9. SHAKING UP THE EVERYDAY DUTCH NATURAL GAS DEBATE

‘Do you have any idea how it feels to constantly walk around your home to inspect, constantly inspecting if everything is as it was before the earthquake? To check whether you have indeed an accurate image of all the damage? It feels like you are not allowed to miss anything, always need to scrutinize, always be on your guard.’

9.1 Introduction

The Netherlands has been developing natural gas fields since the discovery of a large field in the region of Groningen in the 1960s. This has resulted in over 265 billion of state revenue as well as an infrastructure that connects almost all of the Dutch households to these gas fields for heating and cooking purposes. Currently, the Groningen gas field is drained to roughly one-third of its original reserves (680 of its original 2800 billion m³). Unfortunately, from the mid-1980s onwards the areas above the fields have experienced light earthquakes, which have been increasing in magnitude and frequency. For local residents, the everyday experience with, as well as the potential deadly consequences of these earthquakes is conflicting with long-standing national economic and energy security concerns of the Dutch government and European energy markets. For a long time, the concerns for earthquakes remained limited to a small number of Groningen inhabitants, mostly to those with direct experience with earthquake damages. This changed with the 2012 Huizinge earthquake, which, as the strongest and most heavily experienced earthquake in the Groningen area to date, led to a large public debate and a string of reports on all aspects of the Dutch natural gas extraction and ultimately to a cap on extraction as of 2014.

This begs the question why, after years of neglect, the security concerns of an initially small number of local residents suddenly supersedes the security concerns of policy makers and energy scholars working on the Dutch gas and energy supplies. This chapter thus studies the age-old security question why some issues become security issues and how to deal with conflicting security claims within such a process. This chapter uses insights from Critical Security Studies on Securitization Theory and Risk to analyze the debate on the Groningen gas field. More precise, this

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1 Local inhabitant quoted in Commissie Meijer 2013, 22 [translation by author].
2 See Figure 7 (Annex) for a map of the region and Figure 8 (Annex) for an overview of the magnitude and frequency of the earthquakes.
3 Van der Voort and Vanclay 2015.
4 This chapter was finished in July 2015, just after the decision of the Ministry of Economic Affairs to cap the total extraction for 2015 to 30 bn. Nm3. The debate and concerns are still ongoing.
The analysis itself builds on a number of reports and media coverage, in particular the extensive 2015 report by the Dutch Safety Board (Onderzoeksraad voor Veiligheid) on the role that security considerations played within the decision-making process on the Dutch natural gas extraction from 1959 until 2014.\(^5\) Its historical overview of the decision-making process has proven invaluable for this chapter. In line with this report, the current chapter is interested in the absence of local insecurity considerations in national energy security decision-making. However, where the report takes a historical factual approach, this chapter aims to offer a performative understanding of energy security and therefore analyzes this absence theoretically through a positioning of the modes of reasoning behind, on the one hand, the security considerations of the local residents and, on the other hand, the risk analyses of decision-makers.

The rest of this chapter is structured as follows. Chapter 9.2 briefly touches upon the connections between security, new materialism and the literature on the everyday. Chapter 9.3 continues by introducing the “event” of the induced earthquake near Huizinge in 2012 and its impact on the debate on natural gas extraction in the Netherlands. Chapter 9.4 discusses the Dutch national position and policy on natural gas extraction in relation to the Groningen field by mapping its historic structured materiality, regulatory framework and discursive underpinnings. Chapter 9.5 turns to the area above the gas field and describes the everyday experiences of the local residents.

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5 Onderzoeksraad voor Veiligheid 2015. Other key documents include: Muntendam-Bos and De Waal 2013; SSM 2013; Begeleidingscommissie Onderzoek Aardbevingen 1993; Commissie Meijer 2013; Ministerie van Economische Zaken 2014 (and its underlying reports); as well as overviews and histories published in the media: Schouwman and van Kleef 2014; Van den Berg 2015; Havermans 2015.
residents of Groningen with the earthquakes and the practices that enable the extraction of natural gas. Chapter 9.6 shifts from the everyday experiences towards the politics of knowledge behind the earthquakes and their risk assessments. The reflection brings these lines together and offers a reflection on the role played by traditional energy security considerations in this process.

### 9.2 Securing the Everyday

Instead of seeing security as a goal to be achieved, chapter 5 described the discourses and practices of security as: (1) both an identification of a threat and the proposal of a particular future; (2) a future that is performed in the present; (3) and as such it emphasizes and urges; (4) while silencing and simplifying everything outside the threat and the solution. In defining an undesired future and calling for urgency and action, security silences doubts and alternative security concerns. While the chapter on security identified a number of rationalities, techniques and logics behind approaches to security and insecurity, it paid special attention to two core theories within CSS, namely Securitization Theory and the Governmentality approach to Risk. Where Securitization Theory approaches security from a clear exclusionary either-or logic with a threatening other, the Governmentality reading of risk focused instead on the identification of populations at risk and the subsequent security apparatus installed to govern those risks. In addition, while Securitization Theory is organized around the extraordinary – that an issue needs to fall outside normal political procedures for it to count as a security threat, risk theories instead focus more on the practices of policy makers and insurers, with risk methods as a way to govern pre-defined undesired futures within normal daily routines.

Both theories can be used to help understand and explain the debate on the induced earthquakes, the gas quakes (gasbevingen) as locals call them, although they only exemplify parts of it and different parts at that. The local inhabitants, the Grunningers in their dialect, clearly have succeeded in securitizing the earthquakes as a threat to their livelihood. They have managed to put the earthquakes on the political agenda with a sense of urgency, while achieving a reduction in gas production and an increase in monetary compensation. Simultaneously, one can witness within government and industry a debate geared towards the risks of the earthquakes, in particular regarding the scientific uncertainty and economic implications. For these institutions, the debate itself has not changed as much as the numbers behind them. The only way these institutions are able to function is by weighing interests and governing through risk assessments. It should therefore come as no surprise that in addition to the event of the earthquake at Huizinge, these risk assessments lie at the

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core of the struggle between the locals and the “gas building” (het gasgebouw): the small and closely connected group of companies and institutions in charge of the Dutch gas extraction.

Instead of applying both of these theories onto the debate, this chapter tries to read them through a branch of social theory working on the ‘everyday’ of International Relations. The core argument in this literature is that ‘the mundane matters’. In line with ordinary language use, theories on practices and the literature on assemblages and networks, these authors argue that all international or ‘global’ explanations and theories ultimately stem from and are practiced out in the everyday: the ‘routine [, or that] what appears to be unexceptional. Devoid of decision-making. Seemingly pre-political.’ It is the familiar or that what is unobserved, which for these authors inhibits both the most powerful structures that guide our lives and the resistance to break those structures. As Gardiner argues, the everyday is ‘organized passivity’ that ‘blinds us to differences’ and offers ‘a stable order’ (e.g. ontological security), but simultaneously the everyday is also ‘messy’, the impure, a ‘conjunction of habit, desire and accident’ and it ‘exhibits a certain strength and resilience that enables it to resist domination by identity-thinking’ and technocratic government. The idea of these theorists is to approach the ordinary and open it up as something extraordinary, to see something in all its complexity and potentiality.

Such a focus on the everyday fits the CSS literature in two ways. First, in relation to Securitization Theory and its explicit denial of the everyday. While the ‘non-abstracted reality’ described by scholars working on the everyday clearly fits the category of the non-political in Securitization Theory, the theory itself builds on the distinction between the non-political, the political and the extraordinary and focusses in particular on the shift from the political to the extraordinary. Through its explanation of this latter shift, Securitization Theory sees security as a perceived necessity that silences alternative views. Security arguments thus silence the everyday. At the same time, this theory also allows for the possibility that new issues become problematized and turned into security issues. In other words, the theory allows for the everyday events and interpretations to become exceptional, meaning that the everyday is able to resists the silencing of overarching discourses, whether security related or not.

8 Enloe 2011, 447.
10 Ibid., 6.
12 Guillaume 2011.
Second, this contrast with approaches that analyze security itself as an everyday, like risk and practice theories. Theories working on risks, for example, focus on the everyday politics of managing security concerns and governing populations through risk management techniques. For these theories, security is something routine and part of the everyday. The work from Bigo and Balzacq on security practices also clarifies that not only those suffering from the threats, but also those security analysts who try to govern the events have an everyday experience of their own.\(^\text{13}\) These scholars study the everyday of security experts, how their existence reifies the threats and how new events are interpreted based on the particular security practices and understandings already in place.

