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The Public Debate on Natural Gas Extraction in Groningen

A Shift of Framing and its Regulatory Consequences

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Acknowledgement

The work reported is my thesis '*The Public Debate on Natural Gas Extraction in Groningen: A Shift of Framing and its Regulatory Consequences*'. By writing this thesis, I completed the Double Degree Program of my master's degree in European Studies at the University of Twente and the Westfälische Wilhelms-Universität Münster. In two years, the double degree Program dealt with a wide variety of subjects, from the European Union legal framework to the geopolitics of oil and gas and from international relations to global sustainability governance. Due to a course on decision-making at the Westfälische Wilhelms-Universität Münster taught by Dr Nguyen Long, my attention was caught by the lack of policy change after the earthquakes caused by gas extraction in Groningen. After an inspiring meeting with Dr Nguyen Long and Dr Ossewaarde, I decided to write my thesis about framing in the public debate on gas extraction in Groningen and its regulatory consequences. In the following five months, I worked on this subject. Before you start reading, I would like to express my sincere gratitude to Dr Nguyen Long and Dr Ossewaarde for their excellent guidance, inspiration and suggestions in my quest for knowledge. More than once you have narrowed down the scope and improved the focus of the thesis. Without your guidance, completing this thesis would not have been possible. Moreover, I would like to thank Colette Dente and Ralph Voortman for giving me advice on reformulating and restructuring my thesis. Additionally, I would like to thank my friends who I met during and prior to my studies for making my student years an educational and fun time. Finally, I want to take this moment to express my gratefulness to my parents, brothers and sister for their love, support and encouragement throughout my whole life. For now, I hope you can recognize the effort, joy and personal development I have experienced while writing this thesis.

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Abstract

This thesis reconstructs how the issue of gas extraction in Groningen was framed in the Dutch public debate prior to the 2018 decision to gradually reduce gas extraction to zero by 2030, which was an important decisions as it offered opportunities for the Netherlands to move away from fossil fuels towards cleaner forms of energy and to reduce the greenhouse gas emissions, agreed upon by the European Member States in the Paris Agreement. As the media presents the public debate, in which all kinds of actors shape public opinion, it provides insights about the government's decisions to terminate gas extraction in Groningen. In order to investigate the framing in the public debate, this thesis conducted a frame analysis of in total 70 newspaper articles in the media peaks of the quality newspapers *de Volkskrant* and *NRC Handelsblad* published from 2009 to 2017 with a set of five generic frames produced by Semetko and Valkenburg (2000) and five specific frames based on the theory of Dodge and Lee (2015) and Metze (2017). Moreover, the agenda-setting theory of Kingdon's Multiple Streams Framework was used to explain how the story caught the attention and developed into an issue. The results demonstrated that the framing of gas extraction in Groningen shifted from 'business as usual' to a 'human and environmental risk'. The story was increasingly framed as an issue as (1) the problem indicators of the gas extraction were emphasised (problem stream), (2) there was reference made to immorality, injustice and responsibility was attributed to actors (political stream), (3) a technically and morally acceptable solution was promoted (policy stream) and (4) it was championed by all sorts of actors (Kingdon, 2003). The story was reframed into an issue by all sorts of actors and there appeared a shift in the national mood (Kingdon, 2003), which influenced the government's decision to terminate the gas extraction in 2018. Moreover, there was an increase in media attention for the issue, which put more pressure on politicians to act (Baumgartner and Jones, 2009). The research implication of this thesis is that framing typologies and Kingdon's Multiple Stream's Framework provide valuable insights into analysing framing in the public debate. Additionally, the social implication of this thesis is that there should be awareness of framing processes by all kind of actors and audiences, as it has implications for decision-making. In order to provide a better understanding of the frames in the public debate on gas extraction in the media, future research should investigate all the available articles from newspapers and other media outlets from 2009 to 2017.

I. Introduction

§1.1 Context

The media are the most important source of information regarding political issues for most people, which gives them influence over a citizen's perception, opinion and behaviour. By selecting to report about some political issues but not on others, and by representing political issues they report on in particular ways, the media affect the political outcomes of these issues. In doing so, the participants, including state officials, political parties, interest groups and activists aim to exploit the media to achieve their goals.

In the last decades, the need to understand the relationship between the media and politics have become more pressing. On the one hand, there is extensive literature on how politicians use the media to communicate their message. Nimmo (1970) argued that a successful election campaign for politicians depends on the successful use of the media. Moreover, Cohen, Tsfati and Sheafer (2008) argued that much of what politicians do is driven by their belief in media power, which motivates them to appear in the media. On the other hand, since the 1980s, there was increasing interest in the influence of the media on politics. An explanation for this increasing interest is the foundation of the first 24-hour cable news channel CNN by Ted Turner (Entman, 1991; Baum & Potter, 2008). This news channel had an impact on states' foreign policy in the late Cold War. Robinson (1999) researched the influence of United States news media on foreign policy regarding a humanitarian intervention and concluded that the media did not objectively report on the issue, as the media pressured politicians to act. This pressure would not have existed if the media reported about the issue in a less emotive or distant manner. Furthermore, Gowing (1996) argues that media coverage can change government strategies, although only on rare occasions. Contemporary research concludes that media framing affects policy-making on recent political issues in Europe. Kosho (2016) researched the migration crisis in Europe and concluded that the European media influenced public opinion attitudes towards the crisis, which affected policy-making. Furthermore, Baysha and Hallahan (2004) researched how Ukrainian news media reported on the Ukrainian political crisis and concluded the media made use of framing to distort the process of finding a solution for the political problems. All in all, the literature produced by scholars demonstrate that the media make a difference in politics.

As the media can make a difference in politics, some academics have expressed concerns about how the media presents information about the government and the private sector. Herman and Chomsky (1988) suggested that the primary function of media is to mobilise public support for powerful interests of the government and private sector and that the manipulation of information is used to serve more powerful interests and marginalise other views. Lowe & Morrison (1984) argued that the media "favor existing social relationships and dominant ideology at the expense of other views" (p. 77). Similarly, Edwards (1998) finds that journalists and editors shape the public agenda based on dominant news values and noted the following about the relationship between the media and environmentalists: "Environmentalists--no matter how accurate or brilliant their facts and ideas--will certainly encounter institutionalised obstacles to the communication of messages which threaten state and business interests; and few issues are as potentially costly as the environment" (p. 21). Opperhuizen, Schouten and Klijn (2018) claim that media want to attract a large audience because of commercial pressure, which has consequences for the framing. They suggested that the media would make news more sensational. However, there is also a more optimistic view, which is illustrated by Gamson et al. (1992, p. 373):

> *The good news is that the [media] messages provide a many-voiced, open text that can and often is read appositionally... The underdetermined nature of media discourse allows plenty of room for challengers, such as social movements to offer competing constructions of reality.*

By reporting about events and issues, the media can raise awareness, which is referred to as agenda-setting (Kingdon, 2003). However, the role of the media goes beyond producing information since it influences how situations are conceived (Cho & Gower, 2006). The media shapes public opinion by selecting what information should be presented. In doing so, it creates opportunities to benefit some ideas or actors over others, which could be referred to as framing. Entman (1993, p. 52) defines framing as follows:

> *To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described.*

One interesting case of media framing is regarding gas extraction in Groningen. Since 1963, natural gas has been extracted from the Groningen gas field near the former municipality of Slochteren[1]. Gas production has generated approximately 290 billion euros for the national government over the years (Mulder & Perey, 2018). The revenues were mainly used for social welfare, pensions, healthcare, infrastructure, education and the interest on the national debt. However, gas extraction in Groningen had many consequences for the people in Groningen, as many earthquakes in Groningen occurred. Nevertheless, despite the consequences of the earthquakes, the government and the energy exploration and production company 'Nederlandse Aardolie Maatschapij' (NAM), which is a joint venture between Shell and ExxonMobil, decided to continue gas extraction. As a result, there was a sense of anger and powerlessness by the people from Groningen. Things started to change slowly after the large earthquake occurred underneath Huizinge with 3.6 on the Richter Scale on 16 August 2012, after which the NAM received 1900 damage claims. As a result, Henk Kamp, Minister of Economic Affairs, commissioned fourteen different studies. These studies concluded that continued gas extraction would lead to increasing problems. Additionally, the 'State Supervision of Mines' (SodM), an independent safety panel, published a report in 2013, in which they warned that continued gas extraction would lead to more frequent and stronger earthquakes than previously experienced. Therefore, it advised reducing gas production in Groningen. Moreover, the 'Dutch Safety Board'[2][3] released a report in 2015, in which they noted that the operators of Europe's largest gas field, Shell and Exxon Mobil on the one hand and the Dutch government on the other, ignored the dangers for inhabitants of Groningen posed by earthquakes for years. When Minister Wiebes visited Groningen in 2017, he described the government action to help the Groningers with the settlement for the damage caused by gas extraction as "Dutch government failure of un-Dutch like proportions" (NOS, 2017). Additionally, the Committee on Economic, Social and Cultural Rights of the United Nations published a report on July 2017, in which it requested the Dutch state to ensure the physical safety and mental health of the Groningen inhabitants, the security and safety of their homes, reasonable compensation to the victims of the earthquakes and prevent damage in relation to gas extraction in Groningen (United Nations Committee on Economic, Social and Cultural Rights, 2014; United Nations Committee on Economic, Social and Cultural Rights, 2017). Despite that the earthquakes were a major threat for the Groningen citizens, the gas extraction in Groningen continued for a long time. It was only on 29 March 2018, after more than a thousand earthquakes, that the government decided that the natural gas extraction will

[1] Located in the north-eastern part of the Netherlands in the Groningen province
[2] Translated in Dutch: 'Onderzoeksraad voor Veiligheid'
[3] An independent safety panel

be gradually reduced to zero by 2030. The termination of the gas extraction offered opportunities for the Netherlands to move away from fossil fuels towards cleaner forms of energy and to reduce the greenhouse gas emissions, agreed upon by the European Member States in the Paris Agreement. The European Union is at the forefront in global efforts to fight against climate change with its energy policy framework, which facilitates the transition away from fossil fuels towards cleaner forms of energy and delivers on the European Union's Paris Agreement commitments for reducing greenhouse gas emissions. To understand whether there is a correlation between media framing and the 2018 decision to terminate the gas extraction, this study investigates the news coverage of the controversial issue of the Groningen gas extraction.

There is evidence that suggests that media framing occurred on natural gas extraction in Groningen. Opperhuizen, Schouten and Klijn (2018) conducted a frame analysis of the media coverage of the Groningen gas extraction from 1990 to 2015 and concluded that there was an increasing focus on crisis and conflict and increasing media attention, which led to that the pressure on politicians to act. However, whereas Opperhuizen, Schouten and Klijn (2018) analysed the media framing between 1990 and 2015, they did not analyse the media framing in the years prior to the 2018 decision to gradually decrease gas extraction to zero. Neither did they analyse the relationship between media framing and the decision to terminate the gas extraction in 2018. This study will scientifically explore this gap.

§1.2 Research Questions

In order to investigate the frames in the public debate on gas extraction, this study conducts a frame analysis of media coverage. In doing so, the media framing of natural gas extraction over time is analysed in order to determine whether these developments can shed light on the decision to terminate gas extraction in Groningen in 2018. This study analyses 35 newspaper articles of *de Volkskrant* (a centre-left quality newspaper) and 35 articles of *NRC Handelsblad* (a centre-right quality newspaper) in the media peaks of the Groningen gas extraction from 2009 to 2017. The news is not always an exact representation of reality but rather a reconstruction of reality from the perspective of all kinds of actors. There are not only facts stated in the news, but issues are defined and constructed by making use of framing.

Accordingly, the following research question was formulated:

How do media frame the Groningen gas extraction?

In order to answer the research question, the following sub-questions were developed:

1. *"Which generic and specific frames appear in the media coverage of the Groningen gas extraction and is there a shift of frames?"*

In order to analyse the news coverage about the Groningen gas extraction, a set of five generic frames developed by Semetko and Valkenburg (2000) and a set of five specific frames based on the study of Dodge and Lee (2015) and Metze (2017) are used. The use of frames makes it possible to rapidly determine *why* an issue is important, *who* is responsible and *what* the consequences may be (McCombs et al., 1997). Furthermore, the frames provide insights into whether the story is problematised in the media. As the media presents the public debate with perceptions of all sorts of actors, it provides insights about the government's decisions to terminate gas extraction in Groningen. In the literature on policy emergence and change, change is commonly seen as resulting from a shift in perceptions about the policy problem (Baumgartner & Jones, 2012). Similarly, Kingdon (2003) argues that policy change occurs when there is a shift in the national mood. This means that there is a shift in how a large

number of people in a country are thinking about an issue. This study analyses whether or not there appeared a shift in framing in the news coverage, which could be an explanation for the 2018 decision to terminate gas extraction.

2. *"Which actors inside and outside the government appear in the media coverage of the Groningen gas extraction and is there a shift of appeared actors?"*

Kingdon (2003) argues that a story becomes an issue when various actors champion the issue. In order to determine whether various actors champion the issue, a content analysis will be conducted to investigate the presence of the actors in the news coverage. However, when certain actors have more possibilities to reflect their views on the issue than others in the media, this has consequences for the public debate and thus policy-making. Reed et al. (2009) argue that anyone who is impacted by or impacts a policy choice is a relevant actor to study. The government is a dominant actor in the policy process of gas extraction in Groningen since it is responsible for the implementation of policies. An important reason for the government to continue the gas extraction is that the gas revenues were used to uphold the welfare state. Another influential actor in the Groningen gas extraction is the NAM, which is responsible for the gas extraction process and has to take into account the profitability of gas extraction for their company. The relationship between the government and the fossil fuel industry is of interest here since the government and the fossil fuel industry have a similar financial interest. On the other hand, the Groningers experience the consequences of the earthquakes and are against gas extraction. Therefore, the Groningers pressures the government, sometimes via interest groups, to terminate gas extraction. Other actors that play a role in the issue is the SoDM, which supervises the energy extraction in the Netherlands and the Dutch Safety Board, which investigates the causes and consequences of the Groningen gas extraction. The presence of the actors in the news coverage can teach us more about how the media creates the public debate.

3. *"How do media pay attention over time to the Groningen gas extraction?*

Baumgartner and Jones (2009) studied public risks in the United States and concluded that increasing media attentions put more pressure on policy systems. Whereas the frame analysis gives more information about whether the issue is problematised in the media, counting the media reports over time provides insight into whether the media puts more pressure on politicians to act regarding the Groningen gas extraction.

§1.3 Outline

This study positions the research within the theoretical framework in chapter 2. In this chapter, a foundation is established for the analytical part. Kingdon's Multiple Streams Framework is discussed in order to show how all kinds of actors affect the agenda-setting process. Moreover, in order to understand framing and the role of framing in the policy process, framing literature is discussed. Kingdon's Multiple Streams Framework and framing theories are relevant to discuss, as these theories are applied to news coverage to investigate the 2018 decision to terminate gas extraction in Groningen.

The method is described in chapter 3. First, for a better understanding of the issue, a background on gas extraction in Groningen is given. As stated before, in order to investigate the public debate and policy change regarding the gas extraction in Groningen, Kingdon's Multiple Stream's Framework and framing theories are applied to Dutch news coverage.

The results of the analysis are given in chapter 4. This chapter answers the three sub-questions of this study.

The main conclusions about the results are presented in chapter 5. In doing so, the research question is answered. Moreover, this chapter discusses the implications of the study and gives recommendations for future research.

II. Theoretical Framework

In order to provide a better understanding of the theories and concepts underlying the research topic, a review of the theory was conducted. Kingdon's Multiple Streams Framework and framing theories are used to explore the public debate and to explain the 2018 decision to terminate gas extraction in Groningen. Therefore, these theories are further discussed in this chapter.

Paragraph 2.1 provides the theory of Kingdon's Multiple Streams Framework. This paragraph explains how agenda-setting and policy change occurs. In doing so, there is a focus on the role of the media in the agenda-setting process.

Paragraph 2.2 explains which participants inside and outside the government, as described in Kingdon's Multiple Streams Framework, affect the agenda. In doing so, particular attention is given to the role of the media.

Paragraph 2.3 provides the framing literature behind the frame analysis. In doing so, the concept of framing, framing typologies and the influence of framing on policy change is explored. Again, there is special attention paid to the role of the media in the policy process.

§2.1 Kingdon's Multiple Streams Framework

Change plays an important role in the evolution of policy. In the literature on policy emergence and change, change is commonly seen as resulting from a shift in perceptions about the policy problem (Baumgartner & Jones, 2012). This process of problem (re)definition involves debates between competing groups who put forward different definitions of a policy problem and compete for the attention of policymakers. The new definitions which vie to replace old ones may be shaped by the belief systems of policy actors, as discussed in the Advocacy Coalition Framework (Sabatier & Weible, 2014). Or, these new definitions may find their basis in an updating of their views on the issue that comes from receiving feedback, which indicates the old view on the issue is outdated, as discussed in the punctuated equilibrium theory (Baumgartner & Jones, 2012).

In the Multiple Streams Framework, policies can change when an issue transitions from the governmental' agendas[4]—"the list of subjects that are getting attention"—and find its place on 'decision' agendas—the "list of subjects within the governmental agenda that are up for an active decision" (Kingdon, 2003, p. 4). The opportunity window for such a transition opens up when three independent streams are identified, namely a problem stream, policy stream and political stream[5]. These three streams are coupled by a policy entrepreneur[6].

[4] Kingdon (2003, p.3) defines the agenda as "the list of subjects or problems to which governmental officials, and people outside government closely associated with those officials, are paying some serious attention at any given time".
[5] See Figure 1
[6] Kingdon (2003, p. 179) defines policy entrepreneurs as "advocates who are willing to invest their resources--time, energy, reputation, money—to promote a position in return for anticipated future gain in the form of material, purposive, or solidary benefits responsible for the coupling of the streams".

§2.1.1 Problem Stream

Kingdon (2003) argued that the first stream consists of problems, to which important people in and around the government pay attention to. Their attention is affected by a systematic indicator of the problem, focusing events, feedback and the way problems are defined. Regular problems do not get to the attention through political pressure or tricks, but via systematic indicators that show there is a problem out there. These indicators are found in various activities and events, which are monitored by both governmental and non-governmental agencies (Kingdon, 2003). Decision-makers and those close to them use these indicators in two main ways: to determine the magnitude of the problem and to be informed about changes in the problem. The determination of indicators is a matter of interpretation, since there always will be disputes about whether something is a problem, and, if a problem, whether it is something the government should address. Since problems are often not self-evident by the indicators, sometimes other factors contribute to these, such as a focusing event like a crisis or disaster that comes along, a powerful symbol that catches on, or the personal experience of a policymaker. Large crises demand some kind of action, which subsequently means inaction is also a decision.

