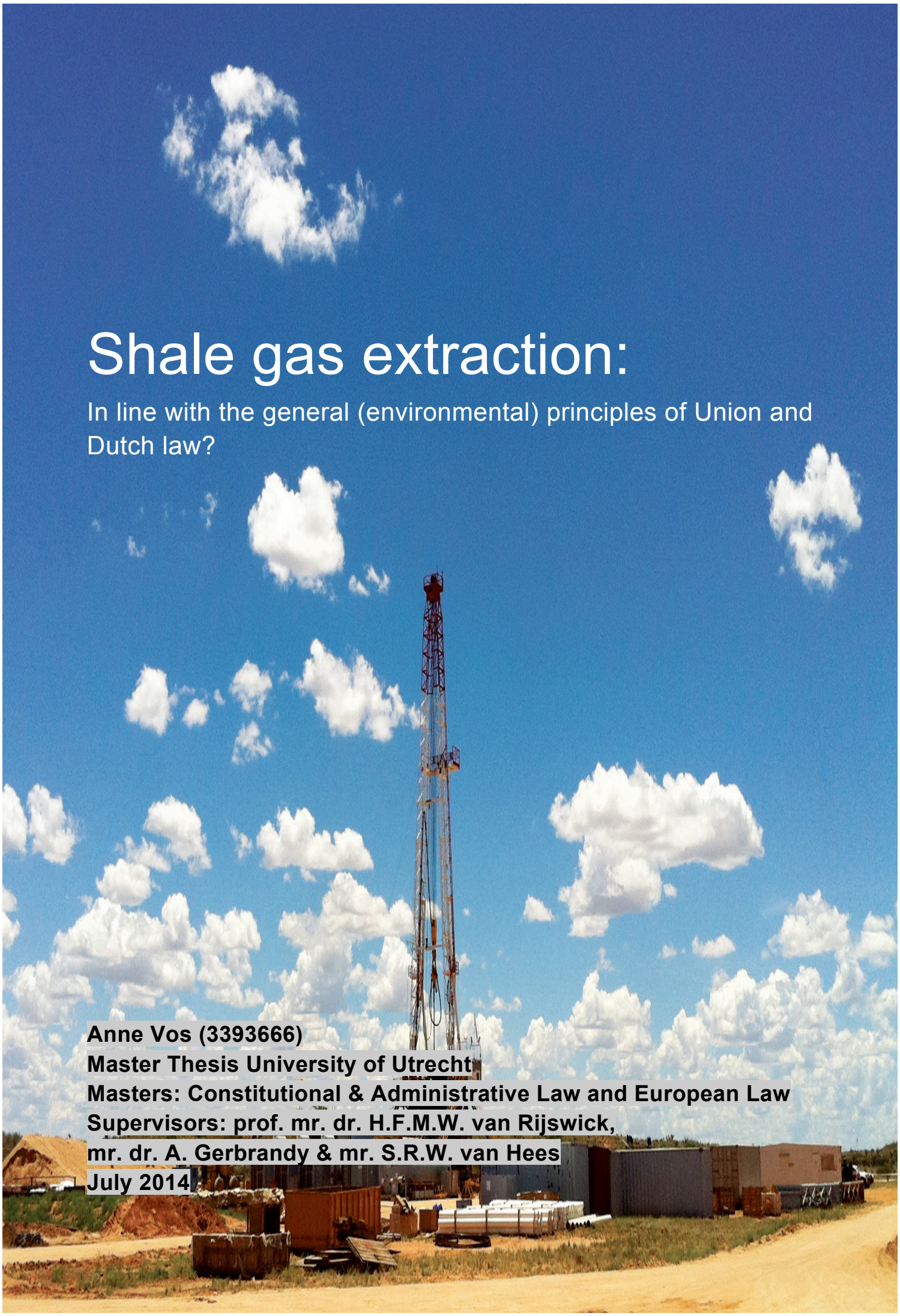

Shale gas extraction:

In line with the general (environmental) principles of Union and Dutch law?

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Foreword

This thesis represents the end of an era; the end of my student life in Utrecht and at the University of Utrecht. I have experienced my studies at the Law Faculty of the University of Utrecht as a period with much learning, pleasure, laughter, ambition, enthusiastic teachers, motivated students, and much more. My student life in Utrecht started at Utrecht Law College, where I have been introduced to the wonderful world of law and have met good friends. I will cherish this time for the rest of my (Law-)career. When I started my masters, I was really looking forward to the (even greater) standard of intelligence, high learning curve, extra depth, motivated students, involvement of the professors and teachers, etc. With both of my masters this was absolutely the case. In my first master I have also followed the Excellent Master Trace (which stands for similar goals), but my masters actually already provided for all these aspects. Both masters were small with extremely motivated students and involved teachers. Here, I have learned more than I could have imagined. For this, I would really like to thank the University of Utrecht and especially both Masters.

As I see this thesis as the end of my law studies, I would also like to use this opportunity to thank my dear family and friends, but mostly my parents. Not only for making it possible, but especially for always supporting me in all my choices. Although not familiar with the legal world, they have always provided me with the best advice regarding my study and career choices. For this, I am very grateful. Here, I would also like to thank Nicoló, who has (not only during this thesis, but also during my whole study) functioned as my outlet and my peace. He has probably 'suffered' the most when I was stressed out, but he has never left my side and has always been there for me. He has ensured that I celebrated and enjoyed the little (or big) wins.

With regard to this thesis in particular, I would first of all like to thank Marleen van Rijswick. She was very involved and always available for meetings with me. In these appointments we have had very useful brainstorm sessions, in which she has been very supportive and enthusiastic. This really stimulated me to work even harder and produce a better thesis. Moreover, I would like to thank Anna Gerbrandy en Sander van Hees, who have reviewed my European part of this thesis. I much appreciate it that they both have found the time to help me tackle the European problems regarding (the environmental aspects of) shale gas extraction.

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1 Introduction

For already some time the supply of energy is a hot topic of debate. Energy is an essential life source which importance cannot be overestimated. It is however problematic that the energy demand increases every year, especially in the more wealthy countries, while the fossil fuels become scarce. In order to address this problem, many countries research alternative resources. Hereby, sustainable energy is of special importance. This can be explained by the fact that this type of energy is less polluting and produces less greenhouse gas emissions in a world that suffers from severe climate change. Several (new) types of energy come along to fulfil the increasing energy demand, such as wind energy, geothermal energy, solar energy, but also e.g. nuclear energy.

Moreover, energy supply is not only an important life source, but also – due to its importance in the current society – political and economic leverage. Due to these political and economic reasons, MS or entire regions (such as the EU) desire to be self-sufficient. This reasoning can be illustrated by the current events in Ukraine and Russia. Because of political events in Ukraine, Russia threatens to shut off the energy tap not only towards Ukraine, but also to the entire European Union. This would have large implications for the EU and many of its MS, because many of them are dependent on Russia for the supply of energy. Russia is for the EU even the largest oil, gas, uranium and coal exporter.[1] For the Netherlands' energy supply Russia is also very important.[2] As an example serves the fact that Russia has supplied 27% of all imported crude oil into the Netherlands in 2012.[3] This immediately illustrates the importance of self-supply of energy or at least an energy-mix with different suppliers. This can secure the energy supply, reduce the dependence on import and also strengthen the bargaining position of a MS in economic or political discussions.

All in all, enough reasons for countries to research other alternative or renewable energy resources. While the EU and MS especially stimulate the exploration of renewable energy – according to the Renewable Energy Directive,[4] the '2020 climate and energy packet', the '2030 framework for climate and energy policies'[5] and the 'Energy Roadmap 2050' of the EU – other 'new' resources also start to develop. One of these is the development of shale gas. However, this discussion on shale gas as a new energy source was accompanied by the discussion on shale gas extraction as a threat for the environment and the society.

1.1 Shale gas

The recently developed interest in shale gas extraction started in the United States. Due to the improvement of certain techniques – hydraulic fracking and horizontal drilling – this type of energy begun to be economically recoverable. The extraction however was quite controversial in the United States and it raised a lot of fuss. The American documentary '*Gasland'* on the dangers for the environment, the drinking water and human health of shale gas extraction has received widespread attention.[6] The controversy in the U.S. was also raised by the fact that the gas companies bought the 'gasland' from poor farmers for little money. Nonetheless, this shale gas extraction made the US in a short amount of time one of the world's leaders in the field of gas production.[7] This development flew across the Atlantic and the idea of shale gas extraction started

[1] http://ec.europa.eu/energy/international/russia/russia_en.htm
[2] http://www.rijksoverheid.nl/onderwerpen/betrekkingen-met-nederland/rusland
[3] http://www.cbs.nl/nl-NL/menu/themas/internationale-handel/publicaties/artikelen/archief/2013/2013-russische-federatie-2012-art.htm
[4] http://ec.europa.eu/clima/policies/package/index_en.htm; here, MS have taken on binding national targets for raising the share of renewable energy in their energy consumption by 2020.
[5] http://ec.europa.eu/clima/policies/2030/index_en.htm; here, the Commission proposes an objective of increasing the share of renewable energy to at least 27% of the EU's energy consumption by 2030.
[6] Made by Josh Fox in 2010.
[7] http://www.eia.gov/todayinenergy/detail.cfm?id=13251

to spread in the European Union. It has been raised that shale gas extraction could be a 'game-changer' (in order to address the increasing demand and dependency on some countries),[8] but is that really the case?

The development of shale gas comes along with a lot of insecurities and it has received much scepticism of the public. Many MS have tried to regulate some of these insecurities and acceptance problems. In the Netherlands, the Minister of Economic Affairs has adopted a moratorium on shale gas extraction and is currently occupied with the adoption of a Structure Vision on Shale Gas in which he will set out *inter alia* how to regulate adverse effects and the appointment of possible locations for shale gas extraction in the Netherlands. The European Union has also started to explore the possibilities of regulation. After setting out a public consultation, which made it clear that regulation was desirable, the European Commission has adopted a Recommendation hereon in the beginning of 2014. This shows that the development of shale gas extraction has had a turbulent year in the EU and its MS. While one year ago there was no (specific) regulation on shale gas extraction in the EU or the Netherlands, now there is many political discussion and already some (non-binding) regulation. It could however be wondered whether these recently adopted or upcoming regulation is in compliance with the issues raised by the public and the politicians, especially in respect of the public acceptance and environmental concerns. Here lies the importance of this thesis.

1.2 Research question

Political discussion thus focuses mainly on the environmental aspects of shale gas extraction and on the issue of public (non-)acceptance. It is interesting to research whether those raised questions by politicians and citizens have some ground from a legal perspective. It is difficult to assess whether the newly adopted Recommendation and the upcoming Structure Vision on Shale Gas are in contrast with concrete legal rules, since those rules are not specified (yet) on shale gas extraction. Therefore, this research will review the current and upcoming regulation on shale gas with certain general principles of Union and Dutch law and certain environmental principles of Union and Dutch law, which are generally applicable on all regulation. The research question will be the following:

> *Is the current and upcoming regulation on shale gas extraction in the EU and in the Netherlands in compliance with the general principles and the environmental principles of Union and Dutch law? If not, how should those principles be taken into account when developing new or adjusting current regulation thereon?*

To answer this question, it is first important to look at the context of shale gas extraction: what is shale gas actually and what are the techniques used for extraction? Here, the political discussion and public debate is also set out: why is the public opposed to shale gas and what are the reasons for extracting it? These questions constitute Chapter 2.

Then, it is essential to assess how the current regulation on shale gas extraction is constructed. This will provide the framework that can be reviewed against the principles. First, the European regulation will be set out (Chapter 3). It is necessary to discuss the European regulation prior to the Dutch legislation, since the first has influence on the latter. The focus will lie on the EU regulations and directives concerning the environment. Due to the extent of this research, there will be a selection of the legislation that is considered the most important. Hereafter, the Dutch regulation will be outlined in Chapter 4. The emphasis will again be on environmental aspects, but in addition the regulation on spatial planning will also be discussed. At the end of Chapters 3 and 4 several

[8] See e.g. https://cleanenergysolutions.org/blogs/11/shale-gas-game-changer-europe

problems will be signalled with regard to the discussed EU and Dutch regulation. These problems will later on be used when reviewing the regulation on shale gas with the principles.

Next, the relevant general principles and environmental principles will be set forth (Chapter 5). First, some comments will be made on general principles and environmental principles in general, after which they will shortly be compared. Then, with regard to both types of principles, a selection is made of the principles that could really have an impact on the current and upcoming regulation on shale gas extraction. Regarding the general principles of Union and Dutch law, the principles of subsidiarity, decentralisation, transparency, participation and integration are chosen to elaborate more in depth. These principles are not environmental in nature, but can *inter alia* serve to address some of the issues concerning the acceptance of shale gas extraction. Regarding the environmental principles of Union and Dutch law, two principles are selected: the precautionary and prevention principles. These principles are able to review some of the environmental concerns. At last, the concept of sustainable development will be set out, which overlaps with some of the principles but also adds something to the discussion.

Finally, it will be assessed whether the current and upcoming regulation on shale gas extraction is in compliance with the general principles and the environmental principles of Union and Dutch law (Chapter 6). Here, the current and upcoming shale gas regulation, as set out in Chapters 3 and 4, will be reviewed with the principles set out in Chapter 5. When assessing these regulations, special attention will be paid to the problems pointed out at the end of Chapters 3 and 4.

After the answering of all these questions, an answer will be formulated on the main research question (Chapter 7). This will mainly be a recap of what is already discussed in the prior chapters. It will be set out per general and environmental principle whether the current and upcoming regulation on shale gas extraction in the EU and in the Netherlands is in compliance herewith. Moreover, final conclusions will be made with regard to the mentioned problems of the current or upcoming regulation (at the end of Chapters 3 and 4), whereby it will be discussed per problem how certain principles might address them. In addition, some recommendations will be made. These recommendations will concern the question how those principles should be taken into account when developing new or adjusting current regulation thereon.

1.3 Research method

The used methods for answering the research question are mainly literature and case-law. For the environmental concerns and issues, many studies of the EU, the International Energy Agency and others have been used. For the prevailing concerns and insecurities of the public, many news sites and official documents of the EU and the Dutch parliament have been consulted to get a good insight on the public opinion.

With regard to the chapters on the current and upcoming regulation, mostly literature, articles and again official documents have been checked to get a full overview on the regulations. For the chapter concerning the general (environmental) principles of Union and Dutch law, as for their general discussion and comparison, mainly literature is consulted. Subsequently, for the discussion of the individual principles, the case law of the Court of Justice of the EU and the Highest Dutch Administrative Court (the *Afdeling bestuursrechtspraak van de Raad van State*) is primarily used.

2 Context

In this chapter some background information and context on shale gas activities will be set out. To have a better understanding of the information discussed in the next chapters, it is important to have knowledge on the concept of shale gas and the used techniques when extracting it. Furthermore, it is important to know the context: what are the reasons for extracting shale gas in Europe and what are the reasons for opposing this development? Here the economic benefits will be set out against the environmental impacts.

2.1 About shale gas

2.1.1 Unconventional gas

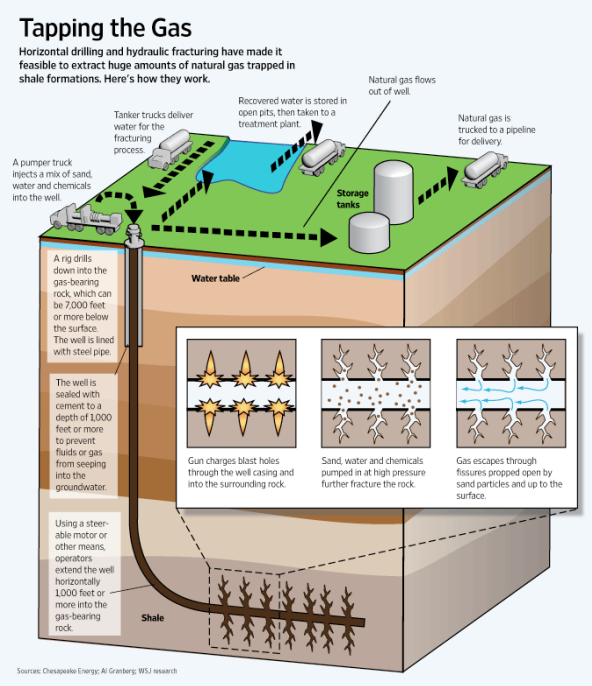
Natural gas can be produced by conventional or unconventional resources. Unconventional gas includes three types of gas: tight gas, shale gas and coal bed methane (CBM). Conventional gas consists of *inter alia*: gas, oil, and coal.[9] Unconventional gas differs from conventional gas in several ways. As the terms already indicate; 'conventional' gas is ordinary and conservative, while 'unconventional' gas is experimental and (literally and figuratively) ground-breaking. Second, the geographical location in the soil differs. Unconventional sources are exploited from rock formations which are stretched over very large areas and found in different layers. This differs from conventional sources, which are often situated in "discrete, well-defined reservoirs".[10] Furthermore, the permeability diverges: while conventional sources often have high energy contents per rock volume which readily flows from the reservoir to the wellbore, unconventional sources are low in energy content per rock volume and have a low permeability.[11] Moreover, the method of extraction and techniques used are different. Conventional natural gas is usually developed using the method of vertical drilling, which then already results in the release of a commercial amount of gas. For unconventional gas, this is not so easy. On the contrary, unconventional gas requires horizontal drilling (due to its geographical location) which requires a lot of extra effort and treatment in order to be commercial producible.[12] The rock formations have to be cracked in order to release the unconventional gas.[13] The next paragraph will elaborate further on this method of extraction. Last, the recovery rates vary. Conventional natural gas usually has a recovery rate of over 80%, which differs a lot from unconventional gas which has a rate of 15-30%.[14]

2.1.2 Method of extraction

Shale gas has already been exploited for several years, but only recently it has received such wide-spread attention. This can be explained by the development of the required techniques for extracting shale gas. These techniques make it now possible to "extract unconventional hydrocarbons from geological formations with low hydrocarbons content, low porosity and low, or very low permeability."[15] The technological advances concerned are high volume hydraulic fracturing and horizontal drilling. These technologies are mainly deployed in the United States ("U.S."), where there has been a "shale gas boom". These techniques are needed in order to extract the gas from the (shale) rock formations.[16]

[9] Corbeau (2012).
[10] JRC IET-report, *Unconventional Gas: Potential Energy Market Impacts in the European Union*, 2012, p. iv.
[11] US Energy Information Agency (http://www.eia.gov/energy_in_brief/article/about_shale_gas.cfm).
[12] Buchan (2013), p. 2.
[13] European Commission, *Citizens' summary on fracking in the EU to extract shale gas and other hydrocarbons*, 2014, p. 1.
[14] JRC IET-rapport (2012), p. iv.
[15] Legal Assessment of the European Commission, *Ref.Ares*(2012) 91850, 26 January 2012, p. 2.
[16] Legal Assessment (2012), p. 2.

Hydraulic fracturing, also called 'fracking', is the injecting of fracturing fluid in the (shale) rock formation with high pressure. This fracturing fluid consists of "a mixture consisting primarily of water, sand and a small percentage of chemical substances (generally between 0.5% and 2%)."[17] In this manner, the rock breaks and the pores that trap the natural gas are connected. The pressure of the injection breaks the rock strength, thereby opening fractures. Sand is injected into these fractures, which will prevent the fractures from closing again when the pressure is released. Thus, the natural gas can flow from the geological formation into the well.[18] After this process, circa 30-70% of the fracturing fluids mixed with the fluids from the rock formation rises to the surface. This latter fluid is called 'flow-back' or 'waste water'.[19] Hydraulic fracturing is already used in some other projects in the EU, e.g. for the extraction of methane and tight gas. However, the difference is that in those projects the technique of *low volume* hydraulic fracturing was used, while with shale gas projects the technique of *high volume* hydraulic fracturing is employed. This latter means the use of much higher volumes of water (due to the low permeability of the geological formation) and a larger injection of additives into the ground.[20]



The technique of high volume hydraulic fracturing is with regard to the extraction of unconventional resources used in combination with the technique of directional (mostly horizontal) drilling. In practice this means the horizontal drilling (and thereby extension) of the geological formation that contains the hydrocarbons. This increases the contact between the borehole and the shale resources. This usually happens at a depth of greater than 2 kilometres and the 'horizontal leg' of the well is usually around 3 kilometres or more.[21] The included image will clarify the explained techniques.[22]

2.2 Importance of shale gas in today's society

2.2.1 Security of supply and EU competitiveness

In the past decade, the gas production of the EU has declined. Between 2004 and 2011, the EU gas production has dropped with 30%. Moreover, this decline will continue in the future.[23] In 2011 the EU was for 67% dependent on the import of natural gas.[24] The import of gas has been increased by 37% since 2000. This means that the EU generates a high dependency on gas import. For the EU to have a (greater) security of the supply of gas, there are two steps she can take. First,

[17] http://ec.europa.eu/environment/integration/energy/uff_context_en.htm
[18] http://ec.europa.eu/environment/integration/energy/uff_context_en.htm
[19] Legal Assessment (2012), p. 3.
[20] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 18.
[21] Legal Assessment (2012), p. 2.
[22] Source image: http://econintersect.com/b2evolution/blog1.php/2012/05/01/fracking-regulation-don-t-ask-don-t-tell
[23] 2050 Energy roadmap, COM(2011) 885.
[24] Communication from the Commission on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU, COM(2014) 23 final/2, 17 March 2014, p. 2.

the EU could produce more gas itself in the future. To make this possible, her capacity needs to grow; both in conventional and unconventional resources. Second, the EU should have diverse sources of import to make sure that she always has gas supply. Currently the main gas sources are Russia, Norway and Algeria. They make three quarters of the EU gas import.[25] Now, some Member States ('MS') are even dependent on one supplier.[26] Also, it should not be forgotten that there are alternatives to the here-mentioned energy resources, namely; renewable energy resources, which are sustainable. However, these resources fall outside the scope of this thesis. On some occasions in this thesis, there will be referred hereto.

In the U.S., the development of shale gas production has improved their security of supply. Nowadays, 60% of the gas production of the U.S. comes from unconventional sources of gas. Shale gas is the biggest contributor herein. This percentage may increase up to 74% by 2040.[27] A similar development is also desired in the EU. However, some side notes have to be made. Many aspects of the U.S. that made the growth of unconventional sources of gas possible are not available to the the same extent in the EU. As mentioned in the previous paragraph, the techniques used for shale gas exploitation need a great amount of land. While the U.S. is very widespread, the EU has a high population density. This high density again leads to more public opposition. Moreover, in the U.S. there were also other factors contributing to its development, such as: experience with the techniques, higher availability of needed infrastructure, geological features (shale gas is located deeper in the ground in the EU), energy operators ready to invest, land ownership, gas price formations and regulatory environment (shale gas projects got exemptions from certain pieces of U.S. environmental federal legislation, e.g. the Safe Drinking Water Act).[28]

Furthermore, the development of unconventional resources has brought the U.S. many other advantages: the gas price dropped, the availability of jobs, increased competitiveness in gas sector, etc. These advantages for the U.S. did not stay unnoticed in the EU. Due to the self-supply of the U.S., a lot of LNG (liquefied natural gas) became available on the global market (since the U.S. did not imported it anymore to the same extent), which indirectly influenced the prices on the EU market. This price influence was also a consequence of the fact that more coal was exported from the US (since the US did not need this anymore itself), leading to the dropping of prices of coal by one third in the EU since 2011.[29]

However, to what extent could the extraction of shale gas really secure the EU energy supply? There is still much uncertainty on the volume of shale gas on European territory and how much of that is actually technically (and economically) recoverable. It is estimated that there is circa 16 trillion cubic meters (Tcm) of shale gas technically recoverable in the EU, which would mean (if also economically recoverable) around 35 years of annual gas consumption (compared to the current level of gas consumption of 2012). It is *estimated* that Poland and France have the greatest (technically recoverable) amount of shale gas on their territory (resp. 5.1 Tcm and 5.3 Tcm), after which Germany (0.23 Tcm), the Netherlands (0.48 Tcm), the United Kingdom (0.57 Tcm) Denmark (0.65 Tcm) and Sweden (1.16 Tcm) also have a considerable amount.[30] It is however unclear how much of these amounts are also economically recoverable; current technologies are only able to extract 15-40% of shale gas from the geological formations. Exploratory drillings could help to clarify the specifying of the recovery rates. Compared to other parts of the world - such as Asia, the Mideast, North Africa, North and South America - the EU's shale gas resources are very poor.[31]

[25] Commission Staff Working Document Impact Assessment (2014), part 1/4, pp. 10-11.
[26] Commission Communication (2014), p. 2.
[27] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 11.
[28] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 12.
[29] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 12.
[30] Commission Staff Working Document Impact Assessment (2014), part 1/4, pp. 13-14.
[31] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 15.

Besides doubt on the exact amount of extractable shale gas, there is also uncertainty about the actual security of supply and international competitiveness that shale gas projects could bring. Although the Commission recognises that the EU will not be able to cover her energy use, nor that shale gas extraction would put the EU on a level playing field with the U.S. (regarding energy prices)[32], the production of shale gas can compensate for the decline of gas production in the last decade and prevent the EU from being even more dependent on import: "in a best case scenario, [the EU would be] able to contribute almost half of the EU's total gas production and meet about around 10 % of the EU gas demand by 2035."[33] The Commission points out that even a slight moderation of the security of supply should be welcomed. Not only for MS' position (their ability to diversify their energy sources, improve their security of supply and enhance their negotiating position towards external energy suppliers), but also for the consumers and (energy intensive) businesses and industries: "[they] would benefit from any decrease in energy prices (or avoidance of further price increases)".[34] However, as said, shale gas production in the EU will not mean a complete security of supply, since still 60% of the EU gas consumption will come from imports in 2040. This means that the EU gas prices will still be determined by the prices from abroad.[35] However, the establishment of a 'steady 60%' could help to improve "the negotiating position of EU consumers towards external energy suppliers by increasing gas-to-gas competition".[36]

Furthermore, it should not be forgotten that the production of shale gas could also have other (in)direct economic benefits, such as investments in infrastructure, incomes from taxes and royalties, and employment possibilities. According to a research conducted by Cuadrilla Resources, the production of three test wells per year would amount to 250 full time jobs (when taken all the tiers of supply chains into account).[37]

2.2.2 Clean(er) alternative

Another positive effect of shale gas production could be that it might pay a contribution to the environment. However, this would depend on several conditions. First of all, shale gas production should not replace renewable energy resources but only more carbon intensive fossil fuels. Furthermore, the positive contribution depends on the certain fossil fuels with which it is compared. Conventional natural gas is for example considered to have 1-5% less greenhouse gas emissions than shale gas, but with compared to the emissions of coal-based electricity (to which shale gas would produce 41-49% less emissions) and electricity generated from conventional pipeline gas produced outside Europe (to which shale gas would produce 2-10% less) and electricity generated from LNG imported into Europe (to which shale gas would produce 7-10% less emissions), shale gas production could be considered as a contribution to the decrease of climate change by human activities.[38] It should then be ensured that the additional air emissions (compared to the extraction of conventional natural gas) will be limited and properly controlled.[39]

2.3 Concerns of shale gas

There is many research conducted in order to address the concerns about shale gas.[40] The origin of many research is (North) American, since shale gas extraction already actually occurs there and they thus have more experience. In this paragraph, a stocktaking of the main concerns, addressed in those researches, will be made. The cumulative effect of all those concerns should also be kept in mind; maybe only some air pollution will not be the end of the world, but in combination with

[32] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 61.
[33] Commission Communication (2014), p. 4; IEA, *Golden Rules for a Golden Age of Gas*, 12 November 2012, p. 81.
[34] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 17; Comm. Communication (2014), p. 5.
[35] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 17.
[36] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 62.
[37] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 17.
[38] Commission Communication (2014), p. 5.
[39] Citizens' summary (2014), p. 1.
[40] http://ec.europa.eu/environment/integration/energy/uff_studies_en.htm

minor tremors and community disruptions, it could have great impact. However, with regard to all the concerns and risks that come with shale gas extraction, still much uncertainty exist on their actual impacts. Much of the claimed risks and concerns are not yet proven, also due to the fact that there is not much experience (yet) with shale gas in practice. It should also be mentioned here, before discussing the concerns, that many concerns could perhaps be tackled by several (existing or future) measures that could reduce, prevent, manage and/or control certain risks. Finally, the concerns should be put in perspective of the possible economic benefits, as set out before.

The following concerns and risks come up most often; concerns regarding the environment, regarding community disruptions and regarding public acceptance. Also, the regulatory framework is often cited as a concern, especially with regard to the question whether this framework is sufficient (to address the other concerns). This will be explored in Chapters 3 and 4.

2.3.1 Environmental concerns

The first and most heard concern is that shale gas production could bring many risks for the environment. It has been confirmed by many experts that shale gas productions leads to a larger environmental footprint than conventional gas extraction.[41] This is a consequence of the low permeability and commerciality of shale gas, which require the extraction of more shale gas compared to conventional resources, and the techniques used, which require the use of wide areas and high volumes of water. Especially with regard to the technique of fracking there are lots of environmental concerns. Hereafter, several aspects of the environment will be discussed. These are frequently inter-linked.[42] These environmental risks often include health risks, e.g. if drinking water is contaminated or when the air quality is deteriorated.

2.3.1.1 Water quality and use

There are several concerns regarding water, such as the quality of groundwater and surface water, and also the resource of water. First, there is the concern on the contamination of ground and surface waters. During the process of the extraction, fracture fluid is injected into the ground. This fluid consists *inter alia* of chemical additives.[43] There have been researches conducted on this fluid from which it appeared that this fluid also consists of (depending on the amount and concentrations) cancer-causing agents, toxic substances to freshwater organisms and priority substances under the EU Water Framework Directive.[44] This flow-back water stays for circa 25-90% in the soil after injected.[45] Here, especially the surface water (and the soil) could be polluted, if this waste water is not well handled.[46] Moreover, this waste water must be treated, since it is not allowed according to the Water Framework Directive to inject flow-back water into geological formations.[47] This would require the setting up of waste treatment facilities.[48] These should be treated very carefully. In the U.S. this waste water is often stored in open ponds which could lead to adverse effects for the biodiversity in the area, air emissions, etc.[49]

Also during the fracking and horizontal drilling it should be assured that no leaks or spillage occur. This could occur through pipe-leaks, improper well design, uncontrolled fractures, existing faults, etc.[50] Such a contamination could end up in the groundwater, which is an important source of drinking water in many MS. The Committee of the Regions refers in her draft opinion that it follows

[41] E.g. IEA Golden Rules Report (2012); and Commission Communication (2014), p. 5.
[42] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 24.
[43] Golden Rules Report (2012), pp. 33-34.
[44] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 4.
[45] Commission Communication (2014), p. 6.
[46] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 25.
[47] Article 11(3)(j) of the Water Framework Directive.
[48] Golden Rules Report (2012), pp. 32-33.
[49] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 5.
[50] Commission Communication (2014), p. 6.

from the U.S. experience that 6% of the wells leak.[51] However, it should be kept in mind that these risks could be managed and controlled: sites should carefully be selected, pipes and wells should be properly sealed and insulated from the geological formation, etc. But, this is not yet proven successfully and the risks or concerns should not be regarded as acceptable, only because they may be managed in the future. Then again, it should be mentioned here that those risks are not specific to shale gas extraction. However, those risks are magnified by the volume of the water used during the process.[52] This is the next concern regarding water.

With regard to water there is next to the contamination fears, also the concern about the large amounts of water consumed. One well uses around 15,000 m3 of water during the (horizontal) drilling process and 11,000 m3 of water (as part of the mixture in the fracture fluids) during the hydraulic fracturing process. From the latter, 57-227 m3 of the fluid consists of chemical additives. Moreover (as stated), the fracturing fluid stays for circa 25-90% in the soil after injected.[53] This water will not take part anymore in the 'hydrologic cycle'.[54] Generally a shale gas-site is around 2-hectare which will accommodate 6-8 wells that all extract areas of around 1-2 km2.[55] Hence, the volume of water used is enormous, particularly compared to conventional resources. In North America, most of the operators used local water since the transport of water is very expensive.[56] This volume of water used in the process, especially in areas where there is water scarcity, could

> "lower the water table, affect biodiversity and harm the local ecosystem. It can also reduce the availability of water for use by local communities and other productive activities, such as agriculture. And all more so if this takes place in areas where other energy sources are already drawing on the available water."[57]

Here, water management plans might help by mitigating, preventing and controlling those effects and ensure efficiency of the used water.[58] But again: still large amounts of water are needed.

2.3.1.2 Air emissions

During the process of the shale gas exploitation, but also due to the needed transport, fugitive methane emissions can arise which could lead to air pollution and greenhouse gas (GHG) emissions. This could have adverse effects for the local air quality and climate surrounding the site. In the US such emissions have been reported during shale gas extractions. The Commission notes that these emissions may be prevented and mitigated by good practices.[59] If not, the GHG emissions per electricity unit (generated by shale gas) would be 4-8% higher than per electricity unit generated by conventional resources.[60] This could be explained by two reasons. First, the techniques used for shale gas extraction require heavy diesel engines.[61] Second, together with the flow-back water arises the emission of 'encapsulated gas' of which methane is the main component. Methane is a more powerful GHG than carbon dioxide. This emission may however be mitigated or removed if separators are used at the wellhead.[62]

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[51] Draft Opinion of the Committee of the Regions, *Local and regional authorities perspective on shale/tight gas and oil (unconventional hydrocarbons),* 103rd plenary session, 7-9 October 2013, p. 7.
[52] Buchan (2013), pp. 5-6; see also IEA Golden Rules Report (2012), p. 35.
[53] Commission Communication (2014), p. 6.
[54] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 26.
[55] Legal Assessment (2012), p. 3.
[56] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 8.
[57] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 25; IEA Golden Rules Report (2012), pp. 31-32.
[58] Commission Communication (2014), p. 6.
[59] Commission Communication (2014), pp. 6-7.
[60] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 25.
[61] Golden Rules Report (2012), p. 38.
[62] Buchan (2013), p. 6.

2.3.1.3 Seismicity

The risk of seismicity is according to the environmental impact assessment, made by the Commission, not particularly great, but when it comes to the public's opinion this concern is ranked high. Earth tremors might happen during the process of fracking and the injection under high pressure. Minor earth tremors have already occurred in the United Kingdom (by wells of Cuadrilla Resources)[63] and in North America, Ohio. It is often argued that earth tremors are not specific for shale gas projects. They e.g. also occur during geothermal activities. According to the experts, there is not a high risk of seismicity particular to shale gas activities.[64] However, this does not eliminate the risks and dangers of seismicity. In the Netherlands, this fear is also considered high, partly due to the recent earthquakes in Groningen, caused by natural gas extraction.

2.3.2 Local impacts

Shale gas activities require wide areas for its extraction, in contrast to conventional resources. The concessions granted in several MS differ now from 300 km2 in the Netherlands to 2900 km2 in Denmark, with special attention to a concession in Poland of 87000 km2.[65] For the extraction of the shale gas, several wells and infrastructure are needed. This will also result in a lot of road traffic.[66] After all, the resources, materials and waste should be transported to and from the site. Road traffic also means air pollution, noise disturbance and accidents. This could moreover lead to "land fragmentation, land take (*land being turned into an artificial surface, AV*) and disturbance to biodiversity."[67] In the U.K. it was estimated that the extraction of shale gas could lead to 7.000-11.000 truck visits for the development of 10 wells. This would have an enormous impact on the road network surrounding the well-pad.[68]

2.3.3 Transparency and public consultation

Shale gas extraction also suffers from problems by the acceptance of the public. Besides the fact that the public is afraid of the mentioned environmental concerns (previous paragraph) and the lack of regulatory framework (next chapter), it is also concerned about the level of precaution, transparency and consultation of the shale gas projects.[69] This appeared from the Commission' consultation (held between 20 December 2012 and 23 March 2013).[70] Here, the public points out the lack of information with regard to the composition of fracturing fluids and geological conditions.[71] Often it is even the case that this information is kept secret.

This lack of public trust is a problem for the development of shale gas activities. Due to (still unresolved) concerns, citizens oppose and protest against the activities, especially when the activities will be explored near their homes ('not in my backyard'-effect). This could slow down the process of shale gas extraction or prevent the project in its totality, as is already shown by several imposed moratoria in multiple MS[72] and even legal bans in France and Bulgaria.[73] Hence, it is of great importance that all these public concerns are addressed. This will stimulate their acceptance. This is also stressed by the Committee of the Regions who advocates for "mandatory implementation of wide range of effective participatory planning tools and method before

[63] IEA Golden Rules Report (2012), p. 26.
[64] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 26.
[65] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 26.
[66] Commission Communication (2014), p. 6.
[67] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 26.
[68] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 8.
[69] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 32.
[70] European Commission DG Environment, *Final report: Analysis and presentation of the results of the public consultation "Unconventional fossil fuels (e.g. shale gas) in Europe",* 3 October 2013.
[71] Commission Communication (2014), p. 6.
[72] Including the United Kingdom (although lifted as of December 2012), the Netherlands, states in Germany, parts of Spain, Romania (also lifted in December 2012) and Denmark.
[73] Fleming (2013),pp. 12-32.

exploration and public consultation before exploitation stages" and also calls for greater outreach and education "to enable public understanding, acceptance and confidence in the regulation of these activities."[74]

2.4 Conclusion

In this chapter, some basic information is given about shale gas (extraction) and its (positive and negative) consequences. It is very important to keep in mind that before Europe and MS start with the production of shale gas, these main concerns should be addressed. This could enhance the public acceptance, which is very important. Without this acceptance, it will be difficult - for the MS and the industries - to extract shale gas in a continent with high population density such as Europe.

[74] Draft Opinion of the Committee of the Regions (2013), p. 9.

3 Current European legislation on shale gas

In this chapter and the following chapter, the legislation on shale gas will be set out. First, the EU legislation will be reviewed, since this is relevant to keep in mind when discussing the Dutch legislation on shale gas (Chapter 4). This thesis only concentrates on the environmental aspects of EU legislation that could be of relevance for shale gas activities. Moreover, due to the length and scope of this thesis, only the most important and relevant legislation will be reviewed.[75]

Before setting out the latest developments on EU legislation regarding shale gas, the legal base from the Lisbon Treaty regarding energy policy will be elaborated, after which the following EU legislation will be discussed: the Environmental Impact Assessment Directive, the Water Framework Directive (with daughter directives), the REACH Regulation, the Mining Waste Directive, the Habitat and Bird Directives, the Hydrocarbons Directive and finally some comments on the Seveso III Directive and the Environmental Liability Directive. This chapter will be concluded with some remarks on the problems that pop up with the current EU legislation.

