A Paralyzed Environmental Law: Critical Comments on Compensation for Environmental Damage in Indonesia

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Critical Comments on Compensation for Environmental Damage in Indonesia

Andri G. Wibisana

Abstract
This article criticizes compensation mechanisms for the victims of environmental disaster in Indonesia. In particular, it attempts to answer the questions of how compensation mechanism is addressed in Indonesian environmental law, how the victims of environmental disasters are compensated, and what lessons can be learned from the application of law in practice. This article begins with discussions about the current Indonesian compensation system for damage resulting from pollution, focusing on the provisions in environmental management acts. In order to explain how these provisions have been applied in practice, this article discusses two major environmental disasters in Indonesia, i.e. the Mandalawangi landslide case and the Sidoarjo mudflow case, and analyses how the victims have been compensated. In this regard, this article also pays a great deal attention to the court rulings on the two cases. Since the ruling on the Sidoarjo mudflow case has dealt with the issue of the 'act of God' defense, this article extensively discusses the defense with reference to various US court rulings on the defense. The article is of the opinion that had the Indonesian court ruled similar to the US court rulings, the defendants would have been held liable for the damage. By discussing compensation mechanisms in these two cases, the article observes some key problems likely to paralyze Indonesian compensation mechanisms. Furthermore, in order to find a better compensation mechanism, this article conducts a brief literature study to compare the Indonesian system with some practices, notably in Europe. In this way, the article argues that a better mechanism should include not only liability rules, but also liability insurance, alternatives to insurance liability insurance, and compensation fund. Based on the discussions, the article finds that Indonesia urgently needs a reform on compensation mechanism and that the Indonesian courts need also serious studies on how to apply liability rules and the ‘act of God’ defense.

Keywords: compensation, strict liability, negligence rule, the ‘act of god’ defense

1. Introduction

On January 28th, 2003 heavy rain poured Mount Mandalawangi in Garut, West Java. After several hours of this heavy rain, at around 10 pm, landslide and flood flowed from the Mount, destroying some villages below, claiming 15 lives and, and forcing the villagers to

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The author would like to thank the Royal Netherlands Academy of Arts and Sciences (KNAW) for providing grant that makes this research possible. The author would also like to thank Prof. Michael Faure (Maastricht University) and the late Prof. Safri Nugraha (University of Indonesia) as the supervisors of the research. Finally, the author would like to thank Prof. Richard Davies for comments on the technical parts of this article. All mistakes, however, remain the author’s.
leave their homes and properties. ² For some years after the disaster, the villagers fought to
get compensation from the Government and PT. Perhutani, a state-owned forestry company
responsible to control the area of Mount Mandalawangi.

Three years later, on May 29th, 2006, a mix of hot steam, water, and mud erupted in
the middle of a rice field in Porong district, Sidoarjo, East Java. This eruption occurred
around 150 meters from an oil-drilling well, operated under a joint venture between two
Indonesian oil companies, i.e. Lapindo Brantas and Medco, and an Australian company
named Santos. ³ Until now, more than 130,000 cubic meter of hot mud is erupted each day,
creating a mudflow that inundates village after village, and forces thousands fellow villagers
to take refuge in temporary shelters around Porong. ⁴ The mudflow has really uprooted the
people from their homes, land, jobs, and normal lives. Unfortunately, the mudflow has no
sign of ceasing, ⁵ and neither do the victims’ sufferings.

From a legal perspective, the two disasters, i.e. the Mandalawangi landslide and the
Sidoarjo mudflow (the locals prefer calling it Lumpur Lapindo or Lapindo’s mudflow), show
how the compensation system for environmental damage is really working in Indonesia. This
paper attempts to answer the questions of how compensation mechanism is addressed in
Indonesian environmental law, how the victims of environmental disasters, such as the
Mandalawangi landslide and the Sidoarjo Mudflow cases, are compensated, and what lessons
can be learned from these two cases. This paper begins with discussions about the current
Indonesian compensation system according to environmental management acts. Afterwards,

³Lapindo owned the largest shares of the operation (50%), followed by Medco (32%) and Santos (18%). Badan Pemeriksa Keuangan (BPK), LAPORAN PEMERIKSAAN PENANGANAN SEMBURAN LUMPUR SIDOARJO, 19 (2007).
⁴D. Cyranoski, Muddy Waters: How did a Mud Volcano Come to Destroy an Indonesian Town?, 445 NATURE 812 (2007), 812.
⁵A report even says that the mudflow could continue to occur for centuries. See: J. Schiller, A. Lucas, and P. Sulistiyanto, Learning from the East Java Mudflow: Disasters Politics in Indonesia, 85 INDONESIA 51 (2008), 51.
This paper will discuss the ways the victims of the Mandalawangi landslide and the Sidoarjo mudflow get compensation. By discussing compensation mechanisms in these two cases, the paper attempts to observe some key problems likely to paralyze Indonesian compensation mechanisms.

This paper is structured as follows: After this introduction, section 2 will discuss liability rules and the compensation system available for the victims of environmental damage in Indonesia according to Environmental Management Acts (EMAs). Some arrangements used for compensating the victims of the Mandalawangi landslide and the Sidoarjo mudflow will be discussed in section 3. In discussing the use of liability rules for compensating the victims, the article will largely employ a comparative study with the US court decisions, particularly on the use of the ‘act of God’ defense. Afterwards, lessons learned from the two disasters will be discussed in section 4. In this regard, the article attempts to analyze the weaknesses of the Indonesian compensation mechanisms, and discuss a better mechanism that embraces not only liability rules, but also liability insurance, some alternative compensation schemes. Finally, section 5 formulates some concluding remarks.