The media can identify a problem and magnify it by emphasising crisis and conflict instead of harmony and continuity. Moreover, the media can give significant media attention to a problem, which can give it agenda prominence. However, the media attention to it could fade or even disappear. This occurs when the media feel like they have solved or addressed the issue sufficiently. Consequently, they turn their attention to another issue, which subsequently leads to a fall of the issue on the agenda. Anthony Downs (1972) calls this the issue-attention cycle.

§2.1.2 Policy Stream

Kingdon (2003) compares the policy stream with a 'primeval soup' of ideas about solving issues that compete to be accepted in policy networks. These ideas are poured into the soup by specialists in the policy community that include researchers, staff members, bureaucrats, academics and interest group analysts. These ideas float around, are revised and combined in this soup. Additionally, these ideas confront one another and subsequently, some ideas and proposals are selected for survival in this 'soup', while others are discarded. Only those ideas that meet certain criteria are able to survive. Kingdon proposes two important criteria for ideas to survive in policy networks, which are technical feasibility and value acceptability by the policy community. 'Technical feasibility' could rely on budgetary impacts but is more often concerned with whether the idea is a proper solution to the problem. 'Value acceptability' relies on the compatibility of a solution with the values of the members of the policy network.

The media can draw attention to an issue when there is a technically and morally acceptable solution for it available. Moreover, the media frames influence opinions by stressing specific values, endowing them with greater apparent relevance to the issue than they might appear to have under an alternative frame without those values (Nelson, Clawson and Oxley, 1997; Knaggård, 2015). In doing so, specific values can make frames more successful or pervasive (Knaggård, 2015). Therefore, when the media use frames with values that correspond with the values of a certain policy network, the frames have likely more influence on these policy networks than the use of frames without these values.

§2.1.3 Political Stream

Kingdon's (2003) third and last stream is the political stream, which includes factors that influence the body politic, such as pressure-group campaigns, administrative or legislative turnover through elections and the ideology of the dominant parties in Parliament. Developments of these elements in the political stream have a significant impact on agendas since new agenda items become prominent and others are made less important until a more propitious time. Kingdon (2003) argued that people in and around the government sense and are guided by a national mood. The national mood means that a large number of people in a country are thinking along certain common lines. Other names used for this phenomenon are the climate in the country, broad social movements or changes in public opinion. The national mood is subject to change, which has a large impact on policy agendas and policy outcomes. Changes in the national mood do not occur only in a certain policy community but are something more general since a whole environment is moving in a certain direction. In order for social movements to have a policy impact, organisation and strong leadership are required. When social movements become successful and become popular among the general public, they could have electoral impacts. Politicians see opportunities for the electoral payoff, which could be a motivation to support the movement. Sensing the national mood works in two directions. First, politicians sense the mood of the electorate via personal communications, including mail and individual and town meetings. Second, nonelected officials sense the national mood from what they hear from politicians.

The media can transform a story into an issue by appealing to the national sensibility. In doing so, they refer to what people identify as just and moral or a priority. The media reflect and affect the national mood in the country (Kingdon, 2003). Politicians sense the national mood, among other things, via the media. The media affects the body politic by shaping problem perception. What the public and politicians know about the world is, among other things, based on the information that the media provides. As a result, the priorities of the media can become the priorities of politicians and the public (McCombs, 2002). The media use framing to affect which problems legislator's pay attention to and how they perceive it. By emphasising crisis and conflict, the media can affect people in the government to pay attention to certain issues more and even put pressure on them to act (Baumgartner and Jones, 2009).

§2.1.4 Coupling

Kingdon (2003) notes that the streams are usually independent, but windows of opportunity occasionally open that allow for the streams to interact. A window of opportunity can open due to a change in the politics stream. Illustratively, this could be a change of administration, a shift in the partisan or ideological distribution of seats in parliament, or a shift in the national mood. When all streams are coupled by an entrepreneur, policy can be made.

Mu (2018) visualised Kingdon's Multipole Streams Framework (Figure 1). The three blocks positioned at the left side of the illustration represent the problem, politics and policy stream. The problem stream consists of indicators, focusing events and feedback, which policymakers find and want to address; the politics stream consists of the national mood, pressure-group campaigns, administrative or legislative turnover; and the policy stream consists out of 'soup' of ideas that must have value acceptability and technical feasibility. The block at the right side of the illustration represents the policy output, which is created when the three streams are coupled or come together at certain moments in time. Thereby, solutions are developed in response to specific problems (consequential policy process) and other times, policies are made on the basis of a political doctrine (doctrinal policy process) (Mu, 2018; Zahariadis, 1996). When a window of opportunity appears, visible in the centre of the illustration, coupling can

take place. Policy entrepreneurs, present in the block at the bottom right, facilitate and manipulate the coupling (Mu, 2018; Zahariadis, 2007). They use their access, resources and various strategies, such as framing, affect priming, salami tactics and the use of symbols, to bring problems and solutions together and find politicians that take over their ideas (Zahariadis, 2003).

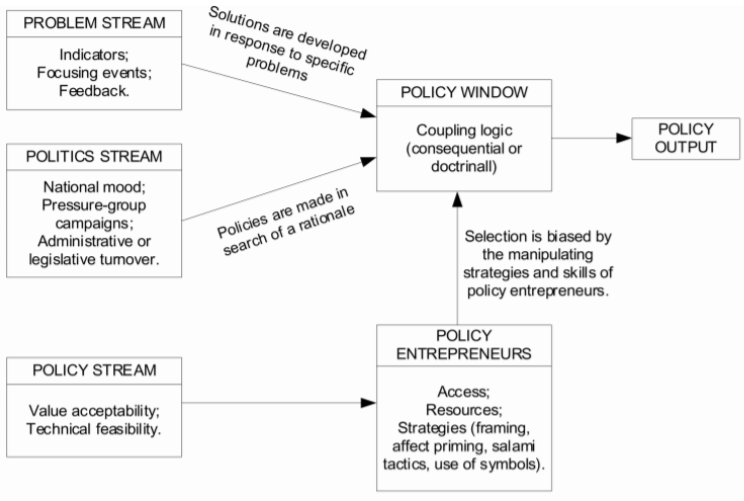

Figure 1: Multiple Streams Model (Mu, 2018)

Mu (2018) argued that policy entrepreneurs, such as the media, advocate particular solutions and problematic preferences. They have access to policymakers, they own resources and make use of strategies, such as framing, affect priming and the use of symbols. When a policy window opens, a policy entrepreneur must immediately seize the opportunity to take action. A policy entrepreneur uses its access, resources and makes use of framing to attract problems to their solutions and find politicians receptive to their ideas. However, the policy entrepreneur's selection is biased by manipulating strategies and skills of framing, affect priming, salami tactics and use of symbols. Policy entrepreneurs use these strategies of manipulation to couple the streams. In doing so, they manipulate the actual selection process. Although policy entrepreneurs do not primarily decide on policies, they do bias toward some options and away from others.

Framing plays an important role in the policy process. Knaggård (2015) argues that the first function of framing by policy entrepreneurs in the policy process is to put something on the agenda. Thereby, problem definition plays an important role. According to Kingdon (2003, p. 19), "people define conditions as problems by comparing current conditions with their values concerning more ideal states of affairs, by comparing their own performance with that of other countries, or by putting the subject into one category rather than another". Although Kingdon emphasises the role problem definition, it does not go into detail about the role of framing in the policy process. Knaggård (2015) sees framing as a condition for the problem to make us think about it in a certain way. In doing so, framing can establish a bridge between the belief that something is wrong and needs to be acted upon politically and the tools for measuring the problem. Additionally, Knaggård (2015) argued the framing of an issue makes certain policy alternatives plausible and other alternatives inconceivable. In doing so, Knaggård noted that framing and reframing of public problems can open up possibilities to couple the problem to new types of policy alternatives. Meriläinen and Vos (2013) and Zhu (1992) argue that framing is like a zero-sum game. As one issue receives increasing attention, as a result, another

issue can receive decreasingly attention. Using the right kind of framing can help achieve salience for a certain issue.

Researches in the field of unconventional gas extraction or 'fracking'[7][8] show how framing by various actors in the policy field can induce policy change. As fracking has a controversial nature, it could be framed in various ways, namely as an 'energy game-changer', a 'transition fuel' and a 'technology that poses severe environmental risks' (Metze, 2018). The work of Dodge and Lee (2015) focused on the framing of fracking for shale gas in New York between 2008 and 2014 and concluded that framing of various actors influenced the "gridlock" on the issue. Whereas gridlock typically is defined as "policy stability" or "maintenance of the status quo", Dodge and Lee (2015) concluded that it is more a process of interactive framing that (re)structure the discussion. This contest has developed from a policy consensus about the economic benefits of fracking to policy negotiation that incorporated environmental threats, to prolonged policy controversy. Similarly, the work of Metze (2017) analysed the framing of fracking in the Netherlands between 2010 and 2013 and concluded that the issue was reframed from a standard operating procedure to a potential environmental risk, which induced policy change.

In order to understand which participants are involved in the policy process, the participants inside and outside the government are discussed in the following paragraph.

§2.2 Participants Inside and Outside the Government

Kingdon (2003) argued that although the line between participants inside and outside of government is difficult to draw, there is a distinction between these two groups since people inside the government have formal authority by statute and by the constitution, which is a status that people outside of government do not have.

Kingdon (2003) noted that actors inside the government are the administration, which consists of the president, staff in the Executive Office and his political appointees, which are important for agenda-setting. However, they have less control over the alternatives that are considered. When a president himself and the top appointees give priority on a certain issue, many other actors in the policy process do too. Career civil servants do not play a significant role in agenda-setting, relative to other participants, but they have more an impact on policy alternatives. Congress is important for both agenda-setting and policy alternatives. The recourses of Congress include "legal authority, publicity, longevity, and a blend of political and technical information" (Kingdon, 2014, p. 43). Thereby, elections results that cause a change in administration and congressional turnover have an impact on agendas. Additionally, politicians' perception of the national mood affects agendas.

Kingdon (2014) argued that other participants outside the government include interest groups, academics, researchers, consultants, political parties and other election-related actors, the mass public and the media. Interest groups are among the most important actors outside the government in the agenda-setting process since they are concerned with the protection of current benefits and prerogatives. They affect the governmental agenda more by blocking items than by promoting them. In doing so, they preserve prerogatives and benefits they are currently enjoying and block initiatives that they believe would reduce those benefits. "A group that mobilizes support, writes letters, sends delegations, and stimulates its allies to do

[7] Also known as "hydraulic fracturing"
[8] A technique designed to recover gas and oil from shale rock.

the same" (Kingdon, 2014, p. 49). However, it is still difficult to assign responsibility for the emergence of agenda items solely to interest groups. Generally, interest groups more often block or propose amendments to or substitutions for proposals that are already on the agenda. After interest groups, the group of academics, researchers, and consultants is the most influential group of nongovernmental actors. Their ideas are regularly discussed by government officials, bureaucrats and lobbyists. The impact of this group may affect the alternatives more than the governmental agendas.

Kingdon (2003) argued that the media is an influential actor outside the government. The mass public's attention to governmental issues is determined by media coverage of those issues. The media report more about what is going on in a government, rather than having an impact on the governmental agenda. They tend to give prominence to the most newsworthy or dramatic story issues, which decreases their impact on governmental policy agendas since these kinds of stories tend to come toward the end of a policy-making process, rather than at the beginning. However, the media are important in some ways and under some circumstances for the governmental policy agendas. First, the media is important as a communicator within a policy community. People inside and outside the government communicate with each other in indirect ways due to their busy schedules and the lack of possibilities to see each other in the normal course of events. One way to bring an idea to the attention of someone else is to discuss it in an article in the major papers since the people inside and outside the government read all the papers. Illustratively, Kingdon (2003) conducted an interview with a high-level bureaucrat, who noted that due to an oversupply of information, reports that are written by bureaucrats are not always read by politicians, but if the *Times* or *Post* picks up a report, it gets their attention. Moreover, the media affect the agenda by magnifying developments that have already started elsewhere, as opposed to originating those developments. Some ideas are originated in the bureaucracy, the Parliament or some segment of society and subsequently, the media accelerate its development. Also, if the media affect public opinion agendas, the attention of politicians to public opinion may also imply media importance. Politicians are more willing to address an issue if the issue is repeatedly exposed in the media and when people in the environment of politicians ask what is being done about the problem.

The news is not always an exact representation of reality but rather a reconstruction of reality from a certain perspective. The media does not only state the facts but define and construct a political issue by making use of framing. In the following paragraph, media framing is further discussed.

§2.3 Media Framing

Scholars have been interested in how mass media shape people's thoughts, attitudes and behaviour for a long time. One of the most well-known studies about framing theory is done by Robert Entman. This scholar is relevant to the current study, as it applied framing theory to mass media analysis. Entman (1993) argues that framing is used to select some aspects of a perceived reality and make them more salient in a text in order to, among other things, promote a particular problem definition. Entman (1993, p. 53) defines salience as "making a piece of information more noticeable, meaningful, or memorable to audiences". Thereby, an increase in salience increases the probability that receivers will perceive the information, discern the meaning and process it, and store it in their memory (Entman, 1993).

Entman (1993) identifies four locations of framing in the communication process: the 'communicators', the 'text', the 'receiver', and the 'culture'. First, the communicators (e.g. journalists) make conscious or unconscious framing judgments in their decision what to say. Second, the text (e.g. newspaper articles) is the source that may contain a frame. Third, the

receiver (e.g. the reader of the media reports) may be influenced by the framing of the communicator. Fourth, there is the culture, in which the communicator and the receiver exchange meaning. This study focuses on the 'text', as the framing in media reports is analysed.

Mass media scholars argue that it is important to understand media framing, as it impacts public understanding and policy formation. Nelson et al. (1997) argue that frames influence public opinion by addressing specific values, facts and other considerations with more relevance to the issue than they may have under another frame. Moreover, Scheufele (2000) notes that changes in the wording and syntax of the description of the situation could have an influence on how the audience thinks about issues.

Researchers have identified various classification categories in order to understand the types of news frames. De Vreese (2005) developed a typology of frames and differentiated 'generic frames' and 'issue-specific frames'. Generic frames are abstract frames that can be applied to a multitude of topics and issue-specific frames are concrete frames that are pertinent only to specific issues (De Vreese, 2005). A typology of generic frames often is used in media frame analysis is that of Semetko and Valkenburg (2000). In their research, the authors analysed which type of frames were recurrently used in the news to report on issues and events. They identified a set of five frames, namely the 'conflict frame', 'human interest frame', 'economic consequences frame', 'morality frame' and 'responsibility frame'. First, the conflict frame focuses on the conflict between individuals, groups or institutions in order to capture the audience's interest. This frame sometimes reduces a complex political debate into a simplistic conflict. Second, the human interest frame is characterised by the focus on a human face or an emotional angle to the presentation of an event, issue or problem. The purpose of this frame is to capture and retain the interest of the audience by personalising, dramatizing or emotionalising the news. Third, the economic consequences frame emphasises the economic consequences of an event, problem, or issue. As the impact of an event is an important news value, the economic consequences are often discussed. Fourth, the morality frame focuses on religious tenets or moral prescriptions of an event, problem, or issue. Neuman et al. (1992) suggest that this frame is more often in the minds of audiences than in the content of the news. Fifth, the responsibility frame emphasises the responsibility for its cause or solution to either the government or to an individual or group. Public perceptions are shaped by showing who is responsible for causing or solving social problems. Iyengar (1991) argues that this frame provides insights into the question of who is responsible for societal problems, such as poverty.

Semetko and Valkenburg (2000) concluded that the news stories used the news frames in the order of predominance: responsibility frame, conflict frame, economic consequences frame, human interest frame and morality frame.

An and Gower (2009) analysed crisis news coverage with the frames of Semetko and Valkenburg (2000) and concluded that the news stories used the news frames in the order of predominance: responsibility frame, economic consequences frame, conflict frame, human interest frame, and morality frame. A difference with the finding of Semetko and Valkenburg (2000) was that the economic consequences frame was more often found in their sample than the conflict frame.

§2.4 Conclusion

The main argument of Kingdon's Multiple Streams Framework is that we all have low attention to give to political issues because, at any given moment, there is a significant amount of issues competing for our attention. As a result, policies rarely change. Therefore, conditions

must be present for us to pay attention to a story. That is where the media comes in. The actors leveraging the media are presenting competing stories that appeal to different sensibilities. In order for a story to become an issue (1) it can be supported by emphasizing some indicators (problem stream), (2) it appeals to the national sensibility -- what the Dutch people identify as just and moral or a priority (political stream), (3) there seems to be a solution which is both technically and morally acceptable (policy stream) (4) and it is championed by various policy entrepreneurs, including the administration, Congress, interest groups, political parties, academics, researchers, consultants and the media itself.

Media framing and agenda-setting affect which problems legislators pay attention to and how they perceive it. As a result, the priorities of the media can become the priorities of politicians and the public (McCombs, 2002). The media can affect people in the government to pay attention to certain issues more and even put pressure on them to act (Baumgartner and Jones, 2009). It can give significant attention to a problem, which can give it agenda prominence. However, the media attention to the problem could fade or even disappear. This occurs when the media feel like they have solved or addressed the issue sufficiently. Consequently, they turn their attention to another issue, which subsequently leads to a fall of the issue on the agenda. Anthony Downs (1972) calls this the issue-attention cycle.

Researchers have identified various classification categories in order to understand the types of frames in the media. De Vreese (2005) developed a typology of frames and differentiated 'generic frames' and 'issue-specific frames'. Generic frames are abstract frames that can be applied to a multitude of topics and issue-specific frames are concrete frames that are pertinent only to specific issues (De Vreese, 2005). A typology of generic frames that often is used in media frame analysis is that of Semetko and Valkenburg (2000). In their research, the authors analysed which type of frames were recurrently used in the news to report on issues and events. As a result, they identified a set of five frames, namely the 'conflict frame', 'human interest frame', 'economic consequences frame', 'morality frame' and 'responsibility frame'.

III. Method

This chapter describes the method to analyse newspaper articles. The previous chapter, the theoretical framework, is essential for the method since it provides information about the state of art of the involved topics and the used theories. In order to provide a deep understanding of the Groningen gas extraction, a preliminary focus is on the case description of the Groningen gas extraction. Thereby, a background on gas extraction in Groningen is given. Moreover, the various actors in the Groningen gas extraction are identified. Then, the method of data collection and data analysis is discussed.

§3.1 Casus Description

In order to provide a better understanding of how the Groningen gas extraction has developed up until this day, the case of the Groningen gas extraction is discussed. In doing so, the background of the gas extraction is discussed and the most influential participants in the policy process are identified, based on Kingdon's Multiple Streams Framework.

§3.1.1 Background

Various explanations are given for the government's decision to terminate the gas extraction in Groningen. An important reason is that the termination of gas extraction in Groningen is an effort to protect the safety of the Groningers. Another reason to terminate the gas extraction is that the decision contributes to the current energy transition towards sustainable energy resources in the Netherlands. For a better understanding of the government's decision to terminate the gas extraction, this paragraph explores both explanations in succession.