3.1 The Lisbon Treaty

Since the coming into force of the Treaty of Lisbon, there is a whole title (Title XXI) dedicated to "energy". This is inserted in Part Three of the Treaty on the Functioning of the European Union ('TFEU'), entitled 'Union policies and internal actions'. Another title (Title XX) is dedicated to the "environment". In addition, the subject of the environment has since the Lisbon Treaty moved from outside the scope of EU law into one of the shared competences.[76]

In Title XX of the TFEU (concerning the environment), Article 191 declares:

> 1. Union policy on the environment shall contribute to pursuit of the following objectives:
>
> - preserving, protecting and improving the quality of the environment,
> - protecting human health,
> - prudent and rational utilisation of natural resources,
> - promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change.
>
> 2. Union policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Union. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.
>
> In this context, harmonisation measures answering environmental protection requirements shall include, where appropriate, a safeguard clause allowing Member States to take provisional measures, for non-economic environmental reasons, subject to a procedure of inspection by the Union.
>
> 3. In preparing its policy on the environment, the Union shall take account of:
>
> - available scientific and technical data,
> - environmental conditions in the various regions of the Union,

[75] *Inter alia* the following legislation will not be discussed: Regulation (EC) n° 528/2012 concerning the making available on the market and use of biocidal products and Directive 98/8/EC concerning the placing of biocidal products on the market; Directive 96/82/EC on the control of major-accident hazards involving dangerous substances; Directive 2010/75/EC on industrial emissions (integrated pollution prevention and control); Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading; Directive 2002/49/EC relating to the assessment and management of environmental noise; Council Directive 80/68/EEC on the protection of groundwater against pollution caused by certain dangerous substances; Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation; Directive 2000/14/EC on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors; Directive 2003/4/EC on public access to environmental information; Council Directive 92/91/EEC concerning the minimum requirements for improving the safety and health protection of workers in the mineral- extracting industries through drilling; Council Directive 91/271/EEC concerning urban waste-water treatment; Directive 2008/98/EC on waste; and Regulation (EC) n° 1013/2006 on shipments of waste.

[76] Article 4, paragraph 2, sub e, TFEU.

- the potential benefits and costs of action or lack of action,
- the economic and social development of the Union as a whole and the balanced development of its regions. (…)

The principles mentioned in paragraph 2 will be further elaborated in Chapter 5. Pursuant to Article 193, Member States are allowed to maintain or introduce more stringent protective measures. Such measures must be compatible with the Treaties and shall be notified to the Commission.

Title XXI of the TFEU concerns energy. Article 194 TFEU alone constitutes this title, which states the following:

> 1. In the context of the establishment and functioning of the internal market and with regard for the need to preserve and improve the environment, Union policy on energy shall aim, in a spirit of solidarity between Member States, to:
>
> a) ensure the functioning of the energy market;
> b) ensure security of energy supply in the Union;
> c) promote energy efficiency and energy saving and the development of new and renewable forms of energy; and
> d) promote the interconnection of energy networks.
>
> 2. Without prejudice to the application of other provisions of the Treaties, the European Parliament and the Council, acting in accordance with the ordinary legislative procedure, shall establish the measures necessary to achieve the objectives in paragraph 1. Such measures shall be adopted after consultation of the Economic and Social Committee and the Committee of the Regions.
>
> Such measures shall not affect a Member State's right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply, without prejudice to Article 192(2)(c).
>
> 3. By way of derogation from paragraph 2, the Council, acting in accordance with a special legislative procedure, shall unanimously and after consulting the European Parliament, establish the measures referred to therein when they are primarily of a fiscal nature.

This article has provided for an express legal basis for the EU to establish Union policy on energy. If necessary to achieve the objectives mentioned in paragraph 1, EU acts shall be established. This provision will apply to all acts adopted by the EU in the energy sector which are intended to allow the implementation of those objectives. However, this applies without prejudice to the application of other provisions of the Treaties, such as the more specific provisions on energy. An example of this is Article 122 TFEU on which measures can be taken if severe difficulties arise in supply, notably in the area of energy. Another example is Article 170 TFEU on which the Union shall contribute to the establishment and development of trans-European networks in the area of inter alia energy infrastructures. Also other competences that the Union has under other Treaty provisions may apply, "even if the measures at issue also pursue one of the objectives of the energy policy stated in Article 194(1)."[77]

In a case between the European Parliament and the Council, the Court of Justice had to determine whether the legal basis for an EU act, having the aim of the collection of information in the energy sector, was Article 337 or Article 194(2) TFEU.[78] To answer this question, the Court stated that

> [It] must be examined whether that act, as regards its aim and content, may be considered necessary to achieve the objectives specifically assigned to the European Union policy on energy by Article 194(1) TFEU. If so, since the collection of information may be treated in the same way as a component of that policy, the European Union act which adopts it must be based on Article 194(2) TFEU. A European Union act cannot therefore come under Article 337 TFEU solely because it adopts a system of collection of information (see, by analogy, *Commission v Council*, paragraph 22).[79]

[77] Case C-490/10, *European Parliament v. Council of the European Union*, not yet published, paragraph 67.
[78] Case C-490/10, *European Parliament v. Council of the European Union,* not yet published.
[79] Case C-490/10, *European Parliament v. Council of the European Union*, not yet published, paragraph 68.

As mentioned, Article 191(2) TFEU states that Union policy on the environment shall be based on several principles. Pursuant to this article, the precautionary and prevention principles guide the EU policy on the environment. Although these principles are not explicitly mentioned in Article 194 TFEU, these principles are international customary law and generally acknowledged general principles of EU law. Moreover, Article 194 TFEU does state that it shall aim its policy on the promotion of energy sufficiency and saving and *development of new and renewable forms of energy* (paragraph 1). Then again, Article 194(1) also states *"[i]n the context of the establishment and functioning of the internal market* and with regard for the need to preserve and improve the environment". Here, it emphasises the environment, but at the same time constraints it to the context of the internal market.[80] Nevertheless, due to the integration principle of Article 11 TFEU, the Union policy on the environment also concerns energy (and vice versa). Finally, many directives that are relevant for the Union policy on shale gas – as shown hereafter – are based on Article 191 TFEU. These general principles of Article 191(2) TFEU will be elaborated in depth in Chapter 5.

3.2 Most recent developments

The first (express) legal assessment on shale gas exploitation in the EU was conducted in 2011 by the Commission. Here, it was declared that the existing EU framework was applicable to the practices required for shale gas exploration and production. However, the sufficiency of the framework was still to be conducted. At the same time, the Commission gave guidance on the application of the EIA Directive, which will be further elaborated under the paragraph concerning this Directive. Hereafter, many studies on shale gas were released by the Commission.[81] From December 2012 until March 2013 the Commission has executed an on-line stakeholder conference regarding *inter alia* shale gas exploration, whereby many of the stakeholders asked for additional EU action.[82]

In January of this year, the Commission has adopted a Recommendation on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing (hereafter: 'the Recommendation').[83] The Commission is allowed to adopt recommendations on the basis of Article 292 TFEU. By adopting this recommendation, she answers the calls of the public and authorities (from the stakeholder conference) for extra EU action. This Recommendation should be seen as a complementary to and building on all the (previously adopted) legislation which will be discussed hereafter. The Recommendation lays down minimum principles, in order to support MS who wish to carry out exploration and production of hydrocarbons using high-volume hydraulic fracturing, while at the same time wish to ensure the public health, climate and environment, the efficient use of resources, and the information of the public. In applying or adapting their existing provisions to the needs and specificities of exploration and production of hydrocarbons using high-volume hydraulic fracturing, MS are 'encouraged' to apply these principles. These principles cover issues such as planning, installation assessment, permits, operational and environmental performance and closure, public participation and dissemination of information. The Recommendation stipulates MS to carry out a SEA before granting licenses and to ensure the establishment of an EIA. If more than one competent authority, operator or permit is involved, MS should coordinate the conditions and procedures. Operators should according to this Recommendation carry out a risk assessment of the potential site and surrounding surface and underground area, which should *inter alia* be based on the best available

[80] Jans & Vedder (2012), pp. 85-86.
[81] E.g. JRC Scientific and Policy Report, *Assessment of the use of certain substances in hydraulic fracturing of shale gas reservoirs under REACH*, September 2013; Milieu Ltd, *Study on the regulatory provisions governing key aspects of unconventional gas development in eight Member States*, September 2013; JRC Technical Reports, *An overview of hydraulic fracturing and other formation stimulation technologies for shale gas production*, 2013; etc.
[82] http://ec.europa.eu/environment/integration/energy/unconventional_en.htm
[83] Commission Recommendation of 22 January 2014 on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing (2014/70/EU).

techniques. Moreover, before the high-volume hydraulic fracturing operations start, MS should ensure that a baseline study is carried out and that the installation is constructed in a way that prevents possible surface leaks and spills to soil, water or air. Furthermore, the Recommendation sets out operational and monitoring requirements and refers to REACH (hereafter discussed in more depth). Also, it provides principles on environmental liability and financial guarantees. Finally, it gives principles concerning the capacity of the competent authorities, closure obligations and the dissemination of information. The Recommendation was accompanied by a Communication and an Impact Assessment.

Prior to the Recommendation, there was a Commission Staff Working Document published in which four options (besides the basic scenario, which basically meant doing nothing) were presented to the Commission:

> **Option A** consists of a Recommendation to Member States on ways to address environmental aspects of shale gas exploration and production. It also provides for guidance on the interpretation of environmental legislation (such as water and waste). Moreover it encourages voluntary commitments by the sector's operators.
> **Option B** proposes amendments to some existing EU environmental legislation to clarify the applicable rules for the sector (combined with elements of option A).
> **Option C** is a framework directive proposing a set of overarching goals, including the disclosure of chemicals used and dealing with cumulative impacts, while amending the existing environmental legislation as in option B;
> **Option D** is a directive setting specific requirements covering all issues identified.[84]

The Staff Working Document does not give preference to one of these options. It only gives all the elements in the impact assessment in order that a political decision can be reached in which all the interests and affects are well balanced. Many EU institutions however did give a preference; both the European Parliament as the Committee of the Regions had a preference for binding legislation.[85] The Commission has not followed this preference. It has chosen for Option A. The Commission has stated that its choice was based on the fact that a recommendation could be applied faster.[86] In this manner, according to the Commission's Communication, all the MS can choose their own path on how to deal with shale gas exploration.

It should be pointed out that, although the Recommendation is formally not (directly) binding, it does concern soft law. This means that the Recommendation can be considered indirectly binding.[87] Moreover, although it seems that the Recommendation only repeats the existing legislation (which will be set out hereafter), it could also be seen as having some additional relevance. After all, it gives a good overview and provides for a bundling of the relevant existing legislation.[88]

3.3 EIA Directive

The Directive on the assessment of the effects of certain public and private projects on the environment – the Environmental Impact Assessment (EIA) Directive – is developed with particular regard to Article 192 TFEU. As elaborated above, this Article refers to several environmental general principles. According to these principles, effects on the environment should be taken into account as early as possible in all the processes of technical planning and decision-making.[89] Here,

[84] Commission Staff Working Document, Executive Summary of the Impact Assessment (COM(2014) 23 final), p. 4.
[85] See e.g. the two resolutions adopted by the European parliament on EIA and other aspects of shale gas (in November 2012) and the opinion of the Committee of the Regions (in October 2013).
[86] Q&A on the shale gas initiative (2014), p. 2.
[87] Van der Feltz (2014), p. 17. Here, Van der Feltz refers to J. Luijendijk & L.A.J. Senden, 'De gelaagde doorwerking van Europese administratieve soft law in de nationale rechtsorde', *SEW* 2011/7-8; and to C.C. van Dam, 'De doorwerking van het Europese administratieve soft law. In strijd met Nederlandse legaliteit?', *NALL* 2013.
[88] Van der Feltz (2014), p. 20.
[89] Preamble no. 2 of the EIA Directive.

the EIA Directive comes into play. The initial EIA Directive (85/337/EEC) was adopted in 1985, after which it has been amended several times. These amendments to the initial directive have been codified by the EIA Directive (2011/92/EU) on 13 December 2011. This Directive 2011/92/EU has been amended by Directive 2014/52/EU and has entered into force on 15 May 2014.[90] The amendments of 2014 have made the Directive in line with all the developments that has occurred since the EIA Directive originated. This includes *inter alia* resource efficiency and climate change. These latter are now included in the assessment framework.[91] The Directive of 2014 also requires more simplicity and clarification with regard to e.g. the screening procedure, the EIA reports and the grounds for development consent decisions. These should now be more transparent and understandable. This development can be welcomed, also with regard to shale gas projects.

According to the Court of Justice the fundamental objective of the EIA Directive is that "before development consent is given, projects likely to have significant effects on the environment by virtue, inter alia, of their nature, size or location should be made subject to a requirement for development consent and an assessment with regard to their effects."[92] This objective should always be taken into account. Several types of public and private projects which are likely to have significant effects on the environment have to be distinguished. First, there are certain types of projects that always have significant effect to the environment. Those projects must, as a rule, be subjected to an EIA. These are the mandatory EIA and are listed in Annex I to the Directive. The second type of projects concerns projects that do not always have such a significant effect. These are listed in Annex II. The projects of this type should be assessed only if the concerning MS finds that the project is likely to have such a significant effect in the current situation (also called the "screening procedure").[93] Hence, here it depends on the discretion of the MS. MS are allowed to set thresholds on which type of projects are not likely to have such an effect. This makes it easier for them; in this manner they do not have to assess each project on a case-by-case basis. However, when setting these criteria, MS have to take into account the criteria mentioned in Annex III of the Directive.[94] When assessing the likely significant effect of projects, all related associated works and sub-activities intrinsically linked to the implementation and purpose of the project have to be assessed as well.[95]

Moreover, account has to be taken of the Directive on the assessment of the effects of certain plans and programmes on the environment (2001/42/EC), or in short: the Strategic Environmental Assessment (SEA) Directive. This Directive applies to public plans and programmes, such as energy. Pursuant to Article 2, “plans and programmes” shall mean plans and programmes (as well as any modifications to them) which are subject to preparation and/or adoption by an authority at national, regional or local level and which are required by legislative, regulatory or administrative provisions. A SEA shall be carried out for all plans and programmes which are prepared for *inter alia* energy and which set the framework for future development consent of projects listed in the Annexes to the EIA Directive. Also, a SEA shall be carried out for all plans and programmes which have been determined to require an assessment pursuant to the Habitat Directive. For the other plans and programmes, it depends on the discretion of the MS: they shall determine whether these plans are likely to have significant environmental effects. Here, similar to the EIA Directive, the screening procedure applies.

[90] http://ec.europa.eu/environment/eia/eia-legalcontext.htm
[91] http://ec.europa.eu/environment/eia/review.htm
[92] Case C-215/06, *Commission v. Ireland* [2008] ECR I-4911, paragraph 49. See also Case C‑287/98 *Linster* [2004] ECR I‑723, paragraph 52; and Case C‑486/04 *Commission v. Italy* [2006] ECR I‑11025, paragraph 36.
[93] http://ec.europa.eu/environment/eia/eia-legalcontext.htm
[94] Case C-255/08, C*ommission v. The Netherlands* [2009] I-00167.
[95] Case C-215/06, *Commission v. Ireland* [2008] ECR I-4911, paragraphs 102-110. See also the Guidance Note on the application of Directive 85/337/EEC to projects related to the exploration and exploitation of unconventional hydrocarbon, Ref.Ares(2011) 1339393, 12 December 2011, p. 2.

An important pillar of both the EIA and the SEA Directives, which is also of relevance for shale gas projects, is the contribution to transparency and public involvement in the decision-making process. The (draft) project, plan or programme and the accompanying environmental report shall be made available to the designated authorities and the public. They shall be given an early and effective opportunity within appropriate time frames to express their opinion before the adoption of the project, plan or programme or its submission to the legislative procedure.

Relevance for shale gas activities

More concrete, what does the EIA Directive mean for shale gas projects? In 2011 the European Commission released the 'Guidance note on the application of Directive 85/337/EEC to projects related to the exploration and exploitation of unconventional hydrocarbon'.[96] Here, the Commission summarizes the main requirements of the EIA Directive which are relevant for shale gas projects. The Recommendation of the Commission, adopted on 22 January 2014, was also accompanied by a Guidance on the application of the EIA Directive.[97] It should be noted that there is also the Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Transboundary Projects.[98]

It seems clear that the exploration and exploitation of unconventional hydrocarbons - here more specific: shale gas projects - are likely to have a significant effect on the environment, especially with regard to their use of hydraulic fracturing and horizontal drilling. With regard to the mandatory EIA (of Annex I), Article 4 of the EIA Directive in conjunction with Point 14 in Annex I declares that the extraction of petroleum and natural gas for commercial purposes shall be made subject to an assessment where the amount extracted exceeds 500 000 cubic metres/day in the case of gas. The Guidance note recommends the use of the scoping procedure here, which can be helpful for assessing the environmental effects (especially since there is not much knowledge on shale gas projects). This is again suggested by the latter Guidance of the Commission (accompanied by the Recommendation). The threshold of 500 000 cubic metres/day seems quite high. In practice, it will be hard to reach this threshold.[99] This means that shale gas activities will not fall systematically under the mandatory EIA.

With regard to the projects listed in Annex II, the screening procedure comes into play. Here, Articles 2(1), 4(2)-(4) and the criteria of Annex III are relevant. The procedure will determine whether projects are likely to have significant effect on the environment. The relevant projects listed in Annex II are under Point 2 sub d ("Deep drillings, in particular geothermal drilling; drilling for the storage of nuclear waste material; drilling for water supplies; with the exception of drillings for investigating the stability of the soil") and sub e ("Surface industrial installations for the extraction of coal, petroleum, natural gas and ores, as well as bituminous shale"). The Commission notes explicitly in her Guidance of 2014 that shale gas drillings fall under the deep drillings of point 2 sub d of Annex II.[100] The criteria of Annex III have to be used in order to assess whether these projects in the current situation are likely to have significant effects. If that is the case, an EIA is necessary to carry out. In the Guidance note of 2011 the following criteria of Annex III are considered to be of particular importance: "the cumulative effects with other projects, the use of natural resources, the production of waste, the environmental sensitivity of the areas where the projects are located, the magnitude and complexity of the impact, as well as the risk of accidents, having regard in particular to substances or technologies used." Both of the Guidance's also refer to the use of the precautionary and prevention principles in the screening procedure, which would make shale gas projects already subject to an EIA if objective information cannot exclude that the

[96] Ref.Ares(2011)1339393, 12 December 2011.
[97] Commission Staff Working Document Impact Assessment (2014).
[98] European Commission, Guidance on the Application of the Environmental Impact Assessment Procedure for Large-scale Trans boundary Projects, 16 May 2013.
[99] Douma (2014), pp. 49-50.
[100] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 32.

project might have significant effects. The screening procedure can lead to different results, depending on which MS carries out the procedure.[101] It seems that several MS, such as the Netherlands and Germany, interpret these criteria in such a manner that shale gas exploitation does not fall thereunder.[102]

The SEA Directive is also of great importance to shale gas projects. It appears that shale gas activities fall under the Directive, since a SEA shall be carried out for all plans and programmes which are prepared for energy and which set the framework for future development consent of projects. The Structure Vision on Shale Gas (now under construction by the Dutch Minister of Economic Affairs) clearly falls under this definition. The Guidance note observes the relevance of the SEA Directive as well. With regard to the Annex I projects, it states that the SEA Directive is especially of relevance to the question of alternatives concerning infrastructure projects. Here, the SEA Directive could enhance a more strategic and integrative approach so that environmental considerations could be taken into consideration earlier in the process. The Guidance also encourages the making of such a plan, accompanied by a SEA, in order to assess the cumulative environmental impacts of projects adequately. This has however not motivated many MS to carry out such a SEA.[103] This is a missed opportunity. In the Netherlands, as will be seen in the next paragraph, this opportunity is currently 'seized'.

Finally, the contribution to the public involvement and transparency is very useful with regard to shale gas projects. Since there is much concern and fuss about shale gas in society with regard to several aspects (see Chapter 2), it is very important that the involvement of the public is high. This could contribute to their acceptance. This is also recognised by the Guidance who calls the public participation part of the EIA 'crucial'. The Guidance also stipulates that national governments should take comments made by the public very seriously. Decisions, in which a MS decides not to require an EIA, should be accompanied by all the relevant information in order for the public to check this decision.

On 26 October 2012 the European Commission has adopted a proposal for a new EIA Directive. [104] Here, the Commission did not mention shale gas exploitation. Therefore, the European Parliament came with some amendments in order to make an EIA mandatory for unconventional gas projects where it includes hydraulic fracturing:

> In accordance with the precautionary principle, as called for by the European Parliament resolution of 21 November 2012 on the environmental impacts of shale gas and shale oil extraction activities, it would be appropriate to include non-conventional hydrocarbons (shale gas and oil, 'tight gas, 'coal bed methane'), defined according to their geological characteristics, in Annex I to Directive 2011/92/EU, regardless of the amount extracted, so that projects concerning such hydrocarbons are systematically made subject to environmental impact assessment.[105]

On 9 October 2013, the European Parliament adopted this amendment (together with other amendments) to the proposal. On 12 March 2014 the European Parliament adopted its first reading position with 528 votes to 135 (with 15 abstentions). In April, the Council of Ministers had approved this.[106] However, this amendment cannot (explicitly) be found in the final Directive 2014/52/EU.

[101] Public consultation report (2013).
[102] Douma (2014), pp. 49-50.
[103] Commission Staff Working Document Impact Assessment (2014) part 4/4, p. 34.
[104] Proposal for a Directive of the European Parliament and of the Council amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment (COM(2012)628), 26 October 2012.
[105] Amendment 31 of the amendments adopted by the European Parliament on 9 October 2013 on the proposal for a directive of the European Parliament and of the Council amending Directive 2011/92/EU of the assessment of the effects of certain public and private projects on the environment (COM(2012)0628 – C7-0367/2012 – 2012/0297(COD)).
[106] http://ec.europa.eu/environment/eia/review.htm

3.4 Water Framework Directive

On 23 October 2000, the Directive (2000/60/EC) of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy - in short: the Water Framework Directive (WFD) - was adopted. The WFD has integrated several water directives. The WFD contains an integrated river basin approach. It aims at establishing an integral approach with other policies and (water) directives. This is especially visible with the integral river basin management plan.[107] The objectives of the WFD are very broad, whereby other policies can be included. The quality of surface water and groundwater receive special attention. Therefore, two separate directives are adopted: the Groundwater Directive (2006/118/EC), which has been developed in response to the requirements of Article 17 WFD, and the Surface Water Directive (2008/105/EC). There is also a separate framework directive for the Marine Strategy (2008/56/EC), but this directive is not of much relevance for shale gas activities.

Relevance for shale gas activities

There is much debate on this Directive and the application thereof on shale gas activities, especially with regard to Article 11(3)(j).[108] Article 11 concerns the establishment of a programme of measures which every MS shall ensure for each river basin district. Each programme of measures shall include the basic measures, which are the minimum requirements to be complied with and which shall consist of *inter alia* Article 11(3)(j): a prohibition of direct discharges of pollutants (any substance liable to cause pollution) into groundwater subject to the provisions provided therein. MS may authorise reinjection into the same aquifer of water used for geothermal purposes. They may also authorise, specifying the conditions for *inter alia*:

> injection of water containing substances resulting from the operations for exploration and extraction of hydrocarbons or mining activities, and injection of water for technical reasons, into geological formations from which hydrocarbons or other substances have been extracted or into geological formations which for natural reasons are permanently unsuitable for other purposes, (…) provided such discharges do not compromise the achievement of the environmental objectives established for that body of groundwater.

According to the Legal Assessment, conducted by the European Commission in 2011, Article 11(3)(j) does not apply to shale gas activities since it does not allow flow-back water to be injected into geological formations.[109] Therefore, the Commission argues, the Mining Waste Directive applies here. In a latter working document of the Commission (of January 2014), it seems that the Commission finds the WFD applicable after all. Here, the Commission states that the identification of whether shale gas activities are a direct discharge of pollutant into groundwater would require a 'site-specific hydrogeological risk assessment', for which no criteria are made available within the WFD. Therefore, this assessment depends on the discretion of the MS. This could lead to adverse consequences for groundwater, which would compromise the achievement of the environmental objectives established in the WFD. Moreover, there is discussion on the difference between direct and indirect discharge of pollutants into the groundwater with regard to hydraulic fracturing. The Commission gives as an example for this confusion: "whether a possible groundwater contamination following an unexpected extension of the fractures beyond the shale formation would qualify as direct or indirect discharge of pollutants."[110] Another point referred to by the Commission is that the WFD, concerning the waters used for the abstraction of drinking water, only requires MS to identify the bodies of water used for this abstraction within each river basin district.[111] Hence, monitoring at the level of the project site is not necessary. This would make it

[107] Havekes & Van Rijswick (2012), pp. 101-107.
[108] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 32.
[109] Legal Assessment (2012), p. 7.
[110] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 32.
[111] Article 7 WFD.

difficult to assess later on what possible impacts the shale gas projects had on the water. Finally, the Commission refers to the ambiguity surrounding the fact that hydraulic fracturing requires the injection of the wastewater (collected from the fracturing) back into the ground and whether this is allowed by the WFD. This uncertainty allows for different interpretations at the national level.

3.5 REACH Regulation

Regulation (EC) no. 1907/2006 concerns an integrated system for the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH). This Regulation generates information and provisions on substances and their preparation and uses. Its purpose is to ensure a high level of protection of human health and the environment, including the promotion of alternative methods for assessment of hazards of substances, as well as the free circulation of substances on the internal market while at the same time enhancing competitiveness and innovation. The provisions shall apply to the manufacturers that place the substances on the market or use such substances on their own, in preparations or in articles and to the placing on the market of preparations. Firms that manufacture or import chemicals must evaluate the risks of these chemicals and take the necessary steps to manage those risks. REACH is based on the principle that it is for manufacturers, importers and downstream users to ensure that they manufacture, place on the market or use such substances that do not adversely affect human health or the environment. The leading principle is the precautionary principle.[112]

First of all, firms are obliged to register chemicals which they manufacture or import. This will be registered in a central database which is controlled and managed by the European Chemical Agency (ECHA). Without registration, production or placement on the European market of the substance is not possible. Some substances are exempted, e.g. if their risk is negligible. Once registered, the ECHA will be able to evaluate whether the firms comply with their obligations and the requirements of REACH. Two kinds of evaluation may be carried out: dossier evaluation and substance evaluation. This could lead to a restriction or authorisation procedure, to the harmonisation of the classification and labelling of the substance or to the supply of information to other authorities in order to adopt appropriate measures.[113] With regard to substances that are of extremely high concern, the authorisation procedure may apply (Title VII). These substances are listed in Annex XIV to the Regulation. The aim is to ensure the good functioning of the internal market while assuring that the risks from substances of very high concern are properly controlled and that these substances are progressively replaced by suitable alternative substances or technologies where these are economically and technically viable. Finally, Title VIII allows for a restriction procedure. Annex XVII contains restrictions for certain substances. This restriction may be that a substance shall not be manufactured, placed on the market or used unless it complies with the conditions of that restriction.

With regard to access to information, Article 118 of REACH declares Regulation (EC) No. 1049/2001 (regarding public access to European Parliament, Council and Commission documents) applicable to the documents held by the ECHA, unless paragraph 2 applies, which gives a list of information of which disclosure shall be deemed to undermine the protection of the commercial interests of the concerned person. Only where urgent action is essential to protect human health, safety or the environment, such as emergency situations, the ECHA may disclose this information. Article 119 sets out a list of information held by the ECHA on substances (on their own or in mixtures) that shall be made publicly available, free of charge, over the Internet.

[112] Article 1, paragraph 1, REACH.
[113] http://europa.eu/legislation_summaries/internal_market/single_market_for_goods/chemical_products/l21282_en.htm

Relevance for shale gas activities

The Joint Research Centre (JRC) has assessed the use of substances in hydraulic fracturing of shale gas reservoirs under REACH.[114] The report was based on a number of REACH registration dossiers related to 16 substances that may come up while carrying out hydraulic fracturing. Here, it is concluded that in the investigated dossiers "neither hydraulic fracturing nor shale gas was explicitly mentioned in the investigated dossiers".[115] The substances were not designated to the use of hydraulic fracturing of shale gas reservoirs. However, implicitly some of the identified uses by the JRC may cover activities related to hydraulic fracturing of shale gas reservoirs. 26 different uses have been considered as possibly relevant.[116] The identification of those uses was made possible by two information items in the use description system as implemented in the IUCLID (which stands for International Uniform Chemical Information Database).[117] The first relevant information item was the use name as formulated by the registrant and the second information item was the Sector of Use as chosen by the registrant. With regard to the first information item, the registrant may choose the level of detail in the description of the use name. The report shows that most of the use names have been described very broad by the registrants. Moreover, the registrants did not make a distinction between conventional and unconventional reservoirs.[118] With the latter information item, the sectors of use 'Mining' and 'Offshore industries' were especially relevant. Section 3.5 also made it possible for registrants to choose one or more descriptors from the available pick-list of Process Category (PROC) and Environmental Release Category (ERC) in order to characterise the potential release due to the use of the substance. However, none of these options is specifically attributed to hydraulic fracturing. Some of the options made available by PROC might be considered as covering the same occupational exposure as hydraulic fracturing. However, with regard to ERC the same could not be said.[119] The JRC finally makes some recommendations which "could increase the availability of information on use, exposure and risk management for substances used in hydraulic fracturing of shale gas reservoirs".[120] These include the introduction of a more specific use name by the industry and the complementation of the use descriptor system with an additional ERC.[121]

With regard to Articles 118 and 119, the Commission Staff Working Document places some comments, especially regarding the role for the public.[122] Currently, as also mentioned by the JRC Research, there is no specific use category in the Use Description System on shale gas or hydraulic fracturing. Therefore, it is not easy for the public to identify those substances in the ECHA database and to gain access to the information on the substances used in hydraulic fracturing. Non confidential information is only possible per substance, not per well. Hence, it is not possible for the public to exactly know what substances are used per shale gas project. This does not contribute to the desired transparency for and involvement of the public. Moreover, this issue of transparency and (non-)availability of information is not only difficult for the public, but also for drinking water companies. This is especially problematic since these companies are under a duty of care to deliver safe drinking water. This point will be elaborated in more depth latter on.

3.6 Mining Waste Directive

Due to the special nature of the management of waste from the extractive industries, the EU has considered it necessary to introduce specific application and permit procedures in respect of waste

[114] JRC Assessment (2013).
[115] JRC Assessment (2013), p. 17.
[116] JRC Assessment (2013), pp. 17-18.
[117] IUCLID is the format of the technical dossier, referred to in Article 10(a) REACH (see Article 111 of REACH.)
[118] JRC Assessment (2013), p. 18.
[119] Here, the side note has to be made that registrants have the possibility to create an additional PROC and/or ERC themselves when they consider the available options not suitable.
[120] JRC Assessment (2013), p. 42.
[121] JRC Assessment (2013), p. 42.
[122] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 35.

facilities used to receive such waste. This has been established in the Directive on the management of waste from extractive industries (Directive 2006/21/EC), or in short: the Mining Waste Directive. The Mining Waste Directive provides, according to Articles 1 and 2, for measures, procedures and guidance to prevent or reduce as far as possible any adverse effects on the environment, in particular water, air, soil, fauna and flora and landscape, and any resultant risks to human health, brought about as a result of the management of waste from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries, hereinafter 'extractive waste'. According to Article 5, MS shall ensure that the operator draws up a waste management plan for the minimisation, treatment, recovery and disposal of extractive waste, taking account of the principle of sustainable development.

Pursuant to Article 7, no waste facility shall be allowed to operate without a permit granted by the competent authority. A waste facility means any area designated for the accumulation or deposit of extractive waste, whether in a solid or liquid state or in solution or suspension (Article 3). The conditions which the permit shall contain are specified in paragraph 2. The permit shall also clearly indicate the category of the waste facility in accordance with the criteria referred to in Article 9. The competent authority shall only grant a permit, in accordance with Article 7(3), if it is satisfied that: (a) the operator complies with the relevant requirements under this Directive; and (b) the management of waste does not conflict directly or otherwise interfere with the implementation of the relevant waste management plan or plans referred to in Article 7 of Directive 75/442/EEC. The public shall be informed of such an application for a permit. Pursuant to Article 11, the competent authority shall satisfy itself that, in constructing a new waste facility or modifying an existing waste facility, the operator ensures that: the waste facility is suitably located; the waste facility is suitably constructed, managed and maintained to ensure its physical stability and to prevent pollution or contamination of soil, air, surface water or groundwater; there are suitable plans and arrangements for regular monitoring and inspection of the waste facility by competent persons; and that there are suitable arrangements for the rehabilitation of the land, the closure of the waste facility and for the after-closure phase of the waste facility. Competent authorities may, pursuant to Article 9, classify a waste facility as Category A if this waste facility meets the criteria set out in Annex III. Each operator of a Category A waste facility must adopt and apply a major-accident prevention policy for waste. They should adopt a safety management system and an internal emergency plan (Article 6(3)). The competent authority shall draw up an external emergency plan specifying the measures to be taken offsite in the event of an accident. The public shall be given the opportunity at an early stage to participate in the preparation or review of the external emergency plan.

Relevance for shale gas activities

The Mining Waste Directive could apply to shale gas activities, if these activities qualify as a 'waste facility'. According to the Legal Assessment made in 2011 by the Commission, used fracturing fluid should be qualified as 'extractive waste' and the area designated to accumulate or deposit this waste should be seen as a waste facility. Therefore, the operator should submit for a permit under this Directive, which should be based on the Best Available Techniques for which the Commission will specially develop a reference document (BREF).[123]

According to the Commission Staff Document (of January 2014) the boundaries of the qualification of such a 'waste facility' are uncertain. The Commission states that a "number of MS have called for clarification as to the scope of application of the MWD, especially as to whether the MWD applies to both surface and sub-surface and whether it applies from the start or only after closure of the well."[124]

[123] Legal Assessment (2012), p. 7.
[124] Commission Staff Working Document Impact Assessment (2014), part 4/4, p. 32.

If the Mining Waste Directive is applicable on the shale gas project, it should be kept in mind that the competent authorities must periodically reconsider and update the permit conditions (Article 7). Also, if the operator finds any event likely to affect the stability of the waste facility and any significant adverse environmental effect, he should notify this to the competent authority (Article 11). The competent authority itself must also monitor and inspect the waste facility (Article 17). This sounds similar to the '*hand aan de kraan'*-principle ('adaptive licensing') in the Netherlands, which will be discussed in the next chapter.

3.7 Habitats and Birds Directive

Another obligation to carry out an prior assessment follows from the Habitats and Birds Directive. Pursuant to Article 3 of the Habitats Directive:

> A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range. The Natura 2000 network shall include the special protection areas classified by the Member States pursuant to Directive 79/409/EEC *(the Birds Directive, AV)*.

Each MS shall designate, in accordance with Article 4, sites as special areas of conservation taking account of the objectives. On the basis of the criteria set out in Annex III and relevant scientific information, each MS shall propose a list of sites indicating which natural habitat types in Annex I and which species in Annex II that are native to its territory the sites host. The list shall be transmitted to the Commission, within three years of the notification of this Directive, together with information on each site. The Commission shall establish a draft list of sites of Community importance drawn from the MS' lists identifying those which host one or more priority natural habitat types or priority species. Once a site of Community importance has been adopted, the MS concerned shall designate that site as a special area of conservation as soon as possible and within six years at most. With regard to the Bird Directive, only this last step applies. In the Netherlands this system is implemented in the Nature Conservation Act 1998 (*Natuurbeschermingswet 1998)* in article 1 sub n. This will be further elaborated in the next section.

For the special areas of conservation, MS shall establish the necessary conservation measures involving, if need be, appropriate management plans *(beheerplannen*) specifically designed for the sites or integrated into other development plans (Article 6). MS shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive. Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to an appropriate assessment *(passende beoordeling)* of its implications for the site in view of the site's conservation objectives. The competent national authorities shall only agree to the plan or project after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public. If it seems from the appropriate assessment that the plan or project will not have a significant effect, the permit may be given. However, if it may have a significant effect or this is still unclear, alternative solutions should be assessed. If these are available, there should be chosen for the least harmful alternative. If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of a social or economic nature, the MS shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. This compensation may not be in money, but must consist of factual measures. The MS shall inform the

Commission of the compensatory measures adopted. Article 6 paragraphs 2-4 of the Habitats Directive also applies to the Birds Directive (Article 7).

Outside the Natura 2000 sites, there is also a specific authorisation regime for the protection of certain species listed in Annex IV of the Directive. The measures to be taken by the MS in order to establish a system of strict protection of animal species are set out in Article 12 and for the protection of plant species in Article 13. Provided that there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range, MS may derogate from these provisions in the circumstances as set out in Article 16.

Relevance for shale gas activities

The relevance of the Habitat and Bird Directives for shale gas projects lies in the question of whether the activities will or may have significant effects on a Natura 2000 site (Article 6) or on a certain protected species (Articles 12 and 13). If that is the case, the appropriate assessment (as explained) or the specific authorisation scheme should be carried out before allowing the establishment of a shale gas reservoir.

3.8 Hydrocarbons Directive

The Directive 94/22/EC on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons - or in short: the Hydrocarbons Directive - is of a more general nature. MS retain the right to determine the areas within their territory to be made available for the exercise of the activities of prospecting, exploring for and producing hydrocarbons. However, whenever an area is made available for the exercise of such activities, MS shall ensure that there is no discrimination between entities as regards access to and exercise of these activities. This must occur under conditions which encourage greater competition in this sector. In this manner, the best prospection, exploration and production of resources in MS is realized and the reinforcement of the integration of the internal energy market is ensured. MS shall take the necessary measures to ensure that authorizations are granted following a procedure in which all interested entities may submit applications. It should be ensured that the procedures for granting authorizations are open to all entities possessing the necessary capabilities and that the authorizations must be granted on the basis of objective, published criteria (Article 5). The conditions under which authorizations are granted must likewise be known in advance by all entities taking part in the procedure. It should be prevented that an area is reserved to a single entity with an exclusive right, while it would be more efficient if several entities could bring the area into production. Therefore, the extent of the areas and the duration of the authorization should be limited (Article 4). Nevertheless, MS retain the option to impose conditions and requirements for reasons justified by the need to ensure the proper performance of the activities in the area for which an authorization is requested, by the public interest or by the payment of a financial contribution or a contribution in hydrocarbons (Article 6).

Relevance for shale gas activities

The Hydrocarbons Directive is applicable to shale gas activities; the competent authorities for granting those activities must comply with the authorization scheme of this Directive.

3.9 Seveso III Directive

The Seveso III (2012/18/EC) Directive[125] lays down rules for the prevention of major accidents which involve dangerous substances, and the limitation of their consequences for human health and the environment. It concerns the prevention of, the preparedness for and the response to major-accident hazards. It applies to establishments as defined in Article 3. An 'establishment' means the whole location under the control of an operator where dangerous substances are present, including common or related infrastructures or activities. Establishments are either lower-tier establishments (if substances are present in quantities equal to or in excess of the quantities listed in Column 2 of Part 1 or in Column 2 of Part 2 of Annex I, but less than the quantities listed in Column 3 of Part 1 or in Column 3 of Part 2 of Annex I) or upper-tier establishments (if substances are present in quantities equal to or in excess of the quantities listed in Column 3 of Part 1 or in Column 3 of Part 2 of Annex I). There is a difference between those two establishments; the larger the substances (as present within the upper-tier establishment), the stricter the rules and control.