In line with these theories, a focus on the everyday thus needs to consider two things. First, it leads to the question whether something that is problematized is still part of the everyday, for example, by stating that it is possible that one person’s exceptionality is another person’s everyday routine. Second, if one allows for multiple everydays then the question who’s everyday to analyze in the first place becomes of particular importance.\(^\text{14}\) In the case below, for instance, it matters whether one studies the everyday of the Grunningers or the officials of the “gas building”. This becomes an interesting political and ethical choice, for the people within the debates themselves, but clearly as well for outside observers criticizing the debates (in line with chapter 7.5).

A focus on the everyday also touches upon insights from Actor-Network Theory (ANT) and other new materialist theories on the role of the material and the localization of debates (see the chapter on materiality). Latour for instance builds on the insights of Tarde to argue that all social discourse and structure is ultimately a form of simplification, that there is nothing more complex than the localized material and social relations that make up life.\(^\text{15}\) For Latour, life does not take place ‘in the everyday’, but it takes place locally. Latour and those working on ANT do not observe the everyday; they study the traces of those multitudes of local relations that are black-boxed and withdrawn from observation. For ANT, these networks of relations are local, because they reject larger overarching explanations, like a theory or social structure. These overarching explanations are seen to close off the actual association that takes place and thereby prevent any possible way to understand potential changes in these relations. Instead, ANT believes one needs to do the work and really follow the associations between the relations to where they lead. The difficulty of such a framework, namely where to start and where to stop one’s analysis, is described by Latour himself (although in a context of morality) with a quote touched upon before:

\(^{13}\) Bigo 2014; Balzacq 2011.
\(^{14}\) Compare with the ‘agential cut’ of Barad 2007.
\(^{15}\) Latour 2005b, 13–16.
Between the gesture of switching on my computer and what I write on the screen, I can either ignore the nuclear industry which enables me to work this morning, or find myself immersed in the uncertain destiny of that same industry which forces me to take account of the burial in deep silos of the waste from its stations that the French do not support.16

Here, Latour touches upon the moment of choice between the everyday of writing and the everyday of a particular aspect of electricity production. It is a choice he elsewhere describes with the terms matters of fact and matters of concern. The term matters of fact describes those instances that are closed, undiscussed, pre-political facts of life. In turn, the notion matters of concern describes those assemblages of things that become contested public and political concerns.17 This leads to two questions. First, how do some issues become matters of fact and are silenced, and second, is something that is problematized as a matter of concern still part of the non-political everyday?18

Irrespective how one answers these questions, what remains is the shift in attention to the unobserved everyday in general and a politics of knowledge in particular. With multiple everydays, this implies a process of ontological politics as initially proposed by Mol.19 In such a politics of multiplicity, ‘the very question of whether such controversies are framed as ‘political’ or not is commonly itself a vital element in the dynamics of the controversy.’20 It is this form of politics – the breaking open of the everyday, the conflicting security claims and the lived experience of longstanding compounding issues – that the illustration below tries to highlight. Because the politics itself is multiple and tangled, the illustration is not depicted as a neat chronological story and more as an assemblage of events, explanations, experiences and reflections. Moreover, a la Deleuze & Guattari, it starts in medias res with the event itself.21

9.3 Shaking up the Everyday

Within the debate on the earthquakes in Groningen, the Huizinge earthquake of 16 August 2012 is often described as a turning point. This event is said to have pushed the Grunningers to start protesting in earnest, while for officials it is in hindsight described as the turning point that made them acknowledge the need for a shift in their normal procedures. As the Dutch Safety Board concludes: ‘The earthquake in

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16 Latour 2002, 255.
18 On making things public, see: Barry 2013b; Marres 2005; Marres 2012.
20 Barry 2013b, 8.
21 Deleuze and Guattari 1987.
Huizinge was the beginning of a new reality for Northeast Groningen.\textsuperscript{22} And indeed with a score of 3.6 on the Richter scale, the Huizinge earthquake was the strongest ever experienced in the Groningen area (although the Roermond 1992 earthquake was the strongest ever experienced in the Netherlands).\textsuperscript{23} Equally important to its magnitude were its scale and duration, which led people to flee their homes in panic. In addition, the Huizinge earthquake provided usable footage of the quake itself due to its duration, which enabled the panic to be captured by mobile phones and security cameras.\textsuperscript{24} More local than such an earthquake seems hardly possible.

To understand its impact outside its local environment, however, one needs to place it in the everyday of the Grunningers. This includes the fact that this was not a natural earthquake (contrary to Roermond 1992) but one directly linked to the gas extraction in the Groningen natural gas field. It includes that the Grunningers have been experiencing an increasing number of such earthquakes and that these have been of steadily higher magnitude ever since the first one in 1986.\textsuperscript{25} And it includes the public pressure that resulted from the news that 2013 turned out to be a record year, both in terms of an all-time high extraction volume (up to 54 billion Nm$^3$) and a record number of 119 tremors in the Groningen gas field of which about 20 could be felt by inhabitants (out of 133 total in the Netherlands).\textsuperscript{26}

The list goes one (see chapter 9.5) but most important in bridging the everyday of the Grunningers and the officials might be a report published by the State Supervision of Mines (SSM) in response to the Huizinge earthquake. As the official supervisory body, the SSM is responsible for ensuring that mining activities in the Netherlands are practiced in accordance with the mining law.\textsuperscript{27} Even though the Huizinge earthquake fell below the maximum of 3.9 on the Richter scale that was calculated in earlier risk assessments and therefore did not came as a surprise to the institutions involved, the SSM still initiated a new study in response to the growing unrest under the Grunningers.\textsuperscript{28} In this unsolicited report, the SSM, at that time still part of the

\textsuperscript{22} Onderzoeksraad voor Veiligheid 2015, 27 [translation by author].
\textsuperscript{23} Ibid., 27, 29. The Richter scale is logarithmic meaning that an increase from 3.6 to 3.8 is a doubling of the experienced magnitude (the energy released). Everything below 3 on the Richter scale is hardly perceptible. That said, the actual experienced magnitude depends on multiple factors (magnitude/energy released, speed of waves, ground conditions, force, duration, PE value, depth, etc.), not all of which relate one on one to the earthquakes in Groningen. In particular, the minimal depth between 1 and 3 km, the ground conditions (clay, high ground water) and the fast speed of the ground waves mean that people experience them earlier than the Richter scale would indicate. Another complicating factor is the uncertainty within the Richter scale itself (+- 0,1) and the delay of about a year between the gas extraction and the earthquakes.
\textsuperscript{24} Ibid., 83–84.
\textsuperscript{25} See Figures 7 and 8 in the Annex.
\textsuperscript{26} KNMI 2015; NAM 2015a. See also Figures 8 and 9, and Table 4 in the Annex.
\textsuperscript{27} Ministerie van Economische Zaken 2008.
\textsuperscript{28} SSM 2013; Muntendam-Bos and De Waal 2013; Onderzoeksraad voor Veiligheid 2015, 66.
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Ministry of Economic Affairs (and thus the gas building itself), openly and strongly questions the constant adjustments and increases in the maximum magnitude that risk assessments have put forward since the early 1990s. It comes to this conclusion in part by reviewing a simultaneously published interim report from the seismographic knowledge institute in the Netherlands, the Royal Netherlands Meteorological Institute (KNMI).29

This interim report from the KNMI on the Huizinge earthquake contained two major arguments. First, it looked at the methodologies it used and analyzed the difficulties and uncertainties when trying to calculate statistically a definite maximum magnitude for possible future earthquakes in the region of Groningen. The SSM combined this with earlier discussions on methodological uncertainties and, for the first time, put these uncertainties upfront in its report. It concluded that it is impossible to estimate a possible maximum magnitude for the induced earthquakes in Groningen. In doing so it distanced itself from the rest of the interim report of the KNMI, which, secondly, proceeded with the by then regular practice to increase the maximum estimates once more. After an international comparison of induced earthquakes, which resulted in maximum measurements of anywhere between 4.2 and 4.8, the KNMI decided to stay on the safe side and placed the maximum magnitude at 5.0 on the Richter scale, all the while repeating that the situation in Groningen, especially its underground and populous area, is quite different from these international cases.

Noteworthy, while the SSM argued against this urge to find a new maximum, it did counterintuitively calculate that if one takes a magnitude of 5.0, which is about 1000 times stronger than the Huizinge earthquake, the chance for an earthquake of 3.9 becomes 7%. Thereby implying that one in every fourteen earthquakes could be stronger than the Huizinge earthquake.30 Based on these two insights the SSM strongly advised the Minister of Economic Affairs, the ultimate responsible party for gas extraction in the Netherlands, to reduce the output of the Groningen gas field as quickly and drastically as possible in order to reduce the earthquakes on a short term base (with a delay of about a year).