2. Compensation Mechanisms for the Victims of Pollution in Indonesia According to General Environmental Management Acts

To provide a comprehensive picture of compensation for the victims of the pollution in Indonesia, one needs to look first at provisions in Indonesian EMA dealing with compensation and civil liability rules. Since the EMA has changed several times, this paper discusses how each EMA sets up compensation system and liability rules. Following those discussions, this section will also explain how other relevant acts have addressed the issues of compensation and liability.
2.1. Environmental Management Act of 1982

The year 1982 marked an important development of environmental law in Indonesia, when the government enacted the Act No. 4 of 1982 concerning the General Provisions for Environmental Management (hereinafter referred to as the 1982 EMA). Before the enactment of this Act, provisions concerning environmental management spread in at least 11 sectoral acts. Since those acts mainly focused on the exploitation of various natural resources, environmental aspects were only addressed marginally. Hence, the 1982 EMA was, to a large extent, boosted by the needs to integrate and harmonize all aspects of environmental protection and management under a single act. This Act was then expected to function as an “umbrella act”, establishing basic principles and provisions for all aspects related to environmental management in Indonesia.7

Nevertheless, the 1982 EMA apparently dealt with the issue of compensation in a rather ambiguous way. In this Act, compensation was interpreted only in the form of liability rules.

The Act stated that those who have caused damage or pollution to the environment bear the responsibility to compensate the victims and to pay rehabilitation costs to the state.8 In addition, the Act also introduced the concept of strict liability into the Indonesian legal system by stating that in some cases liability is strict, in the sense that liability arises at the time the damage or pollution occurs.9 These statements on compensation and strict liability

8The 1982 EMA, art. 20.
9The 1982 EMA, art. 21. The act actually used the Indonesia terms “tanggung jawab mutlak”, which literally means absolute liability. Indonesian scholars, however, seem to agree that the terms “tanggung jawab mutlak” in Article 21 of the Act No. 4 of 1982 refers to strict liability and not to absolute liability. See: G.P. Soemartono, HUKUM LINGKUNGAN INDONESIA, 126 (1996); N. Suparni, PELESTARIAN, PENGELOLAAN DAN PENEGAKAN HUKUM LINGKUNGAN, 177-178 (2nd Ed., 1994); P.E. Lotulung, PENEGAKAN HUKUM LINGKUNGAN OLEH HAKIM PERDATA, 85 (1993); M.A. Santosa, et al., PENERAPAN ASAS TANGGUNG JAWAB MUTLAK (STRICT LIABILITY) DI BIDANG LINGKUNGAN HIDUP, 59 (1997), p. 59; and K. Hardjasoemantri, supra note 7, at 376-389.
are certainly far from clear. It is, for example, unclear whether the victims of pollution still need to file a lawsuit against an injurer since the Act stated that liability arose at the time of pollution. Given the ambiguity of the articles on compensation and liability, the Act mandated the establishment of government regulations in order to implement these articles.\footnote{The 1982 EMA, art. 20 par. 2 and par. 4, and the elucidation of art. 21.}

However, providing the government with such a very important role of interpreting the law proved eventually ineffective, because until the 1982 EMA was revoked by the Act No. 23 of 1997, the mandated government regulations were never promulgated. This has made the two articles on compensation practically idle.

2.2. Environmental Management Act of 1997

The Act No. 23 of 1997 (hereinafter referred to as the 1997 EMA) tried to improve the 1982 EMA. As explained above, the 1982 EMA provided some important issues in a very ambiguous way and then left them to be explained by government regulations. In the 1997 EMA several articles, including those on liability, were directly applicable because these articles did not require implementing government regulations.

Similar to the 1982 EMA, the 1997 EMA interpreted the issues of compensation in the forms of liability rules. In general, compensation arises from a lawsuit employing the negligence rule or a liability based on fault. According to the 1997 EMA, negligence or fault is indicated by the presence of pollution which results in damage to other persons or to the environment. In this regard, the Act stated that every unlawful act in the form of pollution or damage to the environment will make the injurer liable to pay compensation and/or to carry out certain measures.\footnote{The 1997 EMA, art. 34 par. 1.}
In addition to the general rule of liability based on fault, compensation could also be based on strict liability. According to the Act,

“Penanggung jawab usaha dan/atau kegiatan yang usaha dan kegiatannya menimbulkan dampak besar dan penting terhadap lingkungan hidup, yang menggunakan bahan berbahaya dan beracun, dan/atau menghasilkan limbah bahan berbahaya dan beracun, bertanggung jawab secara mutlak atas kerugian yang ditimbulkan, dengan kewajiban membayar ganti rugi secara langsung dan seketika pada saat terjadinya pencemaran dan/atau perusakan lingkungan hidup”

[translation: those carrying out a business/activity that gives rise to large and serious impacts to the environment, uses hazardous substances, or produces hazardous wastes, are absolutely liable for the resulting damage, with the obligation to pay compensation directly and at the event of environmental pollution].”

It could be argued that the formulation of strict liability in the 1997 EMA is rather confusing. As the provision stated that the obligation to compensate has already arisen at the event of pollution, one may think that the victims did not necessarily have to file a lawsuit against the injurer in order to get compensation. This is, of course, a misleading way of interpreting strict liability.