The Directive forces MS to ensure that the operator is obliged to take all necessary measures to prevent major accidents and to limit their consequences for human health and the environment (Article 5). MS shall require the operator to produce a major-accident prevention policy (MAPP), a safety management system, a safety report and emergency plans. MS shall ensure that certain information (as referred to in Annex V) is permanently available to the public, including electronically. MS shall also ensure that the public has an early opportunity to give its opinion on specific individual projects relating to the planning for new establishments; on significant modifications to establishments; and on new developments surrounding establishments where that may increase the risk or consequences of a major accident. It shall also be guaranteed, in the interests of transparency, that the competent authority is required to make any information held pursuant to this Directive available to any natural or legal person who so requests. Finally, MS shall make sure that the objectives of this Directive are taken into account in their land-use policies or other relevant policies.

Relevance for shale gas activities

The applicability of the Directive on shale gas activities depends on the thresholds relating to the storage of gas or of dangerous substances under the Directive in Annex I. If the shale gas projects contain dangerous substances referred to in this Annex, the operator of the shale gas project must comply with several obligations prior to the start of his project. Otherwise, the operator could be subjected to a penalty. The MS in which the shale gas project is located has also many responsibilities under this Directive. It must organise a system of inspections and controls to ensure that the operator takes all appropriate measures to prevent major accidents. If the measures taken by the operator are seriously deficient, the competent authority must take action.

3.10 The Environmental Liability Directive

Although environmental liability, due to shale gas activities, is not something that will be discussed in this thesis, a short comment thereon is relevant. The Environmental Liability Directive (2004/35/EC) establishes a common framework in order to prevent and remedy environmental damage at a reasonable cost to society. The fundamental principle on which it is based is the polluter pays principle. Environmental damage includes damage caused by airborne elements as far as they cause damage to water, land or protected species or natural habitats (Article 2). Pursuant to Article 3, there is a strict liability scheme for environmental damage caused by the dangerous activities listed in Annex III of the Directive. Here, there is no need to proof fault.

[125] The Seveso III Directive replaced the Seveso II Directive (Council Directive 96/82/EC on the control of major-accident hazards), which again replaced the (original) Seveso Directive (Council Directive 82/501/EEC on the major-accident hazards of certain industrial activities).

Operators carrying out any occupational activities, other than those mentioned in Annex III, are liable for damage caused to protected species and natural habitats if the operator has been at fault or negligent. It is always necessary to proof the causal link between the activity and the damage. The Directive has been amended several times, *inter alia* through the Mining Waste Directive.[126] Finally, it should be mentioned here, as researched by Backes et al., that the environmental liability directive is almost never applicable.[127]

3.11 Overview problems

From the analysis of the EU regulation in this chapter, several issues with the current regulation 'pop up'. Here, the several problems that come to mind when reviewing the current framework will be pointed out. In that manner, it is possible to assess whether the principles (set out in Chapter 5) can contribute to these issues (which will be discussed in Chapter 6). In the final conclusion (Chapter 7), these problems will be assessed (in light of the principles) per individual problem.

First of all, as shown by the amount of legislation provided in this chapter, the regulation on shale gas is extremely fragmented. Although this amount 'catches', according to the Commission, the exploitation of shale gas, it could be questioned whether this is enough, clear and really offers an appropriate protection level. The Recommendation of the Commission brings a little more (integrated) guidance, but it is not enough (and also not formally binding) and the other directives and regulations still have to be consulted. It can be wondered how this fragmented nature of the legislation should be appreciated, in light of (very actual) concerns of public acceptance. Moreover, this amount of regulation may not only result in overlap, but can also cause holes in the legislation due to the confusion caused. This latter is especially problematic, e.g. in the field of environmental protection. Here, regarding the fragmented nature of the regulation, it could be added that there may raise a contradiction between energy policies and environmental protection directives.

Second, the different regulations and directives all represent their own interests. This, again, allows for fragmentation. There is a lack of an overarching assessment in which all these interests can be balanced. This problem is also present with regard to the balancing of the interests of energy policies and environmental protection. It is not clear how these interests should be balanced, because there is no overarching assessment framework.

A final major problem is the insecurities within the society. As shown by Chapter 2, with shale gas exploitation comes much insecurity; what are the (environmental) effects, how much shale gas will be in the ground, etc. This does not solve (or enhance) the problem of public acceptance. This problem will not be improved by the currently fragmented nature of the legislation.

3.12 Conclusion

This chapter has set out the different EU legislation and the relevance thereof for shale gas activities. As shown, this is quite some legislation. This patchwork of legislation has recently been complemented by the Recommendation on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing. This Recommendation ‘bundles’ the existing legislation and has thereby provided for a (sort of) overarching assessment framework. However, it is (formally) not legally binding. In Chapter 6 it will be assessed whether this current legal framework (including the Recommendation) is in line with several general and environmental principles (of Chapter 5). Here, the problems of the prior paragraph will also be taken into consideration. However, the Dutch regulation on shale gas activities will first be set out.

[126] The other amendments were through Directive Directive 2009/31/EC on the geological storage of carbon dioxide and amending several directives, and through Directive 2013/30/EU on safety of offshore oil and gas operations and amending Directive 2004/35/EC.
[127] Backes et al. (2005).

4 Current Dutch legislation on shale gas

In this chapter the (current) Dutch legislation and situation on shale gas will be set out. As mentioned, this thesis only concentrates on the environmental aspects of the Dutch legislation that could be of relevance for shale gas activities. Moreover, due to the length and scope of this thesis, only the most important and relevant legislation will be reviewed.

As explained in the Chapter 2, shale gas is situated in the deeper soil. It concerns the exploration and extraction of minerals in the soil. For this part, the Dutch mining regulation offers the necessary framework. However, shale gas activities also have effect on the topsoil. Here, different aspects of spatial planning and the environment are of particular importance. Moreover, other legislation is relevant, such as regulation on water, nature, archaeology, monuments, etc. Furthermore, it has to be considered here that the exploration of shale gas is an activity which is of national importance but does not come without concerns (as has been shown in Chapter 2). Therefore, it should be assessed what competences the State has in order to explore the possibilities of shale gas, possibly even without the consent of the municipalities and the provinces. Hereafter, an example will be given to illustrate the (legal) practice regarding shale gas exploitation. Finally, this chapter will be concluded with some remarks on the problems that pop up with the current EU legislation.

With regard to shale gas, the Minister of Economic Affairs has already decided on a certain roadmap on how to deal with the granting of the several obligatory permits and consents necessary for shale gas activities, in case he decides that the applications for exploratory drillings can be taken in consideration.[128] Although this roadmap is accompanied by some (legal) concerns, it will in principle be followed hereinafter – with some minor detours. But first, the current (political) situation will be discussed.

4.1 Current situation

Interestingly enough, the start of the developments concerning shale gas activities in the Netherlands did not start by a shocking research or advice, but begun after the granting of several exploration permits in 2009 and 2010. Especially the case of Cuadrilla in Boxtel got a lot of media attention, on which the last paragraph will focus. After a lot of debate on the granting of those permits, the Minister of Economic Affairs decided to conduct a research on this matter on 22 October 2011. The Minister then also decided that no test drillings to shale or coal gas would be carried out and that no (new) exploration licenses shall be granted until the completion of this study.[129] On 19 June 2012 the Minister has set up a *klankbordgroep* (sounding board) in which several stakeholders were represented: the province North-Brabant, the municipality Boxtel, the municipality Noordoostpolder, Milieudefensie (representing the national nature- and environmental interests), Vewin (representing the national water interests), the Stichting SchalieGASvrij Haaren (representing the area near the municipalities of Boxtel and Haaren) and Nogepa (representing the gas industry).[130] This sounding board would be involved in the research. On 11 March 2013 it is decided that, following a public tender procedure, Witteveen+Bos will be granted the execution of the research, together with Arcadis Nederland B.V. and Fugro-Ecoplan B.V.[131] On 26 August 2013 the Minister presented the result of this research: the Final Report.[132] He declared that he will send this study to the Commission EIA for advice.[133] Here, the Minister also gave the roadmap to which is referred in the introduction to this paragraph.

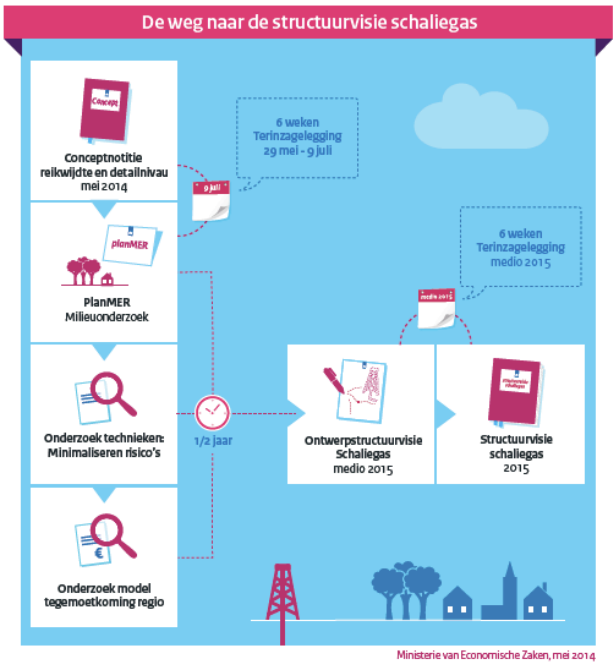
[128] *Kamerstukken II* 2012/13, 28 982, nr. 132.
[129] *Kamerstukken II* 2011/12, 32 849, nr. 7 .
[130] *Kamerstukken II* 2011/12, 28 982, nr. 128.
[131] *Kamerstukken II* 2012/13, 28 982, nr. 130.
[132] Witteveen+Bos/Arcadis/Fugro, Aanvullend onderzoek naar mogelijke risico's en gevolgen van de opsporing en winning van schalie- en steenkoolgas in Nederland. Eindrapport onderzoeksvragen A en B, 16 augustus 2013
[133] *Kamerstukken II* 2012/13, 28 982, nr. 132.

On 18 September 2013, a day before the Commission EIA will publish its advice, the Minister sent his decision on the research to the Dutch Parliament in which he states that he has decided to conduct a Structure Vision on Shale Gas, accompanied by a plan-EIA.[134] Here, the Minister also decided that further decisions on the exploration and extraction on shale gas will be put on hold even longer, until this Structure Vision is adopted. It is envisaged that the adoption of such a structure vision will take 1 to 1,5 years. Moreover, the Minister decided that he will adjust some articles in the Mining Act: in the current regulation, fracking and its enforcement is already envisaged, but fracking will be named more explicitly in the Mining Decree. This adjustment will be adopted on 1 July 2014. The Mining Act will also include a link to the Structure Visions on Shale Gas and on Soil, so that they can be used in the assessment of the Mining Act. Moreover, the Minister will aim at establishing which best available techniques are available in order to minimalize the risks of fracking.[135] A day after this decision of the Minister, the Commission EIA published its advice "*Beoordeling effectstudie schaliegaswinning*" ("Impact assessment study on shale gas").[136] The Commission EIA states that it does not fully agree with the Final Report, which will be further explained hereafter. Thereby, the Commission suggests the adoption of a Structure Vision, which the Minister has then already decided on. In this structure vision, a broader approach should be taken, thus the Commission EIA.

The Minister has decided to grant the drafting of the plan-EIA (for the Structure Vision) to Arcadis.[137] Hereon, the Minister received a lot of critic, since Arcadis was also involved by the execution of the Final Report.[138] On 25 April 2014 the Minister has decided that the Structure Vision on Shale Gas will become an integral part of the Structure Vision on Soil (called 'STRONG'), which many parties had requested.[139] This is recommendable, because this makes a more balanced assessment possible. In this manner, all interests in the sub-oil could be balanced, including shale gas, but also drink water winning, etc. In this letter, the Minister has also let the municipality of Noordoostpolder know that he will not withdraw the exploration permits already permitted, since there is no withdrawal ground available. Moreover, he states that another research will be conducted on innovative techniques that can minimalise the rest risks of fracking and that good examples of contribution to the region with energy projects (home and abroad) will be inventoried.

Most recently, on 28 May 2014, the Minister has offered the Draft Memorandum on Scope and Level of detail (the *concept Notitie Reikwijdte en Detailniveau*) - hereinafter: Draft MSL - for the environmental research on shale gas activities.[140] With this Draft MSL, the Minister has officially (formally) started the procedure of the EIA for the Structure Vision on Shale Gas. Here, the Minister will explore e.g. the social (dis)advantages of shale gas exploitation and the areas that he will investigate. The shale gas-map of TNO will be used as the starting point. The areas which contain shale gas (according to this map) will be restricted by areas that are excluded a priori, because of legal or practical reasons. These include e.g. Natura 2000-areas, drinking water catchments and urban areas. This exclusion could be welcomed, which will be shown hereunder when discussing the Drinking Water Act and the Environmental Management Act (*Wet milieubeheer*). However, it should be pointed out that some of those excluded areas are restricted by a depth limitation of 1000 metres in the ground. It could be questioned whether this amount is enough to protect (drinking) water layers.

[134] *Kamerstukken II* 2012/13, 28 982, nr. 133; *Stc.* 2014, nr. 15139.
[135] This research will be published after the summer; see *Kamerstukken II* 2013/14, 28 982, nr. 138.
[136] Commission EIA, *Beoordeling effectstudie Schaliegaswinning*, report number 023-114, 19 September 2013
[137] *Kamerstukken II* 2013/14, 28 982, nr. 136.
[138] See e.g. http://www.energytracker.nl/nl/http-www-energeia-nl-news-php-id-53441; or http://www.duurzaamnieuws.nl/omstreden-arcadis-gaat-planmer-voor-schaliegas-opstellen/
[139] *Kamerstukken II* 2013/14, 28 982, nr. 138.
[140] *Kamerstukken II* 2013/14, 33 952, nr. 1.



This concept will be available for inspection until the 9th of July. Up till then, everybody can submit a written opinion (*zienswijze*). Advice will be requested from an independent supervisory board (not the Mining council), and also from different legal advisers, relevant competent authorities, authorities abroad and other stakeholders. All these advices and written opinions will be taken into consideration by the Commission EIA in her advice. After the summer, the definitive memorandum on scope and level of detail is expected. Hereafter, the actual plan-EIA can be carried out. The draft Structure Vision on Shale Gas is expected in the beginning of 2015. An overview of the (future) developments can be clarified by the added table.[141]

4.2 Exploration permit

The first step in the roadmap is that the mining company submits an application to the Ministry of Economic Affairs for an *exploration permit*. According to the mining regulation in the Netherlands a distinction has to be made between the *period of exploration* and the *period of extraction*. First, the application for the exploration permit has to be submitted. According to Article 6 of the Mining Act (*Mijnbouwwet*), the exploration of minerals is not allowed without a license of the Minister of Economic Affairs. A licence will not be granted insofar as it, at the date of its effectiveness, would apply to an area for which at that moment in time a licence, held by another person for the same minerals would already apply. In other words, for a specific area only one exploration license is allowed. This means that the exploration license provides for an exclusive right and that they are scarce rights. Therefore, pursuant to Article 15, other companies shall be given the opportunity to submit applications for a similar licence for the same mineral and area. This procedure is an implementation of the Hydrocarbons Directive. Others may submit applications during 13 weeks after the publication of the invitation in the *Staatscourant*, or, if it concerns hydrocarbons, the Official Journal of the European Community. This license is not an operating license, but focuses on the market regulation. If granted, an exploratory drilling may be carried out. If it appears from this drilling that there are economically recoverable amounts of shale gas in the soil, an application for an extraction permit can be submitted. This latter permit will be discussed in paragraph 4.7.

Gedeputeerde Staten (the Provincial Executive), of the province which is covered by the application for a licence, shall be enabled to advise on the application submitted within a reasonable timeframe to be set by the Minister.[142] The Minister also has to ask for advice from others, *inter alia* from the *Mijnraad* (Mining Council) concerning the granting of Article 6-permits, and from the TNO.[143] Advice of drinking water companies is not obligatory, although these companies ask for a formal status as advisor since a long time. With regard to the Mining Council, it should be mentioned here that it is remarkable that its formation is secret, whereby it is unclear who sits in this Council. The Minister of Economic Affairs shall, in principle, reach a decision on an application for a licence within 6 months after its receipt. The Minister can extend the period only

[141] Source: Ministry of Economic Affairs, May 2014.
[142] Article 16 of the Mining Act.
[143] Paragraph 6.1 Mining Act and Article 123(2) Mining Act in conjunction with Article 11.4.1 of the Mining Regulation.

once, by a maximum of 6 months. A decision to grant a licence shall be published in the *Staatscourant*.[144]

The grounds for refusal are set out in Article 9. A licence can only be refused:

> a. on the basis of the technical or financial capabilities of the applicant,
> b. on the basis of the manner in which the applicant intends to carry out the activities for which the licence is applied for,
> c. on the basis of lack of efficiency and sense of responsibility, which shall include sense of responsibility for society that the applicant has demonstrated in activities as meant in Article 6.1 and Article 25.1, under a previous licence, or
> d. if a choice has to be made out of two or more applications for a licence that within the scope of an evaluation on the basis of the items 1.a., 1.b. and 1.c. have shown to be equal, in the interest of the efficient and energetic exploration and production.

Here, it seems that the protection of the environment cannot be taken into account as a ground for refusal. This interest has to be considered somewhere else in the process. This is also confirmed by Article 40 Mining Act, which declares that it only applies in those cases where Chapter 8 of the *Wet algemene bepalingen omgevingsrecht* (the Environmental Permitting (General Provisions) Act) - in short: Wabo - does not apply in relation to a mining work, after which it states in paragraph 3 that the license can be refused on grounds of protection of the environment. Hence, it seems that the Mining Act only provides for environmental protection if this is not possible in other regulation.

This restrictiveness towards the inclusion of the environment in the Mining Act stands in contrast with the Hydrocarbons Directive, which makes it in Article 6 possible to attach several conditions and requirements to the permit for the protection of the environment. The same applies with regard to spatial planning for which this Directive offers more regulation.[145] However, these (environmental) aspects are covered by other legislation. Moreover, this restrictiveness is also visible with regard to the Mining Waste Directive, from which the Mining Act is also an implementation. Remarkably, the Mining Act is very economical of nature, which is confirmed by the fact that it does not take environmental aspects into account. This contradicts with the EU Directives on Mining, which have mainly an environmental perspective.

Moreover, the license will contain several restrictions and conditions. According to Article 11, the license will specify the activities, the period (not longer than necessary) and the area. The delineation of the area shall be done in such a manner that the activities can be carried out in a good possible manner from a technical and economical point of view. Furthermore, the operator is under a duty of care with regard to aspects such as the environment, soil and safety (Article 33 Mbw). The holder of the license must take all steps that can reasonably be required of him to prevent that as a result of the activities carried out by using the licence adverse consequences for the environment are caused (a); damage as a result of soil movement is caused (b); safety is jeopardized (c); or the interest of a systematic management of reservoirs of minerals or of terrestrial heat is jeopardized (d).

Procedure en Streefwaarden voor termijnen	
Ontvangst vergunningaanvraag	1 week
Plaatsen uitnodiging Publicatieblad EU en Staatscourant	variabel
Termijn voor concurrerende aanvragen	13 weken
Advisering door: • EBN • TNO Bouw en Ondergrond, Adviesgroep EZ • Sodm • Provincie (onshore)	± 6 weken
Advisering door Mijnraad	± 6 weken
Vergunningverlening EZ	± 1 maand
Vergunning treedt in werking	1 dag na toezending
Mededeling in Staatscourant van beschikking	Bij geen bezwaar: vergunning onherroepelijk na 6 weken

[144] Article 17 of the Mining Act.
[145] Woldendorp (2012), part 1, p. 5.

The construction, maintenance, repairs or decommissioning of a borehole shall take place in accordance with a work programme drawn by the operator (Article 74 of the Mining Decree). Paragraphs 8.2.1 and 8.2.2 of the Mining regulation contain conditions for the work programmes for boreholes and the reporting on the construction of boreholes. This programme will be assessed by the *Staatstoezicht op de Mijnen*, also called the SodM. There is no separate legal protection against the work programme.[146] The procedure and exact terms of the exploration permit according to Art. 6 Mining Act can be clarified by the added table.[147]

Currently, three exploration permits are granted by the Minister of Economic Affairs for areas in Boxtel, Haaren and the Noordoostpolder.[148] However, currently these permits cannot be used. First, they were put on hold until independent research was done and now they are temporarily unusable until the Structure Vision on Shale Gas (and Soil) is finished.[149] Also, new permits will not be granted until this research is finished.[150] Moreover, such a (sort of) 'moratoria' is not distinctive for the Netherlands. Many MS of the EU has decided thereto: *inter alia* France, Bulgaria, the Czech Republic, the United Kingdom (although already annulled) and Romania.[151]

4.3 Environmental Impact Assessment (EIA)

The second step in the roadmap of the Minister of Economic Affairs is that the mining company is required to ask the Minister whether she has to prepare and submit for an EIA. Prior to any test drillings for shale gas the Minister declares in his roadmap that he will ask for an EIA. Whether this is actually possible for the Minister to require will be discussed hereunder.

The procedure for the establishment of an environmental impact assessment (EIA) is set out in the EIA Directive, which is already discussed earlier. This directive is implemented in the Netherlands in the *Wet Milieubeheer* (Environmental Management Act), also called Wm, and the Annex to the *Besluit milieueffectrapportage* (Environmental Impact Assessment Decree), also called Besluit MER. The EIA is a research instrument which describes the possible environmental impacts and possible alternatives. The system is divided into three levels. The first level is set out in Part C of the Annex to the Besluit MER which contains the mandatory EIA. The second level is set forth in Part D of the Annex which contains an obligation to *assess* whether the execution of an EIA is necessary. The division of Parts C and D is the following. In the first column the several activities are set out. In the second column the different cases are listed. The third column contains the plans (where attention should be paid to the definition in art. 3.1 Wro) and the fourth column contains the decisions on projects. The third level is the provincial environment by-law (ordinance). The latter is possible in order to protect areas of particular importance or where the environment is already seriously contaminated or affected. However, Natura 2000-areas cannot be included hereunder.

The Annex to the Besluit MER implements the Annexes to the EIA Directive. The above mentioned categories in those Annexes applicable to shale gas activities are also detectable in the Annex to the Besluit MER. Categories C.17.2 and C.8.1 of the Besluit MER implement Point 14 of Annex I. The third column (of category C.17.2) states that, when more than *500.000 m3 gas* is extracted, a structure vision (ex. the Wro) can be construed as the decision for an obligatory plan-EIA. This threshold of 500.000 m3 gas is very important in practice for the duty to carry out an EIA. Category C.17.2 mentions in the fourth column the Mining permit, the integrated environmental permit and the integrated environmental derogation permit (which will be set out hereafter). Another case that

[146] The assessment of the work programme by the SodM is actually step six of the roadmap.
[147] Source table: Netherlands Oil and Gas Portal_nov2007.
[148] *Stc*. 2009, nr. 16000; *Stc*. 2009, nr. 17675; and *Stc*. 2010, nr. 9431.
[149] *Kamerstukken II* 2011/12, 28 982, nr. 128 and *Kamerstukken II* 2012/13, 28 982, nr. 133.
[150] *Kamerstukken II* 2012/13, 28 982, nr. 132.
[151] Fleming (2013), pp. 12-32.

can occur is the infiltration of water into the soil or extraction of groundwater to the soil as well as the modification or extension of existing infiltrations and withdrawals in cases where the activity relates to an amount of water of 10 million m3 per year or more, as set out in category C15.1 of the Besluit MER. This obligation to carry out an EIA also applies to plans such as structure visions and plans according to the Wro and the Waterwet and to decisions as referred to in the Waterwet (which will be discussed in the next paragraph). Both of the mentioned categories stipulate the carrying out of a plan-mer when establishing a structure vision. In that manner, the Minister has rightly so announced that the Structure Vision on Shale Gas shall be accompanied by a plan-EIA. If the conditions in Part C are not fulfilled, there is still a possibility that the conditions of Part D are in place. This will (more) often be the case. For example Category D.17.3 states that the creation of surface installations for the extraction of oil or gas is subject to the assessment of whether an EIA should be carried out. This is then up to the competent authorities to decide. With regard to the exploration phase, in which the activities are still very limited, there will often be an obligation to assess whether an EIA is needed instead of an obligatory EIA. When assessing whether an EIA is needed, several criteria should be taken into account, e.g. accumulation (art. 2(5) Besluit MER) and coherence with other areas or activities.[152]

If it is clear that the company has to carry out an EIA, it has to start with the preparation of the draft memorandum on scope and level of detail (the *concept notitie reikwijdte en detailniveau*, formerly the *startnotitie voor het MER onderzoek*). The Minister will then submit this memorandum for advice to the Commission EIA. Residents will then have the opportunity to submit their views. On the basis of this memorandum the company will then carry out the MER. The MER will also be send to the Commission EIA for advice, which will take the views of residents on the MER into account. The Minister will base his final decision on this report and advice. This decision is step three in the roadmap.

In the letter of the Minister (in which the roadmap is set out), he has set an obligation for carrying out an EIA for the *exploration* and the *extraction* phase.[153] However, the Commission EIA states that there might (under the current regulation) only be a condition for *assessing* whether an EIA is needed, not for an obligation.[154] And when assessing whether the EIA is necessary, the competent authority must have the freedom to decide. Only if the extraction concerns more than 500.000 m3 production of gas per day there is an obligation to carry out an EIA. It is not certain whether this will be the case in the Netherlands. This depends on the specific circumstances. While the Minister states that in the extraction phase a location-specific environmental research should be conducted in the form of a project-EIA, the Commission EIA does not agree and states that this will only occur if the threshold is met. The Commission EIA is also of the opinion that a location-specific EIA should not be restricted to concrete wells, but should cover the whole production area. In that manner the location of the wells and the cumulative effects are also subject of the EIA. Therefore, the Commission EIA advices the Minister to explicitly mention in Part C of the Annex to the Besluit MER that in case of exploration and exploitation drilling for shale gas an EIA is always obligatory. It also recommends obliging the carrying out of an EIA not solely for the wells, but for the entire production area. In this manner, the situating of the wells and the cumulative effects can also be taken into account.[155]

4.4 The integrated environmental permit (Wabo) + Notification (Barmm)

After the company has decided exactly where she wants to perform an exploratory drilling, she submits an application for (as step five in the roadmap) an integrated environmental permit for the establishment of the drilling site. The starting point for the establishment of the drilling site is the

[152] ABRvS 15 December 2010, case 200903460/1/R3; see also ABRvS 29 december 2010, *JM* 2011/34.
[153] *Kamerstukken II* 2012/13, 28 982, nr. 132, p. 4.
[154] Advice Commission EIA, *Beoordeling effectstudie Schaliegaswinning*, 19 September 2013, paragraph 4.5.2.
[155] Advice Commission EIA (2013), p. 17.

Wet algemene bepalingen omgevingsrecht (the Environmental Permitting (General Provisions) Act), also called the Wabo. Where the Wabo does not regulate a specific topic, the Mining Act comes into play. In practice this means that the extraction works are regulated by the Wabo, while the exploration works are regulated by the Mining Act.[156] Both Acts also contain general rules which replace the license (which is actually step four in the roadmap, prior to a possible application for an integrated environmental permit).

To decide whether the Wabo is in place, it should first be assessed whether there is an establishment/installation within the meaning of the *Wet Milieubeheer* (Environmental Management Act), also called Wm. Article 1.1(1) Wm gives the definition of an establishment: "*Elke door de mens bedrijfsmatig of in een omvang alsof zij bedrijfsmatig was, ondernomen bedrijvigheid die binnen een zekere begrenzing pleegt te worden verricht*". Thereby, the establishment has to belong to a category of establishment which could harm the environment, as identified in the *Besluit omgevingsrecht* (Environmental Permitting Decree 2010), also called the Bor. This is decided in Article 1.1(3)(4) Wm. These categories of establishments are set out in Article 2.1(1) Bor in conjunction with Annex I, section B and C. Hence, it should be decided whether mining activities and establishments fall under one of these categories. This could for example be the case if it concerns an establishment where gases or gas mixtures are manufactured, prepared, processed, stored or beaten whether or not in a compressed liquefied or under pressure dissolved in liquid state (Category 2 under Part C). If the mining establishment falls under the Bor, it is established that it concerns an establishment within the meaning of the Wm. However, it is then not yet decided whether the establishment should apply for an integrated environmental permit on the basis of the Wabo.

The starting point is that harmful environmental impacts of establishments are regulated by means of general rules on the basis of the Wm (Art. 8.40 Wm). The exception to this rule is the regulation by an integrated environmental permit on the basis of the Wabo (Art. 2.1(1)(e) Wabo in conjunction with Annex I of the Bor). To decide on this matter, it should be assessed whether the establishment within the meaning of the Wm is also an establishment within the meaning of the Wabo. Pursuant to Art. 1.1(1)(3) Wabo the categories of establishments for which the founding of an establishment should be subjected to prior review (given the nature and extent of the adverse effects that the establishment can cause for the environment) will be designated by order in council (here: the Bor). This is (again) done in Annex I, parts B and C, of the Bor. Besides, if the establishment possesses an installation according to the Industrial Emissions Directive (previously called the IPPC-installation), it is also required to have an integrated environmental permit (Art. 1.1(3) Wabo in conjunction with Art. 2.1(2) Bor). If the mining establishment belongs to one of this categories, it should apply for an integrated environmental permit ex. Art. 2.1(1)(e) Wabo. The assessment framework is set in Article 2.14 Wabo. Here, the interest of the environment can be taken into account (in contrast with the permits according to the Mining Act). The application can only be refused on the ground of the importance of the protection of the environment (Art. 2.14(3) Wabo).

But again, the integrated environmental permit is only needed if general rules do not apply. With regard to mining establishments, the *Besluit algemene regels milieu mijnbouw* (the General Mining Industry (Environmental Rules) Decree) is applicable, also called Barmm. Article 2.5 Bor (in conjunction with Article 40(2) Mining Act) states that, notwithstanding Art. 2.1(1)(e) Wabo, no integrated environmental permit is needed regarding mining works that belong to a category mentioned in Article 4 Barmm. With regard to shale gas, only sub a of Article 4 Barmm is relevant (concerning mobile installations on land). An exception to this category is a mobile installation which is placed by a mining work for the purpose of extraction. A notification has to be made 4 weeks pursuant to the start of the project (Article 7). In Article 5(2) Barmm several exceptions are set out that exclude the applicability of the Barmm. This includes activities that are situated at a

[156] Brans & Van den Brink (2014).

location near a sensitive area, such as Natura 2000 areas (see a, b or c of point 1 of Part A of the Annex of the Besluit MER), and activities that are situated near a restricted sensitive object pursuant to the *Besluit externe veiligheid inrichtingen* (Bevi). In the Barmm-notification the company has to define and underpin how she will fulfil the environmental regulations on soil, air, light, noise and external security. The Minister will rate this notification. The submission of the notification pursuant to the Barmm is step four in the roadmap given by the Minister.

The mining activities that do not fall under the Wabo are regulated by (Article 40 of) the Mining Act. In practice this mostly counts for the *exploration* activities. Here, the mining activities are also covered by a permit (here the mining environmental permit), unless (again) they are mentioned in the general rules of the Barmm.[157] Hence, the same categories are applicable for the Mining Act as for the Wabo.[158]

In submitting an application for an integrated environmental permit for the establishment of the drilling site (ex. Art. 2.1(1)(e) Wabo), the company will also ask the municipality in question for a building permit (ex. Art. 2.1(1)(a) Wabo) and a permit to change the applicable zoning plan (ex. Art. 2.1(1)(c) Wabo). When an application for a mining establishment is in conflict with the zoning plan (which it will always be since no municipality has yet anticipated on shale gas activities in their zoning plans), the application will automatically also include a request to derogate from the zoning plan (Art. 2.6 Wabo). This derogation, if granted, will be covered by the integrated environmental permit. Article 2.12 sets out the assessment framework. The activity must not be in conflict with proper spatial planning and the decision must be well substantiated.

The Minister of Economic Affairs is, according to Art. 2.4(3) Wabo in conjunction with Art. 3.3(4) Bor, the competent authority for deciding on a permit for an establishment that is substantially a mining work (a) and mining works that are not establishments (b). Pursuant to Art. 6.9 Bor, when the application concerns an establishment that is also a mining work but on which Art. 3.3 (4)(a) Bor does not apply, the integrated environmental permit will only be granted if the Minister of Economic Affairs has declared that he has no objection (*verklaring van geen bedenkingen*). This declaration can only be refused for the protection of the environment. This declaration only relates to the part concerning the mining activities. The Minister of Economic Affairs will also be the competent authority to decide on the notification pursuant to the Barmm (Article 7 Barmm).

4.5 Spatial planning (Wro)

The *Wet ruimtelijke ordening* (Spatial Planning Act), also called the Wro, regulates the spatial planning of the government, the provinces and the municipalities. In the Netherlands, the space is scarce. Therefore, it is important to divide the space available in an adequate manner. Within spatial planning, the interests of different parties and different spatial claims are weighed. In the (spatial) structure vision the government, provinces and municipalities describe what kind of developments they expect in the field of spatial planning. They show how those developments will take place or carried out. In the zoning plan, the municipalities determine where and what someone can build. Also the size of buildings and the areas which may be used are designated. In the near future the government wants to replace the Spatial Planning Act and various other laws for one Environmental and Planning Act (the *Omgevingswet*). It is expected that this Act will make the decision-making on spatial projects quicker and easier.

Aspects of spatial planning are not part of the assessment of the exploration and extraction licenses under the Mining Act. At the time of drafting the Mining Act this was not considered

[157] Article 40(2) Mining Act in conjunction with Article 4 Barmm.
[158] There are also general rules of the Barmm for specific mining installations which are under a permit obligation. Here, the conditions of a permit are replaced by general rules (Article 5). While the cases under article 4 are intended to replace the obligation to have a permit, the cases under article 5 are intended to replace the conditions attached to the permit.

necessary.[159] Since 1999, the use of the Dutch soil has been intensified. Therefore, the government has recently announced the drafting of the 'Structure Vision on Soil' *(Structuurvisie Ondergrond*), also called 'STRONG', on the basis of Art. 2.3 Wro. With this structure vision the usefulness and necessity of all the different designated uses of the soil, including shale gas, are set out and weighed against each other.[160] The structure vision is expected at the beginning of 2015.[161] It has been part of debate whether the Structure Vision on Shale Gas (*Structuurvisie Schaliegas*) should be included in STRONG.[162] This could enhance an integrative and integral approach. The Minister has decided to act upon this request.[163] When municipalities draft a zoning plan, they must take these structure visions into account. The Minister of Economic Affairs has announced that it will look at the possibility to include a similar approach in the Mining Act.[164]

While STRONG has the goal of putting all the interests and functions in context, the Structure Vision on Shale Gas has the goal of establishing locations which are potentially suitable for the exploration and exploitation of shale gas.[165] Currently, an initiator can apply for the several permits for in principle every location in the Netherlands. By developing a structure vision, the government has more control over this process. The chosen locations will include locations which are most promising for exploitation of shale gas and least harmful for the environment, nature and population. Prior to the structure vision a plan-EIA should be prepared to gain insight into the most appropriate locations, on which the Commission EIA will give advice.[166] This complies with the requirements of the EIA Directive and the Besluit MER, as set out above. Structure visions have (in principle) no legal consequence for others. It is a policy document and 'only' binds the province or State itself (not the municipalities).[167] However, it offers a framework for other instruments and it can be the start of a duty to motivate certain competences. Structure visions give the outline of the intended spatial planning by the State. If a zoning plan is made or an integrated environmental permit (or derogation thereof) is issued, the locations that will be set out in the structure vision have to be considered by the municipalities. Moreover, although they do not give much concrete assessment standards, they are politically very important. According to Article 2.3(4) Wro, the structure vision needs to be submitted to the Second Chamber of the Dutch Parliament, which has to discuss this in public within four weeks. If the Second Chamber does not start this, the structure vision can be set.

Moreover, the Wro has relevance for other reasons. It gives the Minister of Infrastructure and Environment – or another Minister, such as the Minister of Economic Affairs, if it concerns him or her – the possibility to take decisions which are necessary for realising the structure vision. These decisions stand in contrast with the structure vision; while the structure vision is policy (and therefore not binding), the hereafter named decisions are (binding) legal norms. The Minister has for example the competence to designate an order to realise that certain parts of the zoning plan are made inoperative (Art. 3.8(6) Wro) or to make sure that a certain regulation is made in the zoning plan (Art. 4.4 Wro). The Minister can use these competences if e.g. a municipality does not co-operate with the realisation of a mining work (which has to be set out in its zoning plan).

Also, the Minister of I and M may establish an *inpassingsplan* (a government-imposed zoning plan amendment). In principle, municipalities are the competent authority to establish the zoning plan in their municipality. However, since the coming into force of the Wro, the State has the possibility to

[159] *Kamerstukken II* 1998/99, 26 219, nr. 3, pp. 6-7.
[160] Brans & Van den Brink (2014).
[161] *Kamerstukken II* 2013/14, 33 136, nr. 6.
[162] *Kamerstukken II* 2013/14, 28 982, nr. 135 and nr. 137; Letter of the IPO, Vewin and the Unie van Waterschappen to the Minister of Economic Affairs, 27 January 2014.
[163] *Kamerstukken II* 2013/14, 28 982, nr. 138.
[164] *Kamerstukken II* 2013/14, 28 982, nr. 135.
[165] *Kamerstukken II* 2012/13, 28 982, nr. 133 and *Kamerstukken II* 2013/14, 28 982, nr. 135.
[166] *Kamerstukken II* 2013/14, 28 982, nr. 136, p. 1.
[167] ABRvS 27 October 2010 (case 200909636/1/R3, ECLI:NL:RVS:2010:BO1832), *AB* 2010/335, m.nt. A.A.J. de Gier (*Boxmeer*).

establish an *inpassingsplan.* This is arranged in Article 3.28 of the Wro. When making such a plan, the Minister is obliged to hear the municipality and the province. Article 3.28 does not state that the *inpassingsplan* should be a necessity. The ability to use this competence lies mostly in the question whether there are 'national interests' at stake. This concept is not explained in Article 3.28, but the *Memorie van Toelichting* (Explanatory Memorandum) gives some explanation. It gives examples such as complex projects with cross-border consequences, projects of high importance for society, etc.[168] This 'threshold' is not expected to be very high.[169] With regard to the content, the general rules of the Wro (concerning the municipal zoning plan) apply. However, the Provincial Executive is not allowed to give a *reactieve aanwijzing* (reactive instruction). With regard to the competence to grant certain permits (such as the building-permit) the Minister can decide in the *inpassingsplan* that he will become the competent authority to decide on these permit-applications. He has to declare this explicitly. However, not all permits are mentioned; the environmental permit ex. Art. 2.1(1)(e) Wabo is not mentioned. In case the plan is part of the *rijkscoördinatieregeling* (national coordination regulation) of Art. 3.35 Wro, the First and Second Chamber of the Dutch Parliament have to approve the plan. The application of this regulation is not necessary.