The SSM’s break with previous knowledge practices came as a surprise to the other parties within the “gas building”.31 Not surprisingly, the KNMI and the Nederlandse Aardolie Maatschappij (NAM) – a cooperation of Shell and ExxonMobil that is awarded the license to extract natural gas from the Groningen field – questioned these conclusions.32 However, what really enflamed the local experiences of neglect and

29 Dost and Kraaijpoel 2013.
30 Muntendam-Bos and De Waal 2013; Van Hofslot 2015.
31 Onderzoeksraad voor Veiligheid 2015, 77.
32 NAM 2013.
anger even more was the slow response of the Minister of Economic Affairs who did not immediately follow up on the SSM’s advice to reduce the gas extraction. Instead the minister called for more research on the relation and effects of the earthquakes and the gas extraction (11 studies initially and 15 in total), even though he acknowledged the chance for higher magnitude quakes. Instead, the ministry agreed with the NAM on a sum of 100 million euros for preventive construction measures.33

On another front, the SSM report influenced the Province of Groningen to initiate its own study conducted by the commission Meijer.34 The commission repeated the main conclusions of the SSM and thereby confirmed the local concerns. However, the commission also reflected on the impact of the SSM report itself on the local residents and the sluggishness of the “gas building”. It is this impact that the commission Meijer summarized by stating that ‘inhabitants have the impression that the national government is giving prevalence to statistics over the experience of the people themselves.’35 Interestingly, besides a number of practical recommendations to ease the local unrest, among which a regular roundtable meeting of all the parties involved under Chatham House rules (de dialoogtafel), the commission also advised the Province of Groningen to hold the Ministry of Economic Affairs and Cabinet responsible with appeals on international human rights law and the Treaty of Aarhus on sustainable development.36 It clearly felt the need to protect the local citizens against national decision-making powers.

Late 2013 the debate heated up once more, following five developments. First, the pressure that resulted from the debate above lingered on. For example, The Maatschap Groningen, the organization where the NAM and the state meet and which has overall legal responsibility for the gas extraction, conferred over 25 times that year, compared to 4 to 8 times in previous years, in order to discuss the proportionality of the risks and a possible output reduction versus the profits and other national (energy security) interests.37 Second, the debate heated up due to the obligatory deposit of an extraction plan by the NAM for the Minister of Economic Affairs to decide on. Third, together with this extraction plan, the first results of the batch of reports initiated by the ministry became public and confirmed most of the earlier concerns. Fourth, public pressure increased following the announcements that 2013 turned out to be a record year in terms of the extracted volume and the frequency of earthquakes. Lastly, the debate received another push with a new report by the SSM, which advised the Ministry of Economic Affairs not to agree to the proposed extraction plan of the

33 Ministerie van Economische Zaken 2013a; Ministerie van Economische Zaken 2013b; Ministerie van Economische Zaken 2013c; Commissie Meijer 2013.
34 Provincie Groningen 2013; Commissie Meijer 2013.
35 Commissie Meijer 2013, 24 [translation by author].
36 Ibid., 25.
37 Onderzoeksraad voor Veiligheid 2015.
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NAM and instead to reduce the output in some of the most vulnerable areas (mainly the clusters around Loppersum). It supported this advice with a new reflection on the risks of the inhabitants, arguing that, while acceptable, the risk levels of inhabitants were comparable to the highest level of flood risk in the Netherlands.\(^{38}\) Although contested, this study was quickly picked up by Grunningers, especially as the SSM continued its number game (while simultaneously arguing that the risks cannot be known) and calculated that the risk of 100 fatalities near Groningen (between 0.1 and 1%) was suspiciously higher than the Government regulated risk of a similar event near Schiphol airport (around 0.001%).\(^{39}\) Thereby once more highlighting the close connection between the events of the earthquakes and the politics of knowledge over these earthquakes.

Nonetheless, late 2013 and early 2014 the government heeded the reports and concerns and decided on a range of issues. These include, among others, to open a dialogue with its sub-national governments (province of Groningen and counties).\(^{40}\) To install the *dialoogtafel* as advised by the Commission Meijer. To task the NAM to conduct a full-scale below ground survey (which was missing so far). To reduce the extraction in the most effected clusters of Loppersum with 80% (while making up for the losses in other clusters – with unknown consequences). To increase construction standards and preventative measures along with an improvement of the process behind the compensation claims. And to offer the region an overall package to improve its economic and employment perspectives.\(^{41}\) These measures were reinforced in the winter of 2014-2015, at which point the Minister of Economic Affairs also initiated a temporary capping of the total gas extraction for the Groningen field. In addition, it agreed to all the recommendations of the Dutch Safety Board, including an independent damage claim institute (*Centrum Veilig Wonen*) and the official independence of the SSM from the Ministry of Economic Affairs.\(^{42}\) Still, while the Ministry of Economic Affairs reduced production at specific clusters and even initiated a temporary cap on the total volume to be extracted in the first half of 2015 (which was extended to the second half of 2015), there remains a strong political debate about the installation of permanent extraction quotas.\(^{43}\) Currently, the security concerns of the Grunningers are acknowledged, but the parties responsible for gas extraction are arguing that, for security of supply reasons, they are bound to produce whatever is needed in response to contractual and seasonal demand, and

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\(^{38}\) SSM 2014a; SSM 2014b.

\(^{39}\) Dwarshuis 2014; Onderzoeksraad voor Veiligheid 2015, 69.

\(^{40}\) Kabinet, Provincie Groningen, and NAM 2014; Kabinet, Provincie Groningen, and NAM 2015.

\(^{41}\) Ministerie van Economische Zaken 2014; Onderzoeksraad voor Veiligheid 2015, 63; Ministerie van Economische Zaken 2015a.

\(^{42}\) Onderzoeksraad voor Veiligheid 2015; Ministerie van Economische Zaken 2015c.

\(^{43}\) Ministerie van Economische Zaken 2015c; Ministerie van Economische Zaken 2015f; SSM 2015.
as such cannot limit themselves by installing a definite extraction cap.\textsuperscript{44} In other words, within their everyday they cannot easily bow down for the everyday experience of the local Grunningers.

\section*{9.4 Everyday Natural Gas Security in a Closed System}

With the discovery of the Groningen gas field in 1959 a certain sense of euphoria is set to have taken over the mind-set of policy makers and executives alike.\textsuperscript{45} Initially estimated to be a relative small gas field in a time of drastic changes in energy technology (especially the promise of nuclear energy), the idea was to get rich fast. To pump as much as possible and sell it even faster. This mentality proved wrong on both accounts. Alternative technologies did not gain ground as fast as imagined and in the decades after the first drills, the estimated size of the Groningen gas field was continually scaled upwards to a size that made it one of the largest in the world. Before the 1960s, the Dutch did not experience gas insecurity, simply because the level of gas consumption was minimal. Nowadays, the Netherlands is highly gas dependent, but not seen as gas insecure because most of its gas is extracted domestically. With the draining of the Groningen gas field and Dutch natural gas reserves in general this is expected to change. In the near future, the Dutch will be gas insecure precisely because they have become dependent on it. In the period after the discovery, the extraction of Groningen gas led to the construction of not only a nationwide infrastructure, but also to a regulatory framework, a gas elite concentrated in the “gas building”, and a set of domestic and international discourses and practices around gas extraction that structure current and future options and decision-making practices.

In terms of infrastructure, there are two defining characteristics of the Groningen natural gas field that have and will structure the future of gas in the Netherlands. First, following the current usage of natural gas as a heating fuel, any gas system has to deal with strong seasonal flexibility and thus be able to cope with large changes in volume (up to three times the volume in winter compared to summer). The size and volume of the Groningen gas field enables it to be used as a ‘swing’ field, a field where extraction can be ramped up when temperatures require it. All the other gas fields in the Netherlands, the so-called small fields, are too small to be operated on anything but a steady output. A second structuring characteristic is the actual quality of the gas that is produced from the Groningen gas field. Compared to other natural gas fields, both domestic and international, its calorific value is low. This means that for high calorific natural gas, like Russian natural gas, to have the same heating value

\textsuperscript{44} As confirmed with an interim judgement from the Council of State, see Raad van State 2015a; Raad van State 2015b.