The 1997 EMA provided several defenses against strict liability. The Act stressed that the injurer could be released from the obligation to compensate the victims, thus from strict liability, if the injurer proved that the occurring damage was caused either by a natural disaster or war; the situation of coercion outside human capabilities; or an action of a third party.

2.3. Environmental Protection and Management Act of 2009

In October 2009, the Government enacted the new environmental act, i.e. Act No. 32 of 2009 (hereinafter referred to as the 2009 EMA), to replace the 1997 EMA. This new Act is

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12 In Indonesia, strict liability is considered a specific liability rule, in contrast with the general rule of liability based on fault. See: The 1997 EMA, elucidation of art. 35 par.1.
13 The 1997 EMA, art. 35 par.1.
14 The 1997 EMA, art. 35, par. 2.
directed to add some provisions that were previously absent or to improve some provisions of the 1997 EMA.

With regard to the issues of compensation and liability, the 2009 EMA provides some articles concerning liability rules and alternatives mechanism for compensation. This is certainly a major improvement since the two previous environmental acts did not even provide any explanation concerning compensation systems other than compensation through the use of liability rules.

As far as the compensation mechanism is concerned, the 2009 EMA urges the Government to implement environmental funds. The environmental funds may take forms as a guarantee fund (dana jaminan pemulihan), a mitigation fund (dana penanggulangan), and environmental trust fund (dana hibah/bantuan). It is however unclear how such funds will be collected, organized, and used.

In addition to various environmental funds, the 2009 EMA also indicates the possibility of implementing an environmental insurance (asuransi lingkungan), namely an insurance that provides protection at the event of pollution and/or damage to the environment. However, similar to the provisions concerning environmental funds, the provision on environmental insurance is also far from clear. It is unclear, for example, whether the insurance will function as third party/liability insurance or as a first party insurance, or whether it will be a mandatory insurance or not.

Finally, the 2009 EMA also provides some provisions regarding liability rules, on which compensation could be based. In this respect, the 2009 EMA also recognizes two types of liability rules, namely the general rule of liability based on fault and the specific rule

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15 The 2009 EMA, art. 42.
16 The 2009 EMA, art. 43 par. 2.
17 The 2009 EMA, art. 43, par. 3f. The elucidation of this Article reads “Yang dimaksud dengan “asuransi lingkungan hidup” adalah asuransi yang memberikan perlindungan pada saat terjadi pencemaran dan/atau kerusakan lingkungan hidup.” [translation: “environmental insurance means insurance that provides protection at the event of environmental pollution and/or degradation”].
of strict liability. With regard to the fault-based liability rule, the 2009 EMA formulates the rule similar to that of the 1997 EMA.\textsuperscript{18}

However, a different formulation can be found in the provision concerning strict liability. In this regard, the 2009 EMA states that those whose act, business, or activity uses hazardous substances, produces or manages hazardous wastes, or poses serious threat to the environment shall be strictly liable for the resulting damage without having to prove the presence of fault.\textsuperscript{19} Compared to the provisions in the two previous environmental acts, the 2009 Act has thus provided a clearer definition of strict liability, which refers to liability without fault.

In addition, contrary to the provision on strict liability in the 1997 EMA, the 2009 EMA provides no defenses to escape strict liability. The absence of the defenses might trigger two opposing interpretation. On the one hand, one could argue that defenses are part of common practices. In this view, the defenses do not necessarily always have to be written in an act.\textsuperscript{20} It follows, thus, that the court might still allow the use of defenses despite the absence of statutory defenses. On the other hand, however, one could equally argue that the absence of statutory defenses means that it is now impossible for the defendant to resort to the defenses.\textsuperscript{21} If this is the case, it can be concluded that the 2009 EMA has actually

\textsuperscript{18}The 2009 EMA, art. 87.
\textsuperscript{19}The 2009 EMA, art. 88. The Indonesian version of this Article reads “setiap orang yang tindakannya, usahanya, dan/atau kegiatannya menggunakan B3, menghasilkan dan/atau mengelola limbah B3, dan/atau yang menimbulkan ancaman serius terhadap lingkungan hidup bertanggung jawab mutlak atas kerugian yang terjadi tanpa perlu pembuktian unsur kesalahan” [translation: “anyone whose business and/or activity uses hazardous substances, produces and/or manages hazardous wastes and/or gives rise to serious threat to the environment, is absolutely liable for the damage without the needs to prove the element of fault”]. The term “B3” stands for “bahan beracun dan berbahaya”, which means hazardous substance, while the term “limbah B3” refers to hazardous waste.
\textsuperscript{20}Hinteregger, for instance, observes that the formulations of strict liability in Finland and Sweden do not contain the defense of \textit{force majeure}. However, the author argues that in both countries the defense is considered a part of general rules of tort law, so that it is likely that the court will still apply the defense despite the absence of the defense in the formulation of strict liability in the relevant acts. See: M. Hinteregger (ed.), \textit{ENVIRONMENTAL LIABILITY AND ECOLOGICAL DAMAGE IN EUROPEAN LAW} 589 (2008).
\textsuperscript{21}A study by Yunita shows that the absence of defenses in Article 88 of the 2009 EMA is indeed what was intended by the law makers. Based on the report of hearings taking place during the discussions before the enactment of the Act, and on interviews with some key members of parliament, the author found that one reason
employed a very different formulation of strict liability, against which no defense is available. 22

