Liability issues in gas and coal mining for damage caused by soil subsidence, earthquakes, and groundwater management under Dutch law or: a tale of two provinces—Groningen and Limburg

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Abstract

Mining typically may cause soil subsidence problems. In the Netherlands, that has been the case in the old coal mining district of Limburg (southern Netherlands) and also, more recently, in the new gas and salt mining areas in the north of the country. In the Province of Groningen, three decades of gas mining have caused a soil subsidence of over 35 centimetres. Furthermore, since earthquakes increasingly occur and have even passed 3.3 on the Richter scale, which is the threshold of danger to property, in the late 1990s, their relation to mining activities is no longer denied by the industry after some decades of stubborn negation. In this article, a number of reasons are presented, including arguments derived from liability under tort law (strict liability, combined with reversal of proof, as applied in Limburg since the 1920s), for why the 2003 Dutch Mining Law (as amended in 2017) does not appear to be successful in reflecting the state of the art. One would have expected more in a field with so much at stake, not just for the mining industry but also for citizens and the environment at large. Therefore, it is observed that the liability of mine operators is treated better by the legislation in adjacent European countries. The analysis of the current Dutch Mining Law, concentrating on the issue of liability for damage caused by soil subsidence and earthquakes to private property and the environment, is made from a comparative perspective, with special attention to French, German, and British mining law.

I. Introduction

In 2003, a new Mining Law was enacted in the Netherlands, replacing the old Napoleonic Mining Law of 1810, which until recently also governed mining law in Belgium and France. In the Low Countries, after the closure of coal mines in

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Unif. L. Rev., Vol. 23, 2018, 354–372
doi:10.1093/ulr/uny019
Advance Access publication: 2 June 2018

Limburg (southern Netherlands) in 1974, the mining industry found new fields of operation in mineral gas and salt mining on a large scale. The Groningen gas field (northern Netherlands), which was discovered in 1959, is of enormous dimensions—until recently, the largest in the European Union (EU)—and will be exploited into the 2030s. It was followed by other important finds in Frisia and North Holland and also in between in the Wadden Sea.

The 2003 Dutch Mining Law was already outdated at its enactment. At the most, by the introduction of strict liability, it was an update of the former Napoleonic Law of 1810, as applied in practice in Belgium and France over the past centuries. The presumption of the causal connection, however, as accepted in German law (1982), United Kingdom (UK) law (1991, 1994), and in French law (1994, 1999), was missing in the new Dutch law. The same holds for State liability (the licence authority being the Ministry of Economic Affairs) as well as joint and several liability, the area of responsibility, and other modern concepts found in several jurisdictions.

Contrary to the legislator's representations, the new law has failed since its enforcement to offer owners of buildings in the mining district a sound basis for compensation for damage that has occurred, numbering into the thousands of cases within a decade and into the tens of thousands at present.

In 2015, Parliament took the initiative for an amendment of the Mining Law to add a reversal of the burden of proof to the strict liability of the mine operator, inspired thereto by the mining law of neighbouring countries. The influence of the mining industry in the Dutch legislative process, however, was and still is conspicuous. In the end, the outcome of strong opposition by the government (the Ministry of Economic Affairs) was that the provision introduced by the Mining Law, enacted per 1 January 2017—namely, Article 6: 177*a* of the Dutch Civil Code—only contained a partial reversal of the burden of proof for a limited species of damage (physical damage), in a restricted area only (the 'Groningen field' concession solely).

There is much at stake in this field of law. Mining-related damage (soil subsidence, earthquakes) may have tremendous consequences for private parties, who may find it extremely difficult to get compensation for damage to their property from mining concession holders. Of even greater impact, however, is the potential danger presented to the environment at large, if one realizes that the mining area is bordering on one of Europe's foremost habitat grounds (the Wadden Sea) and even makes up a part of it. For many, this is a thought that is too close for comfort.

It is perhaps appropriate to note that the present author was heavily involved in the efforts to have the reversal of the burden of proof included in the new Mining Law at the turn of the century and in recent years as well. His activities consisted of writing reports for the northern provinces and non-governmental organizations (NGOs), articles in law reviews, and notes for sections of political parties in the House of Representatives and the Senate in support of the proposed legislation and appearing in Parliament before the Committee for Economic Affairs in January 2015.

II. The Province of Groningen: gas mining and its effects on the environment

1. The 2017 revision of the 2003 Dutch Mining Law: partial reversal of the burden of proof in Article 6: 177a of the Civil Code

Article 6: 177*a* of the Dutch Civil Code, which has been in force since 31 December 2016, was the result of a tumultuous legislative process. On systematic grounds, it was put into the Civil Code's section on tort liability instead of into the Mining Law itself.

Article 6: 177*a* of the Dutch Civil Code:

> 1. In the case of physical damage to buildings and works which according to its nature reasonably could be qualified as damage by soil movement as caused by the development or operation of mining works in the course of gas mining from the 'Groningen Field', such damage is presumed to be caused by the development or operation of mining works.
> 2. The claimant can only rely upon the presumption meant in the first section, if he discloses to the operating mining corporation, at its request, relevant documents related to the building or works if at his disposal, and sufficiently provides the said corporation with the opportunity to perform investigation of the damage that occurred.[1]

As we see, the character of damage that may be claimed from mine operators by owners of buildings and works is restricted to physical damage—fractures in walls, chimneys falling down, foundations becoming instable, and so on. Soil subsidence and earthquakes may have tremendous detrimental consequences for private parties, house owners, small farmers, and businesses that are not confined to material damage—to the physical structure of buildings and works (and land).[2] Economic damage suffered may be substantial: loss of business and, therefore, profits and damage to crops in the field, pastures, or horticultural nursery firms—pure economic loss, therefore. Then there is also the psychological damage involved; earthquakes having a negative impact on the health of inhabitants of the mining area. Under Dutch law, this is known as psychic or immaterial damage, which is normally accepted as a subject of claims for damages in tort.

The approach of the Dutch legislator only to accept physical damage as a ground for a claim for compensation is contrary to what is found in the mining legislation in other European countries. It is standard there to admit all kinds of damage as generally accepted in tort law. See the following overview:

- Belgium: Mining Law of 5 June 1911, Article 16: '*elke* schade vergoed' ['every damage compensated'];

[1] Translation by the author.

[2] It is noted that, traditionally, public parties and local authorities (e.g., a province, municipality, or water board) have been well compensated for damage to infrastructural works by gas mining operator NAM, for an amount of over €200 million, provided by a fund created for that purpose in the 1980's. Practically all claims from *private* parties filed with that fund have been dismissed.