\textsuperscript{45} Onderzoeksraad voor Veiligheid 2015, 33.
as the Groningen natural gas its quality needs to be lowered by adding nitrogen. The other way around, to remove nitrogen and other impurities from the Groningen gas is for now not worth the effort in terms of energy and costs. Both its quality and quantity have supported the construction of a very specific gas infrastructure in the Netherlands. Domestically, the size of the field has led to an infrastructure to which almost all Dutch households are linked for heating and cooking purposes. This whole infrastructure, of heaters in particular, is based on the low calorific value of Groningen gas. With the expected demise of the field this infrastructure is becoming problematic and leads to a choice between, on the one hand, the replacement of the current infrastructure of heaters, or, on the other hand, the addition of more conversion capacity. The latter seems more attractive on the short term, as natural gas never has the same quality and there is already some conversion capacity in place. In relation to the North Western European gas market, any imports and exports are already constantly conversed depending on the required standards that are agreed in the supply contracts. Unfortunately, the reduction in high calorific gas that is won from the 300 small gas fields elsewhere in the Netherlands (to which Groningen gas is mixed) makes this conversion capacity even more pressing. A catch in this case is that, to have enough capacity by 2020, the decisions should already have been made, as it takes 5 to 6 years to get the permits and construct the capacity itself.

This latter point underlines the regulatory framework around natural gas. In terms of the direct regulatory framework on natural gas, both its legal and organizational aspects are based on the initial structure that was set up in the 1960s. In fact, the framework can be traced to Napoleon and his claim for legal ownership of the subterranean natural resources for the state. If he had not done that, the farmers and Grunningers themselves would have been the legal owners of the natural gas. That, however, is not the case. Instead, the Netherlands has a framework that distributes the legal ownership, extraction rights and profit sharing between the Dutch state and the companies involved, through a range of legal entities and subsidiaries, which nowadays is bundled under the heading of the “gas building”. This whole building was originally set up with one task in mind: to win the natural gas as quickly as possible. It was not until a policy brief in 1974, after the 1973 oil crisis, that the Government initiated its small gas field policy (het kleineveldenbeleid). This policy aimed to preserve Dutch natural resources and the Groningen field in particular by

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46 Ministerie van Economische Zaken 2013d.
47 Of course, it also builds on the assumption that gas will remain a prevalent energy source.
48 Onderzoeksraad voor Veiligheid 2015, 33.
49 Blanken 2013.
51 Onderzoeksraad voor Veiligheid 2015, 34.
supporting the development of the economically less viable small gas fields elsewhere in the Netherlands. It gave the supplies from those small fields prevalence on the grid and changed the function of the Groningen field into a swing field with the aim to level out disruptions and to meet final demand. Weirdly, this small field policy only entered officially into law 25 years later with a redraft of the *Gaswet* in 2000.\(^{52}\) Over the years, this framework and the ‘gas building’ have been periodically challenged and limited from the outside. One instance was the 2004 EU third energy package, which, among other things, envisioned a liberalization of gas markets. The pro-European government at the time quickly and decisively split up the company responsible for the transport and sale of Dutch natural gas (former Gasunie), into a company responsible for transport (new Gasunie) and the company GasTerra responsible for sales. Likewise, domestic, European and international contract law places restrictions on the “gas building”, especially in relation to the long term international gas contracts which define for decades the quantity and quality of the gas that needs to be delivered and bought.\(^{53}\)

The “gas building” itself, as mentioned above, consists of a range of corporations, subsidiaries and legal entities. On the one hand, Shell and ExxonMobil have, through the NAM, the license to operate the Groningen natural gas field. Both also own shares of GasTerra, the company responsible for the sale of the natural gas. The Dutch state (read the Ministry of Economic Affairs) pulls its weight through a legal entity called EBN. The NAM and EBN both cooperate in and own the Maatschap Groningen, which is responsible for the actual exploitation of the natural gas fields. The Dutch state also owns shares of GasTerra both directly and indirectly (through EBN).\(^{54}\)

All in all, the Dutch Safety Board concludes that, through these constructions and the close personal connections between the boards of GasTerra and the Maatschap Groningen, the decision-making on Dutch natural gas is made in a closed system that is effectively owned by Shell, ExxonMobil and the Dutch State: a system devoid of any opposition and ruled by ten persons at most.\(^{55}\)

The close connection between Shell, ExxonMobil and the Dutch state is turning out quite expensive in this respect. With the decoupling of the Gasunie and its subsequent nationalization, the state paid Shell and ExxonMobil 6.4 billion euro for their ownership of the grid. Only a month later, the Dutch regulator (de)valued the grid at 4.8 billion euro and ordered its transit fees based on that amount.\(^{56}\) After the profit on the decoupling, Shell and ExxonMobil offered a large section of the

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\(^{52}\) Ibid.

\(^{53}\) Ministerie van Economische Zaken 2013d.

\(^{54}\) Interestingly, the Ministry of Finance owns Gasunie, which is the company responsible for the Dutch gas grid.

\(^{55}\) Onderzoeksraad voor Veiligheid 2015, 8, 75, 88.

\(^{56}\) Heilbron et al. 2014.
German gas grid (the BEB grid) to the state-owned Gasunie. While the Netherlands is not dependent on Russian gas, it does import Russian gas and expects to increase its imports in the future to balance the reduction of its emptying domestic fields. For this post-gas era, the Dutch state has launched an ambitious strategy to become the ‘gas roundabout’ of North-Western Europe, combining its central position and its natural storage facilities. This roundabout ambition of the board of the Gasunie and the Dutch state, together with a short time-frame and a less than careful consideration of the underlying finances (in particular the pressure on transit fees by the German regulator), again led to a structural overpayment. Both adventures have made the now publicly owned Gasunie to take losses and devaluate its investments to an amount of 2.9 billion euro.\footnote{Ibid.} In both cases, the companies involved benefit from the everyday ambition and future energy security concerns of the government (our national interest).

In all of this, the position of the Minister of Economic Affairs is of particular interest. First, he is responsible for the supply security of Dutch energy demand and thus the volume of gas that is extracted.\footnote{ANP 2015.} Second, he decides on the license to operate and the extraction plans of the NAM. Third, he controlled, until recently, the activities of the NAM through the SSM which fell under his Ministerial responsibility. Fourth, he partakes in the actual extraction of natural gas through its ownership of EBN. And, fifth, he does so while having a very strong financial interest in the extraction itself: the Groningen field alone earned the Netherlands around 10 billion euro in 2013 (the state takes 90% of earnings, the companies Shell and ExxonMobil the other 10%).\footnote{DvhN 2014a; Commissie Meijer 2013, 16; Ministerie van Economische Zaken 2014, 5.} Most of this money is used directly in government spending. The Netherlands does not have a sovereign wealth fund, and since 2011, a part of the money is also no longer labelled for the development of infrastructure and scientific research.

It is this framework and the practices resulting from it, which the Dutch Safety Board describes as problematic, not just on a national level but also in relation to the everyday safety concerns of individual citizens. The board describes the everyday decision-making of these organizations as driven by three shared main paradigms: (1) maximum profits and winnings, (2) an optimal and strategic use of natural resources, and (3) a continuity of Dutch gas supplies for both citizens and industry.\footnote{Onderzoeksraad voor Veiligheid 2014, 70–71.} In addition, the board concludes that ‘all efforts within the “gas building” are aimed towards an imperceptible extraction of natural gas.’\footnote{Ibid., 74 [translation by author].} Together these four discourses and habits structure the everyday practices within the “gas building” concerning...
the Groningen natural gas field. Importantly, they exclude the safety and insecurity concerns of the locals, except as a condition to be met for the other goals. 62 This, in turn, preconditioned the initial response from the organizations to claims of insecurity by locals, and it explains why these responses, for a long time, have been soothing instead of informative. The communication of the “gas building” towards the public has, until 2012, mainly involved an overly simplified and technocratic discussion of the known numbers and risks. 63 More precise, the communications followed the scientific updates of the magnitude without repeating the mentioned uncertainties and knowledge gaps. As this message suited the NAM (and the rest of the gas building), it saw no need to spend additional funds to study the methodological uncertainties, except when outside events forced them to do so.