3. Compensation Mechanisms for the Victims of Mandalawangi Landslide and the Sidoarjo Mudflow

3.1. The Mandalawangi Case: The Legal Battle and Compensation

Several months after the landslide took place, some villagers of Mandalawangi filed a class action against Perhutani (a state-owned forestry company) and the Government (i.e. the President, the Minister of Forestry, the Governor of West Java, and the Regent of Garut). In this case, the plaintiffs claimed that the landslide emanated from forest area controlled by the Perhutani, and hence the company should be held strictly liable for the damage resulting from the landslide. In addition, the plaintiffs claimed that the government failed to monitor and control Perhutani’s activities, which led to Perhutani’s failure to take preventive measures and conduct due diligence in its activity. Accordingly, the government should jointly be held liable on the basis of negligence. 23

22 In this regard, one may argue that to some extent the formulation of article 88 of the 2009 EMA contains the nature of absolute liability. Some scholars argue that strict liability can be distinguished from absolute liability in that the former provides several defenses that can be used to escape liability. For instance, Bonine and McGarity in their comments on CERCLA state that: “[s]trict liability under CERCLA, however, is not absolute; there are defenses for causation solely by an act of God, an act of war, or acts or omissions of a third party other than an employee or agent of the defendant or one whose act or omission occur in connection with a contractual relationship with the defendant”—[italics added]. See: J.E. Bonine dan T. O. McGarity, THE LAW OF ENVIRONMENTAL PROTECTION: CASES-LEGISLATION-POLICIES, 938 (2nd ed., 1992). A similar opinion is also shared by Markesinis and Unberath when they explain liability for nuclear and aircraft accidents in Germany. They argue that for these accidents “liability is truly “absolute” in the sense that even the defence of force majeure is denied to the “operator” (of the nuclear installation) and custodian (of the aircraft).” See: B.S. Markesinis and H. Unberath, THE GERMAN LAW OF TORTS: A COMPARATIVE TREATISE, 716 (2002).

However, the defendant, i.e. Perhutani, argued that they had carried out all necessary measures and due diligence. More importantly, they claimed that the landslide occurred as a result of a natural disaster, namely flood and heavy rain.\textsuperscript{24}

The court found conflicting expert witnesses with respect to the question of whether the landslide was due to extreme rainfall or due to Perhutani’s inappropriate management of the resource under its control. This, according to the court, amounted to scientific uncertainty concerning the exact cause of the landslide. To solve this problem, the court resorted to the precautionary principle adopted in Principle 15 of Rio Declaration.\textsuperscript{25} The court stated that although this principle was not included in Indonesian environmental act,\textsuperscript{26} the court still found the principle necessary to guide their decision.\textsuperscript{27}

The court argued that by invoking the precautionary principle in this case, the liability rule has shifted from the negligence rule to strict liability.\textsuperscript{28} The ruling implies that the reference to the precautionary principle was used by the court as a reason to reject the natural disaster defense submitted by Perhutani. The court held that all defendants, except the President, were strictly liable for the resulting damage, and hence were jointly obliged to undertake recovery efforts and provide recovery funds of at least IDR 20 billion (more than US$2 million) and to pay the victims compensation of IDR 10 billion (more than US$1 million).

The defendants appealed to the High Court of Bandung, which in February 2004 upheld the District Court’s decision.\textsuperscript{29} Subsequently, the defendants appealed to the Supreme Court, arguing that the lower courts had mistakenly applied strict liability in combination with the

\textsuperscript{24}Id. 36.
\textsuperscript{26}In this case, the valid act was the 1997 EMA, which has indeed provided no provision on the precautionary principle.
\textsuperscript{27}Dedi, et al. v Perhutani, et al., 49/Pdt.Gi/2003/PN.BDG (District Court of Bandung, 2003), at 101.
\textsuperscript{28}Id., at 102.
precautionary principle. Perhutani argued that its activities, namely activities in the forestry sector, were not included in activities for which strict liability is applicable.\textsuperscript{30} In addition, the Perhutani argued that the lower courts ignored defenses against strict liability set forth in Article 35 par. 2 of the 1997 EMA.\textsuperscript{31} Finally, Perhutani also argued that the lower courts had no legal basis to apply the precautionary principle, since the principle was not yet adopted in the Indonesian legal system.\textsuperscript{32}

The Supreme Court rejected those arguments. The Supreme Court found that the lower Courts have correctly applied strict liability to the case in question. The Court observed that causal relationship between the landslide and Perhutani’s activities in managing the forest under its control has been established, and since Perhutani could not prove the contrary facts, the Company was strictly liable for the resulting damage.\textsuperscript{33}

More importantly, the Supreme Court also upheld the application of the precautionary principle as the basis of establishing strict liability. The Court stated that environmental law standard could be undertaken with reference to international law, and hence, rules arising from international law could be employed by national judges so long as the rules are considered a \textit{jus cogens}.\textsuperscript{34} This statement implies that Indonesian courts have finally considered that the precautionary principle has gained the status of \textit{jus cogens}.\textsuperscript{35}