- France: Mining Law of 1994, Article 75(1): '*des* dommages' ['all damage'];
- Germany: Allgemeines Berggesetz für die Preussischen Staaten 1865, § 148, '*für allen* Schaden' ['for all damages']; Bundesberggesetz 1982, § 120, '*ein* Schaden' ['a damage']; Umwelthaftungsgesetz 1991, § 6(1), '*den entstandenen* Schaden' ['the damage caused']; § 8(1), '*den* Schaden' ['the damage'];
- UK: Coal Mining Subsidence Act 1991, Article 40(2), '*any* damage'; Coal Industry Act 1994, Article 53, '*natural beauty*' damage.

Special attention should be given to UK's mining law, which includes claims for the loss of 'the natural beauty of any area'. In Groningen, hundreds of cultural heritage buildings have been damaged, sometimes even critically. Such damage has involved twelfth-century Roman churches, rural villages already mentioned in the chronicles of the thirteenth century, ancient hills and earth works, traditional farm houses, and so on.

2. Legislative history: the origin of the new article and the failure of the 2003 Mining Law

Article 6: 177*a* of the Dutch Civil Code has come a long way. Its drafting, or, rather, the need expressed to have it drafted and the introduction of the new Mining Law, dates from the late 1990s. In 1998, a bill was presented to Parliament that resulted in the 2003 Mining Law. Its reception can be described as a kind of general bewilderment: the only change made, contrary to all former promises made by the government in regard to the introduction of the reversal of the burden of proof and a warranty fund for damages claimed (supplied for by the mine operators), was the acceptance of strict liability, replacing fault liability as assumed by the courts in the past on the basis of the 1810 Mining Law.

With respect to this last point, it is noted that the Netherlands stands alone, compared to countries such as France and Belgium, which have exactly the same law, as introduced by Napoleon two centuries before, and where, according to nineteenth-century case law, strict liability, if not absolute liability, was held to be statutory law. Article 15 of the 1810 Law reads that a mining operator is to pay 'all damages to houses in case of accidents', which is to be done on the basis of a guarantee given in advance (a sufficient financial position to that end is also to be established, according to Article 14).[3] Therefore, strict liability for mining activities is no novelty. Also in jurisdictions outside of the Civil Code tradition, it is a common feature.[4]

[3] A nice story is that the wording of the article has been spoken by Napoleon himself, and was written down when he was attending a meeting of the Drafting committee, its seventh or so, out of impatience that the mining law took so long. As a general, interested in coal and steel for warfare, the mining law was his love baby. The article's wording reminds the reader of military law, straightforward as it is ('you damage, you pay!').

[4] In Russia it is known since the Mining Law of 1903, in Italy since the Law of 1927; case law in that sense was established in the UK in 1939 and in the U.S.A. in the 1920s. Nothing new under the sun, therefore. See Jan M. van Dunné, 'Mijn en dijn in de ontwerp-mijnbouwwet', (2002) *NJB*, p. 562, and for an extensive comparative overview, Jan M. van Dunné, *Verbintenissenrecht, Volume 2,*

The introduction of strict liability for the mine operator proposed in the 1998 bill, therefore, was a kind of window dressing that amazed spectators. First, the move from fault liability to strict liability in modern law is a matter of degree only and, in practice, is hardly distinguishable (as it is in German law, where, as a colleague of mine once explained, one needs a magnifying glass to see the difference in practice). In the Netherlands, the application of the 1810 Mining Law, since the time of the leading case of 1920, *Castle Strythagen*, although still based on fault liability, in combination with the presumption of fault (and causal connection with it) in a *res ipsa loquitur* setting, is indeed hard to distinguish from strict liability.[5]

In conclusion, what the new law of 2003 did not bring, unexpectedly, was the reversal of the burden of proof in case of subsidence damage and, furthermore, a compulsory warranty or compensation fund for the mine operator.[6] This situation, however, was repaired by Parliament when the 2003 Mining Law was up for adjustment in the course of implementing a EU directive on off-shore installations for oil and gas mining operations. This initiative resulted in Article 6: 177*a* of the Dutch Civil Code in 2017 after a bumpy ride. Before embarking on this topic, it may be instructive to make a comparative survey of what solutions are found in the modern mining law of the adjacent jurisdictions—France, Germany, and the UK.

3. *Liability issues in French, German, and British mining law: a comparative survey*

The relevance of comparative law for legislative efforts to cope with liability issues in fields such as mining operations will need little explanation. The following survey of French, German, and British mining law may serve as a frame of reference in evaluating the most recent piece of Dutch mining legislation. It is observed in this context that such a comparison has played a minor, or even negligible, role in the relevant legislative procedures due to the concerted action of the Dutch mining industry and its legal advisers to allege that the reversal of the burden of proof is unknown in the mining laws of the other three countries. This is a distortion of those laws, however, which the Dutch Ministry of Economic Affairs was keen to accept.[7] The following survey may serve to put this particular application of comparative law in a proper perspective.

Onrechtmatige daad (Tort law), (Deventer, Kluwer, 2004; 5th ed.), Ch. 10, part 8, pp. 853–75, on 'The mine operator's liability for soil damage'.

[5] Supreme Court (Hoge Raad) 31 December 1920, *Castle Strythagen*, *NJ* 1921/230, further discussed in section II.5.

[6] This episode was the subject of Jan M. van Dunné, 'The New Dutch Mining Law: How to Succeed in Law without Really Trying', 13/5 (2005) *Environmental Liability*, pp. 128–34, Lawtext Publishing, UK.

[7] Remarkably, the Ministry deliberately neglected foreign mining law, including literature and legal doctrine, regarding this matter. See, in this context, the 1999 NAM/Elf Petroland report by Henk Snijders and Ton Hartlief (University of Leiden) on which the Ministry relied; cf. the discussion at n 22.