The historical background of the gas extraction in Groningen shows how the earthquakes have affected the Groningers throughout the years. The Groningen gas field was discovered in the year 1959, which appeared to be one of the biggest gas fields in the world. Soon after the discovery of the gas field, the Dutch State and the NAM signed an agreement, in which they made arrangements about gas extraction policy and income distribution. The agreement was secret, but the document got leaked in 2018. With the signing of the document, the 'Maatschap Groningen'[9] was established as a 60:40 partnership between the Dutch State and the NAM. However, for a long time, it was unknown that via the Dutch tax system, the state eventually received around 90% of the gas yields and the NAM 10%[10] (Trouw, 2018). These gas revenues from the Groningen gas field were used to uphold the Dutch welfare state. Illustratively, the state used the money to promote the well-being of the citizens in terms of social welfare, pensions, healthcare and education. Over the years, gas production has generated approximately 290 billion euros for the national government (Mulder & Perey, 2018). However, in 1986, the first earthquake was measured in Groningen. Thereafter, in 1993, an independent committee demonstrated the relationship between gas extraction and the earthquakes (Begeleidingscommissie Onderzoek Aardbevingen, 1993), after which the NAM confirmed the relationship. Up until this day, more than a thousand earthquakes were

[9] Translated in English: 'Groninger Partnership'

[10] From 1 January 2018 on, the distribution changed to 73:27 due to the decrease of gas extraction revenues (Trouw, 2018).

measured by the 'Royal Netherlands Meteorological Institute'[11][12] (KNMI) in Groningen (KNMI, n.d.). These earthquakes caused much damage to houses and buildings. Additionally, the earthquakes have had a significant social and emotional impact on the Groningen inhabitants (Van der Voort & Vanclay, 2015).

In the years 2009 and 2011, the number and magnitude of the earthquakes increased in comparison with the years from 1991 to 2008 (NAM, n.d. – a). However, until 2011, the earthquakes were not considered as a major concern by the NAM, the government, politicians and not even by citizens of the Groningen province (Van der Voort & Vanclay, 2015). As a result of the earthquakes, in 2009, the 'Groninger Bodem Beweging'[13] was established. It was found to advocate for the interests of the Groningen inhabitants who suffered directly or indirectly from the earthquakes.

In 2012, there was a turning point due to an earthquake measuring 3.6 on the Richter scale, which is the largest recorded one ever in the region (Van der Voort & Vanclay, 2015). This earthquake caused much damage and led to many concerns among the citizens. Also, the issue got more attention in the international and Dutch media and led to a higher priority by the government and the Ministry of Economic Affairs. In 2013, the SodM published a report, in which they warned for the consequences of continued gas extraction. More specifically, it would lead to more frequent and stronger earthquakes than previously experienced. As a result, it advised reducing gas production (Staatstoezicht op de Mijnen, 2014). Henk Kamp, who was the minister of Economic Affairs at that time, stated that he would find ways to reduce the production of gas if it would be necessary (Kamp wil gasproductie, 2015). The Groningen inhabitants experienced the consequences of the earthquakes for years, but the report of the SodM, with the prognoses of increasing earthquakes and increasing impacts, the situation became more salient (Van der Voort & Vanclay, 2015). Surprisingly, after the report, the government did not decrease gas production but increased it from 48 to 53 billion cubic meters (NAM, n.d. -b). In 2015, the 'Dutch Safety Board'[14][15] released a report in which they noted that the operators of Europe's largest gas field, Shell and Exxon Mobil on the one hand and the Dutch government on the other, ignored the dangers for inhabitants of Groningen posed by earthquakes for years (Onderzoeksraad, 2018). In the same year, Minister Kamp apologised and acknowledges there has to be more attention for the safety of the Groningen inhabitants. In November 2015, the 'Dutch Council of State'[16], an established advisory body in the Netherlands to the government and States-General, decided that gas extraction should be limited to 27 billion cubic meters, instead of 30-33 billion cubic meters, in response to prosecution by over 40 parties, including the Groningen municipalities and the province of Groningen (Raad van State, 2015). In 2017, the appointment of the new cabinet 'Rutte III' led to the replacement of Kamp for Wiebes as the minister of Economic Affairs and Climate Policy[17]. When Minister Wiebes visited Groningen in 2017, he described the case of the settlement of the Groningen earthquakes caused by gas extraction as "Dutch government failure of un-Dutch like proportions" (NOS, 2017). Furthermore, he stated that the handling of the claims is at a standstill and the reinforcement of houses is going too slow. In 2017, the Netherlands imported more gas than it produced. Due to the increasing import of gas, the government needed to make money available to import it and to make it suitable for use in the Netherlands. In order to make foreign gas suitable for use in the Netherlands, the government

[11] Translated in Dutch: 'Koninklijk Nederlands Meteorologisch Instituut'
[12] The KNMI is responsible for registering earthquakes in The Netherlands
[13] Translated in English: 'Groningen Soil Movement'
[14] Translated in Dutch: 'Onderzoeksraad voor Veiligheid'
[15] An independent safety panel
[16] Translated in Dutch: 'Raad van State'
[17] With the new cabinet in October 2017, a name change occurred from 'Ministry of Economic Affairs' to 'Ministry of Economic Affairs and Climate'.

needed to invest in nitrogen factories, in which nitrogen is added to the gas (Rijksoverheid, 2018 -b). Although the gas extraction decreased from 2014 to 2018, the number and magnitude of the earthquakes remained high (NAM, n.d. – a).

On 29 March 2018, after the earthquake underneath Zeerijp with 3.4 on the Richter Scale, minister Wiebes announced that the natural gas extraction will be gradually reduced to 19,4 cubic meters by 2019 and to zero by 2030 (NRC, 2018 - b). Due to the decision to end gas extraction in Groningen, about 450 billion cubic meters of gas with a worth of 70 billion euros will remain in the ground (Rijksoverheid, 2018 -a). This measurement of the government goes even further than the advice of the SodM to the government to decrease gas extraction to 12 billion cubic meters due to the safety of the inhabitants of Groningen. This was considered a victory by the Groninger citizens. However, the Groninger citizens were not content with the policies that determined the damage claims and housing reinforcement processes. For a long time, the NAM had the authority to make decisions about damage claims. The damage claim processes were slow and the NAM inspectors did often not classify the damage claims as related to the Groningen gas extraction. As a result, the damage was often not compensated. In 2018, the 'Tijdelijke Comissie Mijnbouwschade Groningen'[18] was established. This committee has the authority to make decisions about the damage claims independent from the NAM and the government (Rijksoverheid, 2018 -c). On 5 March 2019, 'De Tweede Kamer'[19] called for a parliamentary inquiry into the Groningen gas issue. A parliamentary inquiry is used to hear witnesses under oath and is the most serious option to MPs who want answers on controversial subjects. This instrument is used to find out the truth and to recover the confidence of the Groningen inhabitants in the national government for the choices which were made and to make the participants accountable for the decisions which were made. Before the parliamentary inquiry takes place, members of Parliament first want to help the Groningen inhabitants who reported damage claims. On 28 May 2019, after another earthquake measuring 3.4 on the Richter scale, the SodM released a report with the prognoses of increasing social disruption due to the slow process of strengthening houses. The social disruption is also due to health complains of Groninger citizens as a consequence of stress (NOS, 2019). The SodM advised the government to approach the situation as a crisis and to reorganise the organisations that deal with the damage claims and strengthening of houses into one strong organisation with more competences.

Another explanation for the termination of the gas extraction is that turning off the gas taps would accelerate the energy transition. The European Union is at the forefront in global efforts to fight against climate change with its energy policy framework, which facilitates the transition away from fossil fuels towards cleaner forms of energy and delivers on the European Union's Paris Agreement commitments for reducing greenhouse gas emissions. Although the Member States are moving towards more sustainable forms of energy nowadays, gas is still an important energy resource in Europe. In 2003, the gas industry accounted for more than 20 % of the energy demand in Europe (Stern, 2003). Furthermore, the Netherlands, Spain, the UK, Italy, Turkey, Germany, France, Belgium consumed 80.8% of the total gas in Europe (Honoré, 2014). The Netherlands used to have one of the largest markets for gas consumption, production and export in Europe. Currently, the UK is the biggest gas producers in the EU, which is expected to be able to produce for a few decades before the gas dries up. Denmark, France, Germany, Italy, Poland and Romania have gas resources as well, but they do not produce large amounts of gas or have many reserves. Member states encourage the use of natural gas to replace more carbon-intensive coals and fuels. More specifically, gas is considered as the bridge fuel between the dominant fossil fuels of today and the renewables as

[18] Translated in English: 'Temporary Committee Mining-subsidence Damage Groningen'
[19] The Dutch Parliament

fuels of the future. Additionally, gas is favoured due to the well-established gas infrastructure in Europe for the coupling of electricity and heating markets and the power-to-gas technologies that enable the use of gas networks as storage devices for electricity (Grimm et al., 2017). However, due to the current demand for gas in Europe and a decline of indigenous gas recourses, many EU countries depend increasingly on a few foreign gas resources. Europe imports natural gas via pipelines from a variety of places. Data from the third quarter of 2018 shows that Russia was the top supplier (47%), followed by Norway (34%), Algeria and Libya (8.6% combined) (European Commission, 2019). However, the pressing question is at what price these resources will be made available in the future. Illustratively, the Russia–Ukraine gas disputes in 2009, in which Russia and Ukraine failed to agree upon a tariff for the transition of gas from Russia to Europe, demonstrated Europe's gas dependence on Russia. Since this conflict, the diversification of suppliers has been the key strategy of the EU's gas policy. Also, since domestic production is reduced, the EU depends increasingly on foreign gas resources. The increasing dependency on foreign gas resources is a driver for the EU Member States to invest in renewable energy resources, which accelerates the current 'energy transition' towards renewable energy resources. The energy transition began due to the increasing awareness of climate change and global warming in the EU. Lejoux and Ortar (2014) define 'energy transition' as follows:

> *The notion of energy transition as it is understood today, means the progressive changeover from an energy system based on the consumption of non-renewable energy resources (oil, coal, natural gas, uranium, etc.) to one based, in part, on the use of renewable energies (solar power, wind power, hydroelectricity, biomass, geothermal energy, etc.), as well as thriftier and more efficient energy behaviour. This change of energy system appears motivated by two factors: the foreseeable rarefaction of energy resources and the negative impact of our energy system on the environment* (p.1).

In total, 175 parties, including the EU, have signed the Paris Agreement in 2016. This could be considered as the successor of the Kyoto protocol. It shows that states are committed to preserving the environment and support coherent global action to reduce their emission. The main aim of the Paris Agreement is to pursue efforts to limit the rise of temperature this century below 2 degrees Celsius and pursuing efforts to limit this increase to 1.5 degrees Celsius. This is done by reducing greenhouse gas emissions and also by focusing on the development of technological tools and capacities that provide the Member States with possibilities to use environmentally friendly energy resources that can replace the current polluting fossil fuels. The Paris Agreement has set bindings targets that have to be achieved by 2050, whereas the monitoring process is managed by the states on an annual basis, through reporting to the UNFCCC and, in case of the EU ETS Scheme, to the Commission.

The Paris agreement has implications for the current Dutch energy and climate policy since it is based on European agreements of this deal. The Dutch government published a report in which it presents its plans for a transition to sustainable energy to take part in global effort to develop a low CO2 energy economy that is safe, reliable and affordable. An important goal of the cabinet is to achieve a CO_2 neutral energy supply system by 2050. To achieve this, the cabinet has three main principles in their energy policy, which are: focus on CO_2 reduction, maximize the economic opportunities that the energy transition offers and integrate energy in spatial planning. Illustratively, in 2013, the Dutch government made an agreement with industries, non-governmental organisations and governments, which included targets for energy efficiency savings to 1.5% of their final energy consumption and for an increased share of renewable energy (14% by 2020 and 16% by 2023) (Ministry of Economic Affairs, 2016).

Although it appears that the termination of the gas extraction in Groningen contributes to an acceleration of the energy transition, this is not necessarily the case. Due to current contracts

to meet domestic and foreign demand for gas, the Netherlands still imports large amounts of gas. In 2018, the Netherlands imported even more gas than it exported to meet the demand, which has not occurred since 1963 (NRC, 2018). Therefore, due to the significant dependency on gas in Groningen, it is not likely that the government made the radical decision to accelerate the energy transition.

§3.1.2 Participants Inside and Outside the Government

A large number of participants are involved in the policy process of the Groningen gas extraction. The Dutch cabinet[20][21] plays a key role in the issue and it decides how much gas is extracted from the Groningen gas field. In the period from 2012 to 2017, Rutte II[22] was in power with Minister of Economic Affairs (Kamp) and Minister of Finance (Dijsselbloem) as important players regarding the Groningen gas extraction. As of 2017, Cabinet Rutte III[23] has been in power with key figures minister of Economic Affairs and Climate Eric Wiebes and with the minister of Health, Welfare and Sports de Jonge. The cabinet has various interests in this issue. Illustratively, they have the duty of taking care of the Groningen residents who are suffering due to the social and emotional impact of the earthquakes. Also, they have to think about gas supplies throughout the whole country. Extracting gas from Groningen is a crucial source of fuel for Europe. There are international agreements that need to be taken into consideration, for example with France, Belgium and Germany, to which the gas from Groningen is exported. Additionally, the national government has a responsibility to decrease pollution. Even though gas is the least polluting fossil fuel, with the modern energy transition, there is the desire to move away from these fossil fuels towards renewables. The Dutch Parliament during Rutte II[24] and Rutte III[25] have held a number of debates often about the Groningen gas extraction. Other election-related actors besides the national government are regional governments, local governments and mayors. Although these actors affect the policy process, they are less influential than the cabinet since gas extraction policy is made on a national level.

The government is strongly interwoven with the gas extraction company the NAM. The NAM has like the government a financial interest. For this reason, there is a close relationship between these two participants. From extraction to transport to the use of fossil fuels, the government is involved in the fossil energy chain. Illustratively, the in 2018 leaked documents about the agreements between the government and the NAM showed the involvement of the Dutch State in the Groningen gas issue. These kinds of agreements between the government and the fossil industry are an explanation why the energy transition is lagging behind in the transition towards sustainable energy recourses. Moreover, it is an explanation why the government decided to terminate gas extraction in Groningen. Other companies that play a role in the gas chain from gas extraction to transport are GasTerra, Energie Beheer Nederland, Maatschap Groningen and the Koninklijke DSM NV.

The Groningen citizens are against further gas extraction since they experience the consequences of the earthquakes. They can take part in interest groups that advocate the

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[20] Commonly, referred to as "the (national) government".
[21] The common term "administration" (Kingdon, 2003) in the American political system is changed to the term that is common in the Dutch political system, namely "cabinet".
[22] Consisted of the coalition between the following political parties: VVD, PVDA.
[23] Consists of the coalition between the following political parties: VVD, CDA, D66, ChristenUnie.
[24] Consisted of the following political parties: VVD, PCC, CDA, D66, GroenLinks, SP, PvdA, ChristenUnie, Partij voor de Dieren, 50PLUS, SGP, DENK, Forum voor Democratie.
[25] Consisted of the following political parties: PVV, SP, CDA, D66, ChristenUnie, GroenLinks, SGP, Partij voor de Dieren and 50Plus.

rights of the Groningers and environmental rights. Examples of interest groups are the 'Groningen Soil Movement', 'Groningen Gas Deliberation', 'Milieudefensie' and 'Centrum Veilig Wonen'. Sometimes, the Groningers citizens are activists. Generally, as citizens in other parts of the Netherlands are not directly affected by the consequences of the earthquakes, they are less frequent against the earthquakes than the Groninger citizens. Therefore, the Groningers are more activists and more represented in interest groups.

Academics provide knowledge about the Groningen gas extraction issue. They are teachers or scholars in a university or other institute of higher education. Furthermore, there are expert groups and think tanks. An influential expert group in the Groningen gas extraction is the SodM, which published a report that had much impact on the decision-making of the national government. Also, there is the Dutch Safety Board, which released a report on the dangers of the earthquakes and advised to reduce gas production. Other expert groups in the Groningen gas extraction are the following: SodM, Council of State, Royal Netherlands Meteorological Institute, Willem Beton Group, Nationaal Coördinator Groningen, Tijdelijke Comissie Mijnbouwschade Groningen, Comissie Bodemdaling, Gronings Perspectief (RUG) and EPI Kenniscentrum (RUG, Hanze, Alfa-college).

The media inform the Dutch citizens and play a significant role in the agenda-setting process by reporting about the issue and they affect public opinions. Additionally, all the beforementioned parties use the media for the provision of information and to share their opinion. Various media report on the Groningen gas extraction, such as newspapers, television, radio and digital media.