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\textsuperscript{30}Perhutani referred to Article 35 par. 1 of the 1997 EMA, which states that strict liability is selectively applied for activities using hazardous substances, producing hazardous wastes, and giving rise serious or significant impacts. Perhutani argued that since its activities did not use hazardous substances nor produce hazardous wastes, the Company could not be held liable on the grounds of strict liability. See: \textit{Dedi, et al v Perhutani, et al.}, 1794 K/Pdt/2004 (Supreme Court of Indonesia, 2007) 52–3.
\textsuperscript{31}In \textit{Dedi, et al. v Perhutani, et al.}, a defendant, i.e. Perhutani, argued that the landslide was the result of natural disaster, namely flood due to heavy rain. See: \textit{Dedi, et al. v Perhutani, et al.}, 1794 K/Pdt/2004 (Supreme Court of Indonesia, 2007) 53–4.
\textsuperscript{32}\textit{Id.} 58–9.
\textsuperscript{33}\textit{Id.} 84.
\textsuperscript{34}\textit{Id.}
\textsuperscript{35}Unfortunately, the Supreme Court did not provide further explanation or proof indicating that the precautionary principle has indeed gained the status of \textit{jus cogens}. Nor did the Court explain of what it meant by \textit{jus cogens}.
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3.1.1. Comments on the Court Rulings

The ruling of the Mandalawangi case, i.e. *Dedi, et al. v Perhutani, et al.*, forms a unique interpretation of the precautionary principle. The court argued that based on the precautionary principle, Perhutani should have undertaken necessary measures to prevent damage from their activities, although the damage was not fully scientifically understood or predicted. Failure to take such preventive measures thus resulted in the Company being held liable. This is clearly an attempt to incorporate the precautionary principle into liability rules.

This type of interpretation is certainly worth further comments. The incorporation of the precautionary principle into liability may take forms such as either shifting the burden of proof or the removal of the foreseeability requirement in establishing liability. Applied in a tort case, this means that the defendant has a burden to prove that their activities are not the cause of the plaintiff’s damage. In this regard, one may refer to Garret’s study showing that the precautionary principle may lead to the shifting in the burden of proof in toxic tort cases. According to the author, under the precautionary approach, the plaintiffs still have the burden to prove that they indeed suffer the damage, that the identified agent can cause the damage in question, and that the agent has been released. Once the evidence on these issues has been established, the causation then shifts to the defendant, who must prove that the plaintiffs have not been exposed to the agent, that the level of exposure could not have caused the plaintiffs’ damage, or that there was another reasonable cause for the damage.36

Khoury and Smyth argue that in cases involving the impacts of the release of genetically modified organisms (‘GMOs’), the current approach to the foreseeability requirement will fail to hold the seed companies liable. They argue that the producers of GMOs are likely to succeed in exercising the unforeseeability defense by resorting to the current uncertainties concerning the impact of GMOs. The more uncertain the impact is, the

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36N. Garret, *Life is the Risk We Cannot Refuse: A Precautionary Approach to The Toxic Risks We Can*, 17 GEORGETOWN INTERNATIONAL ENVIRONMENTAL LAW REVIEW 517 (2005), 556.
more likely that the company will escape liability. To avoid this situation, Khoury and Smyth argue that by applying the precautionary principle, the courts will be induced to take into account the current concerns about the impact of GMOs. This means that the foreseeable requirement will be somehow relaxed in order to allow the courts to appreciate public concerns. They argue that when the principle is incorporated into liability system, ‘acting in accordance with the prevailing levels of knowledge would no longer exonerate an individual who could be held liable for omitting to foresee and prevent risks that although unconfirmed may bring about injury in the future.’

Khoury’s and Stuart’s proposal of incorporating the precautionary principle into liability is similar to Treich’s and Gollier’s opinion, who argues that in face of uncertainty, the threat of liability will prevent strategic behavior of competitive firms that would otherwise exploit uncertainty regarding the damage of their products in order to gain market control. In such cases, Treich and Gollier argue that firms will market their innovations as soon as possible without considering the possible impact of the innovations. Incorporating the precautionary principle into liability thus means that despite current uncertainties concerning some impacts of GMOs, GM operators will be held liable if these impacts materialize and their GM products turn out to be toxic.

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38Id. at 228.

39C. Gollier and N. Treich, Decision-Making under Scientific Uncertainty: The Economics of the Precautionary Principle, 27(1) JOURNAL OF RISK AND UNCERTAINTY 77 (2003), 98; Also: N. Treich, What is the Economic Meaning of the Precautionary Principle?, 26(3) THE GENEVA PAPERS ON RISK AND INSURANCE 334 (2001), 342. This discussion on the value of the precautionary principle is of course strongly related to the foreseeability requirement in liability law, just discussed.

It should, however, be mentioned here that the proposal to incorporate the precautionary principle into liability may run against the purpose of the principle itself. Craik and colleagues, for example, argue that the use of the principle in tort law may not be in line with the democratization of the decision-making process. They argue that unlike the policy makers, the courts may lack the capacity to address the issue of uncertainty. Accordingly, they often have to rely on conflicting testimonies. More importantly, the precautionary principle requires the democratization of the decision making process, such as broad public consultation and participation. And this process cannot be done by the courts. A.N. Craik, N. Siebrasse, and K.C. Culver, Genetically Modified Crops and Nuisance: Exploring the Role of Precaution in Private Law 27(3) BULLETIN OF SCIENCE, TECHNOLOGY & SOCIETY 202 (2007), 211–12
At first glance, one may disagree with the incorporation of the precautionary principle into tort law, because the incorporation will make an injurer liable for unforeseeable damage. Holding the injurer liable for unforeseeable damage will not alter the injurer’s level of care because the injurer has already underestimated the damage. Shavell, who interprets unforeseeability as a situation in which the injurer has subjectively underestimated the probability of damage, argues ‘inclusion of accident in the scope of liability would not have any effect on the injurer’s behavior—for his behavior is determined by his probability...’\textsuperscript{40} In this regard, from a prevention point of view, making an injurer liable for damage that the injurer has perceived as unforeseeable, will not change the \textit{ex ante} injurer’s behavior.