This whole debate takes place in an everyday context of European and international energy related developments. Globally, the energy markets are influenced by debates on climate change and peak oil/gas debates, which, in turn, spark the debate on an energy transition. Simultaneously, the last decade witnessed several important shifts in markets and technology, including the growing demand for energy in Asia and the development of shale gas in the United States. These relate to other technological developments on renewable energy technologies (among which Power to Gas), but also more heavily discussed technologies like fracking or Carbon Capture and Storage (CCS). On a European level, the 2004 liberalization package and its effects on the “gas building” have already been mentioned. Other EU regulation on, for example, the free movement of goods prohibits potential one-sided limitations on Dutch natural gas exports. The EU is also actively supporting the development of EU wide interconnections to create more regional gas flows and is pushing for more interregional short-term natural gas markets. These markets are growing in volume and are successfully lowering prices, but they also increase the uncertainty in long-term gas security as they reduce the need for long-term gas contracts. For now, however, most of the Dutch natural gas is still traded on long-term contracts. 64

Arguing that one event explains why suddenly the concerns of the Grunningers are taken seriously makes little sense. There clearly is not even a single everyday. Instead, there are many small localities bound together in a constantly changing assemblage. The above describes part of the assemblage as experienced on a daily basis by the people in charge of the Groningen gas field. This includes their history, their main discursive settings of profit maximization and security of supply, as well as their attitude and capacity to deal with conflicting arguments. It also includes the wider context within which they operate and which forces them to choose between

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62 Ibid., 71. Legally the NAM is responsible for the safety and security of the production processes.
63 Ibid., 81–82, 86.
64 Ministerie van Economische Zaken 2013d.
the known international legal and economic obligations of the Netherlands and the, for them unproven and uncertain, safety concerns of local Grunningers.

9.5 The Local Everyday Experience in East Groningen

The everyday of the local inhabitants above the Groningen gas field, the Grunningers, looks a smite different. Their everyday deals not with energy security concerns, contractual obligations and other risk assessments. Instead, they deal on a daily basis with a steady increase in frequency and magnitude of induced earthquakes caused by the natural gas extraction, low economic growth, high unemployment, decreasing house values, difficulties in getting their earthquake damages reimbursed by the NAM, and, for a long time, having to deal with the poor communication from the government and natural gas companies on the actual risks to which they were exposed. As a recent agreement between the government, province, counties and NAM acknowledged: “There is a sense of displeasure in the region following the fact that for a long time the risks of gas extraction have been denied. This denial turned out unproven.”65 After the first earthquake in 1986, it took 7 years and a large interdisciplinary study for the government and the NAM to acknowledge officially that the quakes were directly linked to the gas extraction.66 Until that study in 1993, the NAM ridiculed any claims that proposed such a link. Once recognized, it took another 20 years for the “gas building” to start taking the risks and potential consequences of these induced earthquakes seriously. In those 20 years every three or four years NAM, government and knowledge institutes have been forced to increase their estimates on the frequency and magnitude of potential quakes. The Grunningers have been living their everyday life for the last three decades with this shadow of an eventful material reality and the uncertain knowledge claims that accompany it.

A major part of this everyday is focused on the handling of the damage caused by the induced earthquakes, damage which so far has mainly consisted of cracks in the walls and roofs. Initially, the concerns were limited to only a small number of individuals with actual experience with earthquake damage, but with the increasing number and frequency of earthquakes, the support for interest groups like the Groningen Ground Movement (Groninger Bodem Beweging) grew. After the 2012 Huizinge earthquake, its membership doubled, and after the SSM report, it doubled once more.67 With the 2014 earthquake near Garmerwolde, the first earthquake experienced in the populated city of Groningen, other parties also became involved.68 Among them large institutions, like the provincial and county governments themselves, the University

65 Kabinet, Provincie Groningen, and NAM 2014, 8.
66 Begeleidingscommissie Onderzoek Aardbevingen 1993; Onderzoeksraad voor Veiligheid 2015.
67 Van der Voort and Vanclay 2015, 5; GBB 2011.
68 Ministerie van Economische Zaken 2015a, 2.
and the University Medical Centre Groningen, the local Water Board (waterschap) responsible for the water management and dikes, cultural heritage organizations, and local utility and infrastructure companies.\textsuperscript{69} The political cloud following a possible impact on public infrastructure, on dikes and hospital equipment, churches and monuments, government and other public buildings, as well as the electricity grid and, ironically, the natural gas pipelines, is hard to miss.\textsuperscript{70} Contrary to the concerns of individual local residents, who have been struggling for compensation for their homes for decades, these institutions are mainly concerned with the earthquake resistance of their infrastructure, calling for compensation from the NAM for additional structural reinforcements. Reinforcements, it should be noted, which contrary to other countries have never before been necessary in the Netherlands. In fact, the Dutch construction regulations stand alone in not following the European earthquake construction standards, a situation which now is adjusted rapidly. In the meantime, however, these companies and institutions are arguing that the potentiality of earthquakes is hindering local business development and (foreign) direct investment in the region.\textsuperscript{71} Recently, the government and NAM have agreed to help reinforce buildings within the area, among others by installing a null-measurement to rule out lack of maintenance and other non-earthquake related structural flaws. However, for now, they only help the buildings where the risk of collapse is 1 in 10,000; contrary to general Dutch procedures which state that the risk of building collapse should never be higher than 1 on 100,000. The reason provided for this exception is that it enables a faster support for those 30,000 to 90,000 buildings that are most at risk.\textsuperscript{72}

Additional funding for earthquake resistant construction was not on the agenda in the early 1990s. Even after acknowledging the relations between gas extraction in 1993, the NAM (as the exploiting agency legally responsible for the safety of its operations) argued that there was no evidence that earthquakes up to 3.3 on the Richter scale could lead to any damage and hence was unwilling to discuss any form of damage compensation.\textsuperscript{73} In 1997, a 3.4 earthquake forced the NAM to reconsider its position on compensation and it installed procedures and a fund to compensate for earthquake related damage. Nevertheless, it did not change the burden of proof: to this day (e.g. June 2015), it is up to the residents to proof that the earthquakes cause the damage.\textsuperscript{74} This is a returning political debate and complaint of the Gronningen

\textsuperscript{69} DvhN 2013; DvhN 2014b; ARUP 2013; Korff et al. 2014.
\textsuperscript{70} De Veer 2014.
\textsuperscript{71} Sikkom 2015; ARUP 2013; Korff et al. 2014; Ministerie van Economische Zaken 2015b; Stuurgroep NPR 2015; Commissie Meijer 2013.
\textsuperscript{72} Zuidervaart 2015.
\textsuperscript{73} Van der Voort and Vanclay 2015, 6.
\textsuperscript{74} In principle only, as there are currently multiple ways for people to ask second opinions and to ask the Tcbb for advice or to ask a judge to lighten the burden of proof. See: Ministerie van Economische Zaken 2015d.
because of the difficulty of proving that the damage is a result of an earthquake instead of a lack of maintenance or structural flaws within the construction of one's home.\textsuperscript{75} In each case, it involves the use of outside expertise to assess the cause of the damage. Until 2012, the NAM only worked with its own experts and locals could ask the Tcbb (an advisory council on mining) for advice if they disagreed with the results. To the locals that sounded a lot like a student grading his own paper.\textsuperscript{76} After 2012, the NAM has started to pay for a second opinion if so desired by the resident, but still relied on its own list of experts for the first assessment.\textsuperscript{77} These assessments are described by locals as complex, long, and to some degree as hostile. The external inspectors hired by the NAM are not from the region themselves and are seen by locals as first and foremost trying to minimize the costs for the NAM.\textsuperscript{78} Moreover, while the NAM compensates the actual damage to one's property, other costs are excluded, including missed income while attending to the repairs or mental health complaints due to stress and feelings of insecurity.\textsuperscript{79} As of January 2015, these tasks have been moved from the NAM to the independent Centrum Veilig Wonen. What is more, this independent center is not shy of work. Between the Huizinge earthquake late 2012 and the first quarter of 2015 there have been over 39,000 claims, compared to a total of 2,200 before the Huizinge earthquake.\textsuperscript{80}

An additional concern for locals in this respect is the devaluation of their homes. For who wants to buy, let alone live, in a house that is not constructed to withstand earthquakes in a region where they occur. Locals claim that they experience a decrease in overall sales and a downward pressure on their real estate price. This is not an easy claim to substantiate and not one the Grunningers like to make, as they have long been afraid of a self-fulfilling prophecy: a situation where their complaints about the damage of the quakes will draw attention to the earthquakes themselves and hence reduce interest in their region.\textsuperscript{81} More important, however, is the difficulty to proof the causality. That the reduction in house value is indeed due to the (risks of) earthquakes; and not a consequence of the overall deplorable economic situation (worsened by the economic crisis of 2008) and the aging population in the Province of Groningen. The 2013 reports on the housing market in Groningen, as requested by the Ministry of Economic Affairs, could not find a clear significant statistical correlation

\textsuperscript{75} DvhN 2000; Werkman 2001; De Mik 2006; Onderzoeksraad voor Veiligheid 2015, 44; Ministerie van Economische Zaken 2015d.