Participants	*Examples*
Academics	Teachers or scholars in a university or other institute of higher education.
Activists and Interest groups	Groningen Soil Movement, Groningen Gas Deliberation, Stut-en-Steun, Vereniging Groninger Dorpen, Centrum Veilig Wonen, United Nations Committee on Economic, Social and Cultural Rights, Stichting Waardevermindering door Aardbevingen Groningen, Stichting WAG, Schokkend Groningen and Houd Groningen Overeind
Businesses	NAM (50:50 joint venture between Exxon Mobil and Shell), GasTerra, Energie Beheer Nederland, Maatschap Groningen, Koninklijke DSM NV
Expert Groups	Dutch Safety Board, State Supervision of Mines, Royal Netherlands Meteorological Institute, Willem Beton Group, Nationaal Coördinator Groningen, Tijdelijke Comissie Mijnbouwschade Groningen, Comissie Bodemdaling
Local and Regional Governments	The Municipality of Groningen
Media	TV, Newspapers, Radio
Politicians and Parties in the Cabinet	Cabinet Rutte II (from 2012 to 2017) consisted of the political parties VVD and PVDA. Prominent figures in this cabinet: Minister of Economic Affairs (Kamp) and Minister of Finance (Dijsselbloem). Cabinet Rutte III (2017-present) consisting of VVD, CDA, D66 and ChristenUnie. Prominent figures in this cabinet: Minister of Economic Affairs and Climate (Wiebes) and Minister of Health, Welfare and Sport (de Jonge).
Politicians and Parties in the Parliament	Parties in the House of Representatives of the Netherlands 2012–2017: PVV, SP, CDA, D66, ChristenUnie, GroenLinks, SGP, Partij voor de Dieren and 50Plus.
The Media	TV, Radio, Social Media

Table 1: Participants inside and outside the government (Kingdon, 2003)

§3.2 Methods of Data Collection

In order to analyse the frames that appeared in the media, this study explores the variety of frames that newspaper stories adopted on the Groningen gas extraction. Although the media is an actor in the policy process with certain interests, this study considers the media as an actor that represents the public debate about the Groningen gas extraction. This study focused on two Dutch quality newspapers, namely *de Volkskrant* (a centre-left quality newspaper) and *NRC Handelsblad* (a centre-right quality newspaper). These newspapers are selected because they belong to the quality newspapers with the highest circulation rates in the Netherlands. Quality newspapers are distinct from popular newspapers by the type of information published. Quality newspapers have predominantly middle-class audiences, are politically diverse and are serious in tone. Generally, quality newspapers are considered as a reliable source of information for citizens. A limitation of this method is that only two quality newspapers are selected among the multitude of newspapers. In doing so, there are no local newspapers analysed and popular newspapers selected. These newspapers may discuss other aspects of the issue and frame it in a different way as national newspapers. This implies that a part of the discourse regarding the issue upon investigation is not addressed, which could be considered as a limitation. A consequence may be that certain aspects of the issue and certain framing will be missed. Nevertheless, as the two quality newspapers are widely read in the Netherlands and considered a reliable source of information, they can provide insights into the most used media frames. The newspaper articles of *de Volkskrant* and *NRC Handelsblad* were collected via the online LexisNexis[26] news archive database. In order to find newspaper articles about gas extraction in Groningen, keywords were used to search for the newspaper articles. In doing so, the Dutch translation of "gas extraction Groningen"[27] was used. As these keywords provided a large number of articles, no other key terms were used. In order to collect the newspaper articles prior to the 2018 decision to terminate the gas extraction, newspaper articles in the time span from 2009 to 2017 were collected. The initial query of the newspapers resulted in a large sample of 594 newspaper articles (See Table 2). In order to get a smaller sample, the media peaks in which the Groningen gas extraction was mentioned with greater frequency were identified. As the newspaper articles in the media peaks reflect the shifts in the intensity and focus of the news frames (Dodge and Lee, 2015; Mattson & Clark, 2012), it is useful to analyse the frames in the media peaks. Therefore, from 2009 to 2017, the newspaper articles in the media peaks of every year were selected (Table 3). As the publications of the newspaper articles in the media peaks increased significantly from 2013 to 2017, minimal 10 newspaper articles of the newspaper articles in those media peaks were randomly selected for coding by an online sample size generator, which creates a valid and reliable view of the content of the media coverage (Table 4). This led to a total of 70 articles published between 2009 and 2017, which is equal to 11 % of the total number of published articles in the two newspapers about the Groningen gas extraction by the two newspapers from 2009 to 2017. Although the results of the analysis are not generalizable to all the available newspapers, an analysis of 70 newspaper of two widely read newspapers in the media peaks will provide insights about the news frames in the Groningen gas extraction debate. In the sample of 70 newspaper articles of all sorts of newspaper articles were included, such as news reports, feature articles and opinion pieces.

[26] A widely use tool in news searching
[27] Translated in Dutch: 'gaswinning Groningen'

YEAR	*Volkskrant*	*NRC Handelsblad*	*Total*
2009	1	6	7
2010	4	2	6
2011	4	1	5
2012	1	2	3
2013	40	48	88
2014	47	70	117
2015	81	110	191
2016	28	43	71
2017	47	59	106

Table 2: Articles about the Groningen gas extraction in the two newspapers (n=594)

Year	*Media Peak*	*Volkskrant*	*NRC Handelsblad*	*Total*
2009	June	1	4	5
2010	May	3	1	4
2011	September/October	1	1	2
2012	August	4	1	5
2013	February	20	15	35
2014	January	28	25	53
2015	February	20	30	50
2016	September	5	8	13
2017	March	11	11	22

Table 3: Newspaper articles in the media peaks

Year	*Media Peak*	*Volkskrant*	*NRC Handelsblad*	*Total*
2009	June	1	4	5
2010	May	2	1	4
2011	September/October	1	1	2
2012	August	4	1	5
2013	February	5	5	10
2014	January	5	5	10
2015	February	5	5	10
2016	September	5	8	13
2017	March	7	5	10

Table 4: Number of analysed articles

Period	*Media Peaks*	*Volkskrant*	*NRC*	*Total*
From 2009 to 2011	June 2009, May 2010, September/October 2011	5	6	11
From 2012 to 2014	August 2012, February 2013, January 2014	14	11	25
From 2015 to 2017	February 2015, September 2016, March 2017	16	18	34
Total		35	35	70

Table 5: Newspaper articles in the three time spans

§3.3 Methods of Data Analysis

Frame analysis is conducted in order to answer the first sub-question: *"Which generic and specific frames appear in the news coverage of the Groningen gas extraction in Dutch national newspapers and is there a shift of appeared frames?"*. Frame analysis can be located between discourse analysis and word content analysis by combining qualitative and quantitative methods (Neuendorf, 2016). The qualitative content analysis is concerned with latent content, which is the underlying meanings of the text, as interpreted by coders in an inherently subjective process (Neuendorf & Kumar, 2002). The quantitative analysis is concerned with the dynamics in the content of the media.

This study used a combination of inductive and deductive coding. In an inductive analysis, frames are established from an initial exploratory analysis of a sample (Matthes, 2009). On the other hand, a deductive approach analyses a news story with an open view "to attempt to reveal the array of possible frames" (Semetko & Valkenburg, 2000). This study has mainly used a deductive approach, as this study used the prescribed frames of Semetko and Valkenburg (2000) and the frames that were mainly developed by Dodge and Lee (2015) and Metze (2017) on the topic of unconventional gas extraction.

For the analysis, the following steps are conducted: constructing a coding scheme, coding latent content using the coding scheme, analysing the data. After the 70 collected newspaper articles about the Groningen gas extraction are imported in ATLAS.ti, the analysis is conducted. The newspaper articles were analysed and synthesised by labelling them with the help of the coding program ATLAS.ti. In doing so, a coding scheme was developed, in which the generic and specific frames are outlined (See Table 6). Each newspaper article was read two times to identify the frames. For each article, frames were labelled as 'present' or 'absent'.

In order to label the newspaper articles, two sets of frames were used, namely the set of generic frames (Semetko and Valkenburg, 2000) and a set of specific frames. In order to analyse a wider variety of the consequences of gas extraction and the earthquakes, the author changed the 'economic consequences' frame to the 'consequences' frame. Currently, there is no set of frames developed specifically for news coverage regarding gas extraction. Therefore, in order to have a better understanding of the news coverage, a second set of specific frames is developed by the author (see Table 7 in the empirical section). This developed set of frames is based on previous studies found about framing the topic of unconventional gas extraction (Dodge and Lee, 2015; Metze, 2017), in which the framing of fracking is analysed.

Some of the generic and specific frames overlap since the specific frames cover more detailed information of the generic frames. For example, the economic opportunity, the energy security frame, the environmental risk frame and the unsustainable fuel frame are part of the consequences frame, as they highlight direct and indirect consequences of gas extraction.

This study also analyses whether there was a shift of framing in the media. In addition to the frame analysis, a word content analysis was conducted of the three periods. In doing so, word clouds were visualised with ATLAS.ti, which are graphical representations that highlight the relative frequency of words in a text. In doing so, word clouds help to show which words appear with the highest frequency in a text. Although the word clouds show the most mentioned words in the newspaper articles, they do not reveal the meaning of these words. Thereafter, in order to outline shifts in the use of frames, the generic and specific frames were analysed over time. In doing so, the generic and specific frames in the three time spans were analysed and compared with each other: from 2009 to 2011; from 2012 to 2014; and from 2015 to 2017 (Table 5).

Basic descriptive statistics were used to analyse the findings of the frame analysis. In doing so, the frequency of the frames is analysed. Moreover, the findings were displayed in bar graphs. The analysis may have a research bias since all the coding was carried out by a single coder (McComas & Shanahan, 1999). However, to enhance the reliability of the coding, roughly 10 % of the articles were analysed by a second coder, who had previous experience in coding.

The main argument of Kingdon's Multiple Streams Framework (2003) is that we all have low attention to give to political issues because, at any given moment, there is a significant amount of issues competing for our attention. As a result, policies rarely change. Therefore, conditions must be present to pay attention to issues. That is where the media comes in. The media are presenting competing stories on natural gas. However, a story becomes an issue when (1) it can be supported by emphasizing some indicators (problem stream), (2) appeals to the national sensibility -- what the Dutch people identify as just and moral or a priority (political stream), (3) there seems to be a solution which is both technically and morally acceptable (policy stream). The results of the frame analysis are used to indicate whether the story develops into an issue. The results can show whether there is a shift in the national mood in the public debate, which could be an explanation for the government's decision to terminate the gas extraction in 2018.

In addition to the frame analysis, a content analysis of the presence of the various actors is conducted in order to answer the second sub-question: *"Which actors inside and outside the government appear in the news coverage of Dutch national newspapers and is there a shift of appeared actors?"*. Kingdon (2003) argues that in order for a story to become an issue, various actors champion the issue. This part of the analysis focus on the actors who champion the issue in the media. With the help of the coding program ATLAS.ti., the groups of actors are coded as 'present' or 'absent' per newspaper article. In doing so, there is a selection made of the most important participants in the Groningen gas extraction. The following groups of actors mentioned in Kingdon's Multiple Streams Framework[28] were labelled in the news coverage: 'academics', 'the national government', 'politicians and parties in the Parliament', 'businesses', 'activists and interest groups' and 'expert groups'. In addition to these groups of actors, two other groups were labelled, namely 'Groningers' and 'citizens outside Groningen'. The presence of the Groningers and citizens outside Groningen provide insights about how much the media focus on the people that have to live with the consequences of the earthquakes. These participants are outlined in the coding scheme (Table 6). Again, roughly 10 % of the articles were analysed by a second coder, who had previous experience in coding. Moreover, basic descriptive statistics were used to compare the frequency of the participants in the news coverage. In order to get an overall picture of the appearance of the participants, the analysis was conducted for the articles from 2009 to 2017 altogether. Thereafter, in order to outline shifts in the appearance of the participants, three time spans were analysed and compared with each other: from 2009 to 2011; from 2012 to 2014; and from 2015 to 2017 (Table 5). Again, bar charts were used to show the presence of the actors.

In addition to the frame analysis, a quantitative analysis of media reports was conducted in order to answer the third sub-question: *"How do media pay attention over time to the Groningen gas extraction?"*. A quantitative analysis provides insights about how the media gives attention to the issue over time. An increase in media attention of public risks can put more pressure on politicians to take actions (Baumgartner and Jones, 2009). The quantitative analysis shows whether the media increasingly focused on the issue of gas extraction in Groningen. In order to investigate whether the media puts more pressure on politicians, this section counts the media reports on the Groningen gas extraction over time. In doing so, it is analysed how

[28] See 'Table 3' for the Participants in the policy process of the Groningen gas extraction

many newspaper articles are published every year on the Groningen gas extraction and whether there is a shift of media attention.

	Frames and Actors	*Theory*
Generic frames	Consequences Frame Morality Frame Responsibility Frame Conflict Frame Human interest Frame	Developed by Semetko and Valkenburg (2000)
Specific frames	Economic Opportunity Frame Environmental Risk Frame Energy Independence Frame Unsustainable Fuel Frame Technological Innovation Frame	Based on the study of Dodge and Lee (2015) and Metze (2017)
Actors	Academics Businesses Dutch citizens outside Groningen Expert groups Groningers Interest groups and activists Local and regional governments Politicians and parties in the Parliament National Government	Based on Kingdon's Multiple Streams Framework (2003)

Table 6: Coding scheme

§3.4 Conclusion

The method started with a background on the Groningen gas issue, in which the development of the Groningen gas extraction was discussed and the various actors were identified. The background showed that the termination of gas extraction was mainly an effort to protect the safety of the Groningers and less an effort to accelerate the energy transition. Moreover, there is a multitude of actors involved. In order to analyse how the story of the Groningen gas extraction was represented in the media, a frame analysis will be conducted of 70 newspaper articles in *de Volkskrant* and *NRC Handelsblad* in the media peaks. Besides a set of generic frames, a set of specific frames was developed. A content analysis will be conducted to analyse the presence of the participants inside and outside the government (administration; parliamentary parties; businesses; citizens; activists and interest groups; and expert groups). The presence of the actors in the news coverage provides a better understanding of whether the media focus on certain actors more than others, which has implications for the opportunity of actors to reflect their views in the public debate. Given the large number of newspaper articles on the Groningen gas extraction and the relatively short time span of the study, the analysis of the selection of the newspaper articles cannot be considered as representative of all the Dutch newspaper articles about the Groningen gas extraction in the press between 2009 and 2017. Nonetheless, by manners of a functional selection of data, this detriment is to be surmounted. In order to investigate whether or not the media puts more pressure on politicians to act (Baumgartner and Jones, 2009), the media attention for the gas extraction in Groningen will be analysed.

IV. Empirical Findings

This chapter provides the findings of the analysis of the Groningen extraction news coverage in the media peaks of *de Volkskrant* and *NRC Handelsblad* between 2009 and 2017.

Paragraph 4.1 answers the first sub-question: *"Which generic and specific frames appear in the news coverage of the Groningen gas extraction in Dutch national newspapers and is there a shift of frames?"*. Frame analysis reveals the media framing of natural gas extraction from the years 2009 to 2017. Frames are matched up to the generic frames developed by Semetko and Valkenburg (2000) and the specific frames based on the study of Dodge and Lee (2015) and Metze (2017). In each set of frames is the order of predominance of the frames discussed and *how* each frame of the two sets is presented. Moreover, in order to provide more insights about the shift of framing, content analysis is conducted and the appearance of the generic and specific frames over time are presented. Moreover, this paragraph explains whether, according to Kingdon's Multiple Streams Model, the story evolves into an issue. A shift in the perceptions of the public debate could explain the government's decision to terminate the gas extraction in 2018.

Paragraph 4.2 answers the second sub-question: *"Which actors inside and outside the government appear in the news coverage of Dutch national newspapers and is there a shift of appeared actors?"* In order for a story to transform into an issue, various policy entrepreneurs should champion the issue. This paragraph presents the findings of the presence of the various actors in the news coverage.

Paragraph 4.3 answers the second sub-question: *"How do media pay attention over time to the Groningen gas extraction?* This paragraph conducts a quantitative analysis and presents the number of media reports regarding the Groningen gas extraction of the two newspapers over time. When an issue is increasingly problematised, an increase in media attention can put more pressure on politicians to act (Baumgartner and Jones, 2009).

§4.1 Framing

Presence of the Frames

The five generic frames by Semetko and Valkenburg (2000) show how the media shape the public debate. First, the consequences frame emphasises how an issue affects people. This frame refers to the indicators of the problem. As many people are affected by the continuation or the termination of the gas extraction, I expect that this frame appears with a high frequency. Second, the responsibility frame gains insights into whether the media attributes responsibility for its cause or solution to certain actors. This frame can be used to problematise a story, as it refers to the national sensibility and what the Dutch people identify as just. As the earthquakes are caused by gas extraction, which is the consequence of human actions, I expect that this frame appears with a high frequency. Third, the morality frame presents the issue from a religious/moral angle. This frame can be used to problematise a story, as it refers to the national sensibility regarding what the Dutch people identify as moral justice. As the gas extraction had a significant impact on the Groningers, I expect there are moral prescriptions present in the news coverage. Fourth, the conflict frame provides insights into whether the media focus on controversy between actors. This frame can be used to problematise a story, as it indicates whether a story is a source of controversy. As the gas extraction is a controversial issue, I expect that this frame appears with a high frequency in

the news coverage. Fifth and last, the human interest frame presents an issue from an emotional and personal point of view. This frame can be used to problematise a story, as emotions can be used to express displeasure. As the earthquakes have a significant personal and emotional impact on the Groningers (Van der Voort & Vanclay, 2015), I expect that this frame appears with a high frequency in the news coverage. Examples of generic frames are given in Table 7 below.

Frame	*Description*	*Example*
Consequences Frame	This frame reports an event, problem, or issue in terms of the consequences it will have for an individual, group, institution, region, or country.	Groningen gas extraction causes earthquakes. However, the termination of gas extraction has an impact on the treasury and energy independence.
Morality Frame	This frame puts the event, problem, or issue in the context of religious tenets or moral prescriptions.	There is a moral responsibility to Groninger citizens and future generations.
Responsibility Frame	This frame presents an issue or problem in such a way as to attribute responsibility for its cause or solution to either the government or to an individual or group.	Groningen gas extraction places responsibility on certain actors, such as the government or the NAM. These actors should take actions.
Conflict Frame	This frame emphasizes the conflict between individuals, groups, or institutions as a means of capturing audience interest.	Groningen gas extraction as a source of controversy between various actors.
Human Interest Frame	This frame brings a human face or an emotional angle to the presentation of an event, issue, or problem.	Focus on the personal impact of the earthquakes.

Table 7: Generic frames developed by Semetko and Valkenburg (2000)

This study found that the Groningen news stories used all the news frames developed by Semetko and Valkenburg (2000) in the following order of predominance: consequences frame, conflict frame, responsibility frame, human interest frame and morality frame. The results are presented in Figure 2 below.

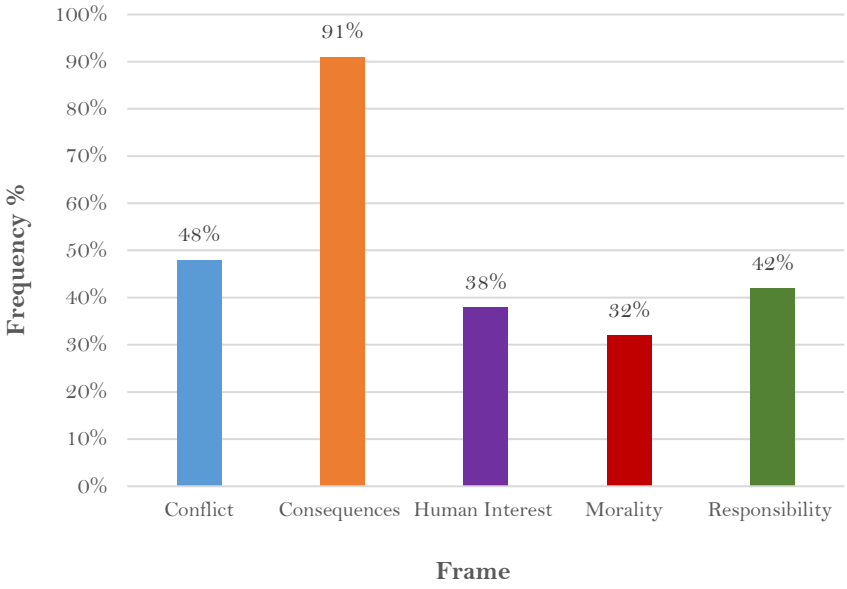

Figure 2: Bar graph of the frequency in percentages of the appearance of the five generic frames in newspaper articles of *de Volkskrant* and *NRC Handelsblad* in the media peaks between 2009 and 2017 (n=70)

The consequences frame dominated the news coverage and was present in 91% of the news coverage. It is not surprising that this frame appeared with a high percentage, as the news is mainly about how the earthquakes have an impact on the people in Groningen. The conflict frame was the second most detected frame and was present in 48% of the news coverage. Due to the controversial nature of gas extraction, it is not surprising that this frame appeared with a high frequency, as a multitude of actors with opposing views are involved in the issue. The third most detected frame was the responsibility frame, which was present in 42% of the news. Not surprisingly, due to the public risks of earthquakes, the media tend to attribute responsibility to certain actors. In the Groningen gas extraction, the crisis is not simply an "act of God" and is caused by human actions. If the government and the NAM did not extract the gas from the Groningen field, then the people would not have had to face the consequences of the earthquakes. As the government and the NAM are in charge of the continuation of gas extraction, blame was mainly assigned to these actors. Although the least detected frames were the human interest frame and the morality frame, they did not appear with a low frequency. The human interest frame appeared with a frequency of 38%. Not surprisingly, when there is a crisis that influences people personally, the media tend to focus on the personal and emotional aspects of the crisis. The morality frame was the least prominent frame of the generic frames and appeared with a frequency of 32%. Surprisingly, the morality frame appeared with a higher frequency as expected, which indicates that the media used morals to describe the situation in the news coverage.