However, the incorporation of the precautionary principle into liability rules is intended to remove the foreseeability requirement of liability rules. According to Pardy, the application of the precautionary principle in tort law serves not only to remove the requirement of fault, but also the requirement of foreseeability. The author concludes that ‘the precautionary principle is essentially a renunciation of foreseeability as a relevant consideration’.\textsuperscript{41} The application of the precautionary principle to tort law, hence, means that applying strict liability and, simultaneously, removing the requirement of foreseeability from strict liability.\textsuperscript{42} The intended result of such an application would be to force the potential injurer to increase his subjective probability of an accident. In other words, the injurer should err on the side of safety. The overestimation of probability is, thus, preferable than the underestimation of probability.\textsuperscript{43}

\textsuperscript{40}S Shavell, \textit{An Analysis of Causation and the Scope of Liability in the Law of Torts}, 9 JOURNAL OF LEGAL STUDIES 463 (1980), 490.

\textsuperscript{41}B. Pardy, \textit{Applying the Precautionary Principle to Private Persons: Should it Affect Civil and Criminal Liability?}, 43 LES CASHIERS DE DROIT 63 (2002), 67.

\textsuperscript{42}In fact, Pardy criticizes strict liability when it is applied as the Rylands and Fletcher rule. According to the author, although the rule is less fault-based (because it does not require fault), it is apparently not truly strict (because it still requires foreseeability). \textit{Id.} 68.

\textsuperscript{43}Faure and Wibisana have, however, argued that the joint implementation of the precautionary principle and strict liability might lead to more excessive precautions compared to the joint implementation of the precautionary principle and the negligence rule: M. Faure and A. Wibisana, \textit{Liability for Damage Caused by...
The ruling in *Dedi, et al. v Perhutani, et al.* is interesting not only because it has somehow implied the shifting in the burden of proof, but more importantly because it has interpreted the precautionary principle in such a way that the failure to take preventive measures against a damage, claimed to be unforeseeable when the activity was carried out, was a reason to hold Perhutani, along with other defendants, liable. In particular, the judges have modified strict liability through the incorporation of the precautionary principle into this liability rule. As a result, on the one hand, the defendant was held liable for any damage emanating from its activities regardless of their fault (the strict liability element), and on the other hand, the defendant’s claim of unforeseeability was rejected because according to the precautionary principle, the defendant was considered to bear the responsibility to prevent any damage regardless of whether the damage was unforeseeable (the precautionary principle element).

One may certainly conclude that the ruling in *Dedi, et al. v Perhutani, et al.* has indicated a major shift in the application of the precautionary principle in Indonesia, in which the precautionary principle has now entered the court through tort case.

### 3.1.2. Compensation Mechanism on the Mandalawangi Case

Apparently, the victims did not get compensation immediately after they won the legal battle. An interview with one of the plaintiffs reveals that compensation was carried out in four payments, taking place from 2009 until 2011. However, in order to get the compensation disbursed, the victims had to send several letters, asked for hearings, and even staged demonstrations to persuade and remind all defendants about their legal obligation to pay the compensation.

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After three years of struggle to enforce the court rulings, the victims finally get their first payment of compensation around February 2009. This was the payment of IDR 2.5 billion from the Governor of West Java. Few months later, another payment of IDR 2.5 billion was also made by the Regent of Garut. The victims still, however, had to force the Perhutani and the Minister of Forestry to contribute to the payment of compensation.

At the end of 2010, the Perhutani paid the compensation of IDR 2.5 billion. Almost one year later, the Minister of Forestry made the final payment of IDR 2.5 billion.

The interview also reveals in a few cases, some victims received compensation more than their actual losses, while the majority of the victims received compensation far less than their actual losses. In addition, there are also victims who demanded compensation although they initially opposed the class action. This information demonstrates that the way the compensation was disbursed to the victims was not transparent enough.

3.2. Compensation for the Victims of the Sidoarjo Mudflow

Seven years after the first eruption, the mudflow keeps bursting. Dozens of villages have been inundated, forcing thousands of people to abandon their homes, properties, or jobs. In 2010, at least 40,000 people were displaced by the disaster.44 The number of victims keeps growing so long as the mudflow continues to erupt.

Lapindo’s drilling operation was intended to search for gas reserves located at the so-called Kujung limestone formation at a depth of around 10,000 ft. On March 8, 2006 Lapindo started to drill its BJP-1 drill well, and on May 27, 2006 the drilling operation had reached 9,297 ft. On the same day, an earthquake of magnitude 6.3 in the Richter scale hit Yogyakarta, around 280 km west-southwest from Sidoarjo.