With regard to mining activities, especially shale gas activities, the establishment of an *inpassingsplan* can be very useful. In this manner, the State can control the process so that the procedure could speed up. After all, not many municipalities shall be willing to coordinate with the State on shale gas projects. In the last year(s) already many municipalities have declared themselves 'shale gas free'.[170] In order to apply this procedure generally for all shale gas projects, the national coordination regulation should be extended. Now, Chapter 9a of the Mining Act states that this procedure only applies to a mining work for the purpose of exploration for or production of hydrocarbons in or under an area that is designated on the basis of Articles 10 or 10a of the Natuurbeschermingswet 1998 (and other, not relevant grounds here), which refers to the national protected areas. Otherwise, the Minister can also declare this per project. It then only has to prove that a national interest is at stake, which will probably not be that difficult with regard to the exploitation of shale gas.[171] This national interest need to be shown in policy. The usefulness of this procedure is already visible. The province of North Brabant (where the exploration licenses have already been granted) has adjusted its provincial environment by-law, in order to make shale gas exploitation difficult to realise there. Such a regulation can however be set aside by the Minister by using the national coordination regulation. Provinces and municipalities do have the possibility to appeal against this plan. The *Crisis- and Herstelwet* (Crisis and Recovery Act) do not offer this latter possibility. At this time, shale gas project cannot fall under this regulation. However, a 'simple' adjustment could make this happen.[172]

4.6 Other permits

4.6.1 Nature

Above, the Habitat and Bird Directives are explained. On the basis of those Directives, a coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. The Dutch implementation of those directives lies in the *Natuurbeschermingswet 1998* (Nbw). For every Natura 2000-area an *aanwijzingsbesluit* (designation order) is made, in which the different birds and species are set out (the capacity of the area). Such a designation order contains several *instandhoudingsdoelstellingen* (conservation objectives). These objectives of the Natura 2000-area are protected by several instruments: by management plans*,* appropriate measures and permits. These are all set out in the Nbw. Especially the management plan is an important

[168] *Kamerstukken II* 2002/03, 28 916, nr. 3, p. 53.
[169] Van Buuren et al. (2010), pp. 392-393; see also Groothuijse & Korsse (2011).
[170] https://www.schaliegasvrij.nl/
[171] Brans & Van den Brink (2014), p. 11.
[172] Brans & Van den Brink (2014), p. 12.

instrument to reach the goals. If an activity is not set out in the management plan, it should apply for a permit. Unless, it concerns an existing use (use which was known at 31 March 2010 or which the competent authority could have reasonably known). However, that exception does not apply if the use concerns a project that does not have a direct link with or is not needed for the management of the Natura 2000-area but which can have (separately or in combination with other projects or plans) significant consequences for that certain Natura 2000-area.

If a permit is needed, there are two tests: the extensive and the simple test. The simple test should be applied if there are effects, but they are not significant. Here, several interests should be balanced. If the effects are significant, the extensive test should be applied. This test follows from the Habitat directive, which is already set out above. It should be assessed whether a project has possible significant effects (Art. 19d Nbw). If that is the case, an appropriate assessment should be made (Art. 19f Nbw). This assessment means that, on the basis of the best technological knowledge, all aspects of the plan or project (which may on itself or in combination with other plans or projects harm the conservation objectives) must be inventoried.[173] Here, other aspects such as accumulation (other projects in the neighbourhood) and external effects should also be assessed. After this assessment, it should be considered whether the effects are really significant or not. If it appears that they are not that significant as they seemed, the permit can be granted (Art. 19g Nbw). It must be assured that the natural characteristics of the area will not be harmed. This is the case where no reasonable scientific doubt remains as to the absence of adversely effects.[174] If some aspects of a certain activity cannot be predicted with complete certainty, it does not mean that the activity should be waived. According to the Council of State (*Afdeling Bestuursrechtspraak van de Raad van State)* the existence of some margin in the expected effects does not mean that no required certainty can be given that no adversely effects will occur for the natural characteristics of the areas.[175] The Council of State has decided that

> Eventueel ongunstiger uitvallen van de veronderstelde prognoses betekent evenmin dat bij voorbaat sprake zal zijn van een aantasting van de natuurlijke kenmerken van de gebieden. In dat kader is voorts van belang dat in het rijksproject de mogelijkheid is ingebouwd met het principe "hand aan de kraan" de gevolgen van de gaswinning bij te sturen.[176]

This '*hand aan de kraan*' (the so-called 'adaptive licensing approach')[177] principle would mean that the effects of the activity will be continuously monitored and possibly be adjusted or stopped if the effects increase. It has been a topic of debate whether the adjustment or stopping of the activity will be in time or whether this will be already too late if the effects occur. If it is not clear whether the integrity of the site will be adversely effected, then more steps have to be followed (Art. 19g(2) in conjunction with Art. 19h Nbw). These steps are already discusses above (alternatives, imperative reasons of overriding public interest, compensation). With regard to the latter action, the distinction between compensation and mitigation should be kept in mind. Mitigation is a part of the appropriate assessment, while compensation is strictly taken not a part of the project (it is only used to compensate the adversely effects).[178] It should also be pointed out that there is a special regime for (national) protected natural monuments. This is regulated in Article 16 Nbw.

With regard to a project concerning the exploitation of shale gas, it is necessary to look whether the exploration and production of the shale gas is situated near a Natura 2000-area, or a (national) protected natural monument. If that is the case, an Nbw-permit is necessary to obtain.

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[173] ABRvS 29 August 2007, case 200606028/1 (*Gaswinning*).
[174] Case C-127/02 Waddenvereniging and Vogelbeschermingsvereniging [2004] ECR I-7405, paragraph 59.
[175] ABRvS 29 August 2007, case 200606028/1 (*Gaswinning*), paragraph 2.17.3.
[176] ABRvS 29 August 2007, case 200606028/1 (*Gaswinning*), paragraph 2.17.3.
[177] Schoukens (2014), p. 205.
[178] The importance of this distinction is recently confirmed in the Case C-521/12, *Briels v Minister van Infrastructuur en Milieu* [2014] not yet published.

4.6.2 Water

As noted in Chapter 2, the risks for water are high. There is a possible risk that the groundwater can be polluted via leakage through the borehole and that fracking-liquid and methane leak from the rock to vulnerable groundwater layers.[179] In the different phases of the process, great amounts of water is needed: during the preparation, the production, etc.

The organisation of the water system in the Netherlands is quite complex. Here, the focus will be on activities for which the *Waterwet* (Water Act) sets out regulations. The activities for which permits are needed are provided in Chapter 6. It includes *inter alia* the discharge of substances in the surface water body (Art. 6.2), the withdrawal or infiltration of groundwater (Art. 6.4) or the bringing of water into or withdrawal of water from a surface water body (Art. 6.5). However, for many activities general rules are applicable. In that case, no license is needed (Articles 6.6 and 6.7). The general rules are included in the *Waterbesluit* (Water Decree), the *Waterregeling* (Water Regulations), or other orders in council based on the Water Act such as the *Activiteitenbesluit milieubeheer* (Activities (Environmental Management) Decree) or the *Besluit lozen buiten inrichtingen* (Discharge of Waste Water outside Establishments Decree).[180]

Another very important regulation for water is the *Drinkwaterwet* (Drinking Water Act). This is one of the most important goals of the policy for soil: the assurance of the sustainable availability of ground water which is suitable for human consumption.[181] According to Article 2 of the Drinking Water Act, competent authorities have a duty of care to guarantee the sustainable security of drinking water. Moreover, paragraph 2 states that competent authorities have to take consideration of sustainable security of public drinking water as an imperative reason of overriding public interest. This is confirmed by the explanatory memorandum.[182] Therefore, competent authorities have to weigh the interest of drinking water heavily in spatial considerations. According to the government, the State has a system responsibility for the ensuring of drinking water, due to the vital function of drinking water and is a responsibility for every part of the administration. Therefore, the government has decided in its *'Beleidsnota Drinkwater: Schoon drinkwater voor nu en later'* (Drinking water Policy Document) that drinking water is a national interest. Taken all together (public drinking water as an imperative reason of overriding public interest, the duty of care of administrations and the appointment of it as a national interest), the government argues that drinking water should be weighed heavily in the alignment of and balancing against other national interests and goals.[183] Due to these considerations, drinking water will be properly weighed in the making of structure visions, such as the Structure vision Soil (STRONG), but also of zoning plans of municipalities and provincial environment by-law ex. Art. 1.2 Wm. The protection of drinking water should also be considered when granting a permit pursuant to Art. 6.4 Water Act. The Association of Drinking water companies (called Vewin) is pleased with this development of the government, because it will put the position of drinking water at an equal rank with other national interests, such as shale gas.[184]

Finally, for the protection of drinking water, provinces appoint certain areas as environmental protection areas in the Provincial Environment by-law (*Provinciale Milieuverordeningen*, also called PMV). Some provinces include those PMV in their Environmental Regulation (*Omgevingsverordening*). There has been made a Model PMV to harmonise the regulation of the different provinces (although they are allowed to deviate from it). Relevant to notice is that the Model PMV excludes all establishments/installations for the purposes of mineral extraction (temporary and continuously) in all the water extraction and groundwater protection areas. This is

[179] Advice Commission EIA (2013), p. 7.
[180] Havekes & Van Rijswick (2012), pp. 113-118.
[181] Woldendorp (2012), part 2, p. 13.
[182] *Kamerstukken II* 2006/07, 30 895, nr. 3, p. 40.
[183] Ministry of IenM, *Beleidsnota Drinkwater: Schoon drinkwater voor nu en later*, April 2014, p. 28.
[184] http://www.vewin.nl/Pers/Persberichten/Pages/Erkenning_drinkwater_als_nationaal_belang.aspx

also why the government has excluded water extraction and groundwater protection areas from the scope of the plan area of the Draft MSL (for the plan-EIA), although the deeper soil is not excluded hereof.[185] Also, it should be mentioned that bore free zones are not excluded a priori.

4.6.3 Soil

The *Wet bodembescherming* (Soil Protection Act), also called Wbb, regulates the protection of the soil. This includes the arrangement of the sanitation of polluted soil and groundwater. The Wbb lays down a duty of care on anyone that operates in or on the soil who could have reasonably known that due to those operations the soil could be polluted or harmed. That person is obliged to take all measures needed that could be reasonably expected from him to prevent the pollution or harm. If the pollution or harm has already occurred, that person should limit the pollution or harm and the direct consequences thereof. This duty of care applies to the operations as referred to in the Articles 6 to 11 Wbb. This includes *inter alia* operations where substances that can contaminate or impair the soil are placed in the soil (so as to leave it there), operations where substances which may pollute the soil are added to the soil in order to affect the structure or quality of the soil, where operations are performed or materials are used which can contaminate or affect the soil, etc. However, it only applies to cases of contamination before 1987.[186] The duty of care does not only apply to the direct causer of the contamination, but also to those who are competent and actually capable of preventing or limiting the offender of the duty of care. The competent authority for the application of the duty of care is the Provincial Executive (Art. 88 Wbb). Supervision and enforcement of the duty of care is done by B&W, the Provincial Executive and the Minister of I and M (Art. 95 Wbb). One who performs operations as referred to in Articles 6 to 11 Wbb and notices a contamination or degradation of the soil thereby, makes a notification to the Provincial Executive (Art. 27 Wbb). If one wants to start to sanitation of the polluted soil, he must make a notification of that intention (Art. 28 Wbb).

In July 2009, the *'Convenant bodemontwikkelingsbeleid en aanpak spoedlocaties'* ('Covenant soil development and tackling urgent sites') was adopted. Here, it is (*inter alia*) decided that the policy on soil sanitation must be integrated into a regional approach. This policy decision was implemented in the Wbb on 1 July 2012.[187] The Covenant also states that there should be a basic registration system for soil (BRO). This register will be applicable from 1 January 2015. The Convenant also mentions that the obligations from the Water Directives (European Framework Directive Water and the Groundwater Directive) should be the pre-conditions when developing new policy.

4.6.4 Storage of waste

The deposit and storage of waste is regulated in Chapter 10 of the *Wet milieubeheer*. The national policy on the handling of waste is set out in the *Landelijk afvalbeheerplan 2009-2021* (National waste management plan 2009-2021). Here it is explicated that the storage of waste in the soil includes the storage of waste by recovery, deposition or injection. For the deposition of waste applies currently a 'moratorium'. After all, the deposition of waste goes against the intended purpose of the soil.

What could be important for shale gas activities is the injection of waste in the soil. There is only permission granted for this to mine establishment for the production of oil, gas and salt if it concerns the recycling of waste streams that arise during the production process.[188]

[185] Draft MSL (2014), p. 16 and p. 18.
[186] http://www.infomil.nl/onderwerpen/klimaat-lucht/handboek-water/wetgeving/wet-bodembescherming-0/zorgplicht/
[187] H.E. Woldendorp (2012), part 2, pp. 4-8.
[188] H.E. Woldendorp (2012), part 1, p. 11.

4.7 Extraction permit

The procedure for the application of the extraction permit is arranged in the Mining Act and the Mining Regulation. Without a license by the Minister of Economic Affairs, it is prohibited to produce minerals (see Art. 6(1)(b) Mining Act). If the applicant already holds an exploration permit, no concurrence applications can be submitted. The same refusal grounds and legal procedure apply as to the exploration permit. Moreover, pursuant to Article 8, an extraction licence will only be granted if it is feasible that the minerals within the area for which the licence will apply, are economically producible. Also, if in the production licence it is stated that it applies to certain minerals, it will also apply to other minerals that are inevitably produced in conjunction with those certain minerals (Article 11(1)).

An important part of the production of minerals is that it will be carried out according to a production plan.[189] The holder of the production license will submit this to the Minister of Economic Affairs, who needs to approve this (Articles 34 and 36). The procedure of Section 3.4 of the General Administrative Law Act (the *Algemene wet bestuursrecht*, or in short: Awb) applies to this approval. The production plan must set forth several descriptions, e.g. the volume of minerals present and the location thereof, the commencement and duration of the production, the method of production, the soil movement as a result of the production and the measures to prevent damages as a result of soil movement, etc.[190] The Minister can only refuse the approval of the production plan on the grounds mentioned in Article 36. These are in the interest of systematic management of the deposits of minerals (a); and in connection with the risk of damage as a result of soil movement (b). Here again, no environmental refusal grounds are included. The Minister can make his approval subject to restrictions and conditions or withdraw his approval or amend the restrictions and conditions, if justified by these refusal grounds. The Mining Decree (Chapter 3) sets out further rules for the production plan. The procedure and terms for the extraction permit according to Art. 6 Mining Act are clarified by the added table.[191]

Procedure en Streefwaarden voor termijnen	
Ontvangst vergunningaanvraag	1 week
Advisering door: • TNO Bouw en Ondergrond, Adviesgroep EZ • EBN • Sodm • Provincie (onshore)	3 à 6 maanden
Advisering door Mijnraad	± 6 weken
Vergunningverlening EZ	± 1 maand
Vergunning treedt in werking	1 dag na toezending
Mededeling in Staatscourant van beschikking	Bij geen bezwaar: vergunning onherroepelijk na 6 weken

Finally, measurements should be carried out with regard to the risk of soil movement. These must be carried out before the start of the production, during the production and for up to 30 years after cessation of the production. The Mining Decree (Chapter 4) sets out the rules for these measurements.

4.8 Practical example of current Dutch legislation: Cuadrilla in Boxtel

4.8.1 Facts

Cuadrilla Resources Limited is, according to its website, "a UK company based in Staffordshire. Formed in 2007 as a privately owned exploration and production company, our focus is on bringing together experts to recover natural resources." [192] It aims to be a “model company” for

[189] Article 34 of the Mining Act.
[190] Article 35 of the Mining Act.
[191] Source table: Netherlands Oil and Gas Portal_nov2007
[192] http://www.cuadrillaresources.com/about-us/

unconventional exploration in the UK. Cuadrilla is also trying to spread this aim in the Netherlands. In September 2008, Cuadrilla has submitted an application for an exploration permit which it receives on 13 October 2009 of the Ministry of Economic Affairs. With this permit, Cuadrilla enjoys the exclusive right (until 25 November 2014) to investigate the availability of oil and gas in an area of circa 2.026 km² in the province North-Brabant. Cuadrilla is at that point the first company in the Netherlands that receives an exploration permit for the production of shale gas.

On that point, Cuadrilla has the State on its side. But for executing an exploration permit, it is also necessary to receive several other permits, as shown by the previous paragraphs. Cuadrilla needs *inter alia a* building permit from the municipality of Boxtel in which it is planning on executing the first exploratory drilling. During this latter process, Cuadrilla starts a subsidiary: Brabant Resources. The exploration permit is transferred to Brabant Resources on 13 April 2010.[193] On 30 September 2010 Brabant Resources submits the application for the building permit. This process takes quite some time and includes many negotiations between Brabant Resources and the municipality of Boxtel. Finally, near the end of 2010, the municipality of Boxtel decides to grant the building permit and exemption from the zoning plan concerning the temporarily placement of a mine site. However, on 2 December 2010, just before the term closes, the Rabobank in Boxtel decides to submit a *zienswijze* (written opinion).[194] The Data Center of the Rabobank is located next to the area for which the building permit and exemption is granted. This written opinion is set aside by the municipality and it finalises the building permit on 11 January 2011. This leads to a procedure before the Court of 's-Hertogenbosch. The Court annuls the decision of the municipality of Boxtel on procedural grounds: the temporariness of the mining activities is not sufficiently assured.[195] The exploration might be temporary by nature, but Cuadrilla will apply for an extraction permit if it finds shale gas on that location. If the mine site stays in place during that process, the temporariness is not correct. This possibility (of the establishment of a permanent facility) was also included in the permit, whereby the permit was flawed. Both parties did not appeal against the judgment. After this judgment there are several questions asked in the Dutch Parliament, after which the Minister of Economic Affairs decides to conduct a research (by Witteveen+Bos) on the exploitation of shale gas and to put the granted exploration permits 'on hold'.

4.8.2 Legal issues in practice

Interesting legal issues could be discovered on the basis of this case. The biggest issue seems that there is no conversation between the different layers in the Dutch system. The State is the competent authority for the exploration permit pursuant to the Mining Act (under the ground), while the municipality is the competent authority for the Wro and Wabo permits (above the ground).[196] No dialogue was initiated (nor was this obligatory) between the two. Hereby, neither an integral policy, nor a bigger picture was available (such as: do we even want shale gas in the Netherlands?).[197] There was no integral weighing of all the interests at stake. Cuadrilla could in this manner receive 'quite easily' an exploration permit of the State, without a clear vision of the State on shale gas. The (real) problems and concerns occurred at the municipality level, after which the Minister took action. Now, as already mentioned, the Minister has proposed a Structure Vision on Shale Gas in which such an integral weighing of interests is (finally) included. He has moreover decided to include the Structure Vision on Shale Gas in STRONG, which makes the weighing of interest even more integral. Here, the Minister should also consider that many municipalities (already more than 120, including Boxtel) and provinces do not approve the exploitation of shale gas 'in their backyard'.[198]

[193] *Stc*. 2010, nr. 6071.
[194] http://www.nrc.nl/apps/schaliegas/knipsel/zienswijze-rabobank-2010.pdf
[195] Rechtbank 's-Hertogenbosch 25 October 2011 (case AWB 11-623 en AWB 11-672, ECLI:NL:RBSHE:2011:BU1387).
[196] Interestingly enough, it does not seem from the public documents that a Water permit was requested.
[197] NRC Handelsblad, 'Hoe de bubbel in Brabant barstte', 8 February 2014.
[198] https://www.schaliegasvrij.nl/

4.9 Overview problems

From the analysis of the Dutch regulation in this chapter, it seems that there are several (legal) issues. Here, I will identify different problems that come to mind when reviewing the current framework. In that manner, we can assess whether the principles (set out in the next chapter) can contribute to these issues (which will be discussed in Chapter 6). In the conclusion (Chapter 7), it will be discussed per individual problem (as pointed out hereafter) how certain of those discussed principles (of Chapter 5) could contribute to addressing these problems.

The first thing that clearly causes several problems is the fragmented nature of the shale gas regulation. Not only the regulation itself, but also the competent authorities and the assessment frameworks are ruled by fragmentary applications. As shown by the overload of different regulations (also on different levels), it is not easy to assess the applicable legislation on shale gas exploration. Instead of one clear legislation applicable to shale gas, everything is now spread over more than ten regulations, laws, policies, etc. This can cause overlap, which is already problematic due to efficiency reasons, but even worse: it can cause holes in legislation. This does not contribute to the clarity and legitimacy of shale gas exploitation, but moreover: it also counters environmental protection. The Mining Act serves as an example here, which regulation concerns mining but does not involve environmental considerations. For the latter, other laws need to be consulted. This must be properly connected to each other, otherwise holes arise in the protection level. Furthermore, while some regulations are controlled by the EU regulation, such as the Mining Act, Nbw, etc., some parts are independent, such as the Wro. It should be noted here that the Environmental and Planning Act (*Omgevingswet*), which has been submitted to the Dutch Parliament in June 2014, does not offer a solution for this problem.[199]

Moreover, the different legislations have different competent authorities, on different levels. While the State is the competent authority for the Mining Act, the municipalities are the competent authorities for the Wro, Wabo, etc., and the water authorities *(waterschappen)* for the water aspects, with the exception of groundwater abstractions where the province is the competent authority (and if discharged to the sewer system, the municipality is the competent authority). Furthermore, within the current legislation, no coordination between these competent authorities is needed. This worsens the fragmented decision-making. The example of Cuadrilla in Boxtel illustrates the reality of this issue. This fragmentation does not mean that there should always be one competent authority. This is very difficult to realise, but also not necessary. What is however essential is better coordination, alignment and frameworks.

A further aspect that possesses a fragmentary nature is the assessment frameworks provided by the several regulations. The different regulations provide for different protection levels, but also for different assessment frameworks. While the environment receives high priority in the Wabo, it is not even mentioned in the Mining Act. Finally, when speaking about fragmentary issues, all the regulations also contain different instruments. While the instruments of the Wro are structure visions, general rules, spatial act, etc., the Barmm provides for a notification, the Wabo and the Mining Act for licenses, etc. This can be very confusing and it will not always be clear how does different instruments relate to one another.

Another very important issue is the problem of conflicting interests. Shale gas exploitation provides for energy supply and security but it also provides for concerns regarding drinking water (and groundwater). It is very unclear how these interests should be balanced. Drinking water is an imperative reason of overriding public interest, from both European and national law. Does this weigh heavier than (only) a national interest? In its Draft MSL, the government has decided that it will exclude water extraction and groundwater protection areas from the scope of the plan area of

[199] *Kamerstukken II* 2013/14, 33 962, nrs. 1-3.

the Draft MSL (for the plan-EIA), although the deeper soil is not excluded hereof.[200] It could be questioned whether this is enough, or that the deeper soil (of more than 1000 metres) should also be excluded. Also, as the supervisory board has pointed out; on what is this criterion based? The essential question is: how do you deal with two national interests in terms of a decision-making framework? Also, drinking water companies are now semi-private. This means that they do not belong to the government anymore and have no 'formal' right of advice (although they are mentioned by the Minister for advice and were also part of the sounding board), while the Ministry of Economic Affairs takes care of the energy sector and tries to facilitate as much as possible.

With regard to the drinking water companies, another problem comes to mind. The issue of transparency and (non-)availability of information is not only difficult for the public, but also for drinking water companies. This is especially problematic since these companies are under a duty of care to deliver safe drinking water, according to Article 2 of the Drinking Water Act. In order to enhance the legitimacy under the public, it is very important to provide for transparent decision-making. Also, the formation of the fracking water needs to be public in order to provide drinking water companies (and the public) the possibility to guarantee safe and healthy drinking water and control risks to the soil and groundwater.

At last, there is the issue of overriding authorities. The higher authorities (the State, the province) have many powers to overrule the municipalities (and provinces). While all the municipalities may be against a certain development, the State (the Minister of Economic Affairs) can set these concerns aside and force its own decisions upon them. The conditions that the State or a province has to fulfil to force its own regulations are not even difficult to fulfil. This seems sometimes a bit in contrast with the principle of decentralisation. This will be further discussed in Chapter 5. This issue can already be illustrated by the current development in the Netherlands where many municipalities join the action 'Shale gas free' against shale gas exploitation. However, this may not stop the State from forcing shale gas exploitation on certain municipalities.

4.10 Conclusion

This chapter has set out the different national legislation that might be relevant for shale gas activities. As shown, this is quite some legislation. This patchwork of legislation also results in quite some problems, as seen by the provided example and as discussed in the prior paragraph. In Chapter 6 it will be assessed whether this current legal framework (including the Draft MSL) is in line with different general and environmental principles. Here, the problems of the prior paragraph will also be taken into consideration. In the conclusion (Chapter 7), these problems will also be assessed individually. Before carrying out this assessment, the several general and environmental principles of Union and Dutch law will be set out in the next chapter.

[200] Draft MSL (2014), p. 16 and p. 18.

5 General (environmental) principles of Union and Dutch law

In the next chapter the current shale gas regulation will be measured against several general (environmental) principles. Before doing this, the case law and literature on those principles - at both the EU level and the national level - should first be discussed. While setting out the different principles, first the EU content of the principle will be set out, after which the national meaning (according to the Dutch case law and literature) will be given. Prior to this, the definitions of and differences between general principles of Union law and environmental principles will be set out.

Here, there is chosen to only discuss the most relevant principles with regard to shale gas exploitation. The principles that first come to mind when discussing the compliance of the current EU and national legislation on shale gas with general (environmental) principles of Union law are: the subsidiarity principle (especially with regard to the latest EU initiative on shale gas), the transparency principle, the participation principle, the integration principle, the precautionary principle and the prevention principle. These will be discussed in this order. With regard to the general principles, their meaning will first be elaborated in general, before going into more depth what the principles mean with regard to environmental cases. Other general principles of Union law that will not be discussed here are e.g. equal treatment, proportionality, legal certainty, fundamental rights, etc. With regard to general environmental principles the principles that will not be discussed separately are the principles that environmental damage should as a priority be rectified at source and that the polluter should pay. Due to the length of this thesis and the degree of relevance of those principles (compared to the discussed principles), it is chosen not to discuss these principles individually. However, they will both be considered (shortly) when discussing the other chosen principles.

It should be mentioned that 'energy specific' principles do not exist. The ensuring of the security of energy supply in the Union is for example not a general principle, but an objective. Before the Lisbon Treaty added a specific provision on energy (Art. 194), most energy regulation was adopted on the basis of Article 191 TFEU (on the environment). In the second paragraph of Article 191 a reference is made to several environmental principles. These principles should guide the environmental policies. Article 194 TFEU does not have a similar paragraph, but it should be assumed that Art. 191(2) TFEU also applies to energy policies since the previous energy regulations were and still are based on this article and energy regulation often has great impact on the environment, as seen in Chapter 2. Moreover, the integration principle of Article 11 TFEU, as set out in paragraph 1.5, requires that environmental protection requirements must be integrated into all the Union policies and activities, which includes the field of energy.

5.1 General principles vs. environmental principles

5.1.1 General principles

There is one generally accepted definition of a general principle of EU law, namely that a principle is a "general proposition of law of some importance from which concrete rules derive".[201] Hence, a general principle must be of general nature – a certain abstraction, distinguished from (concrete) rules – and should carry some weight. This latter means that it should have certain importance and that it must express the core value of an area of law or legal system.

The EU general principles are developed by the CJEU as a necessity: "unless the Court is to deny justice (...)".[202] The Court found the justification for 'finding' general EU principles in (now) Article 19 TEU, which states that the CJEU shall ensure that in the interpretation and application of the

[201] Tridimas (2006), p. 1.
[202] See e.g. case C-7/56 *Algera* [1957] ECR 00081.

Treaties 'the law' is observed. This law which the CJEU must ensure also includes unwritten law and could thus include general principles. Another justification for the use of general principles as grounds of review can be found in Article 263(2) TFEU which states as the third ground for review the 'infringement of the Treaties or *any rule of law relating to their application*'.[203] This space is also used by the Court to develop general principles. In the beginning, the general principles were only unwritten. Nowadays, the general EU principles are still partly unwritten, such as the principles of legal certainty and legitimate expectations, but also partly written, such as the principle of equality, proportionality and rights of defence.

The sources of the principles, in which the CJEU 'finds' them, can be found in Art. 6(3) TEU in which it is set out that fundamental rights, as guaranteed by the ECHR and as they result from the constitutional traditions common to the Member States, shall constitute general principles of the Union's law. Hence, the first source of the principles is the International Treaties, for which the ECHR is of special importance. It is seen by the CJEU as a source of inspiration, while not deciding that the Convention is binding on the EU. The Court can provide more extensive protection than the ECHR, which is confirmed by Article 52(3) of the Charter of Fundamental Rights (hereinafter: 'CFR').[204] The second source is the general principles of the MS. This is also confirmed in Article 340 TFEU and Article 288(2) TFEU in which it is stated that Union liability is based on 'principles of law common to the laws of the MS'. Hence, recognition of a principle in some MS can be sufficient. They do not have to exist in all the MS. German law is considered to be of the most importance here.[205] Finally, it has been discussed that other international human rights instruments are also a source of inspiration for developing general principles. On some occasions, the Court has based its inspiration thereon. The sporadic use of this latter source has been subject of debate.[206]

General principles are binding for Union institutions and for MS, when they act in the scope of Union law (meaning: when MS implement, apply or derogate from EU law).[207] This includes the written, but also the unwritten principles. National general principles are still of relevance when MS act outside the scope of Union law. MS are allowed to apply national principles as long as principles of equivalence and effectiveness are observed.[208] However, there is a tendency in the case law to limit the protection of the national principle to the level of the EU principle.

Several functions of general principles can be distinguished. Fennis distinguishes four: a constitutive (the linking of fundamental principles to the applicable law), a law-making (the possibility for the court to interpret, modify and overrule law by means of general principles), a normative (the possibility to review the exercise of discretionary powers by authorities and courts) and an instrumental function (the use of principles in order to exercise administrative powers, although those can better be described as policy norms, e.g. the Dutch general duty to enforce).[209] Craig & De Búrca also refer to their interpretative function and their use as grounds of review. General principles can even function as a ground for annulment or as a basis for a damages action. They cannot however invalidate primary Treaty Articles but they can annul other EU acts or national measures if they fall within the scope of EU law.[210] This also clarifies the status of general principles. They are below the Treaties (but can be used for their interpretation), but above the legislative, delegated and implemented acts (for which the general principles can even be invoked

[203] Craig & De Búrca (2011), p. 109 and Chapter 15.
[204] Craig & De Búrca (2011), pp. 366-367.
[205] Craig & De Búrca (2011), p. 110 and p. 525.
[206] Craig & De Búrca (2011), pp. 367-368.
[207] Case C-617/10 *Åklagaren tegen Hans Åkerberg Fransson*, not yet published.
[208] Case 33/76 *Rewe-Zentralfinanz eG and Rewe-Zentral AG v Landwirtschaftskammer für das Saarland* [1976] ECR 1989; see also e.g. Case C-383/06 *Vereniging Nationaal Overlegorgaan Sociale Werkvoorziening e.a.* [2008] ECR I-01561, paragraphs 49-50.
[209] Fennis (2012), p. 22.
[210] Craig & De Búrca (2011), p. 525.

as a ground for invalidation).[211] All general principles are in principle equally in value and legal status. The order depends on the circumstances of the case.[212] If principles are incorporated into (European or national) law, rules or policies, they receive the same order as that law, rule or policy.

General EU principles have direct effect. They can thus be invoked before national courts and can lead to the annulment of a decision when this is in contrast with the general principle. However, if unwritten, they cannot be used solely as a legal basis; they have to be invoked in combination with regulation or legislation, e.g. as an interpretation, complement or review ground.[213] If a competent authority has to make a decision (to act), he has discretionary power to involve a general principle in its decision as a motivation, interpretation or review ground. A court has to assume that a competent authority has balanced all the interests before making the decision and has made a decision to prevail one interest (or principle) over the other. This balance is for the competent authority to make and a court cannot interfere. The court may only review whether the balance of interests was reasonably and carefully made.[214]

5.1.2 Environmental principles

The starting point of the EU environmental policy is to be found in Articles 11 and 191 TFEU. Here, Article 11 states that EU environmental requirements should be integrated in all EU policies. This integration principle will be elaborated in depth in paragraph 5.5. These requirements are set out in Article 191 TFEU. In the first paragraph, the objectives of EU environmental law are set out. These are preserving, protecting and improving the quality of the environment; protecting human health; prudent and rational utilisation of natural resources; and promoting measures at international level to deal with regional or worldwide environmental problems, and in particular combating climate change. The second paragraph enumerates the environmental principles that should guide EU policy. These are the precautionary principle and the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.[215] These principles have to be incorporated into European environmental legislation, which has to develop them into concrete obligations for the MS. Then, the environmental principles can be used to interpret the development and application of environmental law, especially when the law leaves space for an assessment or the balancing of interests.[216]

Environmental law and environmental policy are closely connected. The guiding principle of EU environmental policy is the principle of sustainable development, which can also be found in Article 11 TFEU. The environmental principles serve as the practical application of this goal. If general environmental principles are incorporated into environmental policy they are not as binding as when they are incorporated into law. An important difference between the two is that principles – with regard to law – are used as its basis, while – with regard to policy – they are used for its application. With regard to decisions of competent authorities, the environmental principles serve as an assessment framework. However, they influence the decisions more in a normative sense than the content of the decision. The same does apply for the courts; they cannot use an environmental principle to annul a decision. The court does however use environmental principles to interpret law, regulations or other codified general principles. The court does not apply unwritten environmental principles.[217] Only in exceptional cases would a decision, measure or act be annulled due to the fact that the environmental principles have not been sufficiently taken into account.[218]

[211] Craig & De Búrca (2011), p. 109.
[212] Fennis (2012), p. 21.
[213] Fennis (2012), p. 20.
[214] Fennis (2012), p. 21.
[215] Fennis (2012), p. 23.
[216] Jans & Vedder (2012), p. 41.
[217] Fennis (2012), pp. 23-24.
[218] Jans & Vedder (2012), p. 41.

Environmental principles serve several functions. Fennis argues that they mostly serve the normative and instrumental function. After all, they try to adjust the conduct of the government and the citizens (regarding the environment). Also, they serve as a normative assessment framework for authorities. Moreover, the instrumental function is shown by the amount of policies, guides and circulars on the protection and regulation of the environment.[219]

The environmental principles are equally in rank. It is possible to deviate from a principle, in order to give priority to another principle. The order thus depends on the circumstances of the case. If principles are implemented in law, rules or policies, they obtain the same status.

5.1.3 Comparison

Both principles are mostly used as an interpretation norm or as a ground for review. Although general principles can be invoked as an independent norm, they usually are not invoked in that manner. However, there is also a difference. While unwritten general principles can be invoked by national courts (and can even be used to annul a decision), in order to interpret or adjust a regulation (although not solely if unwritten), unwritten environmental principles cannot be applied by courts. Another difference is that environmental principles are always linked with environmental policy, for which they serve as an interpretation or guideline. This link is not visible with general principle since they (as the name indicates) are generally applicable and not specific for certain policies.

In general, both at EU and national level, environmental principles cannot breach general principles. Rather, they are used as an interpretation of general principles, e.g. for the principle of due care. Therefore, Fennis concludes that they can be seen as part of the general principles instead of being aligned.[220]

5.2 General principle: subsidiarity principle

5.2.1 EU level

The subsidiarity principle was first enshrined in the Single European Act in 1987 with regard to environmental policy, although the principle was not explicitly mentioned. Then, in the Maastricht Treaty the principle was formally included. The Treaty of Amsterdam added a Protocol on the application of the principles of subsidiarity and proportionality. This provision and protocol are also incorporated in the Lisbon Treaty.[221] The legal basis of the subsidiarity principle is now Article 5(3) TEU, together with Protocol No 2. Art. 5(3) TEU states:

> Under the principle of subsidiarity, in areas which do not fall within its exclusive competence, the Union shall act only if and in so far as the objectives of the proposed action cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level.

Three pre-conditions can be distinguished from this paragraph. First, the action must not fall under the exclusive competence under the Union. Thus, only shared competences apply. The Lisbon Treaty has made a clear distinction between the several Union competences in Part One, Title I, of the TFEU. According to Article 4 paragraph 2 TFEU, shared competence between the Union and the MS applies *inter alia* in the principal area of energy (sub i). Second, action is only allowed if objectives cannot be sufficiently achieved by the MS. Furthermore, this action, by reason of the

[219] Fennis (2012), p. 24.
[220] Fennis (2012), p. 25.
[221] Fact Sheets on the European Union 2014, source: http://www.europarl.europa.eu/ftu/pdf/en/FTU_1.2.2.pdf

scale or effects of the proposed action, should better be achieved at Union level.[222] The Union may only act if these three criteria are fulfilled. As such, "[i]t is not a rule of competence but a principle which concerns the exercise of that competence, and predetermines the activity of the European Union".[223]

Protocol (No 2) on the application of the principles of subsidiarity and proportionality strives to establish the conditions for the application of the principles and to establish a system for monitoring the application of those principles. The aim is the protection of the sovereignty of MS and their ability to take their own decisions but also to provide for intervention by the Union if the unilateral actions are not sufficient. Another objective is the security that decisions are taken as closely as possible to the citizens of the Union.[224] This is confirmed by Article 1 TEU. The conditions deriving from the Protocol are as follows. The Commission shall, before proposing legislative acts,[225] prepare a Green Paper which consists of wide-ranging consultations, in which it takes into account the regional and local dimension of the action envisaged. The drafter of the legislative acts (Commission, EP, Council) shall forward its draft to the national parliaments. According to Article 5 of the Protocol, the draft legislative acts should be justified with regard to the principles. Any draft legislative act should contain a detailed statement making it possible to appraise compliance with the principles. The reasons for concluding that a Union objective can be better achieved at Union level shall be substantiated by qualitative and, wherever possible, quantitative indicators. Here, the second criteria of Article 5(3) TEU can be recognised. In the preamble of all legislation (to date), this 'detailed statement' is always set out in order to show that the legislation is in compliance. Here, EU institutions have broad discretionary space.[226] It should be pointed out that this detailed statement often has a somewhat standardised character.[227]

After the drafter has concluded its consultation and made a detailed statement, he finishes the draft legislative act. Within eight weeks from the date of transmission of a draft legislative act, any national Parliament or any chamber of a national Parliament may, according to Article 6, send to the Presidents of the European Parliament, the Council and the Commission a reasoned opinion stating why it considers that the draft in question does not comply with the principle of subsidiarity. The drafter of the legislative act (may it be the EP, the Council, the Commission, the group of Member States, the Court of Justice, the European Central Bank or the European Investment Bank) shall take account of these reasoned opinions. Each national Parliament shall have two votes, shared out on the basis of the national parliamentary system. Where reasoned opinions on a draft legislative act's non-compliance with the principle of subsidiarity represent at least one third of all the votes allocated to the national parliaments in accordance with the second subparagraph of paragraph 1, the draft must be reviewed (the 'yellow card' procedure).[228] After such review, the drafter may decide to maintain, amend or withdraw the draft. Reasons must be given for this decision. Under the ordinary legislative procedure, where reasoned opinions represent at least a simple majority of the votes allocated to the national parliaments, the proposal must also be reviewed. If it chooses to maintain the proposal, the Commission will have to, in a reasoned opinion, justify why it considers that the proposal complies with the principle of subsidiarity. This reasoned opinion, as well as the reasoned opinions of the national parliaments, will have to be submitted to the Union legislator, for consideration in the procedure. If, by a majority of 55 % of the members of the Council or a majority of the votes cast in the EP, the legislator (the EP and the Council) is of the opinion that the proposal is not compatible with the principle of subsidiarity, the

[222] Fact Sheets on the European Union 2014, source: http://www.europarl.europa.eu/ftu/pdf/en/FTU_1.2.2.pdf
[223] Krämer (2011), p. 16.
[224] Fact Sheets on the European Union 2014, source: http://www.europarl.europa.eu/ftu/pdf/en/FTU_1.2.2.pdf
[225] According to Article 3 of Protocol No 2, 'draft legislative acts' shall mean proposals from the Commission, initiatives from a group of Member States, initiatives from the European Parliament, requests from the Court of Justice, recommendations from the European Central Bank and requests from the European Investment Bank, for the adoption of a legislative act.
[226] Krämer (2011), p. 17.
[227] Jans & Vedder (2012), p. 14.
[228] The first 'yellow card' procedure concerned the Monti II regulation, May 2012.

legislative proposal shall not be given further consideration (the 'red card' or 'orange card' procedure). The Commission shall submit each year to the European Council, the EP, the Council and national parliaments a report on the application of Article 5 TEU. This annual report shall also be forwarded to the Economic and Social Committee and the Committee of the Regions.