An and Gower (2009) analysed crisis news coverage and found that the responsibility frame appeared with the highest frequency. This finding is in contrast with the finding of this study, as it was the consequences frame that appeared with the highest frequency. Also, Semetko and Valkenburg (2000) found in their research that the responsibility frame appeared with the highest frequency. A possible explanation for the high frequency of the consequence frame in the news coverage about the Groningen gas extraction is due to the controversial nature of gas extraction. In the news coverage, there is a focus on the beneficial and disadvantageous consequences of the gas extraction. Nevertheless, the responsibility frame did not appear with a low frequency, as it appeared in 42% of the newspaper articles. In line with the finding of An

and Gower (2009) and Semetko and Valkenburg (2000), the human interest frame and the morality frame appeared with the lowest frequency.

The set of specific frames complements the set of generic frames and gives specific details about how the public debate is shaped regarding the consequences of gas extraction. On the one hand, the economic opportunity frame and the energy security frame highlight the benefits of gas extraction. The economic opportunity frame emphasises the economic gains with regards to gas extraction. By focusing on the economic gains, the termination of gas extraction appears less desirable. As people are economically affected by the termination of the gas extraction, I expect that this frame appears with a high frequency. The economic opportunity frame emphasises the importance of the energy security. By focusing on the energy security, the termination of gas extraction appears less desirable. As the Dutch state is affected by the termination of the gas extraction, I expect that this frame appears with a high frequency. On the other hand, the environmental risk and the unsustainable fuel frame focus on the indicators of the problem. These frames highlight the disadvantages of the gas extraction. By focusing on these frames, the continuation of gas extraction appears more desirable. As the Groningen gas extraction caused human and environmental risks, I expect that these frames appear in the news coverage. Moreover, the technological innovations frame shows whether the media focus on technological developments in the issue, such as the critical report of the SoDM about the dangers of the earthquakes. Due to the impact of the report of the SoDM, it is expected that this frame appears with a high frequency. Examples are given in Table 8 below.

Frame	*Description*	*Example*
Economic Opportunity Frame	The frame focuses on economic gains with regards to gas extraction.	Gas extraction produces and costs to the economy. Gas as an energy resource is used for export and for domestic use for households, businesses and industry.
Energy Security Frame	This frame focuses on the importance of gas for energy independence.	Gas extraction is needed to be independent of foreign energy resources.
Environmental Risk Frame	This frame focuses on the risks of gas extraction for the environment and people.	Gas extraction causes earthquakes.
Unsustainable Fuel Frame	This frame highlights the polluting effect of fossil fuels and the need for the energy transition towards renewable energy resources.	Gas will delay the transition to clean energy since the use of it causes pollution and contributes to climate change.
Technological Innovation Frame	This frame focuses on scientific developments related to the topics.	Researches show innovative facts about Groningen gas extraction.

Table 8: Specific frames based on the study of Dodge and Lee (2015) and Metze (2017)

This study found that the Groningen news stories used all the specific frames (Dodge and Lee, 2015; Metze, 2017) in the following order of predominance: environmental risk frame, economic opportunity frame, technological innovation frame, energy security frame and unsustainable fuel frame. The frequency of the specific frames is given in Figure 3 below.

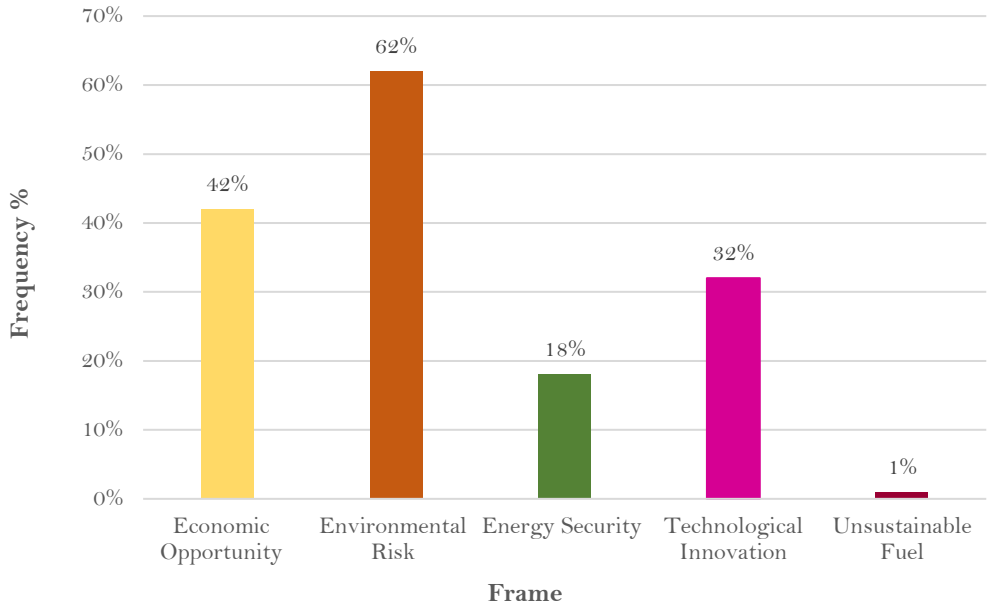

Figure 3: Bar graph of the frequency in percentages of the appearance of the five specific frames in newspaper articles of *de Volkskrant* and *NRC Handelsblad* (n=70)

The environmental risk frame was the most detected frame and was present in 62% of the news coverage. Not surprisingly, as gas extraction and the subsequent earthquakes in Groningen caused much damage and had a significant impact on the Groningers. The second most detected frame was the economic opportunity frame, which was present in 42% of the news coverage. Generally, the economic aspect of an issue is an important news value for media. However, it is remarkable that economic opportunities were promoted significantly despite the environmental risks. The high appearance of both the environmental risk frame on the one hand and the economic opportunity frame and the environmental risk frame on the other indicate the controversial nature of the issue. The third most detected frame was the technological innovation frame, which appeared with a frequency of 32% in the news coverage. It is not surprising that this frame appeared regularly in the news coverage, as in a crisis, innovative facts can offer solutions to the problem. The energy security frame was present in 18% of the news coverage. It is not surprising that this frame did not appear with a low frequency, as many people in the Netherlands depended on gas as a fossil fuel. Furthermore, the unsustainable fuel frame only appeared with a frequency of 1%. It is not surprising that the direct risks, such as damage to houses, were more important in the news coverage than the indirect risks, such as the polluting effect of fossil fuels and the need for the energy transition towards renewable energy resources. However, the frequency of the unsustainable fuel frame is extremely low. It is surprising that despite the energy transition towards renewable energy sources in the Netherlands, the unsustainable fuel frame was scarcely present the news coverage. Whereas the energy transition towards renewable energy sources could be used as an important argument for the termination of gas extraction in Groningen, it was scarcely highlighted in the news coverage.

In order to provide insights about whether there appeared to be a shift of framing, a word content analysis over time was conducted and the frequency of the generic and specific frames throughout the years were analysed. In doing so, the framing of three periods (from 2009 to 2011, from 2012 to 2014 and from 2015 to 2017) is analysed.

The word clouds show the results of the word content analysis. These word clouds show the most mentioned words in the newspaper articles and are presented in Figure 4 below.

From 2009 to 2011

From 2012 to 2014

From 2015 to 2017

Figure 4: Word clouds for the most used words (excluding 'Groningen', 'gaswinning' and 'gas') in newspaper articles of *de Volkskrant* and *NRC Handelsblad* at three different time spans: from 2009 to 2011, from 2012 to 2014 and from 2015 to 2017 (n=70)

The word content analysis shows that there appeared to be a shift of the media content from the economic prospects of gas extraction to the environmental risks. The word content in the period from 2009 to 2011 indicates that news coverage was mostly about the economic opportunities of natural gas extraction and even the extraction of shale gas. Dominant words in this period were 'Shell', 'water', 'land', 'economy', 'shale gas', 'natural gas', 'euro', 'billion', 'ground' and 'Netherlands'. The focus on the economic opportunities in the media is surprising, as the Groningen citizens were already experiencing the consequences of gas extraction in this period. The word content in the period from 2012 to 2014 indicates that news coverage was mostly about the earthquakes, the subsequent damage, the role of the NAM and minister Kamp and the economic consequences of gas extraction. In this period, the most mentioned words were 'NAM', 'earthquake', 'billion', 'Kamp', 'euro', 'economical' and 'damage'. The word content in the period from 2015 to 2017 indicates there is a focus on the responsible actors, the safety of the Groningen citizens and the economic aspects of the issue.

In this period, the most mentioned words were 'NAM', 'Kamp', 'minister', 'VVD', 'economical', 'euro', 'safety', and 'Groningers'.

While the word content analysis is a good way to visualize the shift of the media content through common words used, it does not reveal the meaning behind the appeared words. So, in addition to the word content analysis, the generic and specific frames throughout the years are analysed.

The generic frames indicate that the story increasingly appeared as an issue, as the conflict frame, the human interest frame, the responsibility frame and the morality frame increased in their appearance (Figure 5). The strong increase of the conflict frame indicates that the story was increasingly framed as a controversial issue. The conflict frame appeared with a frequency of 9% in the period from 2009 to 2011 and increased significantly to 52% in the period from 2012 to 2015 and to 60% in the period from 2015 to 2017. Furthermore, there was a strong increase in the human interest frame, which indicates that the media focused increasingly on the emotional impact of the earthquakes and the personal stories. The human interest frame appeared with a frequency of 9% in the period from 2009 to 2011 and increased significantly to 40% in the period from 2012 to 2015 to 47% in the period from 2015 to 2017. Furthermore, the increase in the responsibility frame indicates that the media increasingly attributed responsibility to various actors. The responsibility frame appeared with a frequency of 18% in the period from 2009 to 2011 and increased significantly to 48% in the period from 2012 to 2015 to 60% in the period from 2015 to 2017. Although the media attributed responsibility to a wide variety of actors, most of it was attributed to the government and the NAM. There is also a moderate increase in the frequency of the morality frame, in which a moral responsibility towards the Groningers is highlighted. The morality frame appeared with a frequency of 27% in the period from 2009 to 2011 and increased to 32% in the period from 2012 to 2015 to 37% in the period from 2015 to 2017.

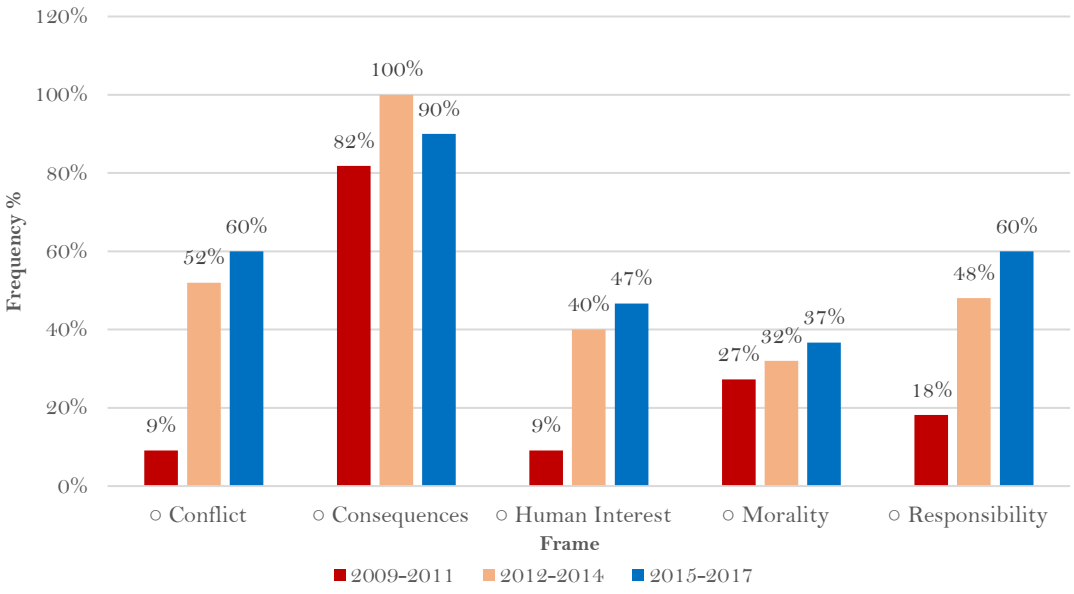

Figure 5: Bar graph of the frequency in percentages of the appearance of the five generic frames in newspaper articles of *de Volkskrant* and *NRC Handelsblad* at three different time spans: from 2009 to 2011, from 2012 to 2014 and from 2015 to 2017 (n=70)

The specific frames also indicate that the story increasingly appeared as an issue over time, as the environmental risk frame increased over time and the economic opportunity and the energy security decreased (Figure 6). The strong increase of the environmental risk frame shows that the media increasingly focused on the environmental risks of the earthquakes. The environmental risk frame appeared with a frequency of 45% in the time span from 2009 to 2011 and increased significantly to 70% in the time span from 2012 to 2015 and increased slightly to 71% in the time span from 2015 to 2017. The frames that emphasised the benefits of gas extraction, namely the economic opportunity and the energy security frame, appeared less frequent over time. The economic opportunity frame appeared with a frequency of 64% in the time span from 2009 to 2011 and decreased significantly to 40% in the time span from 2012 to 2015 and decreased more to 37% in the time span from 2015 to 2017. The energy security frame appeared with a frequency of 45% in the time span from 2009 to 2011 and decreased radically to 12% in the time span from 2012 to 2015 and increased slightly to 13% in the time span from 2015 to 2017. The technological innovation frame appeared with a similar frequency over time. This frame appeared with a frequency of 36% in the time span from 2009 to 2011 and decreased to 28% in the time span from 2012 to 2015 and increased again to 33% in the time span from 2015 to 2017. The unsustainable fuel frame, which also emphasised the disadvantageous consequences of the use of gas, appeared less frequent over time. The unsustainable fuel frame appeared with a frequency of 27% in the time span from 2009 to 2011 and decreased significantly to 8% in the time span from 2012 to 2015 and decreased further to 7% in the time span from 2015 to 2017. It is remarkable that despite the increasing awareness of climate change and global warming in the Netherlands, the energy transition towards renewable energy sources decreased over time.

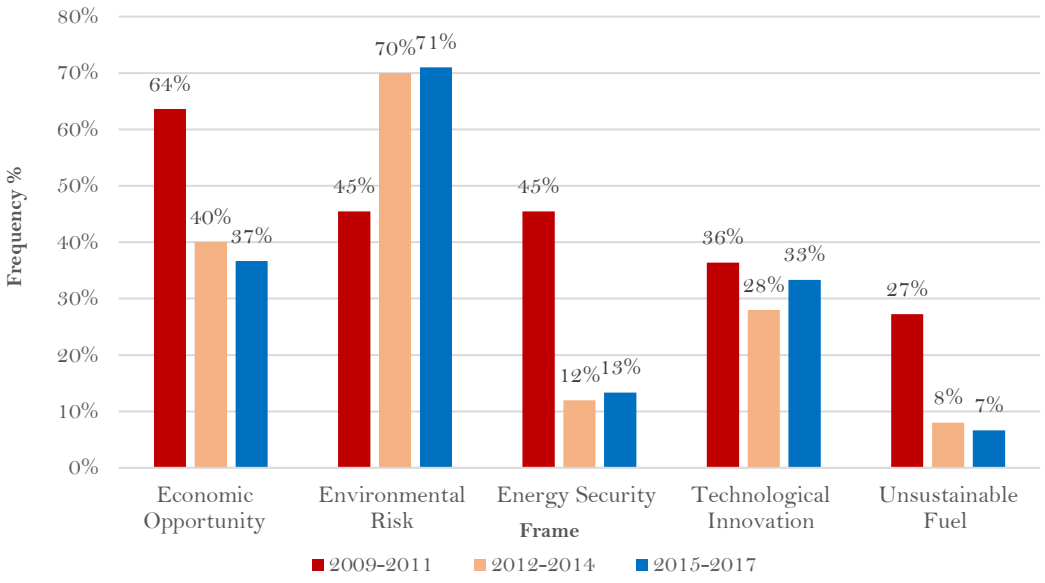

Figure 6: Bar graph of the frequency in percentages of the appearance of the five specific frames in newspaper articles of *de Volkskrant* and *NRC Handelsblad* at three different time spans: from 2009 to 2011, from 2012 to 2014 and from 2015 to 2017 (n=70)

The word content analysis and generic and specific frames show how the story increasingly evolved into an issue, which indicates that there appeared a shift of framing from the 2009 to 2017 time period. For a better understanding of how the story evolved into an issue, Kingdon's Multiple Streams Framework is used.

Kingdon's Multiple Streams Framework

The main argument of Kingdon's Multiple Streams Framework is that we all have low attention to give to political issues because, at any given moment, there is a significant amount of issues competing for our attention. As a result, policies rarely change. Therefore, conditions must be present to pay attention to issues. That is where the media comes in. The media are presenting competing stories on natural gas. However, a story becomes an issue when (1) it can be supported by emphasizing some indicators (problem stream), (2) appeals to the national sensibility -- what the Dutch people identify as just and moral or a priority (political stream), (3) there seems to be a solution which is both technically and morally acceptable (policy stream). This study found that these three conditions were fulfilled, which proves that the story increasingly evolved into an issue.

Emphasising the Problem Indicators

The story was identified as an issue, as the problem indicators of the gas extraction were emphasised. The appearance of two frames highlighted the problem indicators, namely the environmental risk frame and the conflict frame.