It was reported that at 9.297 ft. depth the drilling underwent total loss circulation, forcing the operator to pull out the drill pipe and bit. It was during the process of pulling out the drill pipe that on May 28, 2006, a phenomenon of “kick” (an influx of pore fluid into the well bore) occurred at 4.241ft depth, causing the drill to get stuck. The following day, on May 29, 2006, a stream of volcanic mud started to erupt at around 150 meters away from the drill-well. Because the mudflow has inundated the drilling area, the operator decided to abandon the well temporarily on June 4, 2006, and permanently on August 1, 2006.\textsuperscript{45}

A paper of Nasution, then the Head of the Supreme Audit Board, indicates that in February 2007, the mudflow had drowned 9 villages, 10,426 units of houses, 18 schools, 2 local government offices, 15 places of worship, 23 factories, and displaced 26,317 people. It had inundated 306 Ha of paddy fields, 64 Ha of sugar cane fields, and 2 Ha of various crops. The total area inundated by the mudflow had reached 470 Ha.\textsuperscript{46}

The local residence suffered most of these losses, namely 3.2 trillion IDR (62\% of total losses) accounted only for the loss of property. Economic losses, in terms of property and income losses, were also incurred by private companies (around 377 billion IDR), several state-owned companies (around 57 billion IDR), and a local water company (around 171 million IDR). In addition, efforts to stop and control the mudflow in 2007 cost almost 1.5 trillion IDR. Total losses and expenses had reached 5.1 trillion IDR (more than US$ 560 million) in 2007.\textsuperscript{47} These figures are very likely to increase as a report of Badan Perencanaan Pembangunan Nasional (Bappenas), the National Development Planning Agency, projects that by the year 2015 the mudflow could affect an area of 580 square

\begin{footnotesize}
\begin{itemize}
  \item \textsuperscript{45} Id., at. 32.
  \item \textsuperscript{46} A. Nasution, \textit{Auditing the Hot Mud Eruption In Sidoarjo, East Java, Indonesia with Environmental Perspectives}, presented at Eleventh Meeting of INTOSAI-WGEA, Arusha, Tanzania, on June 28, 2007, at 9.
  \item \textsuperscript{47} Badan Pemeriksa Keuangan, supra note 3, at 274-277.
\end{itemize}
\end{footnotesize}
kilometers or 80% of Sidoarjo Regency, and result in total economic losses of 16.4 trillion IDR (more than US$ 1.8 billion).  

Since the first days of the eruption, the victims have blamed the drilling company, i.e. Lapindo, to be responsible for the damage they suffered. Understandably, Lapindo has dismissed the accusation, and consequently considered that any payment to the victims is only part of the company’s social solidarity but not a legal definition. The drilling company also insists that the payment for the victims should take place under the framework of sell and purchase of property title, and not under any compensation scheme because this would imply that Lapindo is liable for causing the mudflow.

It appears that the Government is trapped between these controversy and conflicting interests. Politically, the President faces strong pressures from the victims and NGOs on the one side, and from Lapindo on the other side. Muhtada finds that although the Government wants to help the victims of the mudflow, it seems that at the same time the Government also wants to avoid harming Lapindo. What follow from this pressures is inconsistencies in government responses. In many occasions, some ministers gave opinions pointing to the Yogyakarta earthquake as the cause of the mudflow. On the other hand, however, the Government also forced and warned Lapindo, especially following massive demonstrations, to pay compensation for the victims.

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49 Badan Pemeriksa Keuangan, supra note 3, at 192.
50 In 2007-2008, Lapindo made several advertorials published for several days in major national newspapers. The advertorials basically argued that the mudflow was caused by a natural phenomenon, i.e. the mud volcano, created by the Yogyakarta earthquake. For discussions about these advertorials, see: W. Manggut, et al., Aneka Cara Menyemir Lapindo, TEMPO ONLINE, February 25, 2008, available at http://majalah.tempointeraktif.com/id/arsip/2008/02/25/LU/mbm.20080225.LU126481.id.html
51 In this regard, it is important to note that the largest shares of Lapindo are owned by Aburizal Bakrie, a former Coordinating Minister of Social Welfare and the current chairman of Golkar Party. The party is Indonesia’s second largest party that joins into a coalition with the President’s Democratic Party and some other parties.
3.2.1. Government’s Responses

Amidst the pressures from both the victims and the drilling company, in September 2006 the President issued the Presidential Decree concerning the formation of *Tim Nasional Penanggulangan Semburan Lumpur di Sidoarjo* (Timnas PLS), a Team of Ministers and heads of Government agencies to handle the Sidoarjo mudflow. The team had the responsibilities to stop the eruption, manage the mudflow, and handle the resulting social problems. The Decree also states that the team will initially work for 6 months, and could be prolonged if necessary. One important aspect addressed in this Decree concerns the responsibilities of Lapindo. According to the Decree, the establishment of the *Timnas* does not reduce Lapindo’s responsibilities to control and manage environmental problems and to handle social problems resulting from the mudflow. In addition, the Decree also states that any expenses needed by the *Timnas* will be covered by Lapindo.

Some major changes have, however, been made through the Presidential Regulation No. 14 of 2007 concerning the formation of *Badan Penanggulangan Lumpur Sidoarjo* (BPLS), an agency responsible to undertake tasks previously carried out by the *Timnas*. Hence, it could be concluded that the Regulation has replaced the temporary *Timnas* with a more permanent agency.

Unlike the Presidential Decree No. 13 of 2006 which placed financial burdens solely on Lapindo, the Presidential Regulation No. 14 of 2007 states that the Government and Lapindo should share such burdens. This can be explained as follows:

- First, the Presidential Regulation No. 14 of 2007 establishes a map of affected areas (hereinafter referred to as the 2007 Map).