A. French mining law

As mentioned earlier, in French law, there was strict liability under the Napoleontic Mining Law of 1810 for many years. More recently, there has been legislative activity in this field, which led to the 1994 Mining Law (*Code minier*). Not surprisingly, this new law also contains strict liability. Of particular interest here, however, is Article 75(1), which holds '*une présomption de responsabilité*', combined with '*une présomption de causalité*'.[8] As explained by a couple of French authors:

> [...] the courts had ascertained and applied for more than 150 years the principle whereby the operator of a mining title is deemed to be liable for damages incurred by his activities unless he proves that these damages were incurred by an extraneous cause (*cause étrangère*). This principle is now codified in the Mining Code [...].[9]

Article 75 received a spectacular addition by Parliament in 1999, at its initiative, against strong opposition from the French government, in the form of a second and third paragraph:

> Article 75(1) French Mining Code (Law of 30 March 1999), now Article L 155(3) (2011):
> The mine explorator or operator, or in default, the mining license holder, is liable for damage caused by his actvity. He may however be relieved from liability upon proof of an extraneous cause.
> The said liability is not restricted to the perimeter of the mining licence nor to its duration of validity.
> In case of dissappearance or bankruptcy of the liable person, the State holds a guarantee for repairment of damage mentioned in the first paragraph; it is subrogated in the rights of the victim against the liable person.[10]

It is noted that the French legislator did not explicitly use terms such as 'reversal of the burden of proof' or 'presumption of causation' in the Mining Law. However, it is generally accepted that this idea is covered under the concept of '*responsabilité objective*', as contained in Article 75(1) of the Code minier.[11]

[8] See Christian Huglo, 'Le régime juridique de la remise en état dans le domaine des mines: des progrès sont-ils possibles?', (1998) *Annales des mines,* p. 77.

[9] Stéphane Brabant and Bertrand Montembault-Héveline, 'Reform of French Mineral Law', (1997) *Journal of Energy & Natural Resource Law*, p. 255 ff.; in the notes reference is made to the classic book of Jean Personnaz, *Droit des mines* (Librairies techniques, 1958), nr 296 ff., and to Art. 75(1) Code minier 1994. For French case law, see also Roger Delcourt, *Les indemnités dues par la mine à la surface en droit comparé* (Paris, 1945; PhD thesis), p. 187ff.

[10] Translation by the author. Original text of Art. 75(1) French Code minier (Law of 30 March 1999), now Art. L 155(3) (2011):

> '*L'explorateur ou l'exploitant, ou à défaut le titulaire du titre minier, est responsable des dommages causés par son activité. Il peut toutefois s'exonérer de sa responsabilité en apportant la preuve d'une cause étrangère. Cette responsabilité n'est pas limitée au périmètre du titre minier ni à la durée de validité du titre. En cas de disparition ou de défaillance du responsable, l'État est garant de la réparation des dommages mentionnés au premier alinéa; il est subrogé dans les droits de la victime à l'encontre du responsable.*' By *Ordonnance no. 2011-91 du 20 janvier 2011* this article was renumbered as L 155(3), ratified by *Loi no. 2017-1839 du 30 décembre 2017.*

[11] In this respect, compare also Philippe Yolka en Bruno Wertenschlag, (2000) *C.J.E.G*, p. 5; (2000) *Semaine Juridique*, p. 1515, respectively. See also A. Seban, (2000) *Bulletin du Droit de*

In recent years, the Code minier was the subject of '*réforme*', which was aimed at a fundamental and ambitious adaptation of the old law to modern environmental law. Announced in 2012, a draft from the working group chaired by Jean-Paul Chanteguet appeared in 2015, resulting in a new law passed in the Lower House—the Assemblée nationale—on 25 January 2017.[12] It is presently submitted to the Senate for approval.[13]

B. German mining law

In the 1982 German Mining Law, the Bundesberggesetz, a continuation of strict liability is found, as was the case under the old Prussian law of the previous century. Furthermore, there is a presumption of damage and causation contained in Article 120, the so-called Bergschadensvermutung. Its first paragraph states:

> In case in the area of influence of subsoil exploration of operation of a mining company damage occurs by soil subsidence, upheavals or fissures in the soil surface or by landslides, which according to its character could be mining damage (*Bergschaden*), it is presumed that such damage is caused by the mining company involved.[14]

The legislation also has made use of the concept of *Einwirkungsbereich*—that is, the area of influence of mining activities, which is established by decree, the *EinwirkungsBergverordnung*. In brief, the system holds that when damage is found within such area, where a subsidence of 10 centimetres or more has occurred, there is a presumption of causation to the detriment of the mine operator of the area.

It is noted that the above article of the German Mining Law is currently only applied to coal mining since no decree on gas mining has been issued, since it was practically non-existent in Germany in the 1980s, contrary to the adjacent Netherlands. At present, Germany is only producing 13 per cent of the energy

l'Environnement Industriel, p. 12, on the case of Conseil d'État 19 May 2000; *Société des mines de Sacilor Lormines*, on Art. 79 Code minier, concerning abandoned mines. The operator has to 'respecter les contraintes et obligations afférentes à ... la sécurité et la salubrité publiques ... à la solidité des édifices publics ou privés'. A topic highly relevant for the present situation in Dutch Limburg; see section III below.

[12] *Loi portant adaptation du code minier au droit de l'environnement*, Texte no. 890, accepted by the Assemblée nationale on 25 January 2017.

[13] Texte no. 337 (2016-29017), submitted to the Senate on 26 January 2017, procedure still pending. See for this law, the 'Guide', version 10.0.0 of 22 November 2017 on the site www.mineralinfo.fr/sites/default/files/upload/documents/20171122_code_minier_lr_v10-0-0-print.pdf (accessed 26 February 2018) and also http://www.senat.fr/dossier-legislatif/ppl16-337.html (accessed 26 February 2018). It is noted that the French Senate has a broad right of amendment.
In December 2017 a statute was enacted to terminate all oil and gas mining, exploration, and exploitation in France in view of the 2015 Paris Agreement and climate change in general: *Loi no. 2017-1839 du 30 décembre 2017 mettant fin à la recherche ainsi qu'à l'exploitation des hydrocarbures et portant diverses dispositions relatives à l'énergie et à l'environnement*; NOR:TREX1722331L. See http://www.legifrance.gouv.fr/eli/loi/2017/12/30/2017-1839/jo/texte (accessed 26 February 2018).

[14] Translation by the author. The original text is: '*Entsteht im Einwirkungsbereich der untertägigen Aufsuchung oder Gewinnung eines Bergbaubetriebes durch Senkungen, Pressungen oder Zerrungen der Oberfläche oder durch Erdrisse ein Schaden, der seiner Art nach ein Bergschaden sein kann, so wird vermutet, daß der Schaden durch diesen Bergbaubetrieb verursacht worden ist.*' The article's following sections deal with *force majeure* and third party interference, as forms of relief.

required by gas mining. Under Article 3 of the German Mining Law, however, the above rule under Article 120 is also applicable to gas mining.[15]

C. British mining law

In the UK, the Coal Mining Subsidence Act of 1991 and the Coal Authority Act of 1994 are the central pieces of legislation. A reversal of the burden of proof in regard to subsidence damage is found loud and clear in Article 40(2) of the Coal Mining Subsidence Act:

> Where in any proceedings under this Act the question arises whether any damage to property is subsidence damage, and it is shown that the nature of the damage and the circumstances are such as to indicate that the damage may be subsidence damage, the onus shall be on the Corporation to show that the damage is not subsidence damage.