First, the environmental risk frame emphasised the risks of earthquakes for the people and the environment and appeared with a high frequency of 62% in the news coverage (See Figure 3). Although the risks of gas extraction appeared with a high frequency in the period from 2009 to 2011, these risks did not appear in this period as fatal and were not problematised much:

> *"As a result of the ground subsidence, many residents in Groningen were confronted with water in the cellars as a result of the higher groundwater level."* NRC Handelsblad, 25 June 2009

Remarkably, there was a change in the frequency and the focus of the environmental risk frame in the time span from 2012 to 2017, as these frames increased significantly over time (See Figure 6) and the risks appeared as more dangerous and fatal in this time span. In doing so, there was an increase in reference made to the damage of the earthquakes and also to the mental health problems of the Groningers:

> *"Certainly, money has become rendered available to put extra Alabastine in the cracks [...] They shrugged their shoulders, the 14 thousand inhabitants of Groningen who do not feel safe in their houses, and the 4,000 people with mental health problems, and the 76 thousand people who reported damage, and the 30 families who had to get out of their houses as a matter of urgency, and the 100 households whose house had to be demolished."* de Volkskrant, 31 March 2017

> *"So there could be fatalities, due to natural gas production in the Netherlands. Groningen runs the risk of a medium-heavy earthquake, and then someone might end up under a falling wall. But gas production will continue as usual,"* de Volkskrant, 1 February 2013.

> *"Thursday evening, there was another earthquake in the province of Groningen. Just like on Wednesday, the earth trembled in north-eastern Groningen, but Thursday's tremor was stronger, according to a spokesman for the KNMI"* de Volkskrant, 17 August 2012.

Second, the conflict frame appeared with a high frequency of 48% (See Figure 2), which indicates that there was much reference made to the issue as something controversial. Remarkably, the conflict frame was scarcely present in the news coverage in the period from

2009 to 2011 (See Figure 5). When there appeared conflicts in the news coverage in this period, the conflicts did not appear as heated:

> *"Billions of natural gas revenues have been spent by the various governments, particularly in the Randstad. The north only has drilling installations that pollute the landscape, ground subsidence, occasional earthquakes and false promises of various cabinets."* de Volkskrant, 16 June 2009

However, the conflict frame increased radically in its frequency in the time span from 2012 to 2017 (See Figure 5). Moreover, the conflicts between the various actors appeared more heated, and mainly the Groningers appeared with a more violent attitude:

> *"You, Mr Van Beurden, can give an explanation. Apologise if the lawyers allow you to do so (and are not afraid of claims for damages). Travel to Groningen yourself. Before angry Groningers come to your shareholders' meeting in order to disturb this meeting."* NRC Handelsblad, 24 February 2015

> *"Last Thursday were according to reports crisis talks in a tense atmosphere about this subject in the Turret, the workplace of Prime Minister Rutte. Coalition partner PvdA urged the VVD to close the gas tap further."* de Volkskrant, 9 February 2015

Surprisingly, the unsustainability frame appeared with a low frequency in the news coverage (See Figure 3). Therefore, it can be concluded that the unsustainability of the use of fossil fuels such as gas was not highlighted in the public debate. Nevertheless, this frame emphasises problematic aspects of the issue, such as climate change, rising temperature and rising sea levels:

> *"Burning natural gas has CO2 emissions as its disadvantage. This can lead to climate change and rising sea levels. In ten thousand years' time, what is now the Netherlands will be underwater."* NRC Handelsblad, 30 June 2009

> *"A 'fossil lock-in' is: being stuck with fossil energy. Scientists disagree on climate models and bandwidths, but not on the need to move away from fossil fuels - also because the easy sources are running out."* de Volkskrant, 24 January 2014

Despite the focus on the problem indicators, there was also significant attention paid to the benefits of gas extraction in the news coverage. Two frames indicate the benefits of gas extraction, namely the economic opportunity frame and the energy security frame.

First, the economic opportunity frame appeared with a high frequency of 42% (See Figure 3) and emphasised the importance of the gas revenues for the Dutch economy. This frame often referred to numbers related to gas revenues and to the general state budget. Mainly in the period from 2009 to 2011, this frame appeared with a high frequency of 64% (See Figure 6). In this period, gas was framed as a solution for the financial difficulties in the Netherlands:

> *"Budget deficit to 6%? Money to save banks that have been struck by the stupidity of bankers? Money for infrastructure, crisis management, ageing, environment? The money is there and it is hidden in the ground."* NRC Handelsblad, 30 June 2009

> *"Everything you can get out of your own soil, at a reasonable price, has been taken away"* NRC Handelsblad, 24 June 2009.

However, economic opportunities became less important in the debate over time. The economic opportunity frame appeared with a frequency of 64% in the time span from 2009 to 2011 and decreased significantly to 40% in the time span from 2012 to 2015 and decreased more to 37% in the time span from 2015 to 2017 (See Figure 6).

Second, the benefits of gas extraction were emphasised by the energy security frame, which appeared with a frequency of 18% (See Figure 3). The energy security frame emphasised the importance of gas for the energy security and energy independence of the Netherlands. In doing so, the depletion of gas fields in the Netherland was stressed and the increasing dependency on Russian gas was discussed:

> *"But the bond with Russia is deeper, uncomfortable too. Will the cabinet restore gas production in Groningen? Minister Kamp of Economic Affairs makes no secret of it: then dependence on Russia will grow."* NRC Handelsblad, 14 February 2015

However, the energy security frame decreased radically over time. The energy security frame appeared with a frequency of 64% in the time span from 2009 to 2011 and decreased significantly to 40% in the time span from 2012 to 2015 and decreased more to 37% in the time span from 2015 to 2017 (See Figure 6)

Despite the earthquakes in Groningen, the (economic) benefits of the controversial technique of unconventional gas extraction or fracking were promoted in the period from 2009 to 2011. The promotion of the more controversial technique of fracking indicates that the gas extraction was not considered as a large problem. The following examples show that fracking was promoted:

> *"Due to technical difficulties, the extraction of unconventional gas has only recently started on a large scale. Those who saw the possibilities early have benefited"* de Volkskrant, 29 May 2010

> *"The Dutch soil still contains enormous quantities of gas that can be extracted with new technologies. This is evident from the report Focus on Dutch Gas 2009, published by Energie Beheer Nederland (EBN)."* NRC Handelsblad, 24 Juni 2009

However, in the period from 2012 to 2017, the controversial issue of fracking was not promoted anymore.

Overall, it can be concluded that a shift of framing occurred. On the one hand, the environmental risk frame and the conflict frame increased dramatically in their frequency over time, which indicates there was an increasing focus on the problem indicators of the gas extraction in the news coverage. On the other hand, the benefits of gas extraction became less important throughout the years in the public debate. This finding is in agreement with the finding of the content analysis, which showed a shift of the media content from the economic prospects of gas extraction to the environmental risks (See Figure 4).

Appeal to the National Sensibility

The story was framed as a problem in the news coverage because there was much appeal to the national sensibility, in which immoral and unjust aspects of the issue were highlighted and responsibility to actors was attributed. Three frames indicate this appeal to the national sensibility, which are the human interest frame, the morality frame and the responsibility frame.

First, the human interest frame referred to the emotions and the 'human face' of the story and generally appeared with a regular frequency of 38% (See Figure 2).

In the period from 2009 to 2011, the human interest frame appeared with a low frequency of 9% (See Figure 2) and focused more on personal stories than on emotions:

"Atie Edzes from Sappemeer, fifty years ago, was overjoyed. The first gas wells were drilled on her land [...] 'On our land, there would first arise an industrial area. But where NAM drilled, no other industry was allowed. We welcomed the gas people with open arms', says the 86-year-old lady." de Volkskrant, 16 Juni 2009

In the period from 2012 to 2017, the human interest frame increased radically in its frequency. The human interest frame appeared with a frequency of 9% in the period from 2009 to 2011 and increased significantly to 40% in the period from 2012 to 2015 to 47% in the period from 2015 to 2017 (See Figure 5). Moreover, it focused more on emotions such as anger, fear and despair. These emotions were used to highlight the injustice of the issue:

"Everything provides enough powerlessness. Those who are hindered from giving their children a safe roof will eventually become violent, often against themselves. If you have nowhere to go, only the sky is still open to you" de Volkskrant, 18 January 2014.

Second, the morality frame referred much to the immorality in the news coverage and appeared with a frequency of 32% (See Figure 2). Although there was a reference made to immorality in the period from 2009 to 2011, the following examples show that there was not a moral outrage, which means that there was not a strong emotional reaction to injustice with the involvement of moral judgement:

"I understand that the region feels abandoned. I think it would be a nice gesture if the government would help. The Netherlands has taken a lot out of the area and can do something in return." de Volkskrant, 16 June 2009

"The Hague does not compensate us 'because the gas belongs to everyone'. But if there are problems here, they don't belong to everyone." de Volkskrant, 15 June 2009

"I understand that the region feels abandoned. I think it would be a nice gesture if the government would help. The Netherlands has taken a lot out of the area and can do something in return." de Volkskrant, 16 June 2009

The reference made to the immorality of the issue changed in the period from 2012 to 2017, as the morality frame increased (See Figure 5) and there was more a moral outrage noticeable. The word 'scandalous' and the phrase "how dare you" in the following examples indicate the moral outrage in the issue:

"About gas production in Groningen: 'I thought the colonial period was over. But the north is still being exploited. I call for a parliamentary inquiry. It's really scandalous" de Volkskrant, 3 March 2017.

"Talking with a split tongue by the NAM, the endless patience of Annemarie, until, after another empty gesture from the representative, 'enough is enough'. You've come up with a big baseball bat. You ruined my whole house and it needs to be repaired. How do you dare? After which the NAM-man complains: 'I think it's going to be very personal.'" de Volkskrant, 4 March 2017

Third, the responsibility frame attributed responsibility to the causes or consequences of the issue and appeared with a high frequency of 42% (See Figure 2). This frame stressed the responsibility of various actors for the earthquakes and its consequences for the Groningers. In the Groningen gas extraction, the crisis is not simply an "act of God" and is caused by human actions. When the government and the NAM would not have extracted the gas from the Groningen field, the people did not have to face the consequences of the earthquakes. Although most of the responsibility was attributed to the national government, other actors were also held responsible, such as supervisors (State Supervision of the Mines) and all the

Dutch citizens together. Furthermore, various companies were held responsible for the earthquakes, such as the NAM, GasTerra and Energie Beheer Nederland.

Remarkably, in the period from 2009 to 2011, the responsibility frame was scarcely present (See Figure 5). This finding indicates that gas extraction in Groningen was not problematized much in this period. However, in the period from 2012 to 2017, there was more responsibility attributed to actors (See Figure 5). Moreover, there was the admission of guilt towards the Groningers, which was not present in the first period from 2009 to 2011. The following examples show that responsibility is attributed to various actors:

> *"Not only the Ministry of Economic Affairs but also the Ministries of Housing, Education and the Interior must be involved. The government must be a guardian of its citizens. It is unacceptable for the Netherlands to have been heating itself with Groningen's natural gas for fifty years, but to leave the people of Groningen out in the cold."* de Volkskrant, 12 January 2015

> *"Tjibbe Joustra [...] strongly criticises all parties which were involved in gas production and speaks of a 'closed stronghold' [...] the so-called gas building, consists of the Nederlandse Aardolie Maatschappij (NAM), owned by Shell and ExxonMobil, GasTerra, the seller of the gas, the state participation Energie Beheer Nederland (EBN) and the Ministry of Economic Affairs."* NRC Handelsblad, 18 February 2015

> *"Supervision also failed. The State Supervision of Mines (SSM) is said to have followed the consensus of this stronghold for too long. Within the system, there was no room for critical sounds or counter-pressure, not even from other ministries or the outside world."* NRC Handelsblad, 18 February 2015

The results show that there was a shift in the national mood. In the period from 2009 to 2011, there was not much reference made to the violation of values, injustice, scandalous aspects and the responsibility of actors. However, there was a change in the national mood, as in the period from 2012 to 2017, the issue transformed from a local issue into a national issue, in which there was increasingly reference to the violation of values, injustice, scandalous aspects and the responsibility of actors increased radically.

Technically and Morally Acceptable Solution

The story evolved into an issue, as there was much reference to immoral elements. The immorality of the story started already in 1986, in which the relationship between gas extraction and the earthquakes in the first instance was denied by the KNMI and the NAM. However, after five years, they admitted that there was a relationship:

> *"The first recorded earthquake was in Groningen in 1986, when a fierce discussion on the cause emerged, [...] NAM and, frankly, KNMI staff contested the fact that this earthquake was a direct result of the gas production process. It was only after an extensive investigation, which lasted five years that a direct connection was established."* NRC Handelsblad, 25 June 2009

Remarkably, despite the many earthquakes, the immorality in the story continued in the time span from 2009 to 2017. Although there were solutions proposed, these solutions had immoral characteristics. For example, homeowners in Groningen had to prove to the NAM that the damage to their houses was caused by the earthquakes. However, it was difficult to prove that the damage was caused by earthquakes, as some houses were approximately a century old. In case the Groningers were able to prove that the damage was caused by the earthquakes, they

were scarcely compensated for the damage. The compensation was often not enough to repair the damage that was caused by earthquakes. Moreover, there was much delay regarding the payments of the damage claims. The following examples indicate the immorality of the solutions:

> *"'The NAM is delaying the payment of the money', says Mayor Roodenborg. 'With every crack in the wall, they want proof that it comes from an earthquake. But that is not always possible with houses that are a century old'. […] 'The average amount of compensation paid is 1200 euro per approved report', says a spokesman of the NAM. Inspectors come to people's homes to make an inventory. 'We are convinced that we compensate for the appropriate damage. But it takes time and energy, and that's very annoying for the people.'* de Volkskrant, 18 August 2012

> *"After the 'fourth, fifth, sixth earthquake' Cor Koster from Godlinze, a village near Loppersum, is done with it. Sixteen cracks are in the house he built himself. In the bathroom, in the inside wall, in the outside wall. He prefers not to claim from NAM. I know from others that you get a few hundred euros there. It makes you look ridiculous."* de Volkskrant, 18 August 2012.

The reports of the SoDM and the Dutch Safety Board emphasised the immorality of the issue, the danger of the risks of the earthquakes and assigned responsibility to actors:

> *"The report clearly states that the safety of Groningen's gas production up to 2013 did not play any role at all. Prevailed, risks were not recognised. All parties involved in gas production 'considered the safety risk to be negligible'."* NRC Handelsblad, 18 February 2015

These reports of the SoDM and the Dutch Safety Board were important in finding a technically and morally acceptable solution. In order to deal with the damage claim processes, it was discussed that the NAM should not take part in processing the damage claims, as there would be a conflict of interests. Instead, it was proposed that there should be one independent organisation dealing with the damage claims. Also, it was discussed that there should be more clarity about the reinforcement procedures. The following example indicates how responsibility is attributed to the government and how a more technically and morally acceptable solution was proposed for the damage claim processes:

> *"The government must deal with the earthquake damage itself and no longer leave it to gas producer NAM, a joint venture between Shell and ExxonMobil. It is time for "one integrated organisation that is responsible" for the problems of the earthquake, the socio-economic problems and the shrinkage "at a level that transcends all parties involved". In the opinion of the Dutch Safety Board, there also needs to be more clarity about the reinforcement operations in the area."* 30 March 2017

Additionally, it was increasingly discussed that more money should be made available to compensate for the damage of the earthquakes in Groningen, as the gas extraction has contributed to the financial prosperity and the energy security of the Dutch state:

> *"Here, billions are being drilled from the deeper layer of the earth. It's not strange, then, to give some of that back to the citizens who have suffered, isn't it?"* de Volkskrant, 18 August 2012.

In order to stop the earthquakes in the long term, it was discussed to terminate the gas extraction. However, the termination of gas extraction has consequences for the demand for gas in the Netherlands. In order to meet the demand, it was proposed to import foreign gas:

> *"Kamp is investigating whether greater reductions can be achieved by importing gas from Russia.* de Volkskrant, 10 February 2015

However, importing foreign gas has its disadvantages. In order to make foreign gas suitable for the Dutch households, it was discussed that nitrogen needed to be added to the gas. In doing so, nitrogen factories needed to be built, which was considered as costly.

The results of the analysis indicate that the issue transformed from a local issue into a national issue, which could have contributed to a more technically and morally solution for the issue. Over time, there was an increase in references to the story as a national issue, as the national government and every Dutch citizen has profited from the gas revenues. The following example shows that the gas extraction in Groningen was considered as a national issue in the period from 2012 to 2017, in which there is also the admission of guilt presented:

> *"But the real culprits are us. All Dutch people, who owe their prosperity to gas production. Shall we shake off our hypocritical attitude and ask all Dutch people, with the exception of the Groningers, to set up a gas fund to which everyone makes a solid financial contribution in order to help our fellow citizens? If we really care about Groningen, we must let our wallets speak for themselves and not always point the finger at others."* de Volkskrant, 12 January 2015

In conclusion, throughout the years, there appeared increasingly technically and morally acceptable solutions in the news coverage. The immorality of the story started already in 1986, in which the relationship between gas extraction and the earthquakes in the first instance was denied by the KNMI and the NAM. Remarkably, despite the many earthquakes, the immorality in the story continued in the time span from 2009 to 2017. Although solutions appeared, these solutions had immoral characteristics. However, more solutions appeared after the release of the reports of the SoDM and the Dutch Safety Board, which emphasised the immorality of the issue, the danger of the risks of the earthquakes and assigned responsibility to actors. In order to stop the earthquakes in the long term, it was discussed to terminate the gas extraction and more money should be made available to process the damage claims. Moreover, the story transformed from a local issue into a national issue, as there was an increase in reference made to the fact that the national government and every Dutch citizen has profited from the gas revenues, which could have contributed to a more technically and morally solution for the issue.

Conclusion

The news stories used all the news frames developed by Semetko and Valkenburg (2000) in the following order of predominance: consequences frame, conflict frame, responsibility frame, human interest frame and morality frame. The consequences frame was the most detected frame and was present in 91% of the news coverage. The conflict frame was the second most detected frame and was present in 48% of the news coverage, which showed the controversial nature of the issue. In the set of specific frames, this study found that the Groningen news stories used all the specific frames (Dodge and Lee, 2015; Metze, 2017) in the following order of predominance: environmental risk frame, economic opportunity frame, technological innovation frame, energy security frame and unsustainable fuel frame. The environmental risk frame was the most detected frame and was present in 62% of the news coverage. The second most detected frame was the economic opportunity frame, which was present in 42% of the news coverage. The high appearance of both the environmental risk frame on the one hand and the economic opportunity frame and the energy security frame on the other indicate the controversial nature of the issue.

The frame analysis showed that the story was reframed from "business as usual" in the period from 2009 to 2011 to a "human and environmental risk' in the period from 2012 to 2017. First, the story became an issue, as the problem indicators of the gas extraction were emphasised. The environmental risk frame and the conflict frame showed that there was an increase in reference made to the problem indicators over time. In doing so, these problem indicators were increasingly problematised and appeared as fatal. Second, the story was increasingly framed as problematic, as there was a shift in the national mood, in which there was an increase in reference made to the violation of values, injustice, scandalous aspects and the responsibility of actors. Third, throughout the years, there appeared a more technically and morally acceptable solution in the news coverage. Change is commonly seen as resulting from a shift in perceptions about the policy problem (Baumgartner & Jones, 2012). The news coverage showed that the dominant perception of gas extraction in Groningen in the public debate changed in favour of policy change.