The CJEU shall have jurisdiction in actions on grounds of infringement of the principle of subsidiarity by a legislative act, brought in accordance with the rules laid down in Article 263 TFEU. Hence, MS do not only have the possibility to object when legislation is drafted, but they can also start a procedure before the CJEU.[229] However, Union institutions have wide discretionary powers when drafting legislation. There are few judgments of the CJEU on the annulment of a Union environmental measure for non-compliance with subsidiarity principle.[230] Here, the Court always judges whether the objective of the proposed action of the Directive could be better achieved at EU level.

The subsidiarity principle is often complemented with the principles of conferral and of proportionality.[231] These are also included in Article 5 TEU. While the principle of conferral governs the limits of Union competences, the principles of subsidiarity and proportionality govern the use of the Union competences. Paragraph 2 states that under the principle of conferral, the Union shall act only within the limits of the competences conferred upon it by the Member States in the Treaties to attain the objectives set out therein. Competences not conferred upon the Union in the Treaties remain with the Member States. In the fourth paragraph it is stated that under the principle of proportionality, the content and form of Union action shall not exceed what is necessary to achieve the objectives of the Treaties. Here, it is chosen not to go in depth into these principles since this is not relevant with regard to the research question. This is chosen because in the current debate on the last recommendation of the Commission it is generally not questioned whether this exceeded what was necessary. It was the other way around: was this recommendation actually enough to achieve the environmental objectives of the treaties? Especially the objectives set out in Articles 191 and 194 TFEU and the principles included herein. This will be reviewed in the next chapter.

With regard to the subsidiarity principle it is also relevant to make a link with the principle of decentralization. These two are closely intertwined; they both have as their aim to realise that a matter is to be handled by the lowest (least centralised) authority possible. This aim is also confirmed by the Treaty, which states in Art. 1 TEU that "[t]his Treaty marks a new stage in the process of creating an ever closer union among the peoples of Europe, in which decisions are taken as openly as possible and *as closely as possible* to the citizen". This is also recognised by the European Charter of Local Self-Government, which is however not established by the European Union, but by the Council of Europe.[232] The decentralization principle will further be discussed in the next paragraph.

Application of principle to environmental issues

As mentioned, Article 5 of the Protocol states that the legislative acts should be justified with reference to the principles. Three 'justifications' could be distinguished, which allow for EU environmental action: transnational environmental effects, conflict with Treaties-requirements (internal market aspects), or clear EU benefits in scale or effects.[233] With regard to the first, EU environmental action will probably be easily justified. After all, environmental effects do not stop for

[229] http://europa.eu/legislation_summaries/institutional_affairs/treaties/lisbon_treaty/ai0017_en.htm
[230] Joined Cases C-154/04 and C-155/04 *Alliance for Natural Health and Others* [2005] ECR I-6451, paragraphs 99-108; Case C-491/01 *British American Tobacco (Investments) and Imperial Tobacco* [2002] ECR I-11453, paragraphs 177-185; and Case C-377/98 *Netherlands v EP and Council* [2000] ECR I-6229, paragraphs 30-33.
[231] http://europa.eu/legislation_summaries/institutional_affairs/treaties/lisbon_treaty/ai0017_en.htm
[232] European Treaty Series no. 122 – Local Self-Government, 15.X.1985.
[233] Jans & Vedder (2012), pp. 15-17; Jans et al. (2000), pp. 27-29.

borders. Here, unilateral actions by MS will be less effective than EU action. In this manner, the passivity of one MS will not frustrate the actions of another MS. This applies e.g. to water and air pollution, or to the protection of habitats and wild fauna and flora.[234] The second 'justification' ground comes typically into play in cases concerning import or export restrictions (Articles 34-36 TFEU). If MS insert certain conditions (for environmental reasons) this could result in the restriction of import or export. Here, the EU can harmonise EU-wide conditions, applicable to all MS, so that environmental product standards can be applied without distortion of the internal market.

In practice, it is not easy to develop general rules on when action should 'better be achieved at Union level'. With regard to environmental policies, the opinion differs between MS with a pro-active environmental policy (e.g. Netherlands,[235] Denmark, Sweden, Austria, Germany) and those who are not convinced of the importance of environmental protection (e.g. Greece, Spain, Portugal, Italy). Those latter MS often only implement the EU environmental legislation and do not come up with own additional environmental policies. Moreover, it depends on the leading political party in the MS, but also on the economic development within a MS. As Krämer says "[p]overty is the biggest environmental pollutant".[236] Therefore, the Western of Europe is more ready to invest in environmental policies, while the Eastern is not as enthusiastic. According to Krämer, this has led to the two different orientations in the EU. On the one hand there are the MS who are of the opinion that the EU should only regulate if absolutely necessary (ex. Art. 5 TEU and Art. 193/194 TFEU), in order to develop more stringent protection. On the other hand there are the MS who do not develop environmental policies on their own. Some countries have even officially declared not to adopt national environmental legislation that goes beyond EU measures (e.g. UK, Germany, Austria). This works against the objective of Art. 5 TEU and Art. 193/194 TFEU.[237]

Another interesting question that Krämer points out is: what does 'better' actually mean? Several meanings can be distinguished:

> quicker, more effective, cheaper, more efficient, closer to the citizen (i.e. not too centralised), more democratic, more uniform, more consistent with measures in other parts of the industrialised world, or the global or the European Union, without these concepts beings more precise.[238]

According to the EP, the notions of Art. 5 TEU are expressly kept vague, in order to grant as much discretionary power to the legislator.[239] Hence, it must be decided per individual case whether the action should better be taken at EU level, in order to enhance environmental objectives. The outcome of these decisions is always political.[240] Attention should be paid to the fact that MS might have very different national environmental policies. However, the main concern should always stay the improvement of the environment.

5.2.2 Dutch level

The subsidiarity principle is an EU concept. It is important for the Dutch level, but only in combination with the EU level. The main basic question of this principle is: should this matter be handled on EU level or on national level? Which level is better suited, equipped or more effective? It is thus always in combination with the EU level that this principle will be discussed. However, there is another aspect (already pointed out in the previous paragraph), with the same aim as the subsidiarity principle, which is closely linked with this principle. It concerns the decentralisation principle, which means in short: ‘decentralised what is possible, centralised what must’. This

[234] Case 247/85 *Commission v Belgium* [1987] ECR 3029.
[235] It could however be questioned whether the Netherlands is still part of the MS with a pro-active environmental policy, see dissertation L. Squintani, *Gold-plating of European environmental law*, Rijksuniversiteit Groningen, 2013.
[236] Krämer (2011), pp. 17-18.
[237] Krämer (2011), p. 440.
[238] Krämer (2011), p. 18.
[239] Res. Of 20 April 1994, OJ C128/190, n. 5.
[240] Jans & Vedder (2012), p. 17.

principle can be of relevance on the national level, especially with regard to shale gas exploitation. The special connection of this principle with shale gas exploitation will be discussed in the next chapter, but here the general notions will be set out. Especially the notions with regard to the rules on spatial planning and the environment are relevant to look at.

In an article by De Gier, the decentralisation principle with regard to the rules in these areas (of spatial planning and the environment) is set out. First, De Gier refers to the general notions behind the decentralisation principle, namely the separation of power and democracy. Due to these general (very important) notions, the principle has been codified in the Dutch Constitution. Article 124 hereof states that the provinces and municipalities have autonomy (paragraph 1), but that it is possible that cooperation of them can be demanded by the formal legislator, or if delegated by a lower authority (paragraph 2). This latter is called co-administration (*medebewind*). De Gier distinguishes two opinions on this Article. First, he refers to the opinion of Kortmann, who seems to believe that this co-administration is limitless. According to Kortmann, higher authorities can always demand cooperation if there is a legal basis. However, he states, this cannot go that far in the sense that all the autonomous powers will be taken away. This would breach Article 124 of the Constitution since that will be contrary to the existence of that Article. Second, De Gier refers to Konijnenbelt. Konijnenbelt argues that, with the principle of decentralisation in mind, 'limitless' co-administration seems contrary to the idea of Article 124 and the principle it represents. According to the principle, if the administration and regulation *can* be handled by the province or municipality, it *should*. As De Gier concludes from these two different views, the decentralisation principle is not materially guaranteed for the decentralised authorities. It only seems to offer an aspiration; in the end the legislator decides how much local autonomy the decentralised authorities have.[241]

With regard to spatial planning and environmental regulation, De Gier points out that in the environmental regulation (especially the *Wabo*), the powers of the several authorities are strictly fixed. However, in the spatial planning regulation (especially the *Wro*) this is the other way around. The powers of the decentralised authorities are not strictly delimited. As mentioned in Chapter 4, the Wro offers several possibilities for the State to interfere with the powers of lower authorities (and also for the provinces to interfere with municipalities' powers). Not only does the State have the power to establish an *inpassingsplan* (a government-imposed zoning plan amendment), it also has the possibility to establish general rules (ex. Chapter 4 Wro) and the power to give a reactive designation (Art. 3.8 Wro) or a pro-active designation (Art. 4.2 Wro). And to make this even 'worse', as De Gier points out, these State powers are not clearly delimited. For most of these powers there exist three (vague) pre-conditions, e.g. for the establishment of general rules. The first condition is that the interference can only be made if a national (or provincial) interest exists. Second, the interference should be necessary and finally, in the interest of good spatial planning. The condition of necessity is not always required, as mentioned in Chapter 4 (e.g. with regard to the establishment of an *inpassingsplan*). It can also be repeated here that the 'threshold' of the existence of a national interest is not very hard to reach.[242] Although, the same could be said about the other two conditions. All these requirements are for the centralised authority to decide on, whereby the national court will not review this quickly. This is confirmed by De Gier. He refers to the *Afdeling*, who does nothing (to his disappointment) to clarify this unclear distinction.[243] He advocates for a clearer delineation between the centralised and decentralised authorities with regard to interference powers. In his opinion, this can be established by a stricter application of the necessity-condition, whereby also the duty to motivate will increase for centralised authorities when they interfere. Only in that manner, the principle of decentralization can be guaranteed.

[241] De Gier (2012), pp. 362-363.
[242] Groothuijse & Korsse (2011).
[243] De Gier (2012), p. 364; ABRvS 6 July 2005 (*Bestemmingsplan 't Centrum 1986, Lisse*), *BR* 2005/173; and ABRvS 20 October 2010 (*Reactieve aanwijzing Groningen*), *AB* 2010/298.

5.3 General principle: transparency principle

5.3.1 EU level

The transparency principle is the newest principle of the EU general principles. It has been the subject of debate whether this principle should actually be considered as a general principle of Union law. The CJEU has confirmed this for the first time in the case *Commission v Italy*.[244] This position is also argued in literature. According to Buijze, the principle should be considered as a general principle of Union law; although mostly seen in certain areas, such as in procurement law, it is applicable in the entire legal system.[245]

There is no general acknowledged definition of the principle. It appears in several subject areas and contexts and it overlaps many other general principles such as legal certainty, equality and principle to state reasons. Several authors give different definitions. The general meaning of the principle, according to Buijze, is that the information on government action should be available in a clear, obvious and understandable way.[246] According to Prechal & De Leeuw "the more precise meaning of transparency depends on the context in which it is used, the function it is expected to fulfil and therefore also the interests it is aiming to protect."[247] The manner in which the transparency is justified by the underlying aims and objectives, the more weight could be attributed to the principle.[248] There are several appearances of the transparency principle which appear in all general EU law areas, such as transparency in the sense of an open and accountable government, clarity of procedures, clear drafting and the obligation to state reasons. There are also some specific EU law areas in which the appearance of the transparency principle has been crystallised, such as in the area of public procurement. This latter application is also finding its way into the area of scarce licenses and decisions. These specific areas will not be elaborated in more depth here. Although public procurement is part of the granting of shale gas extraction licenses, that part is not the focus of this thesis and will therefore be left aside here. Moreover, the transparency principle is much broader than only its application in public procurement.

The first appearance mentioned ('open and accountable government') is the most-developed aspect of the transparency principle and includes the access to information in environmental law. With regard to this appearance of the transparency principle, Prechal & De Leeuw argue that it mostly functions at two 'levels' (or perspectives): at the political or constitutional level (closely related to the principle of democracy and legitimacy) and at a more concrete administrative level (closely related to the right to be heard and rights of defence).[249] Buijze also distinguishes two aspects: first, the aspect that the transparency principle facilitates decision-making and second, that it allows an outsider to observe what a transparent organisation is doing.[250] These are more or less the same functions as referred to by Prechal & De Leeuw. First a short comment on the second level to which Prechal & De Leeuw refer. This level relates to the rights of the defence. Here, the right of access to the file comes into play. This right is derived from the condition of procedural fairness, the principle of equality of arms and the right to be heard.[251]

Better known is the first level of this appearance. This concerns the right of public access to information. The notions of democracy, legitimacy and political accountability are closely linked here, for which the transparency principle could be seen as a pre-condition.[252] The connection of

[244] Case C-260/04 *Commission v Italy* [2007] ECR I-07083.
[245] Buijze (2011), p. 241.
[246] Buijze (2011), p. 241.
[247] Prechal & De Leeuwen (2008), p. 202.
[248] Buijze (2011), p. 241.
[249] Prechal & De Leeuwen (2008), pp. 204-205.
[250] Buiijze (2013), p. 54.
[251] Prechal & De Leeuwen (2008), p. 209.
[252] Prechal & De Leeuwen (2008), p. 205.

those notions with the transparency principle is acknowledged by the CJEU.[253] The Court has stated that "[i]t is (...) a lack of information and debate which is capable of giving rise to doubts in the minds of citizens, not only as regards the lawfulness of an isolated act, but also as regards the legitimacy of the decision-making process as a whole".[254] This link is also established in Regulation (EC) No 1049/2001 of 30 May 2001 regarding public access to European Parliament, Council and Commission documents to all Community institutions and bodies (the Dutch version hereof is the *Wet openbaarheid bestuur*).[255] These notions are also implemented in the Treaties. Nowadays, the Lisbon Treaty provides in Art. 1 TEU that "[t]his Treaty marks a new stage in the process of creating an ever closer union among the peoples of Europe, in which decisions are taken *as openly as possible* (…)". Article 11(2) and (3) TEU require the EU institutions to "maintain an open, transparent and regular dialogue with representative associations and civil society" and the Commission to "carry out broad consultations with parties concerned in order to ensure that the Union's actions are coherent and transparent".

Also, Article 15(1) TFEU states that the Union's institutions, bodies, offices and agencies shall conduct their work *as openly as possible.* Moreover, paragraph 2 obliges the EP to meet in public. The same is required from the Council (Art. 16(8) TEU). According to Article 15(3), which is of special importance, any citizen of the Union, and any natural or legal person residing or having its registered office in a Member State, shall have a *right of access* to documents of the Union's institutions, bodies, offices and agencies, whatever their medium. Thereby, each institution, body, office or agency shall ensure that its proceedings are *transparent* and shall elaborate in its own Rules of Procedure specific provisions regarding access to its documents, in accordance with the regulations referred to in the second subparagraph. Regulation 1049/2001 is based on the predecessor to this article (Art. 255 EC). Furthermore, Article 298(1) and (2) TFEU provides that in carrying out their missions, the institutions, bodies, offices and agencies of the Union shall have the support of an open, efficient and independent European administration. The Union's legislature shall establish provisions to that end. Finally, Article 42 CFR includes the right of access to documents and grants any citizen of the Union, and any natural or legal person residing or having its registered office in a Member State, the right of access to documents of the institutions, bodies, offices and agencies of the Union, whatever their medium.

The European Ombudsman has played a central role in the development of transparency as a principle of law. He has inquired the public accessibility to documents of several Community institutions and concluded that there existed maladministration. After his research, important EU bodies have adopted rules on the access to documents. In this regard, the European Ombudsman had adopted the European Code of Good Administrative Behaviour. Another EU institution of central importance in the development of principles in general is the CJEU. Unfortunately, for a long time the CJEU has not been willing to adopt a general right of transparency or access to documents.[256] The CJEU did decide on cases on procedural rules and legislative decisions of EU institutions with regard to the right of access to information, especially with regard to Reg. 1049/2001. Craig & De Búrca refer to the case *Hautala* in which the Court protects 'the reality of access'.[257] The decisions of the Court mainly discuss the legal meaning of exceptions listed in Article 4, the legal standard of review and the meaning of a public interest called upon. In the case *Sison* the CJEU adopts a limited judicial review: "the Community Court's review of the legality of such a decision must therefore be limited to verifying whether the procedural rules and the duty to state reasons have been complied with, whether the facts have been accurately stated, and whether there has been a manifest error of assessment or a misuse of powers."[258] Finally, it is

[253] Prechal & De Leeuwen (2008), p. 205; Case C-58/94 *the Netherlands v Council* [1996] ECR I-2169, paragraph 19.
[254] C-39/05 P and 52/05P, *Kingdom of Sweden and Turco v Council* [2008] ECR I-04723, paragraph 59.
[255] Buijze & Widdershoven (2010), p. 590.
[256] Craig & De Búrca (2011), p. 544.
[257] Craig & De Búrca (2011), pp. 544-545; Case C-353/99 P *Hautala v Council* [2001] ECR I-9565, paragraph 31.
[258] Case C-266/05 P *Jose Maria Sison v Council* [2007] ECR I-1233, paragraph 34.

remarkable that the CJEU also sometimes involves transparency in cases where there is no reference to transparency in the legislation at issue.[259]

Craig & De Búrca quote Judge Lenaerts, with reference to the development of the Treaty Articles on transparency, Regulation 2014/2001 and Art. 42 CFR, in stating that "it can at present hardly be denied that the principle of transparency has evolved into a general principle of Community law".[260] However, Craig & De Búrca also state that the impact will keep depending on the detailed meaning accorded to the principle.

Application of principle to environmental issues

With regard to further access to information, the EU action in the field of access to environmental information is relevant for this thesis. It begun with the EC Action Programme on the Environment in 1987,[261] followed by a Resolution which also paid attention to public access to environmental information.[262] The importance thereof was also emphasised by the EP in its Opinion on the fourth action programme by the EC on the environment.[263] This resulted in the Council Directive 90/313/EEC of 7 June 1990 on the freedom of access to information on the environment. Due to several concerns surrounding this Directive, a new Directive was adopted: the Environmental Information Directive. This latter Directive was highly influenced by the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which was adopted on 25 June 1998. This Convention is also called the 'Aarhus Convention' after the Danish city of Aarhus in which the Convention was agreed upon. Its objective is to guarantee to each Party three pillars in order to contribute to the protection of the right of every person of present and future generations to live in an environment adequate to his or her health and well-being: the rights of access to information (discussed in this paragraph), public participation in decision-making (elaborated in the next paragraph), and access to justice in environmental matters. Article 4 of the Convention concerns the access to information. The EU became a party to the Convention in 2005.[264] In 2003, two directives were adopted, implementing the Aarhus Convention. With regard to the access to information, this was the Directive 2003/4/EC on public access to environmental information (the Environmental Information Directive, as already mentioned above). In recital 5 it is stated that Community law should be properly aligned with the Aarhus Convention. The Directive goes further in some aspects than the Aarhus Convention, e.g. on the principle of transparency. On 6 September 2006, there was also a Regulation adopted: Regulation n° 1367/2006 on the application of the provisions of the Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters to Community institutions and bodies, also called the 'Aarhus Regulation'.[265] With regard to access to environmental information, the Regulation extends Regulation 1049/2001.

With regard to environmental issues (which will often arise with shale gas exploitation), access to environmental information is of vital importance. After all, the environment is a concern for and in the interest of everybody. Access to information helps the awareness and acceptance of the public. With regard to the first level of the appearance, access to information makes participation possible

[259] Craig & De Búrca (2011), p. 545; Cases C-154 and 155/04 *The Queen, on the application of Alliance for Natural Health and Nutri-link Ltd v Secretary of State for Health* [2005] ECR I-6451, paragraphs 81-82; Cases T-246 and 332/08 *Melli Bank plc v Council* [2009] ECR II-2629, paragraph 146.
[260] Craig & De Búrca (2011), p. 545; where they refer to K. Lenaerts, ' "In the Union we Trust": Trust Enhancing Principles of Community Law', *Common Market Law Review* 2014, issue 41.
[261] OJ 18 March 1987, C 70/3.
[262] OJ 29 October 1987, C 289/3.
[263] OJ 15 June 1987, C 156/138 .
[264] Council decision of 17 February 2005 on the conclusion, on behalf of the European Community, of the Convention on access to information, public participation in decision-making and access to justice in environmental matters (2005/370/EC).
[265] http://ec.europa.eu/environment/aarhus/legislation.htm

in environmental decision-making (democracy), which principle will be discussed in the next paragraph. Also, it facilitates control on the public authorities when making environmental policies and decisions (political and administrative accountability). Moreover (with regard to the second level) it creates procedural fairness and equality of arms between the public authorities and the (mostly) environmental NGO's.[266]

5.3.2 Dutch level

The first general principles (mainly) developed by the Dutch highest administrative court were the general principles of proper administration (*algemene beginselen van behoorlijk bestuur*). These principles were used by the courts to interpret vague norms or legislation which resulted from the appointment of broad discretionary powers to national administrations. In the meantime, most of these principles have been codified in the *Algemene wet bestuursrecht* in 1994. However, not all of them have been codified, so the unwritten law is still of relevance.[267] These principles are very important for grounds of review, grounds for nullification and as a legal standard for government action. Recently, other general principles have started to develop. These are the general principles of good administration (*algemene beginselen van goed bestuur*). Addink distinguishes six general principles of good administration: proper administration, transparency, participation, efficiency, accountability and human rights.[268] These principles are in the Netherlands not as far developed as in other MS or the EU.[269] According to Addink, it seems that the Dutch administrative courts are more focussed on the (better known) principles of proper administration, whereby the development of the principles of good administration are somewhat 'left behind'. Also, when paying attention to the principles, the court mostly considers them individually instead of as the general concept of 'good administration'.[270]

The administration itself has to comply with the (written and unwritten) principles of proper and good administration. From the point of view of clarity and uniformity, some administrations have decided to develop and publish policies for which they can be held accountable (according to Art. 4:84 Awb).[271] There are also Codes developed by other institutions. Administrations are bound to apply these when they act and they can also be held accountable for it. The Ministry of the Interior and Kingdom Relations has developed the Code Good Administration in 2009.[272] Here, they distinguish seven principles which differ from those of Addink but which again include the principle of transparency ('openness and integrity'). Other institutions, such as the Netherlands Court of Audit (*Algemene Rekenkamer*) already since 2004, have paid attention to the principles of good administration on their own.

On EU level, there are also two Codes of Good Administrative Behaviour, one developed by the Union (originally developed by the EU Ombudsman, as mentioned in the previous paragraph) and one developed by the Council of Europe. The first code is developed for the Union institutions, while the second code is aimed at the national institutions.[273] The latter is, with regard to the transparency principle, more comprehensive than the code of the Ombudsman. The Codes are both more comprehensive than the Dutch development of the principles of proper and good administration. The right to a good administration by EU institutions is even codified in Article 41 CFR, which is made binding with the Lisbon Treaty. Article 43 CFR even gives the right to complaint about maladministration by the Union institutions to the European Ombudsman.

[266] Prechal & De Leeuwen (2008), p. 215.
[267] Addink (2008), p. 7.
[268] Addink (2010), p. 28.
[269] Addink (2008), p. 9.
[270] Addink (2012), p. 643.
[271] For example the Code Good Administration in primary education (2010); or the Code Good Administration for public broadcasting (2012).
[272] Drahmann (2009), p. 21; Ministerie van BZK, *Nederlandse code voor goed openbaar bestuur; Beginselen van deugdelijk overheidsbestuur*, June 2009.
[273] Addink (2008), pp. 16-17.

An important Dutch law which focusses on the openness of administration is the *Wet openbaarheid van bestuur* (the Government Information (Public Access) Act), in short: the Wob. Regulation 1049/2001 is important for the interpretation of the Wob. The transparency principle cannot be found in other Dutch articles. Although, it could be argued that the principle already exists in the Awb in the formation with other principles, such as the principle of fair play (Article 2:4(1) Awb). Moreover, the principle can be found in section 3.6 Awb on the publication of decisions. Discussion exists on whether the principle should be adopted in the Awb. Drahmann is of the opinion that the principle should stay an unwritten one, since the principles is not clear enough (yet).[274] The Commission on the Evaluation of the Awb agrees on this point and states that vague terms should not be codified.[275] Buijze & Widdershoven are in favour of codification in the Awb, in accordance with EU developments and prior codifications of other (vague) general principles in the Awb.[276]

5.4 General principle: participation principle

5.4.1 EU level

The principle on public participation is linked with the transparency principle in the sense that together, they form the principle of openness.[277] They also share the same perspectives: democracy and legal protection. However, the way in which they reach these perspectives differs. The Lisbon Treaty has enhanced the principle of openness. This principle was first considered as a prerequisite for the functioning of Union institutions, while now it is also considered a right for citizens.

If the Treaty or Union legislation provides for public consultation, this right could be enforced before the courts. However, the CJEU has declined to accept a general right to public participation if this is not explicitly inserted in the text of the legislation.[278] Moreover, the fact that an applicant was active during the participation process of the specific legislation, does not give him any standing rights with regard to that legislation before the Court.[279] The Commission's action is also quite limited. It has however broadened public consultation by using Green and White Papers when adopting important EU policies.[280] Moreover, it developed the Interactive Policy Making initiative which objective is to "use modern technologies, particularly the Internet, to allow both Member State administrations and EU institutions to understand the needs of citizens and enterprises better."[281] In its Communication of 11 December 2002 called 'Towards a reinforced culture of consultation and dialogue - General principles and minimum standards for consultation of interested parties by the Commission' the Commission tries to create an external consultation process and encourage dialogue between the Commission and civil society organisations (CSO's). The Communication aims at the setting up of a consistent consultation framework, in which parties can express their view through the Internet portal "Your voice in Europe".[282] However, the Communication states that "a legally-binding approach to consultation is to be avoided". The rationale behind this choice is *inter alia* that:

[274] Drahman (2009).
[275] Commissie Evaluatie Awb III, *Toepassing en effecten van de Algemene wet bestuursrecht 2002-2006,* Den Haag: BJu, 2007, pp. 53-54.
[276] Buijze & Widdershoven (2010), pp. 606-607.
[277] http://www.europarl.europa.eu/RegData/etudes/note/join/2013/493035/IPOL-LIBE_NT(2013)493035_EN.pdf
[278] Craig & De Búrca (2011), p. 521; Case C-104/97 P *Atlanta AG c Commission* [199] ECR I-6983, paragraph 38; Case C-258/02 P *Bactria Industriehygiene-Service Verwaltungs GMbH v Commission* [2003] ECR I-15105, paragraph 43.
[279] See e.g. Case T-582/93 *Stichting Greenpeace Council (Greenpeace International) v Commission* [1995] ECR II-2205, paragraph 56; Case C-263/02 P *Commission v Jego-Quéré & Cie SA* [2004] ECR I-3425, paragraphs 47-48.
[280] Craig & De Búrca (2011), p. 521.
[281] http://ec.europa.eu/yourvoice/ipm/index_en.htm
[282] http://europa.eu/legislation_summaries/employment_and_social_policy/antidiscrimination_relations_with_civil_society/c10717_en.htm

> a situation must be avoided in which a Commission proposal could be challenged in the Court on the grounds of alleged lack of consultation of interested parties. Such an over-legalistic approach would be incompatible with the need for timely delivery of policy, and with the expectations of the citizens that the European Institutions should deliver on substance rather than concentrating on procedures.[283]

It could be questioned how this point of view relates to the now included Article 11 in the Lisbon Treaty. This Article sets out the following:

> 1. The institutions shall, by appropriate means, give citizens and representative associations the opportunity to make known and publicly exchange their views in all areas of Union action.
> 2. The institutions shall maintain an open, transparent and regular dialogue with representative associations and civil society.
> 3. The European Commission shall carry out broad consultations with parties concerned in order to ensure that the Union's actions are coherent and transparent.
> 4. Not less than one million citizens who are nationals of a significant number of Member States may take the initiative of inviting the European Commission, within the framework of its powers, to submit any appropriate proposal on matters where citizens consider that a legal act of the Union is required for the purpose of implementing the Treaties.
> The procedures and conditions required for such a citizens' initiative shall be determined in accordance with the first paragraph of Article 24 of the Treaty on the Functioning of the European Union.

Craig & De Búrca state that this article is 'mandatory language'.[284] Also, a Regulation (no. 211/2011) has been adopted with regard to the citizen initiative of Article 11(4). Craig & De Búrca point out that it is now the question whether this will result in any change in the position of the Commission and the CJEU. They argue:

> The ECJ may choose to interpret the Article narrowly, thereby effectively leaving the matter to the political institutions, but this would be regrettable and problematic. It does not sit well with the wording of Article 11 TEU and would send a very negative message about the nature of participatory democracy in the EU. It would risk turning a provision that was emant to convey a positive feeling about the inclusive nature of the EU and its willingness to engage with its citizenry into one that carried the opposite connotation.[285]

Article 15(1) TFEU also states that in order to promote good governance and ensure *the participation of civil society*, the Union's institutions, bodies, offices and agencies shall conduct their work as openly as possible. Thus, the transparency principle contributes to the achievement of the participation principle. Moreover, Article 10(3), under Title II on democratic principles, repeats that every citizen shall have the right to participate in the democratic life of the Union.

In a research for the Council of Europe, Addink has researched the application of the participation principle from a decentralised level. In the context of public administration, he describes participation as the participation of citizens to (planned) behaviour of administrations and public bodies.[286] Addink distinguishes, with reference to literature, four motives for participation which can provide an indication: democratic (influence rule- and decision-making), rule of law (individual protection), corporatist (realisation of responsibilities of CSOs) and administrative motives (serving the administrative body itself). Participation can occur in different grades and in different compositions. The starting point of the research of Addink is formed by three forms of participation: citizen initiative, citizen panels and referenda. But also public consultation (*inspraak*) is of importance. Citizen initiatives are a form of minimum-participation, since the normal procedure

[283] COM (2002)704, p. 10.
[284] Craig & De Búrca (2011), p. 522.
[285] Craig & De Búrca (2011), p. 522.
[286] Addink (2009), p. 99.

follows after the subject is raised. The panel contains a stronger (average) participation since this will result in an advice of the citizens that have to be taken into consideration by the authorities. Referenda can be ascribed as maximum participation, although depending on the type of referenda.[287] These may occur in three phases of the process: during the agenda, preparation and decision-making. Other phases may also occur.[288] Addink also points out that the greater the potential of the administrative act, the more people should be involved in the participation process. Addink distinguishes three forms of appreciation of the participation. First of all, participation may occur as a necessary complement with respect to representative democracy (e.g. when a majority government takes the minority insufficiently in consideration), in order to increase legitimacy of the administration or in order to exercise powers as close to citizens as possible (decentralisation).[289]

Application of principle to environmental issues

The transparency principle is considered of great importance with regard to environmental issues. This was already established by the Rio Declaration in Principle 10 which states that "environmental issues are best handled with the participation of all citizens, at the relevant level, and thus public education, participation and access to information and redress should all be promoted". In the Aarhus Convention this principle also received great attention. As mentioned in the previous paragraph, two EU Directives were adopted which were greatly inspired by the Aarhus Convention. The first of these Directives concerned the transparency principle. The second concerned the Directive 2003/35/EC providing for *inter alia* public participation in respect of the drawing up of certain plans and programmes relating to the environment. The Directive states in its preamble that effective public participation in the taking of decisions enables the public to express, and the decision-maker to take account of, opinions and concerns which may be relevant to those decisions. Hereby the accountability and transparency of the decision-making process will be increased. This will contribute to public awareness of environmental issues and support for the decisions taken. Participation should include participation by associations, organisations and groups, in particular non-governmental organisations promoting environmental protection.

Moreover, public participation is of central importance in the EIA and SEA Directives which also illustrates the importance of the principle. It is argued that public participation can lead to a better decision, because it provides a valuable source of information on key impacts, a consideration of citizen's needs, more legitimacy, the addressing of conflicts in a previous stage and better implementation.[290] However, a distinction should be made between "the public" and "the public concerned". The latter has the right to access environmental information, to participate actively (Article 6) and is guaranteed access to courts (Article 11). Only those with a direct interest fall under this category and NGO's receive a special supervisory rule by this article.[291] The EIA Directive contains many information requirements on several occasions; before the granting of an authorization to the public (Art. 4(4) and 6(1)(2)), the public concerned (Art. 6 (2)-(4) and Art. 8) and the public of foreign MS (Art. 7); when the decision is taken (to the public and the public of foreign MS if necessary according to Art. 9); and during the review procedure (Art. 11). This shows the importance of the public participation principle. This is also confirmed by the CJEU.[292] The Commission gives as examples of participation: public meetings, advisory panels, open houses, interviews, questionnaires and participatory appraisal techniques.[293]

Other environmental EU legislation also emphasise the importance of public participation. In the Water Framework Directive (WFD), also of relevance for shale gas exploitation, Article 14

[287] Addink (2009), pp. 104-105.
[288] Addink (2009), p. 99.
[289] Addink (2009), pp. 108-109.
[290] http://ec.europa.eu/environment/legal/law/pdf/eia/6%20PP%20in%20EIA%20and%20SEA%20session%207_revised2.pd
[291] C-263/08, *Djurgarden* [2009] ECR I-09967, paragraph 40; A-G Sharpston on C-263/08, *Djurgarden*,paragraph 50.
[292] C-435/97, *WWF and others / Autonome Provinz Bozen and others* [1999] ECR I-05613.
[293] http://ec.europa.eu/environment/legal/law/pdf/eia/6%20PP%20in%20EIA%20and%20SEA%20session%207_revised2.pd

addresses public information and consultation. It states that MS shall encourage the active involvement of all interested parties in the implementation of this Directive. Guidance document no. 8 is dedicated to public participation in relation to the WFD. It guides the MS with the implementation of Article 14. It is seen as a way to "[improve] decision-making, to create awareness of environmental issues and to help increase acceptance and commitment towards intended plans".[294] Information supply and consultation shall be ensured according to the Directive and active involvement shall be encouraged.

5.4.2 Dutch level

As mentioned above, the principles of good administration are starting to develop. In the Netherlands, a Code for Good Administration has developed in 2009. This also includes the principle of participation. Here, the principle is defined as that "the administration knows what is going on in society and shows what it does therewith".[295] It means that the public will be involved by the forming or adjusting of policy and that the administration will be interactive with the neighbourhood, actually listens to questions and ideas of stakeholders and holds itself accountable for the processing of this information.[296] With regard to the participation principle, Addink points out that although the system of representative democracy functions as a general framework for participation, there is a general awareness that for several forms of administrative action, public involvement is of crucial importance for the realisation of certain goals.[297] This must be seen as an addition to the system of representative democracy, according to Addink.

Finally, in some Dutch legislation the principle can also be found, such as Article 170 of the Municipalities Act and Article 175 of the Provinces Act according to which the mayors and Commissioner of the King are obliged to release a citizen report every year. Moreover, with regard to spatial planning and environmental regulation, the public always has the opportunity to submit an opinion (*zienswijze*) against e.g. a zoning plan (according to the Wro) or at the preliminary stage or after the completion of an EIA (according to section 3.4 Awb).