Under Article 1 of the same Act, 'subsidence damage' is defined as damage to property, land, or buildings caused by the 'withdrawal of support from land in connection with lawful coal-mining operations'. 'Corporation' stands here for the British Coal Corporation, which, under Article 2, has the task 'to take in respect of subsidence damage to any property remedial action', which may consist of restoration, compensation of costs of repair or loss of value of the damaged property.

Under the Coal Industry Act 1994, the British Coal Corporation became the Coal Authority, in charge of issuance of licenses and 'the need to secure the safety of members of the public', including the supervision of the mining industry and the handling of claims, which has to be supported by the adequate finances of the license holders (Article 1ff). Members of the Coal Authority are appointed by the Secretary of State, which is an independent body and not part of the Crown. It is an interesting structure, in which competing interests are separated—an idea that deserves to be considered in countries such as the Netherlands.

The liability of concession holders is similar to the German approach, albeit in a more flexible setting. Article 37 sets out the concept of an 'area of responsibility': all soil damage occurring in this area is attributed to the license holder in place and makes it liable. The area in question is not only where mining activities are carried out but also 'such other areas appearing to the Authority to be capable of being affected by those operations as may be described in the license'.

Articles 42 and on are dedicated to soil subsidence damage; with reference to the 1991 Act, the license holder is held liable in whose 'area of responsibility' the damage was caused and, 'in any other case, the Authority' (Article 43(2)). In case the damage occurred only partly in that area, the license holder will be jointly and severally liable with the license holder of the adjoining area. If the latter is non-existent, the Authority will step in and carry the liability (Article 44(1)). Thus, the

[15] Austrian mining law also has accepted strict liability and the presumption of causal connection in Art. 160 *Mineralrohstoffgesetz* 1999, comparable to general civil liability for dangerous acts or things under the Civil Code. Furthermore, there is joint and several liability for mine operators that are active simultaneously in the same area where damage occurred, under Art. 162.

Authority has a vicarious liability for soil subsidence damage if no redress on a license holder is possible or only partly possible.

Under Article 46, the Secretary of State may appoint an independent person as 'subsidence adviser', giving support to persons filing claims, advising persons held liable for damage, and reporting on the handling of soil damage claims. Finally, Articles 53 and on indicate the respect for 'the natural beauty of any area' and contain the obligation for license holders to disclose information, *inter alia*, 'about any subsidence or subsidence damage or about claims made under the 1991 Act' (Article 57(1)(e)).

In disputes, the Lands Tribunal has competency to hear cases. However, dispute resolution by arbitration is encouraged. See the Householders' Arbitration Scheme and the General Arbitration Scheme respectively (the latter is directed at property owners, farmers, and commercial organizations). The Chartered Institute of Arbitrators in London is responsible in this case and has dealt with a large number of disputes over the previous years. Several chambers of arbitrators have decided dozens of cases annually, awarding substantial compensations to private parties with damaged property.

4. The new Dutch Mining Law, as amended: legislative history of 2015–17 à la Bismarck

Early in 2015, after a round table meeting held by the Dutch Lower House Committee on Economic Affairs, the Socialist Party and the Party for Animals took the initiative for an amendment containing a reversal of the burden of proof for claiming mining damage, which was drafted along the lines of comparable articles in the mining law of neighbouring countries in the EU. It was directed at mining operations in a broad sense (gas, oil, salt mining, and so on) at locations anywhere in the Netherlands for compensation of any damage (therefore, physical, economic, and psychic damage).

The draft article was generally accepted by Parliament on 28 April 2015, with the exception of the Conservative Party for Freedom and Democracy, which wished to back up its minister of economic affairs, Henk Kamp. The latter, like his predecessor in the same party, is known for strongly supporting the mining industry—in particular, the gas mine operator in Groningen, Nederlands Aardolie Maatschappij (NAM), which is a 50–50 per cent subsidiary of Shell and Esso (ExxonMobile)—and he was not amused by the Parliament's initiative.

It is no secret that the ministry involved, presumably acting solely in the public interest, is also a stakeholder in the mining industry. Its annual revenues from mining concessions amounted to almost €4 billion on average at the turn of the century, thereafter rising to an average of €10 billion yearly, due to rising oil prices, which are used as a norm for mineral gas prices. It is less known that the State of the Netherlands actually participates in the mining corporation that was

specially created for exploiting the Groningen gas fields, benefiting from a 50 per cent share in the corporation.[16]

Thus, it was not surprising that Parliament decided to take action on this subject; the protests raised by the citizens in the north of the country were increasing every year and could be heard even in The Hague. The June 2012 earthquake in the medieval village of Huizinge, which equalled 3.6 on the Richter scale (but was actually measured at 3.9 by a German institute just across the border), caused damage to thousands of buildings and was a turning point in the position taken at the national level. A social and political platform gradually came into existence to find solutions for a section of the country that was in dire straits with no help in sight. One consequence of this public pressure was that the ministry reduced the level of annual gas production from 42 to 21.6 billion cubic metres (although, in 2013, production was increased to 53 billion cubic metres, possibly as a last bonus?).

Furthermore, it had become abundantly clear to many, as well as to Parliament, that the solutions advocated by the ministry as part of the new 2003 Mining Law, as an alternative for the repudiated reversal of the burden of proof, were completely without effect. When introducing the bill leading to the 2003 revision in Parliament, the ministry had vigorously put forward the idea that out-of-court compensation claims could be handled through the involvement of the Technical Committee of Soil Movement,[17] which previously only had an advisory task. Under this system, private claimants could, for a minimal fee, obtain an expert opinion by qualified persons on the feasibility of their claim, particularly regarding the common bottleneck of whether the damage was actually caused by mining activities. Such an expert opinion, it was said, would be acceptable to the NAM and, thereby, make litigation in court redundant (although still available in principle).