§4.2 Participants Inside and Outside the Government

In the news coverage, there appeared a story about the gas extraction in Groningen that did not exist before. In this story, there was an increase in reference made to the problematic aspects of the gas extraction in Groningen. Various problems were identified, such as damage to houses and ground subsidence. Furthermore, there is reference made to the violation of values, injustice, scandalous aspects and the responsibility of actors. Also, there is evidence that the story was developed into an issue, as the case was often referred to as the 'gas extraction problem', 'earthquake problem' or the 'gas extraction issue'[29]. Moreover, there were technical and morally acceptable solutions presented in the media.

Moreover, a story develops into an issue when it is championed by policy entrepreneurs. Kingdon's Multiple Streams Framework is used to analyse which policy entrepreneurs champion the issue. The results show that the various actors were present in the news coverage, such as the 'national government', 'businesses', 'Groningers', 'expert groups', 'local and regional governments', 'interest groups and activists', 'politicians and parties in the Parliament' and 'academics' (See figure 7). The content analysis showed that all the groups of participants in the developed set appeared in the news coverage. However, despite the multitude of actors involved in the policy process of the Groningen gas extraction, the analysis showed there was a difference in frequency between the various actors that appeared in the news coverage.

[29] Translated in Dutch: 'gaswinningsproblematiek', 'aardbevingsproblematiek' or 'gaskwestie'

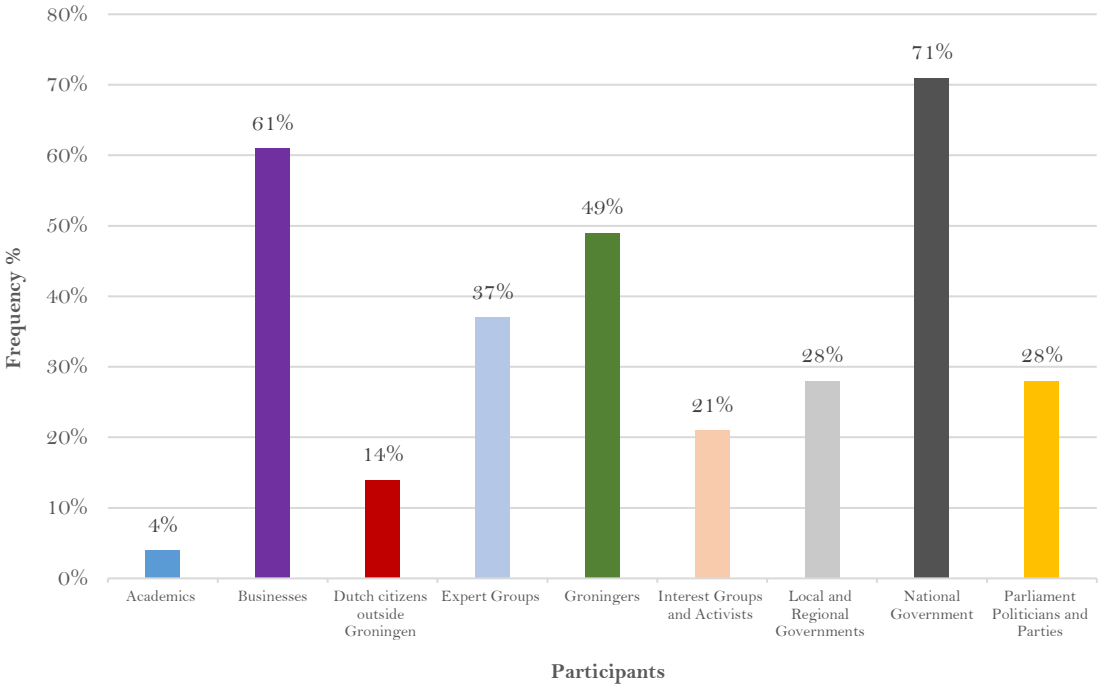

Figure 7: Bar graph of the frequency in percentages of the appearance of the participants in the newspaper articles of *de Volkskrant* and *NRC Handelsblad* between 2009 and 2017 (n=70)

One the one hand, the group of actors that are likely less critical about the Groningen gas extraction appeared more frequently in the news coverage than the group of actors that are likely more critical about it. The group that is likely less critical about gas extraction in Groningen and its consequences is the 'national government' and 'businesses'. The 'national government' was the most detected participant and appeared with a frequency of 71%. This is not surprising, as the 'national government' is responsible for the implemented gas policies, which caused the earthquakes. Moreover, 'businesses' appeared with a high frequency and were present in 61% of the news coverage. Not surprisingly, as businesses such as the NAM, were responsible for the gas extraction process, which caused the earthquakes.

On the other hand, the group of actors that are likely more critical about the gas extraction appeared less frequent in the news coverage than the 'government' and 'businesses'. The groups of actors that are likely more critical about the gas extraction are: 'Groningers', 'expert groups', 'interest groups and activists', 'academics', 'local and regional governments' and 'politicians in the Parliament'. The 'Groningers' appeared with a frequency of 49% of the news coverage. The high frequency of this group in the news coverage is not surprising, as the consequences of the gas extraction have a significant impact on the Groningers. Moreover, 'expert groups' appeared with a frequency of 37% in the news coverage. The high appearance is neither surprising, as the reports from expert groups such as the State Supervision of Mines and the Dutch Safety board had an important role in the policy process, as it showed the risks of the earthquake and attributed responsibility to actors. Moreover, 'Parliament politicians and parties' appeared with a frequency of 28%. Whereas this group examines and challenges the work of the government, it appeared with regular frequency. Furthermore, 'local and regional governments' appeared also with a frequency of 28%. Whereas local and regional governments are generally more in favour of the interest of the Groningers than the national government, they did not appear with a high frequency in the news coverage. Interest groups and activist appeared with a frequency of 21%. Although there were many interest groups and activists regarding the issue that were in favour of the termination of gas extraction, this

group of actors did not appear with a high frequency. Furthermore, 'academics' only appeared with a frequency of 4% in the news coverage. Whereas academics can provide innovative details about the issue, these actors appeared scarcely in the news coverage. An explanation for this low presence, it that the media may have focused more on the reports published by expert groups.

The group that is likely less critical about the gas extraction may have more opportunities to reflect their views in the media than the other groups who are more critical about it. By focusing less on the group of the actors that are likely more critical, the risk is that the media presents only a part of all the views on the issue. As a result, the debate could have been influenced in favour of the continuation of gas extraction. However, more research is needed to draw a conclusion about this aspect.

Over time, some actors appeared with an increasing frequency and others with a decreasing frequency in the news coverage (See Figure 8). The frequency of the 'national government' increased radically over time, which indicates that it became more important in the media debate throughout the years. An explanation for this increase is that there was increasing pressure on the government due to the critical reports that showed the responsibility of the government. On the other hand, the 'Groningers' and 'Parliament Politicians and Parties' also appeared with an increasing frequency, which indicates that these actors possibly became more important in the media debate. An explanation for this increase is that these actors became more important, as they have put more pressure on the government to take action. Remarkably, 'businesses' appeared with a decreasing frequency over time. An explanation could be that there was more blame put on the government than on businesses that were involved in the gas extraction process such as the NAM. Remarkably, the frequency of 'academics' decreased even to a low in the period from 2015 to 2017 to a frequency of only 1%. An explanation for this decrease could be that reports of expert groups became important, which made academics less relevant in the debate. The focus of the media on 'expert groups' and 'interest groups and activists' remained similar over time. Local and regional governments decreased in frequency in the years from 2015 to 2017, which indicates they became less important in the news coverage. This is not surprising, as the national government and not local and regional governments have to make final decisions about the continuation or the termination of gas extraction. Surprisingly, 'citizens outside Groningen' appeared with a decreasing frequency. Whereas citizens outside Groningen also have a moral responsibility towards the Groningers, they appeared less frequently in the news coverage.

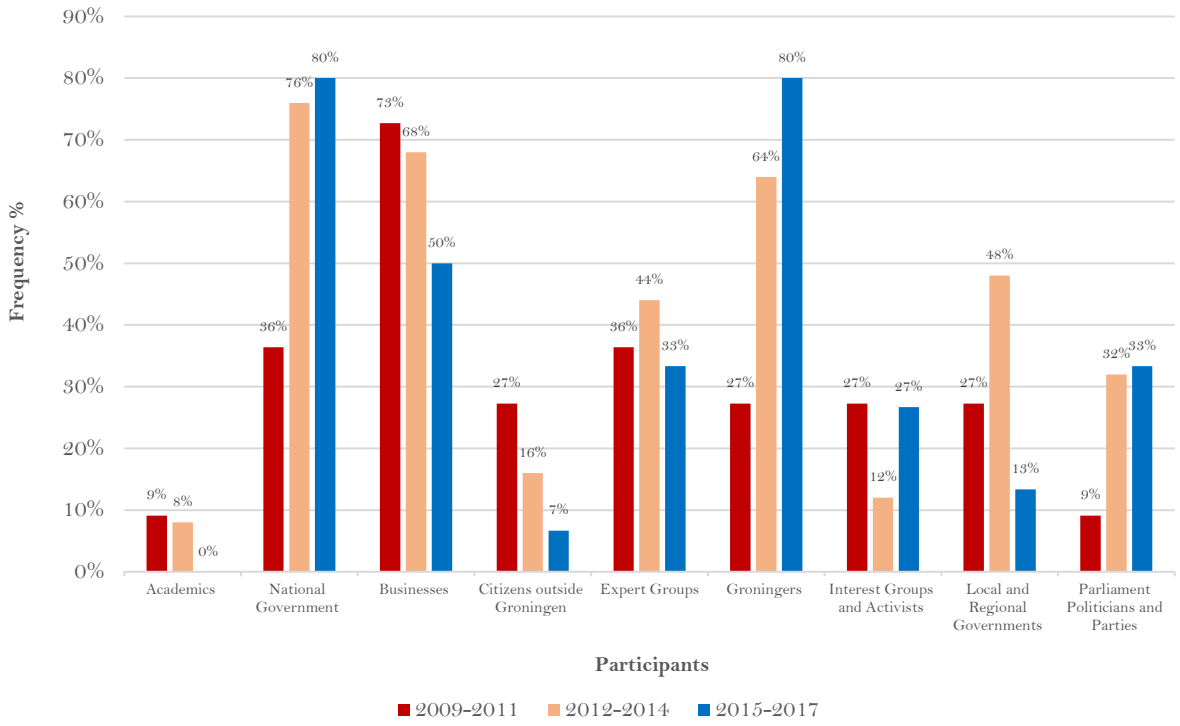

Figure 8: Bar graph of the frequency in percentages of the appearance of the participants in newspaper articles of *de Volkskrant* and *NRC Handelsblad* at three different time spans: from 2009 to 2011, from 2012 to 2014 and from 2015 to 2017 (n=70)

Conclusion Participants Inside and Outside the Government

The media presented a story about gas extraction in Groningen, which contained problematic aspects and solutions. Moreover, the results showed that there were various actors who were present in the news coverage and championed the issue. However, despite the multitude of actors involved in the policy process of the Groningen gas extraction, the analysis showed there was a difference in frequency between the various actors that appeared in the news coverage. The group of actors that are likely less critical about the Groningen gas extraction appeared more frequently in the news coverage than the group of actors that are likely more critical about it. The group that is less critical about gas extraction in Groningen and its consequences is the 'national government' and 'businesses'. The 'national government' was the most detected participant and appeared with a frequency of 71% in the news coverage. Moreover, 'businesses' appeared with a high frequency and were present in 61% of the news coverage. The group of actors that are more critical about the gas extraction appeared less frequent in the news coverage. Surprisingly, the group of actors that appeared the least in the news coverage were 'academics' with a frequency of 4%. An explanation for this low presence, it that the media may have focused more on the reports published by 'expert groups' than on research published by 'academics'. As a result, the participants that are likely less critical about the gas extraction may have more opportunities to reflect their views in the media debate than the actors who are more critical. As a result, the media debate may have been influenced in favour of the continuation of gas extraction. However, more research is needed to draw conclusions about this aspect. The presence of the group that is less critical about the gas extraction on the one hand and the group that is more critical about the gas extraction, on the other hand, does not become more equal over time, as both groups have actors that appeared with an increasing and decreasing frequency.

§4.3 Media Attention

As stated before, the Groningen gas extraction was increasingly framed as an issue, as it was reframed from 'business as usual' to a 'human and environmental risk' over time. When a story becomes an issue, and there is an increase in media attention, there is an increase in pressure on politicians to act (Baumgartner and Jones, 2009). In order to investigate whether the pressure on politicians to act increased, the media reports on the Groningen gas extraction over time are counted. The number of media reports of the two newspapers published throughout the years is shown in figure 9 below.

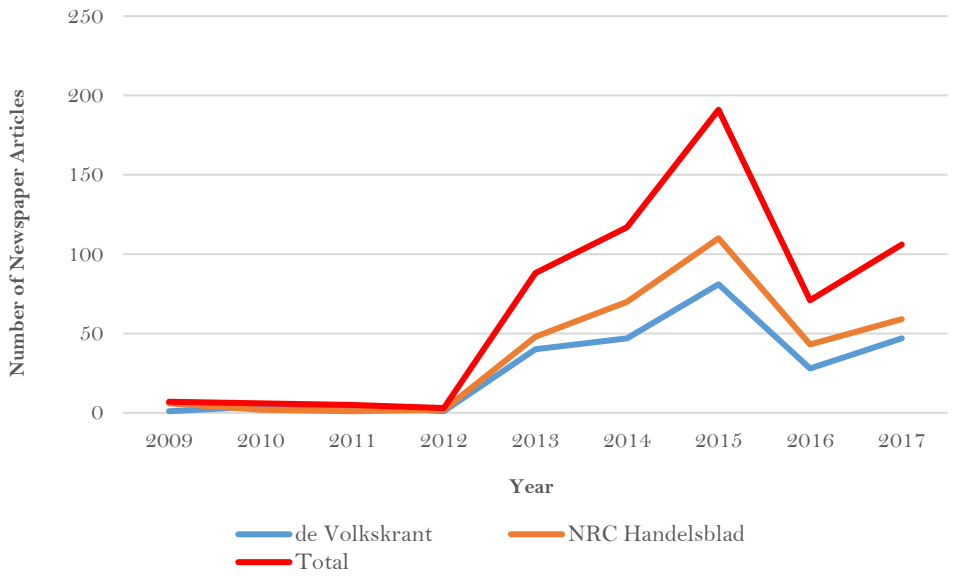

Figure 9: Newspaper articles published by *de Volkskrant* and *NRC Handelsblad* about the Groningen gas extraction (n=644)

The media attention on the Groningen gas extraction of the two newspapers in the period from 2009 to 2017 is unevenly distributed. The media attention was minor in the years from 2009 to 2012. In these years, there were in total 21 newspaper articles published by the two newspapers. In the period from 2009 to 2012, the highest number of articles was published in 2009, in which only seven articles appeared and the lowest number in 2012, with only three articles. However, in the years 2009 and 2011, there was a strong increase in the number and magnitude of the earthquakes in comparison with the years from 1991 to 2008 (NAM, n.d. – a). Various studies have shown that since 1993, the Groningen gas extraction caused earthquakes. As the media has the function to inform the public about risks, the limited media attention indicates that the media played a minor role in signaling the risks of the earthquakes.

There was an abrupt shift in the number of newspaper articles in the year 2013 in comparison with the years from 2009 to 2012. The number of newspaper articles increased radically to a total of 88 media reports in the year 2013. An explanation for this increase is that the SoDM investigated the risks of the issue and published a report in 2013 in which they concluded that the government was not able to guarantee the safety of the Groningers. This study was conducted as a result of an earthquake with 3.6 on the Richter Scale in 2012.

The number of newspaper articles had a high in 2015, in which 191 articles were published. This peak can be explained by the reports of the Dutch Safety Board in which they noted that

the operators of Europe's largest gas field, Shell and Exxon Mobil on the one hand and the Dutch government on the other, ignored the dangers for inhabitants of Groningen posed by earthquakes for years (Onderzoeksraad, 2018). In the same year, Minister Kamp apologised to the Groningers and acknowledged there had to be more attention for the safety of the Groningen inhabitants.

In the year 2016, the number of media reports decreased to a number of 71 newspaper articles. Despite the earthquakes that occurred in 2016, the media released fewer media reports about the issue. An explanation for the decrease in media reports could be explained by the issue-attention cycle (Downs, 1972). The media could have felt they addressed the issue sufficiently. As a result, they could have turned their attention to another issue.

In the year 2017, the amount of media reports increased again to an amount of 106 newspaper articles. An explanation for this increase in media reports may be that the increasing number of earthquakes in the year 2017 has triggered the media to report increasingly about the issue. Moreover, Henk Kamp decided in 2017 that the gas extraction would be reduced to 21,6 cubic meters. However, the number of published newspaper articles a year prior to the decision to terminate the gas extraction was not as high as in the year of 2015.

The shift of media attention in 2013 was accompanied by a shift of framing. Whereas the gas extraction in Groningen was framed as 'business as usual' and was scarcely problematised in the period from 2009 to 2011, there was little media attention for the Groningen gas extraction. In contrast, in the period from 2012 to 2017 the Groningen gas extraction was framed as a 'human and environmental risk' and was problematised, there was a radical increase in the number of newspaper articles. Baumgartner and Jones (2009) suggest that increased media attention put more pressure on politicians to act. As the issue was increasingly problematised in the news coverage and there was a radical increase in media attention in the year 2013 and the number of media reports remained high in the years after, it can be concluded that the media put more pressure on politicians to act.

The decision of the government to decrease the gas extraction was accompanied by reframing in the media and an increase in media attention. In the period that the issue was framed in the media as 'business as usual' and its attention to the gas extraction was low, the gas extraction remained high (NAM, n.d. – a). As of the year 2014, the government decreased gas extraction (NAM, n.d. – a). In the same period, there was much media attention and the media framed the issue as a 'human and environmental risk'. Although it is striking that the reframing of the Groningen gas extraction and the increase in media attention was accompanied by a decrease and even the termination of gas extraction, this study cannot make any conclusions about the actual effect of the media on the decision to terminate the gas extraction. Nonetheless, it can be concluded that the media increased the pressure on politicians to act.

Conclusion Media Attention

Counting media reports on the Groningen gas extraction showed a radical increase in media attention in the year 2013. This increase in media reports may be caused by the critical report of the SodM published in the year 2013 in which they concluded that the government could not guarantee the safety of the Groningers. In the years from 2013 to 2017, the media attention remained high in comparison with the years from 2009 to 2012. As the first part of the analysis showed that the issue was increasingly problematised in the media in the years from 2012 to 2017, it can be concluded that the increase in the number of media reports of *de Volkskrant* and *NRC Handelsblad* increased the pressure on politicians to take action over time. As increasing media attention put more pressure on politicians to act, it could have influenced

policy change. However, more research is needed to make final conclusions about this aspect. Nonetheless, it can be concluded that the reframing of the story by all kind of actors was accompanied by an increase in media attention.