\textsuperscript{76} The 2002 installed Tcbb is a technical committee that locals can approach in case of a disagreement with the damage assessment of the NAM, it also offers advice to the government on the extraction plans of the NAM. Interestingly, it receives very little complaints from Groningen.

\textsuperscript{77} Sluis 2012; Minkes 2012.

\textsuperscript{78} Onderzoeksraad voor Veiligheid 2015, 83; DvhN 2014a; Van Hofslot 2014a.

\textsuperscript{79} Spaansen 2014; Van der Voort and Vanclay 2015.

\textsuperscript{80} NAM 2015c; Schouwman and van Kleef 2014.

\textsuperscript{81} Commissie Meijer 2013, 22.
on housing value between the different reference areas. The 2014 updates of these reports still could not find a correlation yet did acknowledge a downward trend in value, some non-significant price differences and concluded that houses are indeed a bit longer on the market. These observations still do not match with the everyday experience of the inhabitants who struggle to sell their houses. The Groningen Ground Movement in particular questions the representative benchmark of the study, the ring of Groningen counties around the most affected counties, arguing that the earthquakes affect these counties too if indirectly. It also conflicts with the interests of the counties themselves, who are witness to a downward pressure on the taxes that are linked to real estate value. Likewise, social housing corporations are supporting the claim for compensation of the depreciation of their properties as well. As of April 2014, locals can approach the NAM for compensation after selling their home if they believe that they have sold their house below market value due to the earthquakes.

As mentioned, this devaluation takes place in a region classified by Eurostat as one of ten richest in Europe with a calculated GDP per inhabitant higher than the capital. At least, so long as one focusses on the Province. When taking a closer look at the four areas of the province, there are large differences between them. The GDP per inhabitant in the counties in East Groningen, directly above the Groningen gas field, is for example half that of the city of Groningen. Not surprising, as East Groningen is facing some of the highest unemployment levels of the Netherlands and is highly dependent on social welfare and employment programs. The gas sector, while counting heavily in terms of GDP per inhabitant through its headquarters in the city of Groningen, accounted for 5400 direct jobs and 9200 total jobs in the whole region in 2013. Other than these jobs and some local taxes on the gas infrastructure, the local Grunningers have only benefited from the gas extraction indirectly through some small funds, which only delivered indirect benefits to the area. In the 1960s, for example, there was a small fund for industrial development, some money for

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83 Francke and Lee 2014b, 31.
84 Commissie Meijer 2013, 24; Smit 2013.
85 GBB 2013.
86 Russchen 2013.
87 NAM 2014.
88 Eurostat 2014, 120, 123; Schouwman and van Kleef 2014.
89 Eurostat 2012, 19.
90 Commissie Meijer 2013, 20.
91 Onderzoeksraad voor Veiligheid 2015, 34.
92 Commissie Meijer 2013, 17.
93 Ironically, aluminium company Aldel was one of the beneficiaries: heavily dependent on substituted electricity it went bankrupt in 2014 as it could not compete with smelters in the US and Germany who benefited from downward pressure on electricity prices following the development of shale gas and the
the lease of the land on which the pumps were constructed, and some donations
to local social activities. More hurtful to the Grunningers is the fact that the large
development fund that between 1995 and 2011 was used to distribute and invest part
of the natural gas earnings (the FSE funds), only spent 1% of its portfolio in the region
where the gas was extracted from (with 10% of Dutch population).94 Perhaps this
should not have come a surprise: the Grunningers directly above the gas field in their
remote corner of the Netherlands were also some of the last to be connected to the
actual domestic gas grid for heating and cooking.95

In their everyday, the locals do not only experience the earthquakes themselves and
the damages resulting from them, but they also have to deal with the compensatory
practices to tackle the damages, the reluctant acknowledgement of their problems, the
soothing communication by the “gas building” and the perceived unequal distribution
of the gas benefits.96 Together these impacts lead to feelings of insecurity and
distrust.97 Still, it took the Huizinge earthquake and the subsequent SSM report for
the Grunningers to start voice their concerns in earnest. In large part perhaps due to
the media attention itself, which for the first time enabled the Grunningers a serious
nationwide public platform. A platform that both contributed to the overall national
debate as well as reinforced the fears and anxieties of the Grunningers themselves.98
Moreover, this platform received constant impulses with the SSM report in 2013, the
outcome and debate of the studies in January 2014, national elections in March 2014,
the decision on reduction in the winter of 2014, and in July 2015, etc. Alternatively,
the identity of the Grunningers too is contributed as an explanation for the slow
build-up of public pressure. Within the Netherlands, the Grunningers are known for
their stubborn non-complaining attitude.99 They stand-by and weather the world: “t
komt wel goud jongh” (“everything will be all right mate”).100 For a long time, so the
argument goes, the Grunningers were loyal and felt a sense of pride for helping the
country to develop as whole.101 Many also believed that ‘they in The Hague’ knew
better, something that slowly changed in time with the constant adjustment of the
risk analysis and maximum magnitude of the earthquakes. The locals, in their search
for certainty, started to read the actual scientific reports. The SSM report can be
described as a turning point in this respect as it not only informed the ‘gas building’

94 IOO 2006.
95 Havermans 2015.
96 Onderzoeksraad voor Veiligheid 2015, 70; Van der Voort and Vanclay 2015, 7–9.
97 Van der Voort and Vanclay 2015.
98 Onderzoeksraad voor Veiligheid 2015, 86.
99 Ibid., 6; Commissie Meijer 2013, 36; Kelckhoven 2014.
100 For 12 other phrases describing this waiting attitude of Grunningers see: Dwarshuis 2015.
101 Commissie Meijer 2013, 21.
on the uncertainty in the analyses used so far, but also supported earlier readings of the Grunningers. As Van der Voort and Vanclay argue: ‘[t]he publication of the SSM report was an impact in itself with people becoming more anxious about what will happen to them.’ With the report and the media attention following it, people actually learned that there was no certainty in store for them.

Most likely, it is a combination of both. As Marres argues, publics are created and media coverage is a necessity for this. Some Grunningers have always tried to raise their voice. It took the 2012 earthquake, the 2013 SSM report and subsequent debate for these people to be heard and for other Grunningers to put aside their reservations and show their support. This makes the Groningen natural gas case different from other Dutch debates on for example the extraction of natural gas under the Waddenzee or the debates on a Carbon Capture and Storage test under the village of Barendrecht. Both of these cases were more public than the Groningen gas extraction. The long history of the Groningen gas extraction with its limited number of corporations and governmental departments involved, its limited number of jobs, its silent and hidden infrastructure (most of the extraction and transport is below ground), and the gradual evolution of the earthquakes means that it is a whisper, an everyday. Contrast this with the debates on the environmentally protected Waddenzee (1995-2007) and the CCS project in Barendrecht (2007-2010). Both involved a range of corporations and a range of ministries (environment, spatial development, finance, domestic affairs), both projects were highly visible as the infrastructure still needed to be constructed, and in both cases environmental NGO’s and local inhabitants were actively seeking media coverage from the start to pressure the government over the uncertainties behind the projects.

9.6 The Struggle to Know the Everyday

Much of the debate so far has had to do with the materiality of the earthquakes (their damage and subsequent compensatory practices) and with the politics and uncertainties behind them. In this section, the debate on the earthquakes of Groningen will be analyzed with a focus on the knowledge development over time, in large part following and building on the extensive report of the Dutch Safety Board. While scientific research is assumed to be neutral, the Groningen gas debate shows that (1) it follows events, (2) that what is not monitored and measured cannot be known and that the decision to monitor is a political one, (3) that there is little independent expertise,

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102 Van der Voort and Vanclay 2015, 8.
103 Marres 2005.
104 For the comparison see: Onderzoeksraad voor Veiligheid 2015, 75.
105 See also: Barry 2013b.
106 Onderzoeksraad voor Veiligheid 2015.
(4) that research not up to standards is easily ridiculed even when the concern itself is justified, (5) that researchers have little incentives to work on the uncertainties in their models, (6) especially when the institutions using the results are happy with the outcomes anyway.