This system, which was accepted by Parliament in 2003, proved to be a total failure in practice. As I found in an analysis made in 2014, few claimants have made use of it. In the period between 2004 and 2010, there were only five claims yearly and, after 2010, there have been no claims made. The reason that such efforts proved senseless was that, after 2005, all claims presented were dismissed by the committee as lacking a causal connection to mining activities. The members of the committee, it was noted, were all engineers or of other technical backgrounds, and they were all related to the mining industry. In 2005, the only member who was a lawyer had resigned. The committee therefore lacked any knowledge of tort law in general, let alone of legal causation, including

[16] This corporate vehicle, '*Maatschap Groningen*', was established in 1963 for gas exploitation by a contract that remained confidential until January 2018, when it was published by a local newspaper, *Dagblad van het Noorden*, with an annexed side-letter of Shell and Esso. Furthermore, under another, still confidential contract it was agreed that 64% of NAM's 'costs of exploitation' are for the State's account, which includes damages paid by NAM to victims. A fact also unknown to the public at large. For a critical discussion of these recent developments, see Jan M. van Dunné, *Nederlands Juristenblad*, Gaswinning in Groningen: een drama in vele bedrijven. En dan nu: het Besluit mijnbouwschade Groningen van 31 januari 2018', (2018) *NJB*, pp. 1191–99.

[17] The *Technische commissie bodembeweging*, or TCBB.

multiple causation and alternative causation, which are common features in the field of mining damage. Other elements of causation also exist in this area, which involve Water Boards that are in charge of local groundwater management. The occurrence of soil subsidence by gas mining may result in the reduction of the groundwater level, commonly leading to detrimental effects on the building foundations.[18]

A common cause for dismissal by the Technical Committee was the existence of defects in the building that had suffered damage from mining activities due to old age (some heritage buildings have stood for centuries) or a lack of proper maintenance by the owner. However, such findings are contrary to standing tort law—for example, in construction cases where pile driving has caused damage to adjacent buildings, a contractor's defence based on defects and so on in those buildings is not admitted. This follows from rulings by the Dutch Supreme Court in cases of the 1930s, which were reaffirmed in 1973.[19]

In its current practice, the NAM has also dismissed thousands of claims by house owners on the ground of these same defects, although that was conspicuously contrary to existing tort law.

Returning to the recent mining legislation, in 2015, Minister Henk Kamp, confronted with an almost unanimously accepted draft article for the reversal of the burden of proof, tried to find a way out by reasoning that the proposal made by Parliament was of such an extraordinary nature, compared to common liability under tort law, that a legal opinion was required from the Advisory Section of the Council of State. This opinion was published in October 2015 and proved to be remarkably similar to what the minister in distress required—namely, it criticized the proposal endorsed by Parliament as a rule of proof contrary to the general standards accepted in tort law. Therefore, the Council of State suggested making a restriction in the draft rule in the sense that its application should only be considered when large numbers of identical kinds of damage are presented. As a result, it should only be applied to gas mining in the Province of Groningen—that is, restricted to the Groningen field concession area, where most of the damage is actually occurring. Incidentally, as for the scale of the matter, the number of damage claims had risen to 18,000 in 2014 and are presently reaching close to 85,000 cases.[20]

The Council of State furthermore inquired as to what type of damage was involved; was it only physical damage? Minister Kamp had no difficulty making

[18] For an elaboration of this topic, see Jan M. van Dunné, 'Mijn en dijn in de Mijnbouwwet 2003', (2014) *NJB*, pp. 3122–32; Jan M. van Dunné, 'Een koperen jubileum van de nieuwe Mijnbouwwet', 28 (2014) *TGMA*, pp. 174–93.

[19] Supreme Court 2 May 1930, *Heimans v. Wallich*, *NJ* 1930/929, note Scholten, and 9 March 1973, *Boerenleenbank v. Van de Reek*, *NJ* 1973/464, note Zonderland. See Van Dunné 2004 (n 4) 177 ff.

[20] Up to 2014 mine operator NAM had given compensation for damage in 5,000 cases (out of 18,000), at a total cost of €50 million, however mostly concerning non-complicated cases. The relative calm after the great 2012 Huizinge earthquake was broken on 8 January 2018, when a 3.4 Richter earthquake (third in size) occurred in neighbouring Zeerijp, in an area where gas production was closed for several years. It gave rise to some 5,000 new claims. This was another wake-up call for all parties involved.

sure that all suggestions made by this respectable institution of the State, including this last question, were gladly answered in the positive. As I have described elsewhere, all of the premises made by the Council of State and subsequently accepted by the minister, are incompatible with current Dutch law of tort and damages, as firmly established by law and court decisions over the recent decades.[21] In addition, they are also contrary to the state of present mining law in other EU countries in the direct vicinity, as discussed earlier in this article. The Council of State did not even consider foreign mining law, nor Dutch literature and case law on the subject. This has also been the case with the position taken by the government in the legislative process over the last decades.

For example, in 2002, the minister of economic affairs in Parliament had referred to the 1982 Mining Act of Germany as the most recent legislation on mining law, apparently completely unaware of more recent legislation in France and the UK that was enacted in the 1990s. French and German mining law, furthermore, was misinterpreted, neglecting concepts such as the reversal of the burden of proof and State liability, the role of the 'subsidence adviser' in the UK, and so on. The same occurred in recent years in the context of the attempt to block the Parliament's initiative draft regarding the reversal of the burden of proof.

Over the years, publications on those subjects from the present author, including books and studies commissioned by the provinces and NGOs, have been deliberately neglected or misquoted in parliamentary documents and debates.[22] Apparently, there has been much at stake in legislative circles and surrounding lobbying clubs.

In November 2015, an old-hand expert from the NAM also came to the assistance of the ministry in the legislative arena. Henk Snijders wrote an article in the *Nederlands Juristenblad* stating, with the authority of a Leiden law professor, that the reversal of the burden of proof is a fully obscure part of tort law and certainly not generally accepted in the course of establishing liability for damage made in tort. Snijders also contended that the mining law in other EU countries does not contain such a rule, contrary to what the present author had advocated, most recently in the spring of 2015. This view was a clear misrepresentation, 'inducing a state of mistake' of Parliament, which resulted in its erroneous amendment on 28 April 2015 to the ministry's draft text whereby the reversal of the burden of proof was introduced. A view completely inconsistent with the law of tort as it stands, Snijders said.[23]

[21] Jan M. van Dunné, 'De Wet bewijsvermoeden gaswinning Groningen, laatste bedrijf', (2016) *NJB*, pp. 2975–9.

[22] See Van Dunné 2002 (n 4) 561, 568. In 1999 Elf Petroland and NAM had a report made by two law professors from Leiden University, which was presented to the Ministry. The authors (Henk Snijders and Ton Hartlief), however, refrained from going into modern mining law, as discussed in my reports and publications (see also section II.2). Previously, a comparable approach was taken by these companies, with the help of a part-time University of Delft professor, on technical matters of soil subsidence.