5.5 General principle: integration principle

5.5.1 EU level

The integration principle was introduced by the Single European Act and is now set out in Article 11 TFEU. This Article states that 'environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development'. This is also called external integration: the integration of environmental requirements into other policies. The integration principle establishes a "greening of all Union policies."[298] 'Environmental requirements' would at least seem to include the objectives of Article 191(1) TFEU, the principles of paragraph 2 and the policy aspects in paragraph 3. This means that these environmental requirements must also be integrated into e.g. the field of energy.[299] It is important to note that there is no priority of the environmental policy over other policies, but environmental protection must at least been taken into consideration. It establishes that the different objectives of the Treaties have the same status, which is also confirmed by Article 7 TFEU.[300] The principles of equal treatment and proportionality are used by the Court in order to

[294] Common Implementation Strategy for the Water Framework Directive (2000/60/EC), Guidance document no. 8: Public Participation in relation to the Water Framework Directive, Luxembourg: Office for Official Publications of the European Communities, 2003, p. iv.
[295] Nederlandse code voor goed openbaar bestuur (2009), p. 9.
[296] Nederlandse code voor goed openbaar bestuur (2009), p. 11.
[297] Addink (2010), p. 29.
[298] Krämer (2011), p. 20.
[299] Jans & Vedder (2012), p. 23; Dhondt (2005); see also http://www.infomil.nl/onderwerpen/integrale/handboek-eu/integrati/energie/
[300] Krämer (2011), p. 20.

balance conflicting policies; the measures must not be discriminatory and must not go beyond what is strictly necessary for the protection of the environment.[301]

The legal enforceability of the principle has been subject of debate within the Court's case law. Several legal consequences are distinguished by Jans & Vedder. First, the principle can be used to decide on the choice of legal basis of environmental measures.[302] Second, the principle "broadens the objectives of the other powers laid down in the Treaty and thus limits the role of the specific powers doctrine in environmental policy."[303] Environmental objectives can thus now be taken into account without interfering with the doctrine of conferred powers. Moreover, the principle can be used in order to review whether actions of EU institutions are legitimate (in view of the environmental objectives that have to be taken into account). According to Jans & Vedder it is in principle possible to review EU measures in light of the environmental objectives.[304] However, EU institutions have wide discretionary powers in balancing different policies and objectives. Therefore, the Court may only annul an act if a manifest error of appraisal with regard to the conditions of Article 192 TFEU is committed. This will probably only occur in exceptional circumstances.[305] Moreover, as Jans & Vedder point out, it is important to distinguish between the objectives (to which Union policy 'shall contribute'), the principles (for which the Union 'shall aim at a high level of protection') and the policies (which the Union 'shall take into account'). This will influence the level of judicial review by the Court.[306] Hence, review is limited and shall depend on the circumstances of the case. This is confirmed by Krämer who also states that the wide discretion of Union institutions will make an action on Article 11 difficult.[307] The fourth legal consequence is the interpretation of secondary EU legislation in light of the environmental objectives, also outside the environmental field.[308] The final consequence referred to by Jans & Vedder is the influence of the integration principle on the national (in this thesis: Dutch) level. Since Article 11 TFEU expressly refers to the Union, there is no direct consequence for the MS. Indirectly, the principle will have consequences, for e.g. EU legal acts addressed to the MS. Also, Jans & Vedder also argue that if the EU act leaves some discretion to the MS, they also have to apply the integration principle themselves.[309] However, in areas that have not been harmonised, MS are not bound by EU environmental objectives and principles. Although, MS always have to comply with the principle of sincere cooperation of Art. 4(3) TEU. Hence, when implementing EU law, MS always have to comply with the environmental principles.

The CFR, which has the same legal value as the Treaties according to Art. 6(1) TEU, also codifies the integration principle in Article 37. However, this Article is not as strongly expressed as Article 11 TFEU. It only refers to policies (not activities) and is less broadly formulated.[310]

Special attention to the application of the principle to environmental issues is not necessary here, since the principle only applies to (at least partly) environmental issues.

5.5.2 Dutch level

The integration principle is an EU principle and has no Dutch equivalence on the national level. It can indirectly be found in the regulation on the duty to carry out an EIA when preparing projects or

[301] Jans & Vedder (2012), pp. 23-24; Case 240/83 *ADBHU* [1985] ECR 531.
[302] Jans & Vedder (2012), p. 24; Case C-62/88 *EP v. Council* [1990] ECR I-1527.
[303] Jans & Vedder (2012), p. 25; Case C-513/99 *Concordia Bus Finland* [2002] ECR I-7213; Case C-448/01 *EVN and Wienstrom* [2003] ECR I-4527.
[304] Jans & Vedder (2012), p. 26; Case C-62/88 *EP v. Council* [1990] ECR I-1527; Case C-341/95 *Gianni Bettati* [1998] ECR I-4355.
[305] Jans & Vedder (2012), p. 26.
[306] Jans & Vedder (2012), p. 27.
[307] Krämer (2011), p. 21.
[308] Jans & Vedder (2012), p. 27; see e.g. Joined Cases T-74, 76, 83, 85, 132, 137, 141/00 *Artegodan GmbH a.o. v. Commission* [2002] ECR II-4945, paragraph 183, in field of public health.
[309] Jans & Vedder (2012), p. 28.
[310] Jans & Vedder (2012), p. 29.

new legislation.[311] It should be mentioned here that the integration principle stands at odds with the Dutch prohibition against misuse of power (*specialiteitsbeginsel*). This Dutch principle is codified in Article 3:4(1) Awb. It means that a governing body may only represent those interests for which it has an express legal basis in the relevant law or regulation.[312] It could be debated whether the integration principle provides for such an express legal basis.

This is especially relevant since the Mining Act provides for very specific refusal grounds. Hence, with regard to the *specialiteitsbeginsel,* it is not allowed for the competent authorities to refuse or attach conditions to an exploration or extraction permit on other grounds than the Mining Act provides. Since the Mining Act does not provide for environmental refusal grounds, it could be wondered whether the integration principle has actually found its way into Dutch law.

5.6 Principle of environmental policy: precautionary principle

5.6.1 EU level

First, a brief historical background of the precautionary principle is useful. The principle originated in Germany, where it was called *Vorsorgeprinzip* ("fore-caring principle"). The ratification of this principle occurred in the Federal Emission Control Act in 1974.[313] In 1982 it appeared in the UN Charta for Nature, after which it was included in the Ministerial Declaration of the Second International Conference on the Protection of the North Sea in 1987. Moreover, it was mentioned in the Rio Declaration in Principle 15 and repeated in a similar manner in the UN Framework Convention on Climate Change in Art. 3 no. 3:

> The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. *Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures*, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. (Made italic by author)

It has been frequently added in other international documents.[314] Since the Single European Act (Art. 130r(2) EC-Treaty), this principle can also be found in the EU Treaties. Nowadays, the precautionary principle is inserted in Article 191(2) TFEU. It is stated here, and this is also confirmed by case law of the CJEU, that the EU environmental policy will be guided by (*inter alia*) this principle.[315] The precautionary principle is, together with the prevention principle, a fundamental principle of environmental protection.[316] Generally, it means: "better safe than sorry".[317] A referral to this principle can also be found in many EU regulations and directives, such as the EIA Directive, Article 6(3) of the Habitat Directive, etc. However, none of these instruments give a definition of this principle. This should therefore be found in the case law of the CJEU and in policy documents of the Commission, especially in the Communication from the Commission of 2 February 2000 on the precautionary principle.[318] The definition is therefore dependent on the

[311] Backes et al. (2002), p. 9.
[312] Backes et al. (2002), p. 9. See also J.H. Jans (2006).
[313] Trouwborst (2002), pp. 7-8.
[314] See e.g. the Paris Convention for the protection of the marine environment of the north-east Atlantic, the Convention of Biological Diversity, the Protocol on Biosafety concerning the safe transfer, handling and use of living modified organisms resulting from modern biotechnology, etc.
[315] Case C‑157/96 *National Farmers' Union and Others* [1998] ECR I‑2211, paragraph 64; Case C-127/02 *Waddenvereniging and Vogelbeschermingsvereniging* [2004] ECR I‑7405, paragraph 44; Joined Cases C‑14/06 and C‑295/06 *Parliament and Denmark v Commission* [2008] ECR I‑0000, paragraph 75; Case C‑127/07 *Arcelor Atlantique et Lorraine and Others* [2008] ECR I‑9895, paragraph 30.
[316] Case C-121/07 *Commission v France* [2008] ECR I-09159, paragraph 74.
[317] Trouwborst (2002), p. 8.
[318] Communication from the Commission of 2 February 2000 on the precautionary principle, COM(2000) 1 final - Not published in the Official Journal.

prevailing social and political values of a certain time. It should also be mentioned that the principle is seen as one of the core principles to comply with the principle of sustainability.[319]

Here, it should be noted that the precautionary principle also follows from Article 8 of the European Convention of Human Rights (ECHR). The European Court of Human Rights (ECtHR) considers damage to the environment and the public health – due to the lack of (precautionary) measures taken to prevent this - a breach of Article 8 ECHR, concerning the right of private life.[320] Since this research does not concentrate on the aspect of damages, the focus hereinafter will be on Art. 191(2) TFEU.

The Commission describes the scope of the principle in its Communication as follows:

> Although the precautionary principle is not explicitly mentioned in the Treaty except in the environmental field, its scope is far wider and covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are *reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection*.[321] (Made italic by author)

Its scope is thus much broader than the Treaty suggests. It is therefore even questioned whether the principle has not become a general EU principle instead of an environmental principle.[322] Craig & De Búrca already seem to apply the principle as a general EU principle, where they refer to case law of the CFI in which it (on the basis of the integration principle) states that the precautionary principle is part of environmental protection, whereby it should be integrated in all EU policies.[323]

How does the precautionary principle work in practice? According to the Commission, the application of the principle should be divided into two distinct aspects: "(i) the political decision to act or not to act as such, which is linked to the factors triggering recourse to the precautionary principle; (ii) in the affirmative, how to act, i.e. the measures resulting from application of the precautionary principle."[324]

It should thus first be assessed what factors trigger the recourse to the principle. The principle only comes into play in the event of a potential risk.[325] Even if the risk is identified by a minor group within the scientific community, account should be taken thereof.[326] It is not necessary that this risk should be demonstrated or quantified. The potentially negative effects should be identified and understood. This could be done through a scientific and objective evaluation, which should include four components in the risk assessment: hazard identification, hazard characterization, appraisal of exposure and risk characterization.[327] A comprehensive assessment of the risks is not necessary if this is not possible due to limits in the scientific knowledge. The reality and extent of the risk do not have to be 'fully' demonstrated by conclusive scientific evidence.[328] However, a real attempt should be made and the scientific evaluation should be as complete as possible. The risk should be adequately backed up by the scientific data available. After this, the (political) decision to adopt measures (or not), necessary to protect e.g. the environment, should be made. If it seems from the scientific evaluation of the risk that it is impossible to determine the risk with sufficient certainty

[319] Douma (2004), p. 5.
[320] ECHR 27 January 2009, nr. 67021/01 (*Tatar v. Romania*).
[321] Commission Communication on the precautionary principle (2000), paragraph 3.
[322] Fennis (2012), p. 35; where she refers to Macrory (2004), p. 52.
[323] Craig & De Búrca (2011), pp. 549-550; Case T-13/99 *Pfizer Animal Health SA v Council* [2002] ECR II-3305; and Joined Cases T-74, 76, 83, 85, 132, 137, 141/00 *Artegodan GmbH a.o. v. Commission* [2002] ECR II-4945.
[324] Commission Communication on the precautionary principle (2000), paragraph 5.
[325] This is later repeated/confirmed by the CJEU in Case T-13/99, *Pfizer Animal Health SA v Council* [2002] ECR II-03305, paragraph 142.
Commission Communication on the precautionary principle (2000), p. 17.
[327] Commission Communication on the precautionary principle (2000), paragraph 5.1.2. and Annex III.
[328] Case T-13/99, *Pfizer Animal Health SA v Council* [2002] ECR II-03305, paragraph 144.

(due to insufficiency of data, imprecise nature, etc.), recourse should be sought to the precautionary principle.[329] Therefore, the decisive factor is the element of scientific uncertainty as to the risks involved. This is also confirmed by the Court.[330] All in all, recourse depends on three preliminary conditions: identification of potentially adverse effects, evaluation of the scientific data available and the extent of scientific uncertainty.[331]

Then the second aspect comes into play: what (precautionary) measures should then result from reliance on the principle? Decision-makers have to respond to the scientific evaluation made (sometimes under pressure from the public). The response will be a political decision which should contain a "risk level that is 'acceptable' to the society on which the risk is imposed."[332] The nature of the action ultimately taken by the decision-makers can vary widely. The Commission names as examples a decision to fund a research-program or even the decision to inform the public about the possible adverse effects of a product. The Court has decided hereon the following:

> It recalled that the competent public authorities are obliged to maintain or, as the case may be, improve the level of protection of human health even though that level does not have to be the highest possible. To satisfy that obligation, it would be for the competent authorities, applying the precautionary principle, to manage the risk exceeding the level deemed acceptable for society through measures designed to contain it at that level. (..) [T]he relaxation of preventive measures adopted previously had to be justified by new elements changing the assessment of the risk in question. (..) [I]t is only when that new level of risk exceeds the level of risk deemed acceptable for society that a breach of the precautionary principle must be found by the court.[333]

From this case it seems that after taken measures, they should be kept up-to-date and should even be improved if appears necessary. The competent public authorities are under a constant obligation to manage the risks in order to maintain an acceptable risk for society and prevent a breach of the precautionary principle. Moreover, as mentioned earlier, the decisions have to comply with other general principles, such as proportionality, non-discrimination, consistency, an examination of the benefits and costs of action and lack of action (whereby it is also stated that the "[e]xamination of the pros and cons cannot be reduced to an economic cost-benefit analysis") and an examination of scientific developments.[334]

The CJEU can decide on the legality of those taken measures. In general, the Court's review will be limited if the EU institution has broad discretionary powers. The review of the CJEU should then be limited to whether "the institution committed a manifest error or misuse of power or manifestly exceed the limits of its powers of appraisal."[335] After all, as stated by the Commission in its Communication, the precautionary principle implies a political decision. This political responsibility was also identified by national courts.[336] With regard to national measures of MS, a similar approach is taken by the CJEU: if a certain topic has been harmonised by EU legislation, the MS do not have many discretionary powers and *vice versa*.[337] However, the side note is made by the Commission that recourse to the principle does not mean per se that legally binding measures should be taken, subjected to judicial review.

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[329] Commission Communication on the precautionary principle (2000), paragraph 5.1.
[330] Case C‑157/96 *National Farmers' Union and Others* [1998] ECR I‑2211, paragraph 63; Case C-180/96 *United Kingdom v Commission* [1998] ECR I-2265, paragraph 99; and Case C‑236/01 *Monsanto Agricoltura Italia and Others* [2003] ECR I‑8105, paragraph 111.
[331] http://europa.eu/legislation_summaries/consumers/consumer_safety/l32042_en.htm
[332] Commission Communication on the precautionary principle (2000), paragraph 5.2.1.
[333] Case C-601/11 P, *France v Commission* [2013] not yet published, paragraphs 54-55.
[334] Commission Communication on the precautionary principle (2000), paragraph 6.3.
[335] Commission Communication on the precautionary principle (2000), paragraph 5.2.2. This is multiple times confirmed by the Court, see e.g. Case C-601/11 P, *France v Commission* [2013] not yet published, paragraph 55.
[336] See e.g. the German Federal Administrative Tribunal, 5.4.1989, NVwZ 1989, p.1170.
[337] Case C-439/05 P C-454/05 P, *Land Oberösterreich, Republic Austria v Commission* [2007] ECR I-07141.

It should be kept in mind, according to the Commissions' Communication and the case law of the Court, that reliance on the precautionary principle does not release the obligation to also take account of other general principles when making measures. Here, the Commission refers to the general principles of proportionality, non-discrimination, consistency, examination of the benefits and costs of action or lack of action and last, the examination of scientific developments. The Court also refers to these principles often. She assesses whether the action associated with the protective measures is proportionate to the assumed risk.[338]

With regard to the Court, it is also necessary to examine how she applies the precautionary principle in her case law; does she apply the principle as an independent test norm or as an implicit norm, depending on other regulation (for which the principle is the underlying objective)?[339] The first cases in which the CJEU addresses the precautionary principle, she only assesses marginally (due to the discretionary power of the Commission). Here, she applies the precautionary principle as part of the proportionality test.[340] The Court does thus not apply the principle as an independent test norm. However, in later case law, the CJEU seems to have a change of heart. In the case of *Antibiotica*, the General Court discusses the precautionary principle and her boundaries broadly.[341] Also in the case of *Artegodan*, the Court applies the principle independently.[342] However, these latter two cases seem exceptions to the rule; in general, the Court seems to use the precautionary principle not as an independent test norm, but as an implicit test, depending on other regulation. See e.g. case *Monsanto* in which the Court again applies the principle as an instrument of interpretation.[343] However, in a recent case of *France v Commission*, the CJEU explicitly speaks of a breach of the principle itself.[344] This again suggests a more independent application of the principle. All in all, the case law of the court on this subject is not crystallised (yet).

The CJEU has given in the *Kokkelvisserij*-case her view on the principle's substance, which has recently been confirmed by the Court in the case of *Sweetman*.[345] The case concerned the interpretation of Article 6(3) of the Habitat Directive. Here, it was questioned whether the precautionary principle had to be taken into account when carrying out the 'appropriate assessment' (which assessment is explained in Chapter 3). According to Article 6(3) an appropriate assessment has to be carried out if there is a probability or a risk that the plan of project in question will have significant effect on the site concerned. The Court decides that, in light of the precautionary principle, such a risk exists "if it cannot be excluded, on the basis of objective information, that [the plan or project] will have a significant effect on that site, either individually or in combination with other plans or projects."[346] Hence, in case of doubt as to the absence of significant effects such an assessment must be carried out. This assessment should be based on the best scientific knowledge in the field. Only where no reasonable scientific doubt remains as to the absence of adverse effects on the integrity of the site, authorization may be granted by the competent authority. This authorisation criterion integrates the precautionary principle.[347]

[338] Case C-77/09, *Gowan Comércio Internacional e Serviços Lda v Ministero della Salute* [2010] ECR I-13533, paragraph 76; Case C-333/08, *Commission v France* [2010] ECR I-0000, paragraph 93, and the case-law cited therein.
[339] Fennis (2012), p. 35 and further.
[340] Case C-180/96, *United Kingdom v Commission* [1998] ECR I-02265, paragraphs 62-63; and Case T-199/96, *Bergaderm SA and Goupil v Commission* [1998] ECR II-02805, paragraphs 65-67.
[341] Case T-13/99, *Pfizer Animal Health SA v Council* [2002] ECR II-03305, paragraphs 136-173.
[342] Case T-429/05, *Artegodan GmbH v Commission* [2010] ECR II-00491, paragraph 125.
[343] Fennis (2012), p. 37; Cases C-58/10-C-68/10, *Monsanto SAS and others v Ministre de l'Agriculture et de la Pêche* [2011] ECR I-07763, paragraph 71.
[344] Case C-601/11 P, *France v Commission* [2013] not yet published, paragraphs 56-57.
[345] Case C-127/02 *Waddenvereniging and Vogelbeschermingsvereniging* [2004] ECR I-7405, paragraph 44; and Case C-258/11 *Sweetman and Others* [2013] not yet published, paragraphs 28-41.
[346] Ibid, paragraph 45.
[347] Ibid, paragraphs 56-59. See also Case C-127/02 *Waddenvereniging and Vogelbeschermingsvereniging* [2004] ECR I-7405, paragraphs 56 to 59.

5.6.2 Dutch level

The precautionary principle can be found in Dutch law in the *Natuursbeschermingswet 1998*.[348] However, similar to the EU legislation, no definition is given here. Codification has sometimes been put forward, e.g. when developing the Water Act or the Environmental and Planning Act (*Omgevingswet*).[349] However, this never was implemented. Therefore, the definition is dependent on the case law of the Dutch highest administrative court (*Afdeling bestuursrechtspraak van de Raad van State*). Here, due to the EU concepts of transformation, direct effect and uniform interpretation, account should be taken of the EU legislation and case law. It seems from the case law of the Dutch highest administrative court that the precautionary principle has only been applied by the Afdeling in an indirect manner (when the principle has been reflected in policy rules or in Directives) or as an interpretation instrument.[350] The measures may then, indirectly due to the precautionary principle, be declared inadmissible. The Afdeling will then decide that the measure was not carefully prepared or not sufficiently motivated (Articles 3:2 and 3:46 Awb).[351] The only real exception to this rule is the case that had led to the *Kokkelvisserij*-case before the Court of Justice, as discussed above.

This *Kokkelvisserij*-case has also influenced the perception of the Dutch highest administrative court with regard to the substance of the precautionary principle. From then on, it has applied the principle stricter, in accordance with the strict application of the CJEU in the *Kokkelvisserij*-case.[352] However, later on the Afdeling started to develop another principle as well, namely the so-called 'adaptive licensing approach' (in Dutch: '*hand aan de kraan-benadering'*)[353], as already described in Chapter 4.[354] This principle was introduced in a case before the Afdeling on the 29th of August 2007,[355] after which it has applied this principle more often.[356] This case concerned the exploitation of gas under the Waddenzee, which is relevant to point out with regard to the research question. However, although developed in a case concerning gas exploitation, the principle was only (and is still mostly) applied to conservation-considerations.[357] This 'adaptive licensing approach' weakens the strict application of the precautionary principle. It allows plans or projects to be carried out - under the condition that they have a monitor plan - even when there is no absolute certainty on the absence of adverse effects. Such a monitor plan will only be allowed if it is especially set up in order to intervene when necessary (by altering or withdrawing the license), not only in order to e.g. gain knowledge on the effects of the project.[358] Also, the monitoring system is only acceptable if the marge for which it provides concerns a remaining manageable residual risk, the monitoring relates specifically to that risk and there is no alternative to exclude that risk.[359] It is questionable whether the Court of Justice would accept this line of reasoning.[360]

It is important to consider - with shale gas production in mind - that the principle is only written in Dutch legislation concerning conservation. The principle is not codified in the Mining legislation, nor in other environmental legislation. Although Article 191(2) TFEU and Article 11 TFEU give notion to this principle outside environmental issues, it is useful to look how the Afdeling applies the principle outside conservation law, especially with regard to energy activities. There are several cases

[348] Articles 19c, 19d, 19f, and 19h Nbw 1998.
[349] Havekes & Van Rijswick (2012), p. 81; Commissie van Advies inzake de Waterstaatswetgeving 2005, p. 50. See also Backes et al. (2002).
[350] Fennis (2012), pp. 37-38.
[351] Fennis (2012), p. 37.
[352] Fennis (2012), p. 42.
[353] Schoukens (2014), p. 205.
[354] Fennis (2012), p. 38.
[355] ABRvS 29 August 2007 (case 200606028/1, ECLI:NL:RVS:2007:BB2499).
[356] See e.g. ABRvS 9 September 2009 (case 200803225/1/R2); ABRvS 21 July 2010 (case 200807503/1/T1/R2); ABRvS 24 August 2011 (cases 200900425/1/R2 en 200902744/1/R2).
[357] ABRvS 29 August 2007 (case 200606028/1, ECLI:NL:RVS:2007:BB2499), paragraph 2.17.4.
[358] *AB* 2014/74, m.nt. W.R. van der Velde; ABRvS 23 May 2012 (cases 200900425/1/R2 en 200902744/1/R2, ECLI:NL:RVS:2011:BR5684), *BR* 2012/138 m.nt. Woldendorp.
[359] ABRvS 24 August 2011 (cases 200900425/1/R2 en 200902744/1/R2, ECLI:NL:RVS:2011:BR5684), paragraph 2.10.5.
[360] Fennis (2012), p. 44.

concerning energy projects, in which appellants invoked the precautionary principle before the Afdeling. In a recent case before the Afdeling, the issue of the 'adaptive licensing approach' and the precautionary principles were discussed.[361] Here, it concerned gas exploration (on the basis of the Mining Act) under the Waddenzee. Appellants invoked the precautionary principle, because they were of the opinion that the gas extraction contained too many uncertainties. The Afdeling did not address the question of whether or not the precautionary principle was breached, but instead focused on the fact that the project, due to the adaptive licensing approach, provided for a surveillance system on the basis of which could always be intervened.[362] This was sufficient, according to the Afdeling. In the annotation to this case, Van der Velde considers that the exportation of the precautionary principle from the Nbw-1998 to outside the conservation law seems arguable.[363] Otherwise, he argues, this would mean that animals or people living near a gas-project, located in a Natura-2000 area, are better off than if the project is not located in such an area. Also in other cases, the Afdeling has not yet addressed the question on the meaning of the precautionary principle outside the Nbw-1998.[364] The Afdeling has addressed the adaptive licensing approach (an application of the precautionary principle), although developed in conservation cases, in some cases concerning seismicity in the Bergermeer.[365] This could be an indication that the Afdeling also sees an application of the principle outside the Nbw-1998, which would of course also be in line with the EU legislation and case law.

5.7 Principle of environmental policy: prevention principle

5.7.1 EU level

The principle that preventive action should be taken first occurred in the arbitration case *Trial Smelter* between the USA and Canada, which case dealt with international law. Here, the Tribunal has found that

> [U]nder the principles of international law, as well as of the law of the United States, no State has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when the case is of serious consequence and the injury is *established by clear and convincing evidence*.[366] (Made italic by author)

This consideration is hereafter implemented in several international law declarations. First, Principle 21 of the UN Declaration on the Environment 1972 (Stockholm Declaration) reiterates this consideration, after which Principle 2 of Rio Declaration on Environment and Development has repeated this. Both of the Principles state:

> States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the *responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.* (made italic by author)

The principle has also been enshrined in numerous other international Conventions (on the marine environment, climate, waste, biodiversity etc.). In some international treaties, the principle only

[361] ABRvS 30 October 2013 (cases 201303971/1/A4, 201303980/1/A4, 201304179/1/A4, 201304171/1/A4, and 201303975/1/A4, ECLI:NL:RVS:2013:1766) *AB* 2014/74, m.nt. W.R. van der Velde.
[362] Idem, paragraph 24.1.
[363] ABRvS 30 October 2013 (cases 201303971/1/A4, 201303980/1/A4, 201304179/1/A4, 201304171/1/A4, en 201303975/1/A4, ECLI:NL:RVS:2013:1766) *AB* 2014/74, m.nt. W.R. van der Velde.
[364] ABRvS 9 October 2013 (case 201300912/1/A1, ECLI:NL:RVS:2013:1455), *JOM* 2013/574; ABRvS 24 August 2011 (cases 200900425/1/R2 en 200902744/1/R2, ECLI:NL:RVS:2011:BR5684), *BR* 2011/174.
[365] ABRvS 2 May 2012 (case 201105967/1/R1, ECLI:NL:RVS:2012:BW4561), *JM* 2012/74, m.nt. T.N. Sanders en Y. van Hoven, paragraph 2.28.4.
[366] Arbitral Tribunal 11 March 1941 (*Trial Smelter*), http://untreaty.un.org/cod/riaa/cases/vol_III/1905-1982.pdf., p. 1965.

applies when “significant” damage may occur.[367] In a case of the International Court of Justice (ICJ) the principle has been affirmed to be a customary rule and part of the corpus of international law relating to the environment.[368]

The prevention principle was included in the EU Treaty by the Single European Act.[369] Nowadays, the principle is, similar to the precautionary principle, to be found in Article 191(2) TFEU. It provides that European Union policy on the environment is to aim at a high level of protection and is to be based *(inter alia*) on the principle that preventive action should be taken. The prevention principle is also a fundamental principle of environmental protection.[370] The principle requires competent authorities to ensure at an early stage that the environment is protected. In other words: prevention is better than cure.[371] Instead of remedying occurring damage, no damage should occur at all. Pollution should be prevented at the source, according to this principle. The prevention principle requires competent authorities, if measures have been taken, to check frequently whether those measures are complied with by the parties and whether those measures are still in compliance with the principle or that new circumstances require for new measures.[372]

The principle can also be found in many secondary EU legislation, such as the Industrial Emissions Directive (which replaced the IPPC-Directive), the EIA Directive, the Seveso Directive, the Waste and Water Framework Directives, etc. These Directives provide instruments for the implementation of this principle. The EIA Directive is a prime example of the implementation of the principle. It is stated in its preamble "that the best environmental policy consists in preventing the creation of pollution or nuisances at source, rather than subsequently trying to counteract their effects".[373] The Best Available Techniques (‘BAT’), set out in the Industrial Emissions Directive, also provides for a good example of an instrument that implements the principle. The definition of BAT is according to Article 3 of the Directive: "the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to *prevent* and, where that is not practicable, to reduce emissions and the impact on the environment as a whole". 'Available techniques' means, according to the Directive, "those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator". This means that not always the best techniques can be required, because they are e.g. not economically viable (in other words: too expensive). Permits accorded to the Industrial Emissions Directive should include conditions that are set on the basis of BAT. In order to determine this, BAT reference documents are drawn up by the Union.

The principle that preventive action should be taken should be distinguished from the precautionary principle. Although their content and their effect in practice are to a great extent similar, there is a difference in the predictability of the environmental danger. While the precautionary principle already requires action if it *cannot be excluded* on the basis of objective information that a project will have a significant effect on that site (here scientific certainty does not (yet) exist), the prevention principle 'only' requires action if the adverse effects for the environment are *objectively established*.[374] The level of certainty thus decides which principle is applicable; if scientific certainty is available, the prevention principle applies.[375] Although this seems a quite clear distinction, in

[367] See e.g. Art. 2(1) of the Espoo Convention.
[368] ICJ, case C-135 *Argentina v Uruguay*, 20 April 2010.
[369] Jans & Vedder (2012), p. 47.
[370] Case C-121/07 *Commission v France* [2008] ECR I-09159, paragraph 74.
[371] Jans & Vedder (2012), p. 47.
[372] Jans & Vedder (2012), p. 48.
[373] Council Directive of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (85/337/EEC).
[374] Fennis (2012), pp. 27- 28.
[375] Backes et al. (2002), p. 82.

practice this distinction is less visible. In practice, the prevention principle is almost always called upon in combination with the precautionary principle. Not only in case law, but also in policy documents are references to the prevention principle often 'forgotten', since it is deemed that the precautionary principle already includes this principle.[376] This could question the independent meaning of the prevention principle (towards the precautionary principle) and this discussion is also visible in literature.[377] It is even stated in literature that the principles should be used synonymously, since they are always invoked together and no separate definition appears from the Treaties.[378]

In some cases the Court itself also seems to 'blur the lines' between the two principles, e.g. in some cases concerning the BSE-decease she considered that although there was still scientific uncertainty, action should have been taken on the basis of the prevention principle.[379] Here, recourse to the precautionary principle was more logical to clarify the difference between the two principles. More in general, the Court applies the prevention principle sporadic. The CJEU more often applies the (above mentioned) Directives that have the principle as its underlying objective. Examples are the Directive 96/82/EC on the control of major-accident hazards involving dangerous substances,[380] the Industrial Emission Directive,[381] etc. The use of the prevention principle by the CJEU is remarkable with regard to the interpretation of the concept of waste in the Waste Framework Directive. Here, the Court has consistently decided that the term 'discard' must be interpreted in the light not only of the essential objective of Directive 75/442, but also of Article 191(2) TFEU, whereby the concept of 'waste' cannot be interpreted restrictively.[382] However, both principles are mentioned in Art. 191(2), whereby not only the prevention principle, but also the precautionary principle has influenced this line of reasoning.

Prevention	Precaution
Knowledge based Risk can be calculated	Uncertainty Risk cannot be calculated
Danger	Risk
Occurrence of damage is probable if no measure is taken	Occurrence of damage is uncertain and cannot be predicted clearly
Regulatory framework defines substantial criteria (e.g. emissions thresholds)	Regulation through procedural requirements
Definition of acceptable risk is primarily science based	Social acceptance of the risk is considered

All in all, the principles are still distinguished in Article 191(2) TFEU (and other legislation) and sometimes by the CJEU. Therefore, this distinction will be maintained hereinafter. The included table clarifies the distinction between those principles.[383]

Finally, a short comment could be made on the similarity between the prevention principle and the principle that environmental damage should as a priority be rectified at source, which can also be found in Article 191(2) TFEU. Here again, prevention is better than cure. However, the rectification at the source-principle only comes into play when the prevention principle is not applicable

[376] Backes et al. (2002), p. 83.
[377] Fennis (2012), p. 48, where she refers to Trouwborst (2007); Drupsteen (2000); and Jesse (2008).
[378] See e.g. Krämer (2011), p. 24.
[379] Case C-157/96 *The Queen and Ministry of Agriculture, Fisheries and Food* [1998] ECR I-02211, paragraph 64 and further; and Case C-180/96 *UK and Northern Ireland v Commission* [1998] ECR I-02265, paragraph 100 and further.
[380] Case C-53/10 *Land Hessen v Franz Mücksch* [2011] ECR I-08311.
[381] Case C-117/02 *Commission v Portugal* [2004] ECR I-05517.
[382] See e.g. Case C-113/12 *Donal Brady v Environmental Protection Agency* [2013] not yet published, paragraph 39; Case C-188/07 *Commune de Mesquer* [2008] ECR I-4501, paragraphs 38-39; Case C-252/05 *Thames Water Utilities* [2007] ECR I-3883, paragraph 27; Case C-194/05 *Commission v Italy*, paragraph 33; Joined Cases C-418/97 and C-419/97 *ARCO Chemie Nederland and Others* [2000] ECR I-4475, paragraphs 39-40; and Joined Cases C-175/98 and C-177/98 *Lirussi and Bizzaro* [1999] ECR I-6881.
[383] Source table: http://ec.europa.eu/environment/legal/law/pdf/principles/9%20Preventive%20and%20Precautionary%20Principles_revised.pdf

(anymore).[384] The principle could be seen as a concretization of the prevention principle: it can only be applicable if there are clear sources of pollution (*puntbronnen*). Moreover, it is applied in a later stage than the prevention principle; while the prevention principle will try to prevent pollution in advance (by e.g. taking technical measures), the rectification at the source-principle will implicates that pollution has already occurred (or is occurring) after which measures will be taken to prevent and restrict the pollution as much as possible (from the source). It is often questioned whether the rectification at the source should not be interpreted stricter in order to prevent the pollution entirely. In EU legislation, this principle can mainly be found in the Industrial Emissions Directive. In EU legislation it is often stated, with reference to this principle, that emission norms are preferred above quality requirements.[385] With regard to shale gas, it can be argued that the rectification at the source principle is not (yet) applicable, since shale gas extraction has not (yet) occurred. The later stage in which the rectification at the source principle can be of relevance is not entered into. It is currently better in place to focus on prevention instead of curing at the source. There is nothing (yet) to cure, but there is already a lot to prevent.

5.7.2 Dutch level

In Dutch legislation there is not an explicit reference to or a definition of the prevention principle included. While the precautionary principle mostly came alive through case law, the prevention principle gets most of its interpretation through laws, regulation and policy documents of which it is the underlying objective. Some articles herein implicitly refer to the prevention principle.[386] There can be made a distinction between material and procedural regulations. Article 1.1a of the Environmental Management Act (*Wet milieubeheer*) includes a general duty of care and is an example of a procedural regulation of the principle. It states that anyone who knows or reasonably suspects that by his acts or omissions detrimental effects on the environment can be caused, is required to desist from such action to the extent that can be reasonably demanded, or to take measures that could reasonably be expected of him *in order to prevent such consequences*, or, to the extent that these consequences cannot be avoided, to minimize it as much as possible or to undo all measures. Other duties of care also have this principle as its underlying aim, such as the ones included in the Soil Protection Act (Article 13) or the Water legislation. References can also be found in other articles of the Environmental Management Act.[387] Art. 2.22 Wabo contains several environmental quality requirements that have to be reviewed before granting a license. This is a material application of the principle. The prevention principle is also important for Chapter 7 of the Environmental Management Act, concerning the EIA, which is a (clear) procedural appearance of the principle in regulation. All of these regulations should be taken into account when making a decision. If aspects are forgotten, the decision will be annulled; on ground of the legislation itself or due to an infringement of Article 3:2 Awb on careful decision-making.

Most of the Dutch case law, which implicitly touches upon the prevention principle, concerns cases on this regulation, e.g. on the application of EIA, discharges of waste, and IPPC-establishments and their use of the BAT and compliance with the Industrial Emission Directive, of which the prevention principle is one of the underlying objectives. In none of these Dutch cases is the principle independently used or is special attention paid to the prevention principle, nor is the scope of the principle discussed.[388] The principle is always debated in the context of the national laws and regulations of which it is the underlying principle. Hence, it seems from the Dutch and European case law that the principle itself is not explicitly part of the court's review, but the Directives and national law that prescribe preventive measures to be taken is central. Parties, competent authorities and courts should be aware that certain Directives have direct effect in the

[384] Fennis (2012), p. 29.
[385] Fennis (2012), p. 56.
[386] Backes et al. (2002), pp. 86-89.
[387] See e.g. Art. 5.1(2), Art. 8.11(3) (now Article 2.22 jo. Art. 1.1 of the Environmental Permitting (General Provisions) Act), Art. 8.8(1)(e), Art. 8.40(2)(d), Art. 8.49 and Art. 10.1.
[388] Fennis (2012), p. 51.

national legal system, such as the Industrial Emission Directive.[389] The Afdeling has even decided that the national court should apply some articles of this Directive on their own motion.[390] National courts and parties have to take this into account. If parties or competent authorities have not considered the directly applicable articles of the Directive, the decision can be nullified ex. Art. 3:2 Awb since the decision is then not carefully taken.[391]

From the European and national case law it seems that the competent authorities have discretionary powers to decide on the basis of the concrete case what measures are needed to prevent certain risks. This is not for a judge to decide upon. The principle requires from competent authorities to not limit themselves to certain concepts (such as the concept of waste) or certain lists, but to take a broader view in the interest of preventing or mitigating environmental degradation.[392] An example is e.g. the interpretation of several articles of the Industrial Emission Directive of which the thresholds should not be seen as absolute, but as indications. It depends on the concrete case and circumstances whether enough preventive measures are taken.[393]

With regard to the Dutch level, a short comment on the rectification at source principle is also relevant. Here, it cannot be found explicitly. Indirectly, it can be found in Article 1.1(3) of the Wabo which states that a certain category of establishments can be designated whose creation, modification and operation must be subjected to prior review to avoid adverse effects they may cause to the environment.[394] The principle could be of relevance for shale gas activities since the Mining Act does not offer a lot of possibilities to add environmental requirements in the extraction or exploration permits.

5.8 Concept of environmental policy: sustainable development

5.8.1 EU level

The concept of sustainable development can offer another way of reviewing whether the current and upcoming shale gas regulation is line with a certain environmental, sustainable manner of thinking. It is more overarching than the several principles (individually), which can be shown by the fact that it includes several of the discussed principles. At the same time, it does not provide a clear answer or solution on how to address the concerns of the shale gas discussion, where the several (discussed) principles perhaps could. All in all, the concept of sustainable development could provide here for an extra check to test whether the current and upcoming shale gas regulation complies with the currently prevailing 'sustainability thinking'.

Although the concept of sustainable development is not mentioned in Article 191(2) TFEU as an official environmental principle, the concept of sustainable development is considered as a fundamental objective of the Union, as set out in Article 3(3) TEU and Article 37 CFR, and could thus be considered as having a similar amount of weight as an environmental principle.[395] Moreover, some of the discussed principles are even included in the concept.