Above it was already argued that the NAM was reluctant to acknowledge a causal relation between the Groningen gas field and the earthquakes in the region. That it had to back down and admit to the causality in 1993. And that, ever since, it has been forced to upgrade its risk assessments every couple of years while maintaining that the tremors would be small and carry little to no damage. This reluctance contrasts with another issue that follows gas extraction, namely that the ground subsides (lowers) due to the absence of the pressure of underground gas. The NAM had already recognized and has been actively studying this consequence from 1971 onwards.\textsuperscript{107}

Without the shock factor of earthquakes and with shifting estimates on the level of subsidence – ranging from a meter (1972) to 30cm (1975) to 65cm (1984) and more recently settling on 45 cm (2010) – the NAM nevertheless initiated a damage assessment and compensation procedure in 1983.\textsuperscript{108}

The 1986 earthquake near Assen, a town just below the Province of Groningen with its own small gas field, did not fit this model of subsidence and was hence not connected to the gas extraction. However, contrary to other orally reported “booms” and “air tremors”, this earthquake was strong enough to be picked up by the sensors of the KNMI in the middle of the country. The institute confirmed that it was indeed an earthquake but was unwilling to speculate about its origins.\textsuperscript{109} Interestingly, in both the case of subsidence and the earthquakes, individuals had been calling for attention to them long before the NAM acknowledged the issues. A local engineer already mentioned subsidence in 1963, while a local geographer by the name of Van der Sluis argued that the gas extraction and earthquakes were causally linked after the Assen earthquake.\textsuperscript{110} His studies were blatantly rejected by the NAM as utter nonsense.\textsuperscript{111} Nevertheless, Van der Sluis gained enough media attention for the Province of Groningen to install a commission to study the possibility of induced earthquakes, with scholars from MIT flown-in to offer their expertise. Based on the advice of these scholars, the commission concluded that there was indeed a small possibility for light earthquakes up to 3 on the Richter scale. Simultaneously, the Dutch Technical University of Delft scrutinized Van der Sluis work and concluded that while his proposed causal relation had no scientific basis, his initial assumption

\textsuperscript{107} NAM 1975; NAM 1985.
\textsuperscript{108} Onderzoeksraad voor Veiligheid 2015, 34–35; Van den Berg 2015.
\textsuperscript{109} Van den Berg 2015.
\textsuperscript{110} Havermans 2015; Commissie Meijer 2013; Meij 1994.
\textsuperscript{111} Van Hamersvelt 2013.
of a possible causality needed further study. Moreover, after the Van der Sluis reports, the Dutch Parliament started to ask questions to the Minister of Economic Affairs, who in turn ordered the KNMI (for which the earthquake was unexplainable as it lacked any data) to install a number of seismographs around Assen in 1989 and around the Groningen field in 1992.

It took another independent and interdisciplinary commission, installed in 1991 after more parliamentary questions, to acknowledge in full the causality between gas extraction and earthquakes. In 1993, the Begeleidingscommissie Onderzoek Aardbevingen (BOA) officially concluded that earthquakes were a real possibility but that they would be small, with a maximum of 3.3 on the Richter scale. It also concluded that the data gathered so far was very premature and that it was impossible to draw useful conclusions from it. In particular, it highlighted that current models were based on natural earthquakes and not gas quakes, that the timespan of data gathering was too short and lacked enough events (earthquakes) for reliable results, that the different regions and gas fields were intermingled, and that there was a severe lack of knowledge on the underground itself. The Dutch Safety Board recently concluded that the delay of 7 years cannot be justified, especially for a region that is not prone to natural earthquakes itself. For that reason, it questions the ‘gas building’ and its knowledge institutes (KNMI, TNO, and the Technical University of Delft) for not taking their responsibility to properly study the earthquakes and question their own methods.\footnote{Onderzoeksraad voor Veiligheid 2015, 60.} The Board also highlights how the NAM and government used the BOA study and its focus on 3.3 on the Richter scale in its public communication, without highlighting its reservations.\footnote{Ibid., 62.}

Two years later, in 1995, the KNMI updated its results after several stronger tremors. It concluded that earthquakes in the Groningen field would max at 3.3 on the Richter scale and 3.4 for the smaller fields around Groningen. One of the consequences of this report was another increase in the number of installed seismographs to monitor the gas field. That same year, the NAM published a brochure in which it still used the BOA conclusions instead of the updated KNMI data. In 1997, two years after the KNMI estimated a maximum magnitude of 3.4 an earthquake near Roswinkel in the Province of Groningen reached this magnitude. The strongest yet, it was higher than the NAM’s publicly acknowledged 3.3 and resulted in 200 claims for compensation. In response to this earthquake, the KNMI and TNO both conducted new studies and now concluded that a magnitude of 3.8 could very well be possible in 1998. Moreover, TNO highlighted for the first time that earthquakes closer to the surface, as those in Groningen, are stronger than deeper earthquakes and thus that the numbers might differ from the actual experience with the earthquakes. The KNMI, in turn, explicitly
discussed the uncertainty behind the estimation of earthquakes higher than 3.0 following the limited number of events, but also found that the energy released by the earthquakes remained steady (meaning that their predictability increased).

After a number of legal changes and the protests and impact assessments in relation to potential gas extraction form the Wadden Sea region, the 2003 Mining Law forced the NAM to put forward extraction plans, which included an assessment of earthquake risks. In the first accepted plan, the magnitude of 3.8 on the Richter scale was maintained by the NAM. Additional research by TNO later that year increased the number of tremors above 1.5 Richter, from two or three to a potential five or six per year. That same year, three earthquakes stronger than 2.7 in the cluster of Loppersum resulted in public commotion, national media attention and a range of public meetings. The subsequent 2004 leaflet of the NAM mentioned 3.8 as the maximum, but for the first time acknowledged that this number could be corrected if necessary and thereby implicitly admitted that a maximum magnitude cannot be estimated upfront. Because the Mining law of 2003 dictated that extraction plans needed to include an assessment of earthquake and subsidence risks, the number of studies increased, as did the number of seismographs with the financial support of the NAM.114 The 2004 KNMI report is of particular interest in this regard, as it, firstly, increased the maximum magnitude to 3.9 in line with an update of its database, and secondly, acknowledged that it was using static models for a situation that was not static, but that it simply lacked the tools to cope with the fluctuating gas extraction and its relation with the induced earthquakes.115 The KNMI argued that in order to develop such a non-stationary model, it would need more information on the specifics of the sub-surface areas of the gas fields. This data can only be gathered and shared by the NAM, which it passed over until late 2013.116

Repeated earthquakes in 2006, one of which reached 3.5 on the Richter scale, reinforced public concerns. As these earthquakes fell within the official estimates, the NAM and Economic Affairs kept to the earlier scientific conclusions: a maximum of 3.9 and limited to no damage to the buildings above the fields. This was repeated and confirmed by the Tcbb in the updated extraction plan of 2007, in which the NAM actually proposed a strategic capping of the Groningen gas field. Not against the earthquakes, but in order to prolong the economic lifespan of the field. The Province of Groningen, however, grew concerned and initiated its own study in 2008. The parties involved in this study, TNO and Deltares, confirmed the earlier KNMI results. In a twist, however, the Province of Groningen had also invited local inhabitants to reflect on these results and these were both more critical in general and, based on

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114 Wassing, van Eck, and van Eijs 2004; Van Eck et al. 2004; Van Eck et al. 2006.
116 Onderzoeksraad voor Veiligheid 2015, 63.
the official reports questioned the methods themselves by arguing against the use of static models and aggregation of data from non-comparable gas fields.\textsuperscript{117} Two remarks, which ultimately can be traced back all the way to the BOA report in 1993. A year later, in 2009, the SSM observed a relative high number of earthquakes near Loppersum and tasked TNO to study this. TNO in its report cautiously concluded for the first time that there could be a link between the volume extracted and the frequency of the earthquakes. The SSM subsequently asked NAM to reflect on these findings, which the NAM promised to do together with its update of the Groningen gas field itself. In the end, this report was delayed by three years and even then was mainly concerned with extraction, not with the possible effects of volume reductions. The last major important report before the Huizinge earthquake is from the KNMI in 2012, in which it concludes that the initial assumption on a stable seismic energy could no longer be maintained, thus supporting the need for non-static models.