[23] Henk Snijders, 'Bewijsvermoedens nader beschouwd', (2015) *NJB*, at p. 2671. The author, remarkably, distinguishes 'presumption of proof' regarding fault or causation from 'reversal of the

Snijders' view, which may have played a crucial role in the subsequent legislative process, however, was convincingly put aside as being contrary to tort law in a recent report by Fred Hammerstein, Daan Asser, and Janet van de Bunt. These authors discuss the view of another legal expert hired by the NAM, the Nijmegen law professor Jacques Sluysmans, who had relied on Snijders' arguments.[24] Two of the report's authors are former justices of the Dutch Supreme Court. The report is a legal opinion on Article 6: 177*a* of the Dutch Civil Code, written at the request of the National Coordinator of Groningen, an official who was recently appointed by the Dutch government to deal with damage assessment and compensation in the Groningen gas mining scene.

Returning to the recent legislation, early in January 2016, Minister Kamp sent an alternative draft of the proposed article to the Lower House by 'novelle' (a supplemental bill for Parliament, after the Lower House's dismissal of the original one), containing all suggestions made by the Council of State. This action caused the initiators of the amended article, as accepted by Parliament on 28 April 2015, to reconsider their position. In this new situation and the new political reality, they sought to find a majority for an adapted amendment in an effort to give in to some of the minister's proposals to save an essential part of their original draft.

The outcome, which was subsequently accepted by a majority vote, accepted a restriction of the compensation of damage to physical damage only and solely when occurring in the Groningen field mining area. In addition, however, the location and character of the damage was described in a broader sense, contrary to using the concession area or a ministerial decree as indication (as previously proposed), namely: '[D]amage to buildings and works which according to its nature reasonably could be qualified as damage by soil movement as caused by the development or operation of mining works in the course of gas mining.'[25]

This final, hard-fought result is more lenient than the German system devised in 1982 (putting the concession area in a central place) and is similar to the modern English approach, using the concept of 'the area of responsibility', including areas outside of the mining operations that are 'appearing to the Authority to be capable of being affected by those operations as may be described in the license'.[26]

In sum, these events are a fine example of horse trading in the legislative arena—which is actually known as 'cow trading' in the Dutch language. In the following analysis of Article 6: 177*a* of the Dutch Civil Code, it will be placed in the context

burden of proof', as two completely incompatible features. Furthermore, acceptance of a presumption of proof for coal mining cannot be relevant for gas mining, in his view.

[24] Fred Hammerstein, Daan Asser, and Janet van de Bunt, *Advies uitgebracht aan de Nationaal Coördinator Groningen e.a.*, (13 October 2017), at pp. 22–8, conclusion in par. 5.2.3.8 (available on website *Groninger Bodembeweging*). See also the brief response to Snijders in Van Dunné (n 21) 2978.

[25] Amendment nr. 21, Kamerstukken II 2015/16, 34390, 21, PvdA and PvdD; compare also the similar final text, in Art. 6: 177*a* Dutch Civil Code.

[26] Compare in UK mining law: Art. 40(2) Coal Mining Subsidence Act 1991, and Art. 37 Coal Industry Act 1994, discussed in section II.3.C.

of the existing Dutch mining law, as developed by the courts in the last century, which was totally disregarded in the legislative process by the parties in power.

In this section's title, mention is made of Bismarck, the famous German politician and lawmaker, who enacted the first social labour law of Europe in the nineteenth century. It refers to his well-known statement: 'In law making and sausage making, one should never make inquiries into the production process'. Here, the lawyer can join the consumer in a distrust of procedures of production, known only to insiders.

5. *Mining law in the courts: liability of mine operators since 1920*

In Dutch mining law, the 1920 case of *Castle Strythagen*, mentioned in brief earlier, is the leading case. At the time, the 1810 Mining Law, which was of French origin, was in force. Before the Supreme Court, the mining corporation had filed the complaint that the Court of Appeal had reversed the burden of proof. It was dismissed by the Supreme Court, with a reasoning that went even a step further, stating that any counterproof would have been without sense since the Court of Appeal had correctly assumed liability based on fault. Incidentally, the District Court had accepted strict liability, inspired by the Belgian and French application in practice of the 1810 Mining Law. The negligence established by the Court of Appeal was based on the view that every soil subsidence 'as a rule' can be prevented by taking the necessary precautionary measures. This was subscribed by the Supreme Court as the 'special care' placed on the mining operator, and, in addition, the Court stated that such measures, irrespective of the costs involved, were required, also without regard to different practices known in mining areas abroad, as was submitted by the Dutch mining corporation.

In essence, the Supreme Court in this case accepted a presumption of fault bordering on strict liability, which notably cannot be rebutted by proof produced by the other party, the tortfeasor. This case law has commonly been accepted in legal doctrine since that time, as well as by influential authors such as Eduard Meijers and Paul Scholten. The former, in 1935, wrote that this ruling of the Supreme Court is actually based on case law that dates back to 1881, concerning a landowner's damage inflicted by an adjacent property, involving landslides or walls collapsing.[27] This case law has been followed ever since.

The leading case of *Castle Strythagen* was taken as the basis for mining damage compensation in the coal mining districts of the Province of Limburg. It is estimated that in the last century over 100,000 cases have been dealt with, involving a dozen State-owned and private mines, equalling several hundred million Dutch guilders, which would be the equivalent of approximately €2 billion in today's currency. It is incomprehensible that this fact has slipped out of the common memory, and even worse, out of legal knowledge, which one would

[27] See Van Dunné 2002 (n 4), p. 564, also referring to Asser-Scholten, *Property Law* (1945). In Parliament, the minister of Economic Affairs in 2001, Annemarie Jorritsma, simply denied the ruling of the 1920 Supreme Court case, which allegedly was misinterpreted by me (thereby relying on Snijders and Hartlief (n 22)).

expect to exist in the quarters of lawmakers and the administration of the country, particularly in the North, in Groningen, and in the adjacent provinces where the mining industry is causing so much trouble for owners looking for compensation for property that is damaged or losing market value.

