 signatures, they could request the municipality to declare a firework-free neighborhood for that year. So, I think you start to see initiatives which allow people to imagine how things could be otherwise.” (Legal expert 2)

“Citizens make arrangements with each other to not set off fireworks in their street or around specific other areas, such as playgrounds and green areas.” (Representative of the municipality of The Hague)

“It is a bit of a social dilemma. It’s fun to use fireworks, but if we all do it, it starts to become a problem. Collaboration by everybody is needed to tackle that problem, which is quiet difficult.” (Representative 2 of the RIVM)

“We want to celebrate with each other and not against each other. That’s the positive message that we want to send out. [...] Also, when you get to talk to each other, you will understand why people do, or don’t like it and you can connect to each other and that’s the most beautiful part about getting people together.[...] People who are willing to talk to each other will make the change.” (Representative of the municipality of Enschede)

Responsive and accountable state and municipalities

“...you have to be very clear when you approach the people. So, we announced from the beginning on that there is the intention for the future to ban fireworks in the entire city [...] ...we also told them that we want to know about their concerns. So, they were happy about that.” (Representative 1 of the municipality of Leiden)

“In general air quality is a big issue in the Netherlands and therefore I believe that many people were happy that that measure was enforced by the government...” (Representative 1 of the RIVM)

“Communication between citizens and the government can have a big impact. [...] Most of the time, such communication is one-way. [...] ...you never get to hear whether the problem could be solved.” (Representative 1 of IMAGEM); *“...let citizens know what is happening...”* (Representative 2 of IMAGEM)

“The municipality asked whether we could also create an app where people can make complaints about fireworks anonymously. So, for us that was very easy. Citizens can simply install the app on their phone and they can say that they experience nuisance from fireworks and from which kind of fireworks. They also made related publicity. Only last year they received more than 12.000 complaints.” (Representative 2 of IMAGEM); *“The app actually also presents a decentralization from the government as municipalities now have to tackle the issues more locally.”* (Representative 1 of IMAGEM)

“...we brought about 350 people together from all over the municipality to talk about fireworks and celebrating New Year’s Eve, what people like and don’t like and how we can change the problems. On that basis, we developed six or seven plans on which people could vote.” (Representative of the municipality of Enschede)

“I think there is an effect though as people appreciate the way the municipality is handling the complaints, directly responding and letting know what will be done – that efforts are made. On social media, there even are people who compliment those approaches.” (Representative of the municipality of Maastricht)

Reach

“But looking at how many people we [the RIVM in the context of the citizen science “measuring together” project] reach, that’s a relatively small group as compared to the Netherlands as a whole.” (Representative 1 of the RIVM)

“Overall, the government listens to all kinds of signals. As only a small part of the citizens participates in citizen engagement projects, it would also be weird if the impact of such initiatives would be very big.” (Representative of the I&O Research Institute)

“But the point is that citizen science is confined to a particular group of people. So, you cannot rely on citizen science alone. Maybe it raises awareness, but more collaboration with other environmentalists, doctors and other scientists is to be considered. This way, one might be able to influence the public opinion. But on its own, citizen science is very limited to a small group of people.” (Representative 2 of the RIVM)

“The number of people participating through the app was very large, which also compensates the inaccuracy of data [referring to citizen science with cheap air quality sensor measurements].” (Representative 2 of the RIVM)

“Also, we know that different age groups need different approaches, such as more social media for the younger age groups.” (Representative of the municipality of Enschede).

Table 10

Superordinate Theme: Awareness-Raising

Subordinate Themes	Listing/ Representative Statements
Awareness-raising projects mentioned	<ul style="list-style-type: none"> • Talking to people face-to-face • (Social media) campaigns • Information on websites • Education at schools • Stories in (local) newspapers • Visible signs distributed in cities • Tragic events: <i>“Unfortunately, it always takes tragic accidents with fatalities to make people realize the danger of consumer fireworks.”</i> (Representative of the municipality of Rotterdam) • Published statistics of firework-related property- and physical damages • Information sessions in community centers • The distribution of safety googles • Examples of other countries • Inviting youths to the fire brigade • Warning pictures showing firework-related injuries and damages • Take groups of citizens to accompany the social workers to become a clearer picture of how it is like
Changes in attitude/ behavior	<p><i>“Now, that I am working with this policy issue in more depth, my opinion has changed.”</i> (Representative 1 of the municipality of Leiden)</p> <p><i>“In 2003, New Year’s Eve cost the municipality 200.000 Euros, and that became less and less over the years. Because of the municipality’s actions, but also because of the decreased toleration for it.”</i> (Representative 1 of the municipality of Leiden)</p> <p><i>“People who didn’t make up their mind yet – you need to try to reach those. Those who did make up their minds, you won’t change their opinion.”</i> (Representative 2 of the municipality of Leiden)</p>

“In January 2020, the public opinion shifted towards a ban. In the Rotterdam council a majority of the city council members supported, for the first time, a total ban.” (Representative of the municipality of Rotterdam).