Once again (similar to the environmental principles), no definition can be found of the concept in EU law or policy. However, the concept itself can be found on many places. First of all, before going into EU law, it is important to notice that there is one famous definition stemming from

[389] ABRvS 13 November 2002 (case 200200405/1, ECLI:NL:RVS:2002:AF0308), paragraph 2.2.7; ABRvS 20 September 2006 (case 200507955/1, ECLI:NL:RVS:2006:AY8488), paragraph 2.4.4.
[390] ABRvS 19 February 2003 (case 200204623/1, ECLI:NL:RVS:2003:AF4694), paragraph 2.3.
[391] Fennis (2012), p. 54.
[392] Fennis (2012), pp. 52-53.
[393] Fennis (2012), pp. 53-54; Case C-117/02 *Commission v Portugal* [2004] ECR I-05517, paragraph 81-82; Case C-486/04 *Commission v Italy* [2006] ECR I-11025, paragraph 36.
[394] Fennis (2012), p. 29.
[395] http://ec.europa.eu/environment/eussd/

international law. The Brundtland report (called 'Our Common Future') of the UN Brundtland Commission in 1987 has defined sustainable development as:

> Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts:
> - the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and
> - the idea of limitations imposed by the state.[396]

The definition includes a "parallel (or integrated) approach to economic development and environmental protection".[397] In public terms, this is sometimes referred to as the 3 P's (the triple bottom line): people, planet, profit. The Brundtland-definition is the main definition used in EU policy. As mentioned, the concept of sustainable development is one of Union's goals. Sustainable development as a fundamental and binding objective of the EU was already established by the Treaty of Amsterdam. This has been confirmed by the Lisbon Treaty in Article 3(3) TEU:

> The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance.

Moreover, Article 37 CFR, concerning environmental protection, states:

> A high level of environmental protection and the improvement of the quality of the environment must be integrated into the policies of the Union and ensured in accordance with the principle of sustainable development.

Not only primary legislation, but also secondary legislation refers to the concept. These Directives, such as the Habitat and Bird Directives, often state (in their preamble) that they contribute to sustainable development. The Mining Waste Directive even states in Article 5 that it takes the principle of sustainable development into account. Here, there is thus even spoken of a principle. However, these referrals do not give guidance on how to use the concept when developing law or policies. Some guidance is given by the EU policy document of the Council of the EU, called 'Renewed EU Sustainable Development Strategy', adopted in 2006. This strategy offers ten policy guiding principles in order to implement and give meaning to the concept of sustainable development.[398] These are the following: the promotion and protection of fundamental rights (1), solidarity within and between generations (2), open and democratic society (3), involvement of the citizens (4), involvement of business and social partners (5), policy coherence and governance (6), policy integrations (7), use best available knowledge (8), the precautionary principle (9) and the polluters pay principle (10).[399] Most of these guiding policy principles have already been discussed elaborately in the previous paragraphs. What is important with regard to shale gas extraction, is that the Renewed EU Sustainable Development Strategy state that sustainable development "is an overarching objective of the European Union set out in the Treaty, governing all the Union's policies and activities." [400] All these policies and activities thus also include *inter alia* recommendations, such as the Recommendation on Shale gas.[401]

In an article of Van Hees, he aims to clarify the concept of sustainable development by explaining the guidance and its policy guiding principles in order to come up with "(I) a more workable definition of sustainable development than the one which is currently used, and (II) a framework of

[396] Brundtland-Report "Our Common Future" (1987), chapter 2, paragraph 1.
[397] Van Hees (2014), p. 65.
[398] Van Hees (2014), p. 71.
[399] Council of the European Union, *Renewed EU Sustainable Development Strategy*, Annex no. 10117/06, 2006, pp. 4-5.
[400] Council of the European Union, *Renewed EU Sustainable Development Strategy*, Annex no. 10117/06, 2006, p. 2.
[401] Van Hees (2014), p. 66.

application for sustainable development."[402] This could then be used by policy makers, NGOs, politicians and businesses in decision-making processes. This definition and framework can be very relevant (for those parties) with regard to the decision-making process concerning shale gas exploration (as will be set out in Chapter 6). The definition that Van Hees proposes – instead of the currently considered main definition following from the Brundtland report – is:

> Sustainable development means stimulating and encouraging economic development (e.g. more jobs, creativity, entrepreneurship and revenue), *whilst* protecting and improving important aspects (at the global and European level) of nature and society (inter alia natural assets, public health and fundamental rights) for the benefit of present and future generations.[403]

Hence, the goal of sustainable development is the achievement of both a positive economic outcome as a positive outcome for the environment and society.[404] As a framework for the application of the concept of sustainable development in practice, he proposes a 'sustainability impact assessment', which will be carried out on the basis of the policy guiding principles turned into questions. He suggests already several questions that could be asked in order to carry out the sustainable impact assessment. This provides for a sort of check-list in order to control whether certain decisions are in line with the concept of sustainable development. These questions can be useful for the next chapter. Therefore this table with questions is added hereafter.[405] This sustainable impact assessment allows for an extra review, besides the framework provided by the discussed principles, on whether the current and upcoming shale gas regulation complies with the currently prevailing 'sustainability thinking'.

Policy-guiding principle(s)	Question
– *Policy integration and coherence*[1] – *The protection of fundamental rights*[2]	1. Does the decision have negative consequences for policy objectives such as the protection of a high level of quality of the environment and public health and for the protection of fundamental rights?
– *Using the best available knowledge*[3]	2. Has the best available knowledge been used to prevent possible negative consequences resulting from the decision? Are there alternatives?
– *The precautionary principle and the taking of preventive action*[4]	3. Is there scientific uncertainty about the existence or extent of risks to public health, safety or the environment stemming from the decision? If there is, have measures been taken to prevent the occurrence of those risks?
– *Policy integration* – *The polluter pays principle*[5]	4. If negative consequences stemming from the proposed decision continue to exist: is the decision based on a sincere balancing act conducted between the positive economic effects of the decision and its negative (e.g. environmental) effects? And are the costs of these negative effects borne by those who are responsible for causing them?

5.8.2 Dutch level

As already explicated in paragraph 5.5.1, an EU principle can have effect in MS if it concerns a policy area which has been (partly) harmonised by EU law, even if it allows some discretion. However, in areas that have not been harmonised, MS are not bound by EU environmental objectives and principles. Although, MS always have to comply with the principle of sincere cooperation of Article 4(3) TEU. Moreover, binding international agreements might also address sustainable development.[406]

[402] Van Hees (2014), p. 60.
[403] Van Hees (2014), p. 72.
[404] Van Hees (2014), p. 72.
[405] Van Hees (2014), p. 73.
[406] Van Hees (2014), p. 64.

5.9 Conclusion

In this chapter, the general and environmental principles are set out. Here, there is chosen to only discuss the most relevant principles with regard to shale gas exploitation. The principles discussed are: the subsidiarity principle (especially with regard to the latest EU initiative on shale gas), the transparency principle, the participation principle, the integration principle, the precautionary principle and the prevention principle. While setting out the different principles, first the EU content of the principle was set out, after which the national meaning (according to the Dutch case law and literature) was given. With regard to the general principles, their meaning was first elaborated in general, before going into more depth what the principles mean with regard to environmental cases. Prior to this, the definitions and binding nature of and the differences between general and environmental principles were set out.

6 Application of principles to shale gas regulation

In this chapter the current shale gas regulation (and future developments), set out in Chapters 3 and 4, will be reviewed with the principles set out in Chapter 5. When assessing this, special attention will be paid to the problems pointed out at the end of Chapters 3 and 4. These problems will also be discussed separately, in light of the principles, in the final conclusion (Chapter 7).

The purpose of this chapter is to offer a way of looking at this problem, without giving the presumption that this is the only way to look at this. Applying the principles to shale gas regulation does however give a certain direction, which is not yet detectable in this manner.

6.1 The subsidiarity and decentralisation principles

6.1.1 The subsidiarity principle

As set out in Chapter 5, the principle of subsidiarity constitutes three pre-conditions (no exclusive competence, cannot be sufficiently achieved by MS and action should 'better be achieved at EU level') and with regard to the environment (and energy) also three justification grounds (transnational environmental effects, conflict with Treaty requirements and/or clear EU benefits in scale or effects). This can be seen as the general assessment framework to which the current EU shale gas regulation has to be reviewed.

Before assessing the general assessment framework, some additional information should be given on the field of energy in combination with the subsidiarity principle. According to Article 194(2) TFEU, the EU shall establish measures in order to achieve the objectives enumerated in paragraph 1. However, such measures cannot affect a MS' right "to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply". These three mentioned rights or choices should not be breached by an EU action. If EU measures would affect those rights or choices, it seems that the subsidiarity principle would be threatened. From this paragraph it appears that the subsidiarity principle is quite strict in the field of energy. On the other hand, it has been argued that exceptions to general principles or general rules should be interpreted strictly, e.g. when that principle aims to facilitate the exercise of fundamental freedoms guaranteed by the Treaty.[407] Article 194 TFEU enumerates the aims of energy policy in the first paragraph. With regard to shale gas activities especially the second and third aims are relevant: the ensuring of security of energy supply in the Union (b) and the promotion of the development of new and renewable forms of energy (c). It could be argued that those aims of paragraph 1 should not be hindered by a broad application of MS' rights under paragraph 2.[408] In other words: the 'exceptions' of Article 194(2) TFEU to the subsidiarity principle of Article 5(3) TEU, should not hinder the aims and general rules set out in Article 194(1) TFEU.

With regard to the field of energy, there was an interesting discussion on the principle of subsidiarity with regard to binding EU energy efficiency targets (set by the Energy Efficiency Directive 2012/27/EU). Some MS opposed those targets, advocating that this subject belonged to their own competence. Other MS recognised the need in order to reach efficient measures in all the MS and thereby the contributions to the fight against climate change.[409] Finally, the Directive entered into force on 4 December 2012. It should be mentioned that the outcome of such

[407] See e.g. Case C-476/01 *Felix Kapper* [2004] ECR I-5205, paragraph 72.
[408] Legal Memo of Client Earth, *The principle of subsidiarity and the Proposal for an Energy Efficiency Directive*, October 2011.
[409] Krämer (2011), p. 19.

discussions is always political. The importance of the subsidiarity principle also lies in political considerations.[410]

How should this principle be assessed with regard to the current EU shale gas regulation? First of all, it should be noted that there is not much EU shale gas regulation to assess. It is more a collection of many environmental directives and regulations than one overarching piece of legislation. This collection has now been complemented by the Recommendation of the Commission (on shale gas exploitation). It is not easy to assess whether the Union may, by this tangle of different regulation, already be on the edge of the subsidiarity principle. If that would be the case, the Union was already (before adopting the recommendation) infringing the subsidiarity principle. In this respect, it is easier to assess whether the recently adopted Recommendation is in accordance with the general assessment framework of Article 5(3) TEU.

First, it should be assessed whether the pre-conditions of the principle are met. As mentioned in Chapter 5, the field of energy is mentioned as a shared competence (Art. 4(2)(i) TFEU). In order to assess the second and third pre-condition, the aim of the EU-measure first has to be unravelled. The Recommendation states that it is developed in order *to support MS* in the exploration and production of natural gas from shale formations (1) and *to ensure* that the climate and environment are safeguarded (2), resources are used efficiently (3), and the public is informed (4). What aim(s) of Article 194(1) TFEU can be read into this statement? This is not explicitly set out in the Recommendation and is thus not really clear. Remarkably, there is not even a reference to Article 194 TFEU at all. Anyway, from the mentioned statement, several aims of Article 194(1) could potentially be discovered. First, it can be read that it is aimed at the efficiency of energy use (sub c of the aims), but latter on this is not iterated anywhere or explained in more depth. Second, in point 9 of the preamble the Commission states that a set of rules would "level the playing field for operators, and improve investors' confidence and the functioning of the single energy market." This points at the first aim mentioned in sub a of Article 194(1) TFEU: the ensuring of the functioning of the energy market. However, this consideration is not mentioned latter on in the purpose and subject matter of the Recommendation. Last, it is stated in the preamble (point 4) that the Council has "stressed the need to diversify Europe's energy supply and develop indigenous energy resources to ensure the security of supply in the EU", which could be connected to the aim of sub b (ensure security of energy supply). However, this is also not repeated by the Commission itself as an aim of the Recommendation. All in all, the aims of the Recommendation could have been stated in more clear terms, with a clear reference to the aims of Article 194(1) TFEU.

These found aims in the Recommendation should now be used to answer the key question: can these aims not be sufficiently achieved by MS and/or should they better be achieved at Union level. To answer this question, the environmental justifications can help. For the first justification, it needs to be assessed whether there are transnational aspects involved. This justification ground can be seen from different perspectives. Not only with regard to problems of climate change might there be transnational aspects (such as seismicity, air pollution, water pollution, etc.), but also with regard to security of supply and competitiveness might there be such aspects present. The transnational aspect of these problems and their current significance can be shown by several attempts by EU institutions to develop an integrated market for energy.[411] The Commission also bases its competence on this justification. It states that "[a]lthough available evidence (from the US) does not show geographically widespread effects of water pollution from shale gas extraction, this cannot be excluded: there are at least 268 transboundary groundwater bodies in the EU and several shale gas plays spread across borders of Member States (e.g. Bulgaria-Romania; Ireland-United Kingdom; Poland-Baltic states)".[412]

[410] Jans & Vedder (2012), p. 17.
[411] See e.g. European Council, *Presidency Conclusions*, 8-9 March 2007; Commission Communication, *An energy policy for Europe*, COM(2007) 0001 final.
[412] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 39.

The second justification concerns the possible conflict with Treaty requirements. Could shale gas exploitation restrict trade or distort competition? This may be the case if some MS are going to set strict (environmental) restrictions, which could limit the benefits of shale gas exploitation. Such restrictions would form barriers to the energy market. Also, the presence of the third justification ground (clear EU benefits in scale or effects) could be argued. The Recommendation establishes a Union-wide "risk management framework for the exploration and extraction of unconventional fossil fuels, with a view to ensuring that harmonised provisions for the protection of human health and the environment apply across all Member States." In this manner, there can be clear EU benefits in scale and effect, namely in the protection of human health and the environment throughout the whole Union. Moreover, the Recommendation can support MS in the exploration and production of shale gas which can also result in clear benefits in scale and effect, e.g. the improvement of the security of energy supply. This latter justification is also referred to by the Commission. It points to a study of the Commission in 2013 (on the economic benefits from the completion of the internal energy market) where it appeared that "addressing security of supply within national boundaries only results in welfare losses".[413] Moreover, the Commission states that negative occurrences in one MS will badly influence other MS, e.g. with regard to the public perception. Therefore, action by the Commission could even lead to better effects with regard to better legitimacy and acceptance of the public. Also, different approaches and (inconsistent) legal frameworks per MS would not enhance investors to invest in the EU. Last, different frameworks would be very problematic and confusing when a shale gas project would involve more MS. As the Commission concludes

> An EU-wide approach that would tackle the current ambiguities and gaps in the EU legal framework would therefore make the economic case of shale gas clearer. It would also contribute to developing credible knowledge-based risk response strategies, thus better responding to public concerns and public authorities' questions about the applicability of the EU environmental acquis.[414]

Furthermore, as mentioned in Chapter 5, it is not easy to assess when action can better be achieved at Union level or what should be understood as 'better' (cheaper, closer to the citizen, more environmentally friendly?). With regard to the shale gas discussion it would e.g. be the case that Poland deems non-binding rules more than enough and understands better as cheaper (since she is already carrying out drillings), while e.g. Germany or France would probably support more strict rules and appreciate better as more environmentally friendly (since they have adopted moratoria and legal bans). Interestingly enough, Romania has adopted a legal ban. This contrasts with the statement of Krämer ("poverty is the biggest environmental pollutant"), since Romania is one of the poorest MS in the Union and dependent on (expensive) gas from Russia. All in all, this discussion is very political. In the Netherlands, the government has reacted positively on the adoption of the recommendation. The government refers to the fact that the Union has already adopted general EU legislation and specific legislation on the environment, which is applicable to shale gas exploitation. According to the government the EU action is justified on two grounds. First, it was necessary to provide clarity on EU minimum principles for shale gas activities in order to facilitate a proper functioning of the internal market. Second, the government states that there are transnational effects that justify EU action.[415] It thus joins the first and second justification grounds. It is however regrettable that the Dutch government does not refer here to the extra conditions of Article 194(2) TFEU, which the Recommendation also has to comply with. These extra conditions will now be discussed.

Hence, the general application of the subsidiarity principle, ex. Article 5(3) TEU, does not seem breached. However, it still needs to be assessed whether the EU measure might infringe a more

[413] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 39.
[414] Commission Staff Working Document Impact Assessment (2014), part 1/4, pp. 39-40.
[415] *Kamerstukken II* 2013/14, 22 112, nr. 1858, p. 4.

specific provision, namely Article 194(2) TFEU. It should be determined whether the right of MS to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of MS their energy supply are threatened. It should first be pointed out that the Recommendation of the Commission is formally not binding. This is also confirmed by the preamble to the Recommendation which states that "[t]his set of rules neither implies that Member States are under any obligation to pursue the exploration or exploitation of activities using high-volume hydraulic fracturing if they choose not to nor that Member States are prevented from maintaining or introducing more detailed measures matching the specific national, regional or local conditions." Hence, it is debatable whether it could affect anything at all within the MS. The (non) binding nature of the Recommendation is however also questionable. Although it is not directly binding, it is indirectly binding as soft law.[416] Moreover, it seems that the Recommendation mostly bundles already existing legislation, which is thus already binding. Only a few (not unimportant) additions are incorporated into the Recommendation, such as e.g. the expansion of the scope of the EIA directive (to include shale gas activities) and the expansion of the environmental liability directive. Moreover, the Commission will closely monitor the Recommendation's application by comparing the situation in the MS in a publicly available scoreboard. Also, the Commission will review the Recommendation's effectiveness, which will include an assessment of the Recommendation's application, and will consider the progress of the BAT information exchange and the application of the relevant BAT reference documents. As Roggenkamp and Boekholt point out, MS cannot easily disregard this Recommendation. The publicly available scoreboard will probably put a lot of (political) pressure on the MS to comply with it. Roggenkamp and Boekholt argue that this equates to a sort of naming and shaming.[417]

Hence, when assuming that it could have binding effect, does it infringe Article 194(2) TFEU? It is clear that the Recommendation does not oblige MS to extract and produce shale gas, since this is explicitly stated. Thus, MS' choice between different energy sources and the general structure of its energy supply is not infringed. It could however be argued that the Recommendation affects MS' right to determine the conditions for exploiting its energy resources. The Recommendation *inter alia* invites (or actually 'obliges' if seen as binding) MS to adopt certain procedures or regulation on the selection of the exploration and production sites, on the determination of the baseline study, on the infrastructure of a production area, on monitoring requirements, on environmental liability and financial guarantees, on administrative capacity, on the closure of obligations and on the dissemination of information. Some of these 'invitations' were prior to this Recommendation not already included in an EU directive or regulation. It would seem from Article 194(2) TFEU that some of these matters are something for the MS to decide upon. The Recommendation does state that MS should not be prevented from maintaining or introducing more detailed measures. This would however not mean much for the MS that do not have any national legislation on this matter; they are still 'invited' (or politically obliged) to adopt the Recommendation. On the other hand, as mentioned at the beginning of this paragraph, the exceptions of Article 194(2) TFEU should not hinder the aims set out in Article 194(1) TFEU. This probably constitutes a political decision, which could be assessed with the proportionality principle. This means that the content and form of a Union action may not exceed what is necessary to achieve the objectives of the Treaties, in this case the objectives enumerated in Article 194(1). This is a difficult question to answer. Since the Recommendation is in principle not binding, such an argument would probably strand before the Court. It would then be interesting to keep an eye on the Commission in 1,5 years, when she is obliged to review the Recommendation's effectiveness. A clear breach of Article 194(2) TFEU would be if the Commission would (due to e.g. efficiency, such as the Efficiency Directive, or security of supply reasons) adopt a certain approach which obliges the MS to extract a certain amount of shale gas in order to gain a Union wide greater security of supply.

[416] Van der Feltz (2014), p. 17. Here, Van der Feltz refers to J. Luijendijk & L.A.J. Senden, 'De gelaagde doorwerking van Europese administratieve soft law in de nationale rechtsorde', *SEW* 2011/7-8; and to C.C. van Dam, 'De doorwerking van het Europese administratieve soft law. In strijd met Nederlandse legaliteit?', *NALL* 2013.
[417] Roggenkamp & Boekholt (2014).

Finally, it could also be questioned whether it is possible to argue the other way around; should the Commission have chosen for options B, C or D instead of A? In other words: can you argue for a stricter EU regulation on this matter? This is a question which comes more into play with regard to the proportionality principle (but then reversed; did it actually adopt what is necessary to achieve the objectives of the Treaty, especially the environmental objectives?). This is a question that will be discussed with regard to the environmental principles.

6.1.2 The decentralisation principle

A sort of equivalent of the subsidiarity principle on the national level is the decentralisation principle. Once again, this principle means that a matter must be handled by the lowest authority possible in order to adopt decisions as closely as possible to the citizens. This principle is especially remarkable with the current Dutch legislation on shale gas activities.

As set out in Chapter 4 and Chapter 5, the State (and the provinces) has multiple options to 'interfere' with municipalities' powers. With regard to shale gas exploitation, the State already has used one of them, namely the adoption of a structure vision. The Structure Vision on Shale Gas is currently under consideration, but it is certain that it will be adopted in the beginning of 2015. This structure vision will decide on the most essential aspects of shale gas exploitation, such as the location(s). The adoption of a structure vision on this matter is not surprising, since shale gas exploitation is of national interest. What is remarkable though, is that the State has the possibility to adopt whatever it wants. While many municipalities are opposed to shale gas activities in their 'backyard' and have declared themselves 'shale gas free', the State can set these concerns aside and follow its own ideas. Although structure visions are formally not binding, municipalities do have to take them into account when establishing zoning plans or granting integrated environmental permits. Also, they have a lot of political weight. Moreover, the State has the possibility to designate orders if the municipalities do not comply with the structure vision. Furthermore (if the municipalities are really not willing to cooperate) the State can establish a government-imposed zoning plan amendment (*inpassingsplan*), where it is not even obliged to prove that this action is necessary. All of these actions are possible under the heading that there is a 'national interest at stake', which is not a high threshold in general and will especially not be difficult to prove in the field of energy.

Hence, while the decentralisation principle is included in the Dutch Constitution, it seems an empty shell in practice, especially with regard to the practice surrounding shale gas exploitation. It would be desirable (as De Gier has already stipulated) to adopt a clearer approach with regard to this principle, especially in cases such as this where so many municipalities have declared themselves against a certain development. At the time of writing, already more than 58.000 citizens and more than 120 municipalities have signed a petition against the exploitation of shale gas.[418] The province of North-Brabant has already even adjusted its provincial environment by-law in order to prevent shale gas exploitation in its province, although this could easily be set aside by the Minister of Economic Affairs. If the State will decide to continue the exploitation, without consent of the involved municipalities, it could be wondered how much weight should still be attached to the decentralisation principle in the current society. This would be a worrying development, taking into account that the principle is still included in the Constitution.

Furthermore, when looking at the Mining Act, which concerns the licensing for the exploration and extraction, it is remarkable that the provinces and municipalities hardly have any influence. The provinces which territory is covered by the exploration of extraction permit shall be enabled to advice on the application, but the Minister can set this advice aside if necessary. This state of

[418] https://www.schaliegasvrij.nl/

affairs is especially notable since it will happen in the 'backyard' of those provinces and (especially) municipalities. Moreover, shale gas exploitation touches upon many local interests, such as drinking water, nature, transport, etc. This contradicts with the idea of the decentralisation principle that focusses on the adoption of decisions as closely as possible to the citizen who are affected by that decision. This is also pointed out by some Members of the Dutch Parliament.[419]

6.1.3 Addressing some of the problems

As pointed out by Chapters 3 and 4, there are many problems with regard to the fragmented nature (concerning the competent authorities, legal frameworks, etc.) of the current regulation on shale gas. Both principles (the subsidiarity and decentralisation principles) help resolve some of those problems. The decentralisation principle could help to tackle some of the problems concerning fragmentation of competent authorities: if the lower authorities are more involved from the beginning (for e.g. in the procedure of the granting of licenses according to the Mining Act), less fragmentation will occur later on and better coordination will take place. This would be more in line with the principle of decentralisation. On the other hand; the objective of the current actions by the EU and the Dutch government already is to remedy the fragmentised nature of the legislation. The Dutch Structure Vision on Shale Gas, especially in combination with STRONG, will contribute to an overarching framework. The EU action also tries to catch this problem by establishing a 'risk management framework'.

Another problem mentioned in Chapter 4 is the issue of the overriding authorities. Here, a stricter application of the decentralisation principle may also be useful. Sometimes intervention by higher authorities is necessary, especially if for example some municipalities are making it very hard to adopt a certain policy behind which the rest of the municipalities stand. However, in the current situation this is not the case; not some, but 120 municipalities are against the shale gas development. It could be argued that this would be something that the State must listen to, especially in respect to the decentralisation principle. However, it could be questioned whether this can be argued when it concerns drinking water, which is considered a national interest. In this case it can be stated that it is even preferable that the State protects these interests. This is the dilemma of the different national interests. This will be further discussed in paragraph 6.4.3, with regard to the precautionary principle.

Finally, the decentralisation principle can also contribute to the problem of the (lack of) public acceptance. If lower authorities would receive more influence, citizens will have more faith in certain action(s) and will also accept more. After all, citizens often have the feeling that they know the councillors of the municipality better than e.g. the Minister of Economic Affairs. Citizens from the municipality of Boxtel probably feel that the Minister of Economic Affairs cares more about the security of energy supply instead of protecting them. If lower authorities will obtain (or get back their) influence, more legitimacy and acceptance can be created.

6.2 The principle of openness: the transparency and participation principles

How are the transparency and participation principles (together: the principle of openness) of relevance with regard to shale gas exploitation? As mentioned in Chapter 5, Prechal and De Leeuwen argue that those principles contribute to the principles of democracy and legitimacy (at the political level) and to the rights to be heard and of defence (at the more concrete administrative level). It helps to raise awareness and acceptance of the public. Moreover, the relevance of these principles is also shown by the fact that many applicable directives on shale gas extraction (as shown by Chapter 3) address aspects of transparency and participation, as seen e.g. in the latest amendments to the EIA Directive.

[419] *Kamerstukken II* 2013/14, 33 952, nr. 7.

Hence, these principles are really important with regard to shale gas production if those were to happen in the EU and in the Netherlands. One of the most heard fears of the public is the lack of transparency and consultation during the shale gas exploitation. This has been confirmed by the public consultation held by the Commission (before adopting its Recommendation).[420] In the EIA accompanying the Recommendation this is also repeated:

> Public protests often refer to the insufficient level of precaution, transparency and consultation applied to these activities. When asked about what they consider as the main challenge of the sector development, about 60% of individual respondents to the EC consultation (unweighted rate, rising to about 80 % in the weighted case) identified the lack of transparency and public information (together with inadequate legislation) as the main challenges.[421]

Currently it is not transparent what materials and chemical substances are put into the fracturing fluid, what happens with the flow-back water after the exploitation, how much water is left into the ground, what the risks of seismicity are (especially with the latest events in Groningen this is a concern in the Netherlands), what the chances are of pollution, but also how much security of supply it will give, what the exact volume of shale gas in the EU is, etc. All of the studies are for large parts based on assumptions, which make the insecurities even harder to accept.

According to Article 11 TFEU, the EU institutions shall give citizens and representative associations the opportunity to make known and publicly exchange their views in all areas of Union law, thus including the area of energy. The Commission must maintain an open, transparent and regular dialogue with them and should carry out broad consultations with parties concerned. With regard to the Recommendation of the Commission, the latter occurred. The Commission has carried out a broad public internet consultation (with circa 23000 responses) and a Flash Euro-barometer survey (on the basis of interviews with over 25000 EU citizens in 27 MS), which resulted in the adoption of the Recommendation.[422] This is in accordance with Article 11 and may create a positive feeling towards the EU. This also fits well with Article 10(3) TFEU that creates a right for citizens to participate. However, it is somewhat disappointing that the Commission has chosen for the least binding and bold option of the four proposed actions. It could also choose to change some existing legislation or adopt a directive, which would have proved even more that the Commission had listened to the wishes of (the majority of) the public and that the civil society participates. Moreover, from Article 11(2), but also from Article 10(3) TFEU and many other environmental legislation that refers to consultation (such as the WFD), the Commission has a duty to 'maintain' an open and regular dialogue. This means that the Commission should keep consulting the public, e.g. when reviewing its choice of adopting a recommendation. This participation in the review process is not mentioned in the Recommendation.

With regard to the transparency principle, it could be pointed out that the Aarhus Convention, Regulation and Directives are focussed on public authorities and not on e.g. energy companies. However, it is for the public authorities to gather the relevant environmental information with the companies, in order to make this information public. The current 'asymmetry of information' between the (potential) shale gas operators and the competent authorities or public should be addressed. Currently, the operators do not have an incentive to publish this information or even gather all the relevant information on e.g. the fracturing fluids. The public and competent authorities should make such requirements obligatory before carrying out shale gas activities. In order to gain legitimacy and acceptance for shale gas projects, as shown by the results of the public consultation, a higher level of transparency and consultation is essential. This is also

[420] Public consultation report (2013).
[421] Commission Staff Working Document Impact Assessment (2014), part 1/4, pp. 32-33.
[422] Public consultation report (2013); Q&A on the shale gas initiative (2014), p. 3.

stimulated by the Recommendation which states in Title 15 (on the dissemination of information) that MS should ensure that:

> the operator publicly disseminates information on the chemical substances and volumes of water that are intended to be used and are finally used for the high-volume hydraulic fracturing of each well. This information should list the names and Chemical Abstracts Service (CAS) numbers of all substances and include a safety data sheet, if available, and the substance's maximum concentration in the fracturing fluid.

Hitherto the EU institutions are discussed, but what about the Dutch competent authorities? Although they also have to comply with the EU obligations (of the Aarhus legislation) towards transparency and participation, they also have to comply with the Dutch principle of transparency and participation. According to the Code for Good Administration, the administration has to know what is going on in society and has to show what it does with this knowledge. This is of importance for shale gas activities in order to receive acceptation. With regard to the currently developing Structure Vision on Shale Gas, everybody is allowed to submit an opinion (*zienswijze*). The Minister of Economic Affairs has to react on all those opinions when finally adopting the structure vision. This latter is important. In order to gain acceptance, the Minister really has to show and motivate how it took all the opinions into account. He has to 'show what it does therewith'.

With regard to the transparency principle and the Dutch legislation on shale gas activities, it is also relevant to note that the formation of the Mining Council (who should advice on the permits according to the Mining Act) is secret, whereby it is unclear who sits in this Council. It would seem that an independent council should be transparent and that everybody should be able to find who sits in there. This is especially remarkable since the Mining Council has an important role in the licensing process and the granting of licenses for something such as shale gas activities is not something that should be thought light of.

Moreover, the importance of transparency with regard to shale gas activities is also very relevant with regard to the drinking water companies. These companies have a duty of care to guarantee safe and health drinking water. To ensure this and to comply with their duty, they need to know what is in the flow back water, what chemicals are used, how much water will be left in the ground, etc. Currently, this is not at all clear.

Finally, the participation and transparency principles breathe the necessity of involvement of the people. As stated, they are closely related to the principles of democracy and legitimacy. Especially with such a sensitive topic as shale gas extraction, these principles and thus the involvement and ideas of the people are really important. Therefore, there should really be listened to them. When looking at the Dutch approach, this is not happening. Currently, the Structure Vision on Shale Gas includes a discussion on the usefulness and necessity (*nut en noodzaak*) of shale gas exploration in the Netherlands. It could however be argued that such a (public) debate should happen before the adoption of a structure vision, since this latter already sets out how and where shale gas extraction should occur in the Netherlands.

6.3 The integration principle

The integration principle requires all Union's policies and activities to integrate environmental requirements. This means that this also applies to energy policies. It could be questioned whether the Recommendation of the Commission has integrated the environmental requirements sufficiently or whether it was more concerned with providing an overarching framework in order to stipulate the economic effects of shale gas activities.

As set out in Chapter 5, the principle can be used in order to review whether measures of EU institutions are legitimate in view of the environmental objectives. The environmental requirements include the objectives of Article 191(1) TFEU, the principles of paragraph 2 (which will be set out in the following paragraphs) and the policies in paragraph 3. These three should be distinguished with regard to their influence on the judicial review. With regard to the objectives of paragraph 1, it could be questioned whether the Recommendation contributes (enough) to the preserving, protecting and improving of the environmental quality, the protecting of the human health, the prudent and rational utilization of natural resources and finally, the promoting of measures at international level to deal with regional or worldwide environmental problems (in particular climate change). It does seem that the Recommendation takes these objectives into account, but it could be wondered whether this is enough (since it is formally not binding) and whether it actually discourages the prudent and rational utilization of natural resources and promotion of measures to combat e.g. climate change. After all, the promotion of the development of shale gas will reduce the promotion of renewable sources. It could be questioned whether the integration principle could 'require' the Union and MS to invest in other sources of energy instead of shale gas. This would also be in line with the aim of Article 194(1) TFEU to promote the development of renewable energy. Krämer is for example of the opinion that

> [T]he Union has spent, from the beginning, too much EU money on nuclear energy compared with expenses for renewable energy; art. 11 TFEU would allow a reversal of this policy, if the political will existed to promote renewable energies. Again, this is a question of policy, not of law; there is no legal obligation to invest increased sums into the promotion of renewable energies.[423]

This line of reasoning can also be found in a statement of a Member of the Dutch Parliament in the Netherlands who is of the opinion that the extraction of shale gas in the Netherlands would hinder the transition to renewable energy. Also, the MP states that further research would be a waste of time and energy.[424]

The principles of paragraph 2 will be discusses in the following paragraphs. The policy aspects which the Commission had to take into account are enumerated in paragraph 3. These policy aspects will probably not lead to the conclusion that the Recommendation was not legitimate, especially since they are not of much influence in the level of judicial review.

The integration principle also applies to MS in policy areas which have been (partly) harmonised. This could be argued with regard to the many EU directives, regulations and other actions mentioned earlier. In the Netherlands, it could be wondered whether the integration principle has been sufficiently implemented. This can be illustrated by the Mining Act, which does not involve environmental aspects (while the Mining Waste Directive does) but only focuses on economic aspects. This could also be illustrated by the fact that the entire discussion on shale gas is carried out by the Minister of Economic Affairs. The Minister of Infrastructure and Environment does not seem to be involved. It seems that those are considered as two separate things, which is remarkable. It would already make a difference if the Minister of Infrastructure and Environment would more explicitly co-sign all the letters and Structure Vision on Shale Gas. Now it could give the impression that only economic considerations are taken into account. The addition of the Minister of Infrastructure and Environment could also contribute to the public acceptance by letting the public know that the environmental aspects are taken into consideration as well. After all, it would be too late if the Minister of Infrastructure and Environment would be involved once environmental aspects occur (such as the contamination of ground water or drinking water).

[423] Krämer (2011), p. 20.
[424] *Kamerstukken II* 2013/14, 33 952, nr. 8.

6.4 The precautionary and prevention principles

The precautionary and prevention principles are in practice almost often invoked together. Therefore, this paragraph will also address them together, which is especially insightful when looking at the problems that they might help to redress.

6.4.1 The precautionary principle

There is no official definition of the precautionary principle in EU or Dutch legislation. However, all the explanations of the principle in international, European and national legislation include the same aspects; there should be a lack of full scientific certainty (due to insufficiency, inconclusiveness or uncertainty) and there should be potentially dangerous effects on the environment, human, animal or plant health that may be inconsistent with the chosen level of protection. As mentioned in the previous paragraph, the EU action or measure in the field of energy must comply with the environmental requirements which include *inter alia* the principles mentioned in Article 191(2) TFEU in which the precautionary principle is also enumerated. According to the Commission two steps need to be followed to assess whether recourse to the principle occurs. It will now be reviewed whether the current shale gas regulation is in accordance with these two steps.

First, there should be a potential risk. If risks are only identified by minor groups within the scientific community, this is already enough. A comprehensive assessment of the risk is not necessary if this is not possible. If the scientific evaluation of the risk shows that it is not possible to determine the risk with sufficient certainty, recourse should be sought to the precautionary principle. With regard to shale gas activities, it can be ascertained that there are many risks and uncertainties (see Chapter 2). This is also confirmed by many studies and by the EIA carried out by the Commission. Currently, a plan-EIA is also carried out by the Dutch government (expected at the beginning of 2015). Some of the uncertainties are also due to the fact that there is not much experience with hydraulic fracking and horizontal drilling on the EU territory. Therefore, many of the studies are based on assumptions. This makes it difficult to determine risks with sufficient certainty. That again is an indication that recourse should be sought to the precautionary principle.

It should then be assessed what precautionary measures should be taken. Decision-makers should respond to the scientific evaluation. This should lead to a political decision which should contain a risk level that is 'acceptable' to the society on which the risk is imposed. Within the Union, the Commission is the relevant institution (but also the European Parliament and the Council can start actions or initiatives) and within the Netherlands, the competent authority is especially the Minister of Economic Affairs, but also the municipalities and provinces when making policies or granting certain licenses. If a level of risk exceeds the level of risk deemed acceptable for society, a breach of the precautionary principle must be found. However, the precautionary principle implies a political decisions which means that courts can only find a breach if there is a manifest error or misuse of power or manifest crossing of the limits of the powers. With regard to the legislation on shale gas activities, it could be questioned whether the risk level adopted by the Recommendation is 'acceptable' to the society on which the risk is imposed. As proven by the broad public consultation of the Commission and by the several moratoria and legal bans imposed by MS, the EU civil society is very afraid for shale gas activities on their territory or in their neighbourhood. The formally non-binding Recommendation does not give much certainty for them or for the environment. After all, it is still for the MS to decide whether they will actually adopt it. If they had chosen for another option (e.g. adjusting existing regulation or adopting a new directive), certain risks could have been regulated under stricter requirements. This would have been more in line with the precautionary principle and more acceptable for the society.

On the other hand, it should be realised that the precautionary principle is not per se good from all perspectives. According to Fleming, "[u]nrealisticly high demands on the removal of uncertainty suffocate the balancing of energy security interests with environmental protection demands, since a prerequisite for the weighting is a certain amount of leeway in which it can be performed."[425] He illustrates this by referring to the precautionary moratorium on natural gas drilling in the Wadden Sea in 1999. The Dutch government stated that as long as any uncertainties regarding possibly permanent degradation of the Wadden Sea existed (to a certain extent), no permits would be issued. Difficulties arose as how much (un)certainty was required and what 'to a certain extent' meant. The statement of the government referred to 'any uncertainties' which is impossible to reach in practice. What could be learnt from this experience, according to Fleming, is that thresholds should not be set too high. Some risks are inevitable, otherwise new technologies could never be tried out, as Fleming points out. He states that such a high threshold would make the balancing exercise between energy security and environmental protection impossible.[426] He argues that if no fear of significant harm exists, the precautionary principle is already sufficiently fulfilled. This line of reasoning (of Fleming) could in general be followed. However, it could be noted that this consideration might not be true for every situation. Therefore, it could be argued that the reasoning of Fleming should take a more casuistic approach. In the case of shale gas exploration, this line of reasoning could be questioned, especially with regard to the adverse effects for drinking water for which there are no alternatives available, as elaborated further in paragraph 6.4.3.