As for the character of damage that is accepted as the subject of a compensation claim, the Supreme Court ruled in 1980 that pure economic loss can be claimed by a house owner. This case concerned the loss of the value of property in the direct neighbourhood of a coal mining operation area.[28]

At present, a case is being filed before the Court of Appeal Leeuwarden (Frisia) by the Foundation WAG, representing 900 house owners, and four housing corporations in Groningen against the gas mining operator NAM, claiming compensation for the loss of value of their property due to the mining operations in the past years. It is a case of pure economic loss, therefore, where the NAM is only prepared to pay such damage at the time of the sale of property. The claimants were successful before the District Court North Netherlands (at Assen) and also in appeal before the Court of Appeal Leeuwarden.[29]

Another case was filed by the Foundation WAG against the NAM for compensation of psychic damage suffered by the inhabitants of the gas mining district, including illnesses related to exposure stress caused by the continuing earthquakes in the area. In the spring of 2017, the District Court North Netherlands decided in favour of the claimants, and an appeal is pending.[30]

Finally, it should be realized that under the existing law of tort, the doctrine of the reversal of the burden of proof has reached an accepted status, based on Supreme Court cases in 2000–02 and elaborated in cases in 2008–12. Attorney-General Hartkamp, in his conclusion before the Supreme Court in a case in 2000, described the rule, which is now known as the 'reversal rule' (*omkeringsregel*), as being applicable to the whole of liability under tort law.[31] He was followed by a number of influential authors, including members of the Supreme Court such as Hammerstein. In 2008 and 2012 cases, involving a bicycle rider and a gynaecologist respectively, the Court held that the burden of proof in these cases effectively contains the 'burden of risk', indicating that the risk that the exact course and existence of circumstances and facts, which are necessary to establish a causal relation between the damage inflicted and the tortfeasor, may remain uncertain.[32]

[28] Supreme Court 23 May 1980, *Oranje-Nassau Mines*, *NJ* 1980/466.

[29] District Court North Netherlands, 2 September 2015, ECLI:NL:RBNNE:2015:4185, *NJF* 2015/419; this decision was ignored by the Council of State in its legal opinion of 7 October 2015 and also by the minister of Economic Affairs in the drafting of the 'novelle' for Parliament of January 2016. The District Court's decision was upheld by the Court of Appeal Leeuwarden, decision of 23 January 2018, ECLI:NL:CHARL:2018:618; *TGMA* 2018, pp. 32 ff., note Van Dunné. It is noted that I am involved in this case as the author of a legal opinion submitted by claimants, i.e., the foundation WAG and the housing corporations. No appeal was filed before the Supreme Court.

[30] District Court North Netherlands (Assen), 1 March 2017, ECLI:NL:RBNNE:2017:15.

[31] Supreme Court 16 June 2000, *Sint Willebrord Psychiatric Centre*, *NJ* 2000/584. See also: Supreme Court 23 November 2001, *pulse surgery*, *NJ* 2002/14.

[32] Supreme Court 19 December 2008, *bicycle rider*, *NJ* 2009/141, and 23 November 2012, *gynaecologist*, *NJ* 2012/669.

Against such uncertainty, the claimant is protected by law—that is, the application of the 'reversal rule'—against a party that has infringed norms of negligence. The Court held that this is the ratio of the 'reversal rule'.[33]

6. Dutch mining law anno 2017: what to do about it?

My conclusions from the above examination can be summed up briefly: the flaws in the legislation—namely, Article 6: 177a of the Dutch Civil Code—can be repaired by relying on existing case law in the field of mining law and on the related areas of tort law.

III. The Province of Limburg: coal mining and post-closure effects on the environment, soil subsidence, and compensation of damage

As discussed above, compensation for damage to buildings and works in the former coal-mining district in the Province of Limburg has worked to everyone's agreement in the past, due to the application of the leading case of the Dutch Supreme Court of 1920, *Castle Strythagen*. Soil subsidence was a common feature throughout the last century, causing damage to buildings (cracks in walls, instability of foundations, and so on). Landslides in fields and fissures in roads of 1.5 metres were not exceptional (instances of nine metres have also occurred). Thus, over 100,000 cases have been dealt with, and damage to owners has been paid by the mines involved, including the State Mines (Staatsmijnen), on a regular basis. The amount of money paid out is estimated at €2 billion in present value.[34]

These experiences and the legal story behind them seem to be history now, except that, unfortunately, the mining law that has resulted from it has almost eclipsed in the ordinary lawyer's mind, much to the detriment of present claimants in distress in other parts of the country and actually also in the former coal mining district of Limburg itself.

The historical image of the Limburg coal-mining scene, with its liberal compensation tradition, is presently misleading. The last mines were closed in 1974. Surprisingly, in recent years, a new source of damage and a new generation of claimants is arising in the area, with the former coal mine operators playing a central role. The key factor here is the rising mine water in the abandoned mines or, in other words, the failure of industrial groundwater management as a cause of mining damage. In neighbouring Germany, this *Grubenwasseranstieg im Steinkohlenbergbau* has made the topic of 'mine surveying in abandoned coal

[33] On this doctrine, see Van Dunné 2002 (n 4) 565 ff. and Van Dunné (n 21) 2978, with further references. It is denied by Snijders (n 23), which view was set aside convincingly in the report by Hammerstein, Asser, and Van de Bunt (n 24). In older literature, in this context the *res ipsa loquitur* doctrine in common law is mentioned; see e.g. Dirk Veegens in a 1946 case annotation to Supreme Court 28 June 1946, *gas pipe explosion, NJ* 1946/723. The German concept of *Gefährdungshaftung*, risk theory, is also connected here (introduced to Dutch law in 1913).

[34] For sources, see Van Dunné 2004 (n 4) 836ff., 856.

mines' a major item on the agenda of the (former) mining industry and the authorities there. Surprisingly, a Dutch author—a mining engineer of Limburg origin—Jan Pöttgens, employed at the State Mining Authority (Staatstoezicht op de Mijnen) and overseeing all mining activities, was an international authority on the subject. Since the 1980s, in numerous articles he had indicated the considerable exposure to risks for surface land and buildings.[35] Therefore, it may be observed that, in circles of the Dutch State, such risks have definitely been known for a considerable amount of time, long before they actually were realized in Limburg. What was the origin of these abandoned mine risks?

When the mines were closed, the operator also terminated an activity vital for mining: pumping groundwater to keep it at a distance from the mine shafts. This was done to a depth of 800 metres and had to be done on a continual basis. The industrial management of groundwater pumping was stopped in Limburg in 1974, but it was continued by German coal mines just across the border as part of their mining operations that were still in place then. When the German mines were closed in 1996, the Dutch mining firms and authorities were subsequently informed that the groundwater pumping, also covering the adjacent Dutch part of the mining area, was terminated as well. But the reaction of the Dutch authorities was only to take this message for granted. Restarting groundwater management on a large scale was not an option since it would have cost several millions of Dutch guilders annually and this was found to be prohibitive.