V. Conclusion

The objective of this chapter is to combine all insights of the sub-questions to formulate a comprehensive conclusion on the research question: *"How do the media frame the Groningen gas extraction?"*. This chapter discusses the conclusions that can be drawn from the research findings and subsequently, the limitations of this study and recommendations for additional research on this topic are provided.

§5.1 The Public Debate on Natural Gas Extraction in Groningen

Gas extraction has implications for the Dutch economy, energy security, the environment and public health. On the one hand, gas extraction gives a boost to the state and the national economy. On the other hand, gas extraction has serious drawbacks for the people that live nearby the gas fields. Moreover, the Netherlands needs to move away from fossil fuels towards cleaner forms of energy and to reduce greenhouse gas emissions, agreed upon by the European Member States in the Paris Agreement. Therefore, the decisions public officials make about the Groningen gas extraction have consequences for all Dutch citizens. Remarkably, the Groningen gas extraction caused more than a thousand earthquakes over time, and little policy change occurred. However, in 2018, the government decided to gradually decrease the gas extraction to zero by 2030, which offered opportunities for the Netherlands to move away from fossil fuels towards cleaner forms of energy and to reduce the greenhouse gas emissions, agreed upon by the European Member States in the Paris Agreement. This study investigated why it took so long before policy change regarding the issue occurred and analysed the public debate on gas extraction. Although scholars conducted research on framing in media coverage on gas extraction in Groningen, they did not analyse the media framing in the years prior to the 2018 decision to gradually decrease gas extraction to zero. Neither did they analyse the relationship between media framing and the decision to terminate the gas extraction in 2018. This study has started to fill this gap scientifically. In order to investigate the news coverage, this study conducted a frame analysis analysis of a total of 70 newspaper articles of Dutch quality newspapers *de Volkskrant* and *NRC Handelsblad* in the media peaks from 2009 to 2017 with a set of five generic frames produced by Semetko and Valkenburg (2000) and five specific frames based on the theory of Dodge and Lee (2015) and Metze (2017). In order to show how the story developed into an issue and how it caught the attention, Kingdon's Multiple Streams Model was used.

The main finding of this study is that the story developed into an issue, as (1) the problem indicators were increasingly emphasised (problem stream), (2) there was a shift in the national mood in which there was increasingly reference made to the violation of values, injustice, scandalous aspects and the attribution of responsibility (political stream) (3) a technically and morally solution appeared (policy stream), and (4) it was championed by all kind of actors (Kingdon, 2003). The framing of gas extraction in Groningen changed from 'business as usual' in the period from 2009 to 2011 to a 'human and environmental risk' in the period from 2012 to 2017. Whereas policy change is considered as a shift in the national mood (Kingdon, 2003) or a shift in perceptions about the policy problem (Baumgartner & Jones, 2012), this study has demonstrated that the framing by all kinds of actors influenced policy change. By analysing the media framing of the gas extraction in Groningen, this study has provided a better understanding of policy change regarding the issue. The four conditions that transformed the story into an issue and influenced policy change are further discussed below.

First, the story became an issue, as the problem indicators of the gas extraction were increasingly emphasised over time. The appearance of the environmental risk frame and the conflict frame demonstrated that the indicators of the problem were highlighted. The environmental risk frame appeared with a frequency of 45% in the time span from 2009 to 2011 and increased significantly to 70% in the time span from 2012 to 2015 and increased slightly to 71% in the time span from 2015 to 2017. Although the risks of gas extraction appeared in the period from 2009 to 2011, these risks did not appear as fatal and were not problematised much. However, over time, the risks appeared increasingly as dangerous and fatal. Furthermore, the conflict frame appeared with a low frequency of 9% in the period from 2009 to 2011 and increased significantly to 52% in the period from 2012 to 2015 and to 60% in the period from 2015 to 2017. In doing so, the conflicts between the various actors appeared increasingly as heated. The increase in the environmental risk frame and the conflict frame indicate that the problematic aspects regarding the gas extraction became more prominent in the news coverage. However, despite the focus on the problem indicators, there was also attention paid to the benefits of gas extraction in the news coverage. The high appearance of the economic opportunity frame and the energy security frame indicate that the termination of gas extraction was not self-evident and that the issue was controversial. Although the frequency of the economic benefits frame and the energy security frame appeared with a high frequency, these frames decreased radically in their frequency in the period from 2012 to 2017. The economic opportunity frame appeared with a frequency of 64% in the time span from 2009 to 2011 and decreased significantly to 40% in the time span from 2012 to 2015 and decreased more to 37% in the time span from 2015 to 2017. The energy security frame appeared with a frequency of 45% in the time span from 2009 to 2011 and decreased radically to 12% in the time span from 2012 to 2015 and increased slightly to 13% in the time span from 2015 to 2017. Generally, it can be concluded that the problem indicators became more important over time and the benefits of gas extraction became less important. This finding can be confirmed by the word content analysis, which demonstrated that there appeared a shift of the media content from the economic prospects of gas extraction to the environmental risks. In agreement with Opperhuizen, Schouten and Klijn (2018), this study showed that there was an increased focus on crisis and conflict in the news coverage over the years. In addition to the results of Opperhuizen, Schouten and Klijn (2018), this study demonstrated that the focus on crisis and conflict increased even more in the years prior to the 2018 decision, namely from 2015 to 2017.

Second, the story was increasingly problematised, as there was a shift in the national mood, in which increasingly reference was made to the violation of values, injustice, scandalous aspects and the responsibility of actors. In the period from 2009 to 2011, there was not much reference made to the violation of values, injustice, scandalous aspects and the responsibility of actors. The low frequency of the human interest frame, the morality frame and the responsibility frame in this time span indicates this. However, the frequency of these frames increased over time and their focus changed. The human interest frame appeared with a frequency of 9% in the period from 2009 to 2011 and increased significantly to 40% in the period from 2012 to 2015 to 47% in the period from 2015 to 2017. This frame focused increasingly on emotions such as anger, fear and despair over time. The morality frame appeared with a frequency of 27% in the period from 2009 to 2011 and increased to 32% in the period from 2012 to 2015 to 37% in the period from 2015 to 2017. This frame demonstrated that there was increasingly a moral outrage, which means there is a strong emotional reaction to injustice with the involvement of a moral judgement. The responsibility frame appeared with a frequency of 18% in the period from 2009 to 2011 and increased significantly to 48% in the period from 2012 to 2015 to 60% in the period from 2015 to 2017. The responsibility frame increasingly attributed responsibility to actors and showed there was increasingly admission of guilt towards the Groningers. As stated before, Kingdon (2003) argues that a

shift in the national mood is an important cause for policy change, as it is one of the factors that can open a window of opportunity.

Third, throughout the years, more technically and morally acceptable solution appeared in the news coverage. The news coverage demonstrated there were already immoral aspects after the first measured earthquake in 1986, after which the relationship between gas extraction and the earthquakes was denied by the KNMI and the NAM. The immorality in the story continued in the period from 2009 to 2011. However, in this period, there were not many moral and technical solutions found in the news coverage. In the period from 2012 to 2017, the immorality of the issue continued. However, due to the reports of the SoDM and the Dutch Safety Board, more technically and morally acceptable solutions in the news coverage appeared. These reports emphasised the immorality of the issue, the danger of the risks of the earthquakes, assigned responsibility to actors and contributed to solutions in the news coverage. Moreover, the issue transformed from a local issue into a national issue, which could have contributed to a more technically and morally solution for the issue. Over time, there was increasingly referred to the story as a national issue, as the national government and every Dutch citizen has profited from the gas revenues.

Fourth, the appearance of the multitude of actors indicates that the story evolved into an issue, as it was championed by various actors. Despite the multitude of actors involved in the policy process of the Groningen gas extraction, the analysis demonstrated there was a difference in frequency between the various actors that appeared in the news coverage. The group of actors that are likely less critical about the Groningen gas extraction appeared more frequently in the news coverage than the group of actors that are likely more critical about it. The group that is less critical about gas extraction and its consequences is the 'national government' and 'businesses'. The 'national government' was the most detected participant and appeared with a frequency of 71% in the news coverage. Moreover, 'businesses' appeared with a high frequency and were present in 61% of the news coverage. The group of actors that are more critical about the gas extraction appeared less frequent in the news coverage. The groups of actors that are likely more critical about the gas extraction are: 'Groningers', 'expert groups', 'interest groups and activists', 'academics', 'local and regional governments' and 'politicians in the Parliament'. The 'Groningers' were present in 49% of the news coverage. Moreover, 'expert groups' appeared in 37% of the news coverage. 'Local and regional governments' and 'politicians in the parliament' appeared with a frequency of 28% in the news coverage. 'Interest groups and activist' appeared in 21% of the news coverage. Surprisingly, the group of actors that appeared the least in the news coverage were academics with a frequency of 4%. As a result, the group that is less critical about the gas extraction may have the advantages to reflect their views in the media than the actors who are more critical. The debate could have been influenced in favour of the continuation of gas extraction. However, more research is needed to draw further conclusions about this aspect. The presence of the groups that are less critical about the gas extraction on the one hand and the groups that are more critical about the gas extraction, on the other hand, does not become more equal over time.

Moreover, the media put more pressure on politicians to act, as the story received more media attention in the period from 2013 to 2017. This argument can be explained by Baumgartner and Jones (2000), who state that when a story becomes an issue and there is an increase in media attention, the pressure on politicians to act increases. In the period from 2009 to 2012, there was little media attention for the Groningen gas extraction. However, in this period, earthquakes were caused by gas extraction in Groningen. Therefore, this indicates that the media played a minor role in signaling there was a problem. This is striking, as the relationship between gas extraction and the seismic activities was demonstrated by many studies. Therefore, in agreement with Opperhuizen, Schouten and Klijn (2018), this indicates that in this period, there was room for improvement for the media in their role as 'watchdog'.

However, media attention increased radically in the year 2013. This increase could be explained by the earthquake in August of the year 2012, which had a high magnitude of 3.6 on the Richter Scale. As a result, the SoDM conducted research on the risks and published in 2013 a report, in which the SoDM concluded that the Government was not able to guarantee the safety of the Groningers. This report could have contributed to an increase in media attention. The reframing of the Groningen gas extraction in the media was accompanied by a decrease in gas extraction. In the period that the issue was framed as 'business as usual', gas extraction remained high. In fact, in the year 2013, gas extraction was even increased to a record amount despite the advice of the State Supervision of the Mines to decrease gas extraction. However, in the period that the issue was framed as a 'human and environmental risk' in the media, the government decreased gas extraction. Although there is a correlation between the reframing of the Groningen gas extraction and policy change, this study cannot make any conclusions about the effect of the media on policy change in the Groningen gas extraction.

This study has implications for practice. Framing draws attention to different aspects of an issue and emphasises some aspects and downplays others. Therefore, Meriläinen and Vos (2013) and Zhu (1992) consider framing as a zero-sum game. Various actors in the public debate should be aware of framing processes as it has implications for decision-making. These actors frame an issue in line with their interests or even keep certain aspects out of the discussion. However, not every actor has an equal say in the public debate, as there is a difference in their legitimacy and power. The public debate can be highly influenced by a few actors, which has implications for policy change. Therefore, influential actors in the policy field, such as politicians and policy-makers, should take into account the impact of their framing in the debate. All in all, all actors can benefit from insights into the complexity of framing, as it creates a greater sense of awareness about framing by actors, which facilitates decision-making.

Moreover, this study has implications for research. This study provided a profound insight into the public debate on gas extraction by investigating the framing by a set of five generic frames produced by Semetko and Valkenburg (2000) with a set of five specific frames based on the theory of Dodge and Lee (2015) and Metze (2017). Moreover, the agenda-setting theory of Kingdon's Multiple Streams Framework demonstrated how these framing results developed the story into an issue, which has influenced the 2018 decision to terminate gas extraction. Thereby, this study offered a fresh perspective on research in the field of framing of a political issue.

§5.2 Limitations and Recommendations

This study provides insightful results of how media report on the Groningen gas extraction issue. Naturally, this study also has its limitations, which should be taken into account when doing future research. Given the number of newspaper articles on the Groningen gas extraction and the relatively short time span of the study, this study only analysed the news coverage of the Groningen gas extraction from a selected number of media reports from two quality newspapers in the media peaks between 2009 and 2017. Therefore, the analysis cannot be considered as representative of all the Dutch newspaper articles about the Groningen gas extraction in the press between 2009 and 2017. Another limitation of this study is that this study did not analyse the differences in framing between the two quality newspapers. There may be differences in how *de Volkskrant*, which is a centre-left quality newspaper, and the *NRC Handelsblad*, which is a centre-right quality newspaper, report on the issue. Moreover, despite

that this study demonstrated that there was a correlation between media framing and policy change, this study did not analyse the actual effect of media framing on policy.

In order to provide a better understanding of the frames in the public debate on gas extraction, future research should include all the available articles of quality newspapers, popular newspapers, local newspapers and international newspapers from 2009 to 2017. Also, other media outlets can be included, such as magazines, tv and digital media. Mainly, the popular press and televised media are relevant in order to investigate public policy debates. Moreover, to understand further evolution of the news frames, it is useful to include future news coverage. Although this study has scientifically explored the public debate presented in the media, it did not analyse the effect of media framing on policy change. Therefore, in future work, it can be analysed whether the newspaper framing of the Groningen gas extraction affected the public opinion and policy change. In doing so, the findings of this study can be combined with data from public opinion, and policy outcomes in order to analyse in a robust manner the influences of media frames. Moreover, although this research analysed the frames in the public debate of all actors together, the framing of each separate actor is not analysed. In order to investigate the perception of each actor on the issue, I propose to investigate the frames used by each actor in the media coverage. This can provide more insights into the role of each actor in the public debate, which has implications for decision-making.

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Appendix I

Table 9: List of analysed articles in *de Volkskrant* (n=35)

Date	*Title*
16 June 2009	Groningers voelen zich nog altijd beetje bestolen
8 May 2010	Kleine aardbeving onder de Waddenzee
12 May 2010	'Groningse gasvelden zijn geknipt voor CO ' 2
26 October 2011	Voorlopig geen boring schaliegas
17 August 2012	Schade door aardbeving Groningen
17 August 2012	Ruim 100 schademeldingen na aardbeving Groningen
18 August 2012	'Zwaarste schok in Groningen'
20 August 2012	Recordaantal schademeldingen na aardbeving
1 February 2013	Fossiele verslaving
2 February 2013	Commissaris van de koningin wil miljard van NAM
12 February 2013	Kamp onder druk: ook PvdA wil gaswinning verminderen
14 February 2013	Rehwinkel heeft spijt van 'gasartikel'
28 February 2013	'Vóór gaswinning al zwakke aardlagen'
4 January 2014	'NAM schendt afspraak overheid niet'
16 January 2014	Minder gas? Ze geloven er niets van
17 January 2014	Stoppen de bevingen als er minder gas wordt gewonnen?
18 January 2014	Vluchten
24 January 2014	We moeten af van verslaving aan fossiele grondstoffen
10 February 2015	Kamp draait Groningse gaskraan beetje dicht
12 February 2015	Groningers deden er nooit toe; het gas telde
14 February 2015	Zonder gas
19 February 2015	'De beslissers hadden te weinig oog voor de buitenwereld'
27 February 2015	Coalitie is om: voor de verkiezingen toch debat gaswinning
9 September 2016	Ook Shell zegt sorry tegen Groningers
9September 2016	Sorry
20 September 2016	Alles doorstaan maar geen liefde geoogst
21 September 2016	Een nette financiële erfenis met politieke voetangels en klemmen
21 September 2016	Leden van de Staten-Generaal
4 March 2017	'Ach mevrouw, ze overdrijven zo'
4 March 2017	Groningse wanhoop gefilmd in duizenden beelden
8 March 2017	Naar anderen wijzen helpt Groningen niet
9 March 2017	Kamp onderschatte risico's aardbevingen
11 March 2017	Campagnetijd!
24 March 2017	De lessen van Loppersum
31 March 2017	Vertrouwen

Appendix II

Table 10: List of analysed articles in *NRC Handelsblad* (n=35)

Date	*Title*
18 June 2009	Nederland geeft gasgelden liever uit dan te sparen
24 June 2009	EBN: bodem bevat meer gas dan gedacht
25 June 2009	Groningen daalt, water stijgt; Als het gas in Slochteren op is, ligt Noord-Groningen 42 cm lager
30 June 2009	Pompen én verzuipen
21 December 2010	Kolenverstokers moeten toontje lager zingen
10 February 2011	In de Zuid-Afrikaanse Karoo is water zeker zo schaars als gas; Boorplannen van olieconcern stuiten op verzet van lokale bevolking
10 January 2012	Gasvondst rekt leven van 'Slochteren'
7 February 2013	Bedelen om aardgasgeld is een stap terug
8 February 2013	Eerst elf onderzoeken naar Groningse aardbevingen
14 February 2013	Rehwinkel betreurt artikel over bevingen
21 February 2013	Wat moet Nederland van de buren leren?
27 February 2013	Brandend grondwater
13 January 2014	'Ruimte voor claim gasschade'
18 January 2014	De maatregelen: Groningen: 1,2 miljard
22 January 2014	Over de haag
30 January 2014	NAM: verstevigen huizen helpt beter dan minder gas
31 January 2014	De NAM gaat eindelijk met de Groningers praten
11 February 2015	Minder gas uit Groningen. Wat kost dat?
17 February 2015	'Gaskraan verder dicht om Groningse veiligheid'
18 February 2015	Veiligheid Groningers genegeerd; Overheden, NAM en Shell handelden onzorgvuldig
24 February 2015	Meneer Van Beurden, ga naar Groningen
28 February 2015	Het gas werd geoogst als de specerijen in de Oost
1 September 2016	EnergieShell: gaskraan in Groningen zo lang mogelijk open
3 September 2016	Gaswinning: Nieuwe beving in Groningen
6 September 2016	CDA kiest voor zittende leden en lokale ervaring
8 September 2016	GaswinningShell en Exxon zeggen sorry tegen Groningen
9 September 2016	Eindelijk betuigen Shell en Exxon spijt over overlast
15 September 2016	Minder gas en minder NAM aub!
15 September 2016	Geen bollefreed en hondenwippen meer
21 September 2016	Leden van de Staten-Generaal
02 March 2017	NAM weer verplicht tot betalen van schadevergoeding
08 March 2017	'Groningen telde dit jaar 26 aardbevingen'
13 March 2017	Gaswinning Lichte aardschok in Groningen
16 March 2017	'De pakken wonnen, wij hebben verloren'
30 March 2017	'Haal aanpak bevingsschade Groningen weg bij NAM'