On the Dutch level, there is also another development of relevance; the adoptive licensing approach. The ABRvS seems to not explicitly review measures or decisions against the precautionary principle itself, but on the basis of this approach. It is very well possible that the Minister of Economic Affairs will adopt a system in which such a monitoring plan is built-in. It must be kept in mind that a monitoring system is only acceptable if the margin for which it provides concerns a remaining manageable residual risk, the monitoring relates specifically to that risk and there is no alternative to exclude that risk. Moreover, it is still questionable whether the Court of Justice would accept this line of reasoning. Therefore, such a system would not be preferable.

6.4.2 The prevention principle

The prevention principle should be distinguished from the precautionary principle. While the precautionary principle can be invoked if there is no scientific certainty, the prevention principle can only be invoked if the adverse effects for the environment are objectively established. The level of certainty is thus decisive. With regard to shale gas activities it may be dependent on the certain risks that are discussed; some risks are more uncertain than others. In practice, the principles are almost always invoked together. Another important difference between the two (with regard to shale gas activities) is that the prevention principle applies a definition of an acceptable risk that is primarily science based, while the precautionary principle considers the social acceptance of the risk. The social acceptance is an important matter with regard to shale gas activities, in the sense that there is none (or not much). This produces a high threshold for shale gas regulation.

An important duty required by the prevention principle is that competent authorities may not limit themselves to certain concepts or list, but should always take a broader view in the interest of preventing or mitigating environmental degradation. Hence, competent authorities should be open-minded. Here, the current approach of the Dutch government provides for a good example. In the Draft MSL certain zones are excluded from shale gas extraction, while others are not. The Minister depends its decision thereon on the currently existing (Dutch) regulation on e.g. the Mining Act, the Water Act, etc. Therefore, the Minister has decided for example not to exclude boring free zones from shale gas activities, because they are not in contrast with the Model PMV. This is an example

[425] Fleming (2014), p. 26.
[426] Fleming (2014), p. 27.

of where the Minister could have been more open-minded, especially in view of the interests at stake. This would have also been an opportunity to gain more public acceptance. The same applies for the 1000 metres zone beneath drinking water and groundwater protection areas.

Another consideration that could be made concerns the link of the prevention principle with the transition to renewable energy. The prevention principle means that environmental pollution should be cured at the source. However, by introducing shale gas extraction (instead of renewable energies) a new form of energy is introduced in the EU and the Netherlands to secure the supply of energy, but not by contributing to a better environment and the 2050 energy roadmap. Renewable energy is also stimulated by the objectives mentioned in Article 194(1)(c) TFEU. The current debate on shale gas extraction takes a lot of (precious) time, money and energy (especially due to the public concerns), while this could have all been used for the exploration of renewable energy. This is not a legally binding deliberation, but more a political statement that should be considered. In the Netherlands, as mentioned under the integration principle, some members of the Dutch Parliament already submitted motions hereon.[427]

6.4.3 Addressing some of the problems

When looking at the several problems pointed out in Chapters 3 and 4, it can be argued that the precautionary and prevention principles can serve as a stimulation to solve certain issues. First of all, a strict application of the principles could serve as an assurance of the citizens. Indeed, a strict application of these principles would mean that due account is taken of the insecurities. If the insecurities would be significant and the risks could not be sufficiently determined, the authorities would have to take action then, e.g. by revoking licenses or by still invoking or adopting a moratoria or legal ban. In that manner, citizens might be more reassured and the public acceptance will increase. This is also acknowledged by the Commission in its EIA:

> Evidence suggests that public concerns might be lessened as long as certain important conditions for the protection of the environment are met. Although risk aversion may be sometimes greater than what is justified scientifically, as long as uncertainties remain at a level considered too high by the society, public concerns would persist. Building sufficient knowledge, based on reliable and verifiable data collection and further research on the issues of concerns, takes time. While this is being built, a precautionary approach can reassure the public over short and long term risks.[428]

A second problem, for which the precautionary and prevention principles could be of meaning, is the issue concerning the protection of drinking water. The discussion on the conflicting interests between shale gas extraction and the protection of drinking water is clearly visible in the Netherlands. Currently, the Minister of Economic Affairs is (in the Draft MSL) excluding ground water and drinking water areas from shale gas activities. However, he also proposes a 1000 metres zone beneath the drinking water and ground water areas under which shale gas extraction may occur, in order to have more areas at its disposal. Beneath these 1000 metres it is 'in principle' allowed to extract shale gas. It is however questioned whether this zone of 1000 metres is sufficient.[429] Also, the choice for this zone is not reasonably motivated or substantiated by scientific evidence. In addition, bore free zones (*boringvrije zones*) are not excluded by the Draft MSL, while these zones are located around the groundwater protection zones. These zones are meant to avoid contamination from the ground level to the protected groundwater. The current Dutch approach contradicts here with the precautionary and prevention principles. No risks should be taken in areas that are so important and sensitive, represent national interests and are under a duty of care by the provinces to protect. Especially with regard to the 1000 metres zone exist much scientific uncertainty on whether this will exclude risks. No background information on the choice of

[427] *Kamerstukken II* 2013/14, 33 952, nr. 8.
[428] Commission Staff Working Document Impact Assessment (2014), part 1/4, p. 33.
[429] *Kamerstukken II* 2013/14, 33 952, nrs. 3, 10 and 11.

this zone is made available. Also, it should be reminded that once ground water or drinking water is contaminated, it is very difficult to clean this. Moreover, when looking at the interest of drinking water in combination with the precautionary principle, it is very clear that if certain risks are taken, this must comply with the condition that this must be acceptable to the society on which the risk is imposed. Here, this is very questionable. It could be wondered whether it fits better with those principles to exclude those areas completely and moreover, to also exclude the bore free zones and all the areas appointed by the province, which are currently (in principle) not excluded by the Draft MSL. Hence, the Draft MSL does take the drinking water areas into account, but not in a way that is deemed acceptable to the society and not sufficiently with regard to the 1000 metres zone and non-exclusion of the bore free zones.

With regard to this problem (concerning the conflicting interests), the problem of overriding authorities and the dilemma of the balancing of two national interests (already touched upon in paragraph 6.1.3) come into play. It is a difficult and tricky operation to balance the national interest of energy security against the national interest of the protection of groundwater and drinking water resources. What could play a role is the precautionary principle. With regard to the contamination of ground water it could be stated that it is very difficult (if not impossible) to resolve this. Also, the risks are not entirely clear. Moreover, with regard to drinking water, it should be mentioned that there is no alternative, while for the security of energy supply there is. Except for groundwater and surface water, there is no alternative for drinking water. If precaution and prevention play a role (and the concept of sustainable development), it is also important to look ahead; what is possible in 20 years? It is possible to switch to renewable energy, but there is nothing to switch to with regard to drinking water (except for the desalination of the sea, which again would cost a lot of energy). So there is no alternative in the long- term. It could therefore be argued that the State should act its overriding powers when it comes to the protection of drinking water, not for the protection of shale gas extraction.

Finally, as pointed out in Chapter 3, there are problems with regard to the fragmentised nature of the legislation, which could result in gaps in legislation. This latter could decrease environmental protection. This is also a great concern of the society (as shown by Chapter 2 and the broad public consultation). It could be wondered whether the precautionary and prevention principles could require a more centralised or clear legislation to establish that there are no gaps in the legislation. This also applies to the fragmentation of assessment frameworks, where it is remarkable that the Mining Act does not involve environmental requirements. It would not be the first time that the precautionary and prevention principles are used as an argument to adopt or adjust legislation. The precautionary principle has for example also been used as an argument (prior to the adoption of the Recommendation) in order to defer shale gas projects to an EIA.[430]

6.5 Concept of sustainable development

As set out in Paragraph 5.8, the sustainable impact assessment – developed by Van Hees – can offer another way (an extra check) of reviewing whether the current and upcoming shale gas regulation is line with a certain environmental, sustainable manner of thinking. In this paragraph this sustainable impact assessment will be carried out.

The first question to answer is whether the decision to extract shale gas has negative consequences for policy objectives such as the protection of a high level of quality of the environment and public health and for the protection of fundamental rights. This can be answered in the affirmative. Shale gas extraction can lead to higher emissions, contamination of groundwater and drinking water, seismicity, etc. This can all lead to negative consequences for the protection of the environment and public health.

[430] Douma (2014), p. 50.

The second question to be considered is whether the best available knowledge has been used to prevent possible negative consequences resulting from the decision and/or whether there are alternatives. This question has yet to be answered with regard to shale gas extraction. According to the Recommendation, the risk assessment (on the selection of the exploration and production site) should be based on the BAT and MS should ensure that operators use the BAT. In the Draft MSL of the Dutch Minister of Economic Affairs, no clear reference has (yet) been made to the BAT. Moreover, according to Van Hees, this discussion can be held from two different perspectives. From the point of view of e.g. the NGOs, it could be argued that there are many (cleaner) alternatives for shale gas extraction, especially the use of renewable energy resources. However, it could also be argued, by e.g. the permit holders and the Minister of Economic Affairs, that (shale) gas is the cleanest fossil fuel. Therefore, it could be stated that the best available knowledge was used. Moreover, it is not economically and technically viable to solely use renewable energy, because it is not possible for a country to only use renewable energy, since many of those resources are dependent on the amount of e.g. wind or sun. Therefore, some other energy resources have to be used as well. It can be argued (as done by the Dutch Minister of Economic Affairs) that gas-fired power plants are ideal to use in combination with renewable energy, because they can easily be adjusted or turned off and therefore can be used flexible to support the changing demand patterns of solar and wind energy.[431] It could also be questioned, from the perspective of the permit holders, whether there actually are alternatives available for them. After all, Cuadrilla B.V. in the Netherlands is specialized in shale gas extraction, not in renewable energy and the building of a wind mill. For Cuadrilla B.V., no alternative is available. This question could thus be argued both ways.[432]

Then, it should be questioned whether there is scientific uncertainty about the existence or extent of risks to public health, safety or the environment stemming from the decision and if so, whether measures have been taken to prevent the occurrence of those risks. This question has already been answered with regard to shale gas in paragraph 6.4.1.

Next, it should be assessed, if negative consequences stemming from the preferred option continue to exist, whether the decision is based on a sincere balancing act conducted between the positive economic effects of the decision and its negative (e.g. environmental) effects and whether the costs of these negative effects are borne by those who are responsible for causing them. This question is not easy to answer because it includes a political decision. Simply stated: which one of the three P's gets the most weight? The economic effects of shale gas production (security of energy supply, important source of energy, economically important, ensuring cheap energy mix) or the environmental effects (the protection of the environment, drinking water, etc.). In order to balance these policy objectives, it should be known how much weight they both have. This discussion is already held above and is difficult to conduct since there is no clear priority-rule available. However, as stated by the integration principle, at least both objectives have to be taken into consideration and some kind of balance has to be made.[433] This balancing act is political in nature. As stated earlier, it could be argued that the protection of drinking water should be given more weight; there is no alternative for this, while there are alternatives to secure the energy of supply. But again, this is an opinion which the government could set aside. Moreover, to argue in a different direction, when looking at the current political developments, it can also be argued that the economic effects (instead of the environmental effects) ensure the concept of sustainable development in this case. After all, if Russia shuts down the gas tap and the entire EU has to (in the worst case scenario) stoke wood, which again could lead to deforestation, this is also not in accordance with the concept of sustainable development.

[431] *Kamerstukken II* 2012/13, 28 982, nr. 132, p. 2.
[432] Van Hees (2014), p. 74.
[433] Van Hees (2014), p. 67.

With regard to the second part of the latter question (concerning the polluter pays-principle) it should first be noted that this principle was explicitly not included in this thesis. However, a short comment could be made. There is not much known on this aspect yet, with regard to shale gas, but it could be pointed out that it has been subject of discussion whether the operators of the shale gas projects must pay a certain amount of money (1% of the yield) to the citizens living in the region of the wells. In this way the region could be compensated for the nuisance. However, the Minister of Economic Affairs has not been willing (yet) to reply on the content of this discussion.[434]

Finally, after carrying out the assessment, a final look can be paid to the proposed definition of Van Hees. From this definition, the economic development should be stimulated, while *at the same time* important aspects of nature and society (such as natural assets and public health) must be protected and improved for the benefit of the present and future generations. Here, the policy guiding principles and the general and environmental principles (which sometimes overlap) should be taken into account. When looking back at this chapter, it can be argued whether the first half of the definition receives the most attention currently. This can particularly be argued with regard to the importance of drinking water.

All in all it seems, as confirmed by Van Hees, that the outcome of this impact assessment can be formulated as preferred by the decision-maker. Many of the answers are political. Also, the assessment only offers a sort of 'check list' for the process, not for the outcome. This impedes the possible accountability of the decision-makers.[435] However, it is possible that the decision-maker, after conducting such an impact assessment, decides to adjust or not to go through with its regulation, decision or action. This could happen when the decision-maker finds out that there was not a sincere balancing between the environmental and economic effects.

With regard to shale gas extraction, especially when looking at the paragraphs discussed above on the serious or even irreparable dangers for drinking water and the environment, but also the issues of public acceptance (which are all policy guiding principles), it could be strongly questioned whether this sincere balancing has occurred. Hence, it seems that the 'extra check' provided for by this sustainable impact assessment (besides the principles) could certainly lead to a similar answer as the discussed principles. An interesting aspect of the concept of sustainable development is that it also includes an economic aspect (after all, the goal of sustainable development is the achievement of both a positive economic as a positive environment outcome), while e.g. the precautionary principle (especially when regarding the drinking water aspects where it could be considered that there are no alternatives) could lead to the exclusion of positive economic effects in order to reach a positive environmental outcome.

6.6 Conclusion

In this chapter the current and upcoming shale gas regulation, as set out in Chapters 3 and 4, were reviewed with the principles set out in Chapter 5. When assessing this, special attention was paid to the problems pointed out in Chapters 3 and 4. As stated, the purpose of this assessment is to offer a way of looking at this problem, without giving the presumption that this is the only way to look at this. Applying the principles to shale gas regulation does however give a certain direction. Although principles are not always possible to use (independently) as a norm of judicial review, they are of high importance and should not be overlooked. Their importance lies especially in political effects. It seems that with regard to some principles, it cannot be excluded that they are possibly infringed. This will be concluded and recapped in the next chapter, which constitutes the conclusion of this thesis. With regard to those (infringing) aspects, political action should be taken. At the end of the next (final) chapter, some examples of political actions will be recommended.

[434] Letter of the Minister of Economic Affairs with a response to a number of requests from the Second Chamber with respect to shale gas, 25 April 2014.
[435] Van Hees (2014), p. 75.

7 Conclusions and Recommendations

The research question of this thesis was ***whether the current and upcoming regulation on shale gas extraction in the EU and in the Netherlands is in compliance with the general principles and the environmental principles of Union and Dutch law.***

In order to answer this research question, it was first necessary to look at the concept of shale gas and its context in the current society. Here, the type of gas and its method of extraction were explained. The method is an important element to consider, since this contributes to the discussion on shale gas. Hereafter, the importance of shale gas was discussed, where it is shown that the security of supply, the enhancement of EU's competitiveness and the fact that it could be seen as a clean(er) alternative to some other energy sources, are reasons for supporting shale gas activities. On the other hand, shale gas activities are also accompanied by many concerns, such as environmental concerns (on water quality and use, air emissions, seismicity), local impacts and fears regarding the transparency and public consultation. These concerns are important for the (possible) extraction of shale gas activities, in order to enhance (the still little) public acceptance.

Hereafter, the legislation on shale gas was set out. First, the EU legislation was reviewed, since EU regulation is important to keep in mind when discussing the national regulation of the Netherlands. The discussion on the legislation has concentrated on environmental and (with regard to the national legislation) spatial platting regulation, which is of importance for shale gas activities. With regard to the EU legislation on shale gas, the legal base of the Lisbon Treaty was first set out after which the following EU legislation was discussed: the Environmental Impact Assessment Directive, the Water Framework Directive (with daughter directives), the REACH Regulation, the Mining Waste Directive, the Habitat and Bird Directives, the Hydrocarbons Directive, the Seveso III Directive and the Environmental Liability Directive. Second, the Dutch regulation on shale gas activities was set out. Here, the Mining Act was discussed, but also aspects of spatial planning and the environment were set forth. The overriding powers of the State were also elaborated, since these are and will in the future be used with regard to shale gas. Here, also an example of the Dutch practice is discussed. Both chapters were concluded with some problems that occur with the current (or upcoming) legislation. These will be discussed after making the concluding remarks.

Next, the general and environmental principles – against which the current and upcoming regulations were tested – were set out. Here, there was chosen to only discuss the most relevant principles with regard to shale gas exploitation. The principles that first came to mind when discussing the compliance of the current EU and national legislation on shale gas with general (environmental) principles of Union law were: the subsidiarity principle (especially with regard to the latest EU initiative on shale gas), the decentralisation principle, the transparency principle, the participation principle, the integration principle, the precautionary principle and the prevention principle. The concept of sustainable development was also considered. While setting out the different principles, first the EU content of the principle was set out, after which the national meaning (according to the Dutch case law and literature) was given. With regard to the general principles, their meaning was first elaborated in general, before going into more depth what the principles mean with regard to environmental cases. Prior to this, the definitions and binding nature of and the differences between general and environmental principles were set out.

Before coming to the conclusions (hereafter), the discussed current and upcoming shale gas regulation was reviewed with the principles set out. When assessing this, special attention was paid to the problems pointed out with regard to the EU and Dutch regulation. This assessment will be used to give a final answer to the research question. In addition to the conclusions, some recommendations will be made. These recommendations will concern the question how those principles should be taken into account when developing new or adjusting current regulation thereon.

7.1 Conclusions

Some remarks can be made in advance with regard to the binding nature of the principles. The general principles (subsidiarity, transparency, participation and integration) are binding for Union institutions and MS when they act in the scope of Union law. The latter could be questioned with regard to shale gas activities. Some Dutch regulations (such as the Nbw 1998 and the Mining Act) can be considered as (at least partly) implementation of EU directives, but the Dutch regulation on spatial planning cannot. However, this does not mean that the principles lose all their relevance. Moreover, general written principles have direct effect. All the general principles referred to in this thesis are written down in the Lisbon Treaty. However, competent authorities can make their own decision on how they will involve a general principle. This balancing act is not for courts to review. Courts can only assess whether the balancing act was reasonably and carefully made.

The binding nature of the environmental principles lies in their incorporation into law or policy. Environmental principles can influence the decisions of competent authorities in a normative sense. Courts cannot use environmental principles as such to annul decisions, but they are used to interpret law, regulation, etc. In regard of this thesis, they can be used to interpret the (current and upcoming) regulation on shale gas. Courts can use the principles for review if they are incorporated into law or policy. Moreover, e.g. with regard to the precautionary principle, it often seems that the CJEU uses environmental principles as part of the proportionality test. The Dutch Highest Administrative Court (*ABRvS)* mostly applies the precautionary principle within the adaptive licensing approach.

However, although it is not always possible to make the principles (legally) 'hard', the principles (especially taken all together) and their underlying ratio do give a certain line of reasoning from which it should not be possible to deviate. Or at least, this should not be easy and be very well motivated. Hereafter, it will be concluded whether the current and upcoming regulation on shale gas is in compliance with this line of reasoning.

In order to reach a conclusion on the research question, first the compliance with the general and environmental principles will be summarised after which an overview will be given from how the principles can contribute to the addressing of the upcoming problems when looking at the current and upcoming EU and Dutch regulations.

Compliance with the general and environmental principles

With regard to the **subsidiarity principle** in general, there does not seem to be a big issue, especially due to the transnational effects and clear benefits in scale. However, when looking at Article 194(2) TFEU, which requires more specific conditions that should be complied with in the field of energy, it could be questioned whether – if assuming that the Recommendation would have some formal (political) binding effect – the Recommendation complies herewith. Nonetheless, this is a political question. It is regrettable that the Dutch government has not referred to Article 194(2) TFEU in its reaction on the Recommendation. Especially with regard to the special rights the MS are appointed in this Article, this is a missed opportunity. It would have also served some legal clarity on the subsidiarity principle in connection with the field of energy.

With regard to the ratio of the **decentralisation principle**, the current Dutch shale gas regulation is not completely in line herewith. It is true that the security of energy supply is a national matter and is in the interest of the State, for which it has (intervention) powers. However, the factual shale gas extraction occurs in the municipalities and provinces. It is therefore remarkable that the municipalities are not involved at all in the Mining Act. Therefore, the local interests (e.g. drinking water, nature, transport, emission, etc.) are not sufficiently involved in the decision-making. This is

especially important with regard to the necessary creation of legitimacy and public support. Moreover, this could enhance the currently fragmented nature of the Dutch shale gas regulation, because then most of the decision-making on the relevant permits are in the hands of one authority (or at least they would be involved). In this manner, the decision-making could also speed up, because the lower authorities would be involved at an earlier stage. That would avoid situations as currently seen in North-Brabant and Boxtel, where the municipality and province strongly object.

There are currently also (still) some gaps when it comes to the **principle of openness**. In this principle lie a lot of opportunities. It is one of the most heard and biggest concerns that come with shale gas activities. Therefore, this principle should definitely be taken seriously in order to obtain more public acceptance. According to the EU and Dutch principle of participation, citizens should be truly consulted before, during and after the process of creating regulation on shale gas. Also, this consultation should result in serious efforts of the competent EU and Dutch authorities to address the raised questions, concerns and proposals. It would be preferable if this would be explicitly stated in the regulation on shale gas. Not only before the creation of the regulation on shale gas, but also during and after this. This latter part is currently missing in the EU Recommendation. Hopefully, these phases will all be included in the Dutch Structure Vision on Shale Gas. With regard to the principle of transparency, it is very important that the formation of the fracturing fluids and flow-back water becomes public. This is especially crucial for the drinking water companies and their duty of care to deliver safe and healthy drinking water. They need to know what chemicals are used in these fluids in order to purify the drinking water if necessary. There should be transparency with regard to all the risks that come with shale gas activities (e.g. seismicity, pollution, air emissions, etc.), especially since this could have effect on the standard of living for citizens. This is already mentioned in the Recommendation (although not formally binding) and this will hopefully be also acknowledged and obliged by the Structure Vision on Shale Gas.

The **integration principle** has also been set out and discussed with the EU and Dutch (upcoming) regulation on shale gas. From this analysis it seems that the current and upcoming regulation on shale gas is not completely in line with the rationale of this principle. First of all, the integration principle is weakly adopted in the Netherlands with regard to the field of energy. There is no environmental requirement included in the Mining Act, while this is the main and basic act for regulating (shale) gas exploration and extraction. Second, the development of the Structure Vision on Shale Gas and the discussion that comes along with this, are only held (with a few exeptions) by the Minister of Economic Affairs. It would contribute to the integration principle, but also to the public acceptance and legitimacy, if this would be (more explicitly) co-signed by the Minister of Infrastructure and Environment. Finally, Article 11 TFEU might require the Union and MS to invest in renewable energy instead of shale gas. This would however be the most extreme form of the integration of environmental requirements into the field of energy.

The principles that were discussed next concerned the environmental principles of Union and Dutch law. The **precautionary principle** was first discussed. The assessment of the current and upcoming shale gas regulation with the two steps of the precautionary principle shows that the compliance of the shale gas regulation with the principle could be questioned. With reference to Chapter 2, it is clear that there are potential risks, whereby the first step is already fulfilled. With regard to the precautionary measures taken (as a consequence of those potential risks) it can also be questioned whether these contain a risk level that is acceptable to the public. This question contains the second step. It can be wondered whether the Recommendation complies with this level since it is clear – from the broad public consultation and the imposed moratoria and legal bans – that the EU civil society and MS are reluctant to the production of shale gas on their territory or in their neighbourhood. Option B, C or D would have been more in line with this reluctance, than the chosen Option A which is not even (formally) legally binding. However, the thresholds for the risks should not be set too high. Account should be taken of the fact that some risks are inevitable by nature. With regard to the Dutch regulation, the Structure Vision on Shale

Gas is currently in development. In Dutch case law the adoptive licensing approach is always referred to when it comes to the precautionary principle. It is possible that the Minister of Economic Affairs will include such a monitoring plan in the Structure Vision. This is however not without risk, since it is arguable that the CJEU will not accept the accordance of such a monitoring plan with the precautionary principle. It is however a way to take account of the precautionary principle.

The next environmental principle that was set out concerned the **prevention principle**. Although this principle should be distinguished from the precautionary principle, they are almost always invoked at the same time in practice. An important note that has been stated is that the Dutch upcoming regulation (the Draft MSL) seems to be contrary to the prevention principle. While the principle requires competent authorities to be open-minded, the Minister of Economic Affairs has not shown such an open view in the Draft MSL. The proposed zones for possible shale gas extraction are only reviewed against the current Dutch regulation and the Model PMV. However, the prevention principle requires competent authorities to look further than the existing concepts or lists. In this manner, the Minister could have excluded the boring free zones (from shale gas activities) in the Draft MSL. This would have enhanced the protection of the drinking water areas. Moreover, it could have contributed to the public acceptance. The Minister would have shown its willingness to protect the environment and the drinking water areas.

Finally, the **concept of sustainable development** was discussed. Here, special attention was paid to the sustainable impact assessment, which is based on several policy guiding principles. After carrying out this assessment, it was clear that the execution hereof depends on many political aspects. It moreover depends from which perspective this assessment is carried out. Some questions of the assessment were not debatable, such as the fact that shale gas extraction comes with negative consequences for certain policy objectives (e.g. the high level of quality of the environment) and the fact that there is (much) scientific uncertainty about the existence or extent of risks to e.g. public health, safety and the environment. However, the questions concerning the used BAT and the sincere balancing act were less obvious. Here it depends whether this is argued from the perspective of e.g. a NGO or the Minister of Economic Affairs or permit holders. These questions are difficult to answer because there is no priority-rule between environmental, social and economic aspects. However, with regard to shale gas extraction, it is very well arguable, especially when taking into account the serious or even irreparable dangers for drinking water and the environment and the fact that there are not alternatives, but also the issue of public acceptance (which are all policy guiding principles), that there is not a sincere balancing act.

Addressing the problems

During this thesis, several problems were pointed out; in Chapter 2 several risks and concerns were expressed and in Chapter 4 and Chapter 5 different issues with regard to the (current and upcoming) regulation on shale gas were set out. As already seen in Chapter 6, many of those problems can (at least partly) be resolved by a stricter or more consequent application of the general and environmental principles discussed here. These problems will be shortly iterated here individually, after which it will be shown that the principles will help to address these problems.

The main problems are the following: the fragmented nature of shale gas regulation (not only the regulation, but also the competent authorities, the assessment frameworks, the instruments and the protection levels), the lack of public trust and acceptance (due to many risks and uncertainties accompanied with shale gas activities), the problem of conflicting interests (mainly between drinking water and energy supply), the environmental concerns (water quality, air emissions, seismicity), the protection of drinking water and the issue of overriding authorities. Before discussing the different problems, it should be noted that the concept of sustainable development includes many of the discussed principles (which might contribute to the problems) as guiding policy principles (such as the open and democratic society, the involvement of citizens, the policy

integrations, the best available knowledge and the precautionary principle). This concept (and its impact assessment) could thus be seen as a confirmation of the considerations hereafter.

The first problem concerns the **fragmented nature of shale gas regulation**. Here come different principles into play: the decentralisation, integration, precautionary and prevention principle. The decentralisation principle would require the lower competent authorities to be involved at an earlier stage, e.g. already when permitting the exploration and extraction licenses according to the Mining Act. Currently, these lower authorities (especially the municipalities) are not involved in the Mining Act. The inclusion of those lower authorities in the Mining Act would enhance coordination and will also speed up the process. Second, the principle of integration requires environmental requirements to be implemented in other fields. This requires the Mining Act to take account of those requirements, which is currently not happening. This could enhance the currently existing different assessment frameworks. Moreover, the environmental principles also contradict with the currently fragmentised nature of the shale gas regulation. Fragmentised regulation could lead to gaps, which can harm the environment. A more centralised, clear legislation could contribute hereto. The environmental principles have in the past already been used as an argument to e.g. adopt shale gas activities in the EIA directive.

The second problem which is very important for shale gas activities is the **lack of public trust and acceptance** within the EU and the Netherlands. The principles of decentralisation, openness (participation and transparency), integration, precautionary and prevention can be of help here. The lack of transparency and public information is considered as one of the biggest challenges with regard to shale gas. The first principle that could be helpful is the decentralisation principle. If lower authorities (mainly the municipalities) would have more influence (e.g. already in the Mining Act as stated before), citizens would have the feeling that their interests would be more and better involved. This will lead to more acceptance. Currently, many citizens feel that the Minister of Economic Affairs does only take national interests (such as the security of energy supply and energy mix) into account, while not considering the local interests. Second, the principle of openness could contribute to more public acceptance and trust. In accordance with the principle, citizens should be more involved and should be allowed to see what the actual effects are of shale gas activities, what chemicals are put into the ground (or not), etc. Knowing will give some peace of mind. Third, the integration principle requires environmental requirements to be taken into account in all policies. Currently, there is lack of such integration in the Dutch mining regulation. This is shown by the Mining Act but also by the fact that only the Minister of Economic Affairs signs the official documents of the parliament, without coordination with the Minister of Infrastructure and Environment. It could lead to public acceptance if environmental aspects would (more clearly) be taken into account. Currently it seems that economic reasons have the upper hand. Finally, the environmental principles are of relevance. Here, the concept of sustainable development could also be taken into account. Strict application of these principles can work as an assurance for citizens that risks are strictly taken into consideration.

Third, the **environmental concerns** (in general) should be discussed, for which the transparency principle, the integration principle and the environmental principles are relevant. Here another problem – the **protection of drinking water** – can also be addressed. The same principles could contribute to the resolving hereof. First, in order to contribute to environmental concerns (under which the issue of drinking water) it is necessary that information is available, e.g. on possible earthquakes, the pollution of ground and drinking water, the amount of water used, the emission of greenhouse gas, air pollution, etc. Currently all this information is a bit vague and companies do not publish this information. This is also a concern often heard in the US. This information should be made public in order to deal with those concerns adequately. This is especially relevant for drinking water companies. Those companies need to know what chemicals are used in the fracturing fluid in order to safeguard the drinking water, especially since they are under a duty of care. The necessity of providing safe and healthy drinking water is also apparent from it being a

national interest and an imperative reason of overriding public interest. Furthermore, the integration and environmental principles require, as mentioned with regard to the fragmented nature of the regulation earlier, environmental requirements to be included in the current and upcoming shale gas regulation and to provide for a centralised regulation in order to overcome (environmental) gaps. In this manner, the environmental concerns can be tackled at an earlier stage. Moreover, the environmental principles are of special relevance for the issue of the protection of drinking water. In the Draft MSL there are several aspects which could be considered adjusting with regard to these principles. The zone of 1000 metres and the non-exclusion of bore free zones and the areas appointed by the province are especially relevant in this regard. The precautionary principle comes particularly into play with the 1000 metres zone, where no scientific evidence is available to support this choice. There is much (scientific) uncertainty on whether this will exclude the risks of contamination of the essential drinking and ground water areas. This is especially remarkable, since it is very difficult to purify those areas, once contaminated. Therefore a strict precautionary approach should be taken, which is currently missing. Moreover, with regard to the bore free zones and areas appointed by the provinces, the prevention principle is of special importance. The Minister motivates the non-exclusion of those areas by stating that this is not possible because the Model PMV does not provide for this. This line of reasoning is in contrast with the prevention principle, which requires competent authorities (such as the Minister of Economic Affairs) to be open-minded. Finally, with all those areas (1000 metres zone, bore free zones and appointed zones by the province) it is questionable whether it complies with the test of the precautionary principle that if actions are taken with certain risks (which is certainly the case here with regard to the drinking water), they must be acceptable to the society on which the risk is imposed. This acceptability has already come under attack by several members of the Dutch Parliament. It would be more in line with the environmental principles to exclude all those zones.

Another issue is the **problem of overriding authorities**. Here, the decentralisation, precautionary and prevention principle can be helpful. First of all, with regard to the decentralisation principle, it can be argued that overriding powers should only be invoked when absolutely necessary. The ratio of the decentralisation principle is that if possible, the lowest authority (closest to the citizens) should act. Only if necessary should the State use its overriding powers to overrule a competence which normally belongs to the provinces or municipalities. In the case of shale gas activities, the point of view of the provinces and municipalities (and their citizens) is really clear: they object. However, the State still seems very willing to research the possibilities hereof. In view of the ratio of the decentralisation principle (decision-making as close as possible to citizens, to take due account of their interests) the current extensive use of the overriding powers seems debatable. However, with regard to drinking water protection, it would be an encouraging development if the State would use its overriding powers. Nevertheless, in the current case the overriding powers are not invoked for drinking water reasons, but for energy supply reasons. This latter reasoning is not in line with the environmental principles – as already discussed with regard to the issue of the protection of drinking water earlier – which point to a better environmental protection of the different (drinking water) zones.

Furthermore, the **problem of conflicting interests** (especially between drinking water and energy) should be discussed with regard to the precautionary and prevention principles. This balancing act is very delicate and political. However, with regard to the environmental principles, the severe risk of contamination, the fact that there are no alternatives (not now, nor in the future), it is arguable that the weighing should conclude in the favour of drinking water. Therefore, with reference to the prior paragraph on overriding authorities, it can be argued that the State should act its overriding powers in favour of the protection of drinking water instead of for the security of energy supply.

Finally, the combination of the integration principle and the prevention principle could have importance for the question whether investments in shale gas activities would **hinder the transition to renewable energy**. The prevention principle – in conjunction with the principle of

rectification at the source – requires environmental pollution to be cured at the source. By allowing shale gas activities, another energy source is introduced and invested into. However, this type of energy is not a 'cure at the source' (with regard to sustainable development, combating climate change, etc.), but is even accompanied by many environmental risks at the source. Moreover, introducing a new type of (non-renewable) energy costs a lot of time, effort and energy, also with regard to the public debate. It has been argued that all this could have been invested in a search for (new) renewable energy resources, which would have also contributed to the prevention and integration principles. However, this is not a legal obligation, but concerns political will.

Final conclusion

When analysing these findings, it seems that (overall) the current and upcoming shale gas regulation is not in compliance with the ratio of the general and environmental principles. Moreover, it seems that especially those parts (that are not in compliance) are the parts that cause problems with the environment and the society. When applying the principles correctly, they can precisely contribute to addressing the problems of the current and upcoming EU and Dutch regulations. This could be illustrated by the problem of public acceptance. It seems that the current and upcoming EU and Dutch regulation is not in line with several principles, under which the integration, transparency, participation, integration and environmental principles. A strict(er) application of those principles, e.g. the transparency and participation principles, could enhance the problem of public trust and acceptance.

Although these principles are not legally binding per se (unless incorporated into binding law or regulation), the principles (especially taken all together) do give a certain line of reasoning from which it should not be possible to deviate. Or at least, this should not be easy and be very well motivated. This is currently missing in the EU Recommendation on shale gas and the available Dutch documents on the upcoming Structure Vision on Shale Gas.

7.2 Recommendations

These conclusions show that an adjustment or an additional motivation of the current EU Recommendation and the Draft MSL is necessary. These recommendations will concern the question how those principles can be used when doing this. The addressing of these problems is necessary in order to go through with these activities. Otherwise, many protests and delays will occur, which could in the end even lead to an actual (definitive) legal ban. Hereafter, eight practical recommendations will be proposed in order to make the current and upcoming regulation in line with the reasoning and ratio of the discussed general and environmental principles.

1. First of all, especially with regard to the Netherlands, the **lower authorities should be more involved**, or at least should better be cooperated with, when deciding on important decisions with regard to shale gas activities. They could for example be added as a formal advisor in the Mining Act. This is especially important since the actual carrying out of the shale gas activities happens in the 'backyard' of the citizens of the municipalities (and provinces). This would not only enhance the public acceptance and trust, it would also speed up the process and give a decision in which all the interests are better weighed. Hence, it would lead to better decision-making.

2. Second of all, companies carrying out shale gas projects should be obliged by the Dutch government to **make the shale gas operations transparent**. This could be done by setting obligations to make public all the chemicals used in the fracturing fluid and flow back water, the spread emissions in the air, the amount of water, etc. This is already done by the (formally non-binding) Recommendation. The problem of non-transparency is one of the main concerns that lead to the non-acceptance of the public. Moreover, it would enhance the position of the drinking water companies, who are then actually able to fulfil their duty of care. Finally, this would lead to a better

safeguarding of the drinking water, which is of high importance due to the fact that this is considered a national interest and an imperative reason of overriding public interest.

3. Furthermore, with regard to the participation principle, the **involvement of the citizens** should truly be realised. When looking at the Recommendation, the aspect of the involvement of the citizens when reviewing the Recommendation is especially important. With regard to the Draft MSL, it should be pointed out that the submitted *zienswijzen* should really be addressed and not be easily set aside. Shale gas extraction is a sensitive matter, which makes this even more important.

4. Next, the current Dutch regulation should be made more in line with the integration and environmental principles. Especially with regard to the Mining act, **environmental requirements should be integrated**. Currently, no environmental aspects can be considered here when deciding on extraction or exploration permits. This stands in contrast with *inter alia the* Mining Waste Directive which is considered as an actual environmental directive, while the Mining Act is more an economical regulation.

5. Closely related to the prior recommendation (and the same principles referred there), it could even be argued that, especially on the Dutch level, the current **regulation covering shale gas activities should be more centralised** and clear. Currently it is very fragmentised and spread over many regulations. The same could be said on the EU level. The Commission has just adopted a recommendation which provides for an overarching framework, which can be welcomed. However, this is not (formally) legally binding whereby parties are still dependent on the fragmented legislation. More central regulation would prevent environmental gaps from occurring. This (or at least the prior recommendation) should be (formally) adopted within a reasonable amount of time, since it would be too late if environmental adverse effects would already occur.

6. Subsequently, from the integration principle it could also be read that the regulation on shale gas in the Netherlands should not only be decided by the Minister of Economic Affairs, but should (at least more explicit and clear) be **co-decided and co-signed by the Minister of Infrastructure and Environment**. In this manner, the environmental requirements can really be taken into account and a sincere balancing act can be carried out between the environmental and economic aspects. This would also enhance public acceptance and integration, since this would assure citizens that an actual balance has been made.

7. With regard to the environmental principles, it can be argued that **several zones should be excluded from shale gas activities**. These include the 1000 metres zones, the bore free zones and the zones appointed by the provinces. Currently, those zones are not excluded by the Draft MSL. This is not in line with the environmental principles as set out above. The exclusion hereof would be in line with the reasoning and ratio of the environmental principles and would moreover lead to more public acceptance and trust.

8. Moreover, the Dutch government should decide on **how to balance two national interests**. Currently this is not clear, while this can lead to very controversial decisions. Especially in the current case, where the two national interests at stake are both important for different reasons, this is debatable.

If all these recommendations do not seem possible, it could be wondered whether the exploration and extraction of shale gas should then actually occur at all in the EU and the Netherlands. Otherwise it would be accompanied by too many problems, concerns and insecurities for the society and the environment.

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