After the Huizinge earthquake and the report by the SSM, the number of studies increased dramatically. Many of these reports were commissioned by the Ministry of Economic Affairs, which kept receiving conflicting advice from the SSM, TNO, KNMI and NAM. To cope with these conflicting positions and the public concern, it ordered the first official interdisciplinary analysis of all aspects of the gas extraction chain since the 1993 BOA report.\textsuperscript{118} Before 2013, Economic Affairs passively relied on the reports of the KNMI and other knowledge institutes and it expected these reports to be paid for by the NAM after its legal obligation to take the necessary safety precautions. However, as the Dutch Safety Board concludes, the NAM, as the exploiter most knowledgeable of the gas fields, does not mind the results from the reports that the earthquakes will only have a minimum impact and sees no cause to order additional studies on the uncertainties mentioned in the reports.\textsuperscript{119} It even took the “independent” supervisory body SSM until 2012 to question the uncertainties in the reports. With the NAM unwilling to study the scientific uncertainties, the Ministry relying on advice and the SSM (and the expert council Tcbb) confirming the official reports, there was little incentive for KNMI and TNO to build alternative models. They tried, in part by looking at international research, but then quickly ran in to the unique material qualities of the Groningen gas field.\textsuperscript{120} In short, for a long time the knowledge gathered on the Groningen induced earthquakes ‘focused on the number, the estimated maximum magnitude.’\textsuperscript{121}

\textsuperscript{117} Ibid., 48.
\textsuperscript{118} Ibid., 67.
\textsuperscript{119} Ibid., 65–66.
\textsuperscript{120} Ibid., 64.
\textsuperscript{121} Ibid., 63 [translation by author].
This focus on the number worked both ways. It simplified matters for the ‘gas building’, but in time it also fueled the distrust of the Grunningers. Two aspects are striking in this respect. First, the shift in position from the SSM highlighted the power and independent life of numbers. In its 2013 report, the SSM emphasized the uncertainty of the scientific models and the lack of any certainty to predict a maximum magnitude. Within the same report, however, the SSM used KNMI data and calculated the likelihood of an earthquake of 3.9 if one takes a maximum of 5.0 on the Richter scale. The Dutch Safety Board notices that after the publication of its analysis the job is done for the SSM, while in the Province of Groningen this number of 5.0 started to take on a life of its own, as the Province, counties and emergency services started to take it on board in their regional safety and security plans.\(^{122}\) The expertise of the SSM carries a weight of which it was not aware. The focus on risk calculations and the sovereignty of these numbers seems to have made people forget that each of these risks still needs a value judgement on the threshold to act or not. Clearly, locals judge the thresholds of these risks differently than the “gas building”.

Second, this simplification effect (reducing everything to one number) follows from a strong knowledge inequality within the debate on the earthquakes. There is a small group of people who “know” about earthquakes (geologists and scientists from TNO and KNMI), within a slightly larger group of people who “decide” and have knowledge on natural gas (the gas building), over an even larger group of people who are affected (Grunningers). Hence, the Commission Meijer advised on ways to level this inequality, among which the afore mentioned dialoogtafel: a regular roundtable meeting that includes a range of local representatives, counties and province, knowledge institutes, the NAM and the Ministry of Economic Affairs.\(^{123}\) In this respect, the lack of independent expertise is important as well. Most people who have knowledge on gas extraction, let alone on earthquakes in the Netherlands have studied together or have worked together on one instance or another. As a result, there is a danger that outside comments are set aside as irrelevant and critical supervision by ‘independent’ institutes becomes a little bit less critical. Local Grunningers are clearly aware of this, which further fuels their distrust.\(^{124}\) And while it is known by now that the earthquakes are linked to the gas extraction in a non-static model, that their maximum magnitude and frequency are uncertain and that their seismic energy increases, what is not (yet) known is whether a reduction of gas extraction will reduce the earthquakes. Initial results from the reduction in the cluster of Loppersum are promising, but it is unclear what happens in the other clusters where extraction

\(^{122}\) Ibid., 84–85.
\(^{123}\) Commissie Meijer 2013, 25.
\(^{124}\) Van Hofslot 2014b.
has increased to make up for the lost volume from Loppersum. One thing is for sure: earthquakes are not concerned with our uncertainties. Even if the gas extraction is completely halted today, they will continue as the ground settles for a number of years (up to another 1100 earthquakes by a recent estimate that was printed in a local newspaper).

9.7 Reflection

Everything is part of the everyday, yet nothing is the everyday all the time. As an alternative, this chapter argues for a multiplicity of the everyday. By combining insights from new materialism and CSS under the heading of the everyday, the Dutch natural gas debate is here analyzed through an analysis of the everyday life of two “opposing” parties: those residing near and suffering from gas extraction practices and those organizing and deciding on the gas extraction practices. If the everyday is the mundane or the routine, that what is unobserved, than the everyday experience of the local Grunningers with induced earthquakes does not fit this definition. For them the earthquakes are not an unobserved everyday but a daily lived experience. Their everyday consists of 60 years of gas extraction in their region and a neglect by the “West”. Recently, this everyday is broken up by two opposing trends: an increasing frequency and magnitude of earthquakes together with the minimal reactions of the NAM and Economic Affairs, and an overall decreasing regional economic and social environment. For the people within the “gas building” – the closed system of government and gas companies – the earthquakes are neither an unobserved everyday nor a lived experience, but instead a small complicating factor that for a long time could be dealt with by following normal procedures. These everyday procedures were guided by a set of ideas, discourses and practices over (1) national security of supply, (2) profit maximization, (3) a strategic optimization of the natural resources and (4) a silent flow of operations, in a context of international and European energy markets, politics and technological developments. If the everyday is described as the most powerful way of governance, than these everyday habits of the “gas building” for a long time constituted the base of the everyday life of the local Grunningers.

When reflecting on the struggling multiplicity of the everyday, this chapter emphasizes three trajectories. First, the material reality of the earthquakes, the Groningen gas field and the gas extraction infrastructure, which keeps the debate localized (no earthquakes and damages in Germany) and situated in a Northern-European market at the same time. Second, the ontological politics over these earthquakes in terms of their origin and their potential impact, as well as the knowledge

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125 See also: Schouwman and van Kleef 2014.
126 Van Hofslot 2015.
politics related to the scientific uncertainty of the models behind the earthquakes and their future trends. Third, the struggle by locals and concerned individuals to attributed a sense of urgency to both the materiality of the earthquakes and their future uncertainty. The first two can be read with insights from new materialism in mind, while the latter fits a security analysis. Clearly, the earthquakes are securitized by locals in a number of securitizing moves (following new record magnitude earthquakes), while they simultaneously are placed within the risk analysis of the “gas building” in an attempt to forgo a (political) judgement on the actual events. The fact that locals are dependent on third parties for their safety and security, parties who themselves are not under threat, was, in a Luhmannian fashion, the main reason for the Dutch Safety Board to adhere to the request of Economic Affairs to study the decision-making on natural gas in the first place. In this respect the year 2012 turned out as a break in the everyday gas extraction practices, not because of the earthquakes nor the numbers behind them, but because of a value shift within the risk assessments themselves to include the safety and security concerns of local inhabitants. In other words, to acknowledge and problematize the uncertainty behind risk assessments, which until that moment was situated in an organizational and regulatory framework that did not have any interest in them for economic and political reasons.

In reflection, this illustration highlights in particular the importance of the everyday understanding of energy security – here defined in terms of security of supply. Throughout the debate, there is one thing that has not changed and that is the understanding of security of supply. In fact, the government has compromised on all aspects of the gas supply chain, except for security of supply. For example, both the strategic use of natural resources and the profit maximization habits have been compromised with decisions on additional reductions and more and broader financial compensation. What did not change, what keeps the pumps working even at Loppersum are security of supply considerations. It is this master frame and the taken-for-granted nationalized calculations and materiality that the Grunningers confront. While conceptually defined by the IEA and academia, energy security is something that is reinforced and constructed in localized offices and desks at the NAM and Economic Affairs, as well as the laboratories of the KNMI and TNO, the media that report on it, the judge that rules in favor of it, and at the kitchen tables of the Grunningers. Counterintuitively, in their resistance against the gas extraction practices the local Grunningers actually reified the principle of energy security as

127 Onderzoeksraad voor Veiligheid 2015, 6; See Luhmann 1993.
128 Onderzoeksraad voor Veiligheid 2015, 7–8.
a state-centric security of supply concern, because they never really tried to move around it.

In the end, there are many ways to tell a story like the one above. As David versus Goliath, as the NAM losing its social license to operate, as a numbers game, in terms of risks versus security, or as the resistance and dominance of materialdiscursive practices. This chapter chose a combination of the latter two under the heading of the everyday. Perhaps, however, it has analyzed the wrong everyday. Instead of analyzing the everyday habits and concerns of two parties directly related to the gas extraction in the North of the Netherlands, perhaps it should have been focusing on the everyday of the 7 million households who, on a cold winter night, turn up their thermostat and switch on the lights. That, actually, is a true everyday, one that nobody would like to see disrupted.