So nothing was done about it. But groundwater has a life of its one, and coming to the surface is a popular option. After a number of years, the groundwater, no longer kept at a sufficient depth (of 800 metres) by the past mine water management, has now reached the surface in several places. If the soil in these places holds calcium, it could mean that it would be gradually dissolved by the intruding water, with considerable soil subsidence as a consequence. Thus, in 2011, a shopping mall in Heerlen suddenly collapsed by a sinkhole (as well as, in the spring of 2017, the adjacent parking lot, which incidentally belonged to a former mining company).[36]

The opposite movement—the upheaval of surface soil— has also occurred—namely, in the case of clay layers that are swollen by groundwater with similar detrimental effects to buildings on the surface.

In the first cases that went to court, the claimants were confronted with a legal obstacle: if a tort might be assumed, the rule of prescription would hold an action

[35] For references, see e.g. Roland Bekendam and Jan Pöttgens, 'Ground Movements over the Coal Mines of Southern Limburg, the Netherlands, and Their Relation to Rising Mine Waters', in *Land Subsidence* (The Hague, 1995; conference proceedings), p. 3 ff. See also Jürgen Fenk (TU Bergakademie Freiberg), 'Neue Erkentnisse und Fragen zum Prozess flutungsbedingter Bodembewegungen', 116/3 (2009) *Markscheidewesen*, pp. 3–6, an article dedicated to Jan Pöttgens, who passed away that year. A seminal article quoted by these authors on the risks of mine water rising is of 1940, by Karl Oberste-Brink.

[36] Since 2011, such incidents had occurred time and again at the Heerlen site. The mining district concerned extends over an area of 12 by 28 kilometres, where in the past, besides the State Mining Company, a number of private mining companies had been active of which three still are in existence, engaged in other industrial fields.

in tort ineffective after a lapse of 30 years. The State, owner of the State Mines in Limburg, and a number of private mines have held in this respect that the prescription term of 30 years began to run in 1974 and, therefore, is clearly blocking any action in tort against the mine operators today.

This argument by the defendant mines sounds serious enough but, on closer view, is unsound. First, groundwater management in mining operations can be seen as part of the mining activity itself. Without the process of groundwater pumping, no coal mining can be performed effectively. This argument, however, is denied by the State, acting for the State Mines.

An even stronger argument may be found in the law of prescription itself. Article 3: 310 of the Civil Code was expanded in 1993 with section 3, introducing a new definition of the event—that is, the factual situation causing damage. It now includes a continuing fact or a succession of facts with the same origin. This legislation was derived from the 1993 Treaty of Lugano—the Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment—of the Council of Europe.[37]

Applied to the situation in the old Limburg mining district, it leads to the conclusion that groundwater management in coal mines, as part of the mining activities performed, is done as a continuing process, a succession of facts, and, therefore, the 30-year prescription term only starts when this process has become inactive. Groundwater management was continued by the German mines until 1996, which should serve as a starting point for the prescription term of 30 years.

Furthermore, the Dutch Supreme Court in tort law has accepted the view endorsed in legal doctrine that under specific circumstances the absolute prescription term may be set aside in consideration of fairness and equity.[38] Here, the relevant circumstances are that the Dutch mines, State-owned and private, deliberately accepted the risk that by leaving the situation in the mining district without any surveying or monitoring, let alone taking prevention measures, for decades after groundwater management was terminated damage to the surface might occur. Thus, it can be seen as conduct that can be qualified as negligence against owners of property in that area, impaired by the rising groundwater.[39]

It is noted that for abandoned mines, such as those found in Limburg, the new Code minier of France, adapted to modern environmental law, may set an

[37] Convention of 21 June 1993, signed by Member States of the Council of Europe, other States and the EU. Art. 17(2) reads: 'Where the incident consists of a continuous occurrence the thirty years' period shall run from the end of that occurrence. Where the incident consists of a series of occurrences having the same origin the thirty years' period shall run from the date of the last of such occurrences.'

[38] See: Supreme Court 20 June 2014, ECLI:NL:HR:1492, section 3.6.2, with reference to Supreme Court, 28 April 2000, *De Schelde*, ECLI:NL:HR: 2000:AA5635, *NJ* 2000/430.

[39] Compare, in this context, Art. 75 Code minier (France), quoted in n 10. Besides creating State liability, this provision also served as the basis for establishing private funding for redressing mining damage from abandoned mines. The general *Fonds de Garantie des Assurances Obligatoires* (FGAO), based on the *Loi du risqué du 30 juillet 2003*, contains the *Service des Risques Miniers*, by *Décret no. 2004-348*, providing house owners compensation for mining damage originating from 1998, up to a maximum of €300,000.

example. A whole book of the draft code is dedicated to what is called '*après mine*', including the institution of a '*fonds national de solidarité*', which is filled by mine operators and others to cover compensation of mining damage to house owners.[40]

Litigation on this matter is still occurring on a small scale only,[41] but it takes little effort to imagine it increasing in the near future. Thus far, most claims have been brought before an administrative committee—the Technical Committee of Soil Movement—which, however, has dismissed the great majority of claims as lacking a causal connection with mining activities.[42] Since there have been no lawyers on that committee and therefore no knowledge of modern tort law causation available, it is highly questionable, in the author's view, that a civil court would have been of the same opinion.

Contrary to the situation in Groningen, where the new gas mining district is a roaring giant loudly asking for attention, the former coal mining district of Limburg with its mines long closed, can be aptly described as a sleeping giant. As we have seen, the giant is stirring in his sleep, and there may even be an awakening in the course of time. This may come as no surprise because a general accepted feature of the mining industry is the latent risk contained in abandoned mines of all sorts; coal mines being one of the oldest types of mines in the Western world. Long-tail risks of mining damage in geology textbooks are estimated at a duration of 50 years, sometimes even 100 years. The prospects for gas mining, a relatively new development in this field, and notably in Groningen, where it will approach its final phase in a matter of years, therefore are not very reassuring.

[40] *Loi portant adaptation du code minier au droit de l'environnement*, accepted by the Assemblée nationale on 25 January 2017 (n 12), presently up for approval by the Senate (n 13).

[41] E.g. District Court Maastricht, 21 May 2015, AWB/ROE 13/3857 and 13/3923, cases of Rikers and Brouns, municipality of Kerkrade. The administrative law section of the court dismissed the claims for compensation, as not covered by the Mining Law 2003, since the damage had arisen before 2003.

[42] Before 2012, 19 Limburg claims were filed with the Technical Committee (n 17), only in one case causation was accepted. For 2013 the figures are: 21 claims filed, of which 8 admitted (total damages awarded: 444,841 EUR). See also Ilse Vent and Hans Roest, 'Neue Indizien für nachträgliche Einwirkungen des Steinkohlenabbaus in Südlimburg (NL)?', 12th Altbergbau—Kolloquium, *Proceedings* (Goslar, Germany, 2012), p. 6.