“It’s a hot topic and people talk about it a lot. Only a couple of years ago, more people were against a tightening as they perceived it to be part of a tradition and wondered why that would be taken away from them, whereas in many countries it’s not actually allowed at all. Over the time, all this information just rippled down in society.” (Representative 1 of the RIVM)

“So, first people need to understand and then a policy can be established. If there is support, people will participate and obey, and for those who don’t, there then are penalties.” (Representative of the I&O Research Institute)

“With regards to the impacts of fireworks on the environment, people also started to wonder whether it would not be a smart idea to stop polluting the air so intensively during the change of the years when facing the challenge of climate change and excessive CO2 exhaustions.” (Representative of the I&O Research Institute)

“You collaborate together with scientists and learn about air quality. That way, you become more aware of the problem which may lead to a decrease in individual’s use of fireworks.” (Representative 2 of the RIVM)

Table 11

Superordinate Theme: Conflicts of Interests

Subordinate Themes	Listing/ Representative Statements
Conflicts of interests mentioned	<p><i>“It costs a lot of money for the fun we have, which is not in proportion”</i> (Representative 1 of the municipality of Leiden) → fun vs. costs</p> <p><i>“...I think they will feel heard. For the people who are against it and really enjoy to light fireworks, it won’t work the same. They will feel like we are not listening to their point of view and they don’t agree with the decision”</i> (Representative 1 of the municipality of Leiden); <i>“Once you start involving citizens, you will also face more different arguments and interests. It can actually lead to fragmentation.”</i> (Legal expert 1) → Clashing interests, such as people who are pro policy tightening vs.</p>

people who are con policy tightening & people who do feel heard vs. people who do not feel heard

“National policies are not going far enough though, because large scale lightening of certain types of fireworks is still allowed. [...] Because of the exceptions that were made, this ban was not very effective. [...] Those who oppose the ban will indeed criticize the ban. Not really the legitimacy but rather the effectiveness.” (Representative of the municipality of Rotterdam).; *“Questions like, is the policy adaptive enough, is it effective, is it legitimate are really interesting. [...] In the firework case, the enforcement is the crucial part of the policy as this is how you get citizens to stop. If the enforcement is too much, there is a high chance that the group of opponents grows stronger. If you enforce it too little, the policy will hardly be effective. It’s a tricky thing.”* (Legal expert 1) → National vs. local political arena & perceived legitimacy of the policy tightening vs. doubting its effectiveness

“If people use the fireworks in the way they should be used, there would be a lot less accidents and nuisance. There would be less conflict. Fireworks are not dangerous if used properly. [...] The further tightening of the firework policy would then not be necessary.” (Representative of the Kenniscentrum InfoMil, Ministry of infrastructure and water management) → conscientious use of fireworks vs. careless use of fireworks

“...when people express different opinions and values about it, it’s going to be more contentious and there will be more conflict. You will see that value systems are not usually compatible.” (Legal expert 2) → conflicting values

“Yet, they [people looking at the outcomes of air quality measurements of the citizen science project] might interpret the data wrongly and if some wrong claims are made, that can cause riots, fights etc..” (Representative 1 of the RIVM) → conflicts about data interpretation

“Otherwise [when not communicating clearly what will be done], there can be a disappointment and that can lead to conflicts. [...] You can imagine that if people are in the disappointed state, they are a lot more prone to enter a conflict. There are many emotions...” (Representative 1 of the RIVM)

“There is a lot of polarization, also from people who are aware and have the feeling that they cannot really change anything.” (Representative 1 of the RIVM) → polarization and frustration creating high potential for conflicts

“There is a lot of polarization in society on many topics and we also see that with fireworks. People who are pro and con don’t look for middle grounds to solve the problem but just stick to their point of view and go loose, also on social media. [...] So, it encourages people who like fireworks, but doesn’t give a voice to the people who like fireworks and use them in a sensible way.” (Representative of the municipality of Maastricht) → media portrayal as amplifying factor

“If people speak up and different opinions and dissents become obvious, a debate with hardened standpoints can emerge.” (Representative of the municipality of The Hague)

“There are different points of views. From a collective point of view, it’s quiet stupid that fireworks are allowed. From an individual point of view, it’s a tradition and it’s fun.” (Representative 2 of the RIVM) → conflict between the common good and the myopic self-interest of individuals

“Another issue in Maastricht is that we are pretty close to the German and Belgium border. Especially in Belgium you can buy fireworks all year round.” (Representative of the municipality of Maastricht) → The problem of constant availability of neighbor markets, as well as illegal markets

Policy violations

“There are still people who violated it [ban of fireworks in the city center].” (Representative 1 of the Leiden municipality)

“...this week, I have heard about 15 fireworks going off. It’s constant throughout the year and that shows how stubborn the community of people is who wants to continue to be able to use them.” (Legal expert 2)

“Usually, there is just a handful of people who are spoiling it for everyone, not obeying the rules.” (Representative 1 of IMAGEM)

“Over the year, especially during the last months of the year, people are going to shoot fireworks in the air.” (Representative of the municipality of Enschede)

Table 12

Superordinate Theme: Perceived Legitimacy

Subordinate Themes	Listing/ Representative Statements
Trust/ confidence in the government/ the policy tightening	<p><i>“The survey has shown that the majority supports a ban, which justifies the decision. [...] ...you have the majority of the city supporting you.”</i> (Representative 1 of the municipality of Leiden)</p> <p><i>“The more data is collected, the more statistically relevant the data becomes.”</i> (Representative 1 of the RIVM)</p>
Signs of recognizing/ obeying/ supporting the tightened policy contents	<p><i>“...we did some research after the New Year’s Eve. 70% are supportive of a ban in the entire city”</i> (Representative 1 of the Leiden municipality)</p> <p><i>“There is more attention for the damages caused by fireworks. Nowadays people seem to tolerate that less than in the past.”</i> (Representative of the municipality of The Hague)</p>
Compliance with the governmental regulations	<i>“So, there is a public call for banning fireworks altogether, or according to how the Dutch government proposed it.”</i> (Representative of the municipality of Maastricht)
Sense of policy ownership	<p><i>“When they [policy makers and municipalities etc.] become more aware of what people perceive as a problem, or when they come across a new area in their city where there actually is an air quality problem [in the context of the “measuring together” project] that has not been detected before, they can become more aware. If both parties are more aware, legitimacy will rise.”</i> (Representative 1 of the RIVM)</p> <p><i>“People should be given the tools to make decisions for themselves. But of course, the government should ensure the safety of the citizens, as well as the environment, even before the citizens can make their decisions.”</i> (Representative 1 of IMAGEM)</p>

Table 13

Other Emergent Themes

Other Emergent Themes	Listing/ Representative Statements
Ignorance	<p><i>“Some people ignored it [ban of fireworks in the city center] or at least actively opposed it.”</i> (Representative 2 of the municipality of Leiden).</p> <p><i>“Some people also claimed to not have known about the ban. Yet, the survey has shown that more than 80% has actually known about</i></p>

	<p><i>it. [...]People know, but might choose not to know.” (Representative 1 of the municipality of Leiden)</i></p> <p><i>“They use alcohol, don’t read the instructions and don’t use the articles as they should.” (Representative of the Kenniscentrum Infomil, Ministry of infrastructure and water management)</i></p> <p><i>“People don’t want to know and that way close themselves off to perfectly logical arguments.” (Legal expert 1)</i></p>
Age	<p><i>“...the country has been hold hostage by a group of 15-35 year old boys who insist to light their fireworks whenever they want.” (Legal expert 2)</i></p> <p><i>“When I go outside during New Year’s Eve, I am always a little bit scared as there are so many teenagers just throwing around fireworks.” (Representative 1 of the RIVM)</i></p> <p><i>“At some point the ministry of justice and security commissioned an analysis about the change of people’s opinions from the WODC [Scientific Research and Documentation Centre], where age and education turned out to play significant roles.” (Representative of the I&O Research Institute)</i></p>
Matter of time	<p><i>“...many people respected it [ban of fireworks in the city center], but not everybody – it will take some time.” (Representative 1 of the municipality of Leiden)</i></p> <p><i>“If any drastic change of policy were to occur, it would take many years for it to really settle down.” (Legal expert 2)</i></p> <p><i>“It’s [the alternative of central firework shows] a bit of a transition possibility.” (Legal expert 2)</i></p> <p><i>“The tradition of a free policy on fireworks is longstanding and is for a lot of people a fundamental Dutch right. It is acknowledged that some people misuse this freedom. [...] ...but if you try to change deeply rooted traditions you will always have people who will say “but we have always done that”, “it’s a nice tradition” etc.. It’s a change of behavior, including all kinds of cognitive mechanisms. But maybe what people think is more emotion-based, which makes it difficult.” (Representative 2 of the RIVM).</i></p>

“Many people see the fireworks as a cultural heritage used by many generations. If you want to take that away all of a sudden, that’s going to hurt a lot of people. So, it’s a cultural change that has to take place.” (Representative 2 of IMAGEM)

“Overall, we hope to change the mind-set. [...] It’s going to take a long time. [...] It takes a change of culture and mind and that will take years. You have to start slowly and find people who support you and then spread it out.” (Representative of the municipality of Enschede)