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53 Presidential Decree No. 13 of 2006, art. 1. The structure of the Timnas PLS is defined in the Presidential Decree No. 13 of 2006, art. 2.
54 Presidential Decree No. 13 of 2006, art. 3.
55 Presidential Decree No. 13 of 2006, art. 7.
56 Presidential Decree No. 13 of 2006, art. 5.
57 Presidential Decree No. 13 of 2006, art. 6.
- Second, the Regulation obliges Lapindo to purchase the properties of the victims located inside the 2007 Map.\textsuperscript{58} This type of compensation scheme confirms Lapindo’s position that rejects any idea of compensation if it is considered as Lapindo’s legal responsibility for the mudflow. In addition, since the payment is conducted as a sell and purchase of property, the victims’ income losses, let alone their psychological sufferings, are by no means compensated. The payments by Lapindo will be conducted in two phases of installments. Initially, Lapindo should pay 20\% of the total price, and then the rest 80\% of the payments should be paid within 2 years.\textsuperscript{59}

- Third, Lapindo should also be responsible for expenses related to the management of an embankment designed to contain the mudflow and the management of the Porong River to which the mudflow from the embankment is channeled.\textsuperscript{60}

- Fourth, the Presidential Regulation No. 14 of 2007 also states that compensation for areas outside the affected area of the 2007 Map will be allocated in the national budget.\textsuperscript{61}

- Fifth, the Government should also allocate in the national budget expenses related to the management and control of the mudflow.\textsuperscript{62}

In 2008, the President issued another regulation, i.e. the Presidential Regulation No. 48 of 2008, to amend the Presidential Regulation No. 14 of 2007. The 2008 Presidential Regulation maintains all Lapindo’s responsibilities specified in the 2007 Presidential

\textsuperscript{58}Presidential Regulation No. 14 of 2007, art. 15 par. 1.  
\textsuperscript{59}Presidential Regulation No. 14 of 2007, art. 15 par. 2.  
\textsuperscript{60}Presidential Regulation No. 14 of 2007, art.15 par. 5. Initially, the mudflow from the embankments was channeled into the Porong River. This initiative has sparked criticism from environmentalist arguing that the channeling of the muddy water will severely damage the River’s and eventually the adjacent marine ecosystems. See: J. Schiller, A. Lucas, and P. Sulistiyanto, supra note 5, at 75.  
\textsuperscript{61}Presidential Regulation No. 14 of 2007, art. 15 par. 3.  
\textsuperscript{62}Presidential Regulation No. 14 of 2007, art. 15 par. 6.
Regulation. The most important part of this new Regulation is the inclusion of several villages that by the 2007 Map were considered to be located outside the affected areas. According to the 2008 Presidential Regulation, those villages are Besuki, Pejarakan, and Kedungcangkring.\(^{63}\) For the victims from these three villages, compensation will be paid by the Government, acting as the purchaser of properties located in these villages.\(^{64}\) It is also important to note that the payments by the Government for these three villages will follow the payment by Lapindo for the affected villages of the 2007 Map.\(^{65}\)

The 2007 Government Regulation underwent a second amendment through the Presidential Regulation No. 40 of 2009. There are two important changes arising from this Regulation. First, the 2009 Regulation changes the phases of installments for additional villages under the 2008 Regulation into three phases of installments. The initial installments are 20% of the total payment for each claim, to be paid out in 2008. Afterwards, 30% of the total payment will be paid out in 2009, and the payments for the remaining 50% will be completed following the completion of Lapindo’s payments.\(^{66}\)

Second, the 2009 Regulation specifies three additional villages as areas that will be compensated by the Government. These villages are Siring Barat, Jatirejo, and Mindi.\(^{67}\) However, unlike the victims resided in the additional villages of 2008 Regulation, people resided in the additional villages of 2009 Regulation will not be compensated through the sell and purchase scheme. Under this new scheme, resident of the three latest additional villages will only receive payments for renting a house for 2 years, living allowances for 6 months,

\(^{63}\)Presidential Regulation No. 48 of 2008, art. 15B par. 1.
\(^{64}\)Presidential Regulation No. 48 of 2008, art. 15A and art. 15B.
\(^{65}\)Similar to Lapindo’s payments, compensation for the three villages will be paid out by the Government in two phases of installments. The first installments are 20% of the total payment for each claim, and the remaining 80% will be paid out after Lapindo completes its second installment. See: Presidential Regulation No. 48 of 2008, art. 15A par. 5 and par. 6. This is quite understandable as the Government expected that the payments for all villages (both outside and inside the affected areas of the 2007 Map) would be completed relatively at the same time.
\(^{66}\)Presidential Regulation No. 40 of 2009, art. 15B, par. 5.
\(^{67}\)Presidential Regulation No. 40 of 2009, art. 15B, par. 1a.
and expenses needed for evacuation. This means that Government inadvertently has treated the people from these latest additional villages less favorably compared to the people from the villages specified in the 2008 Regulation.

Third, the 2009 Regulation reduces Lapindo’s responsibilities by removing its obligation to pay expenses for the management and control of the mudflow. The responsibility of Lapindo has, thus, been limited to compensation for villages located within the 2007 Map. All expenses related to the management of the mudflow, including the recovery and rehabilitation of its environmental impacts, became the Government’s burdens.

3.2.2. Compensation by Lapindo

Initially, Lapindo pledged to provide funds for the evacuation of the victims, emergency shelter, and a house rent assistance package for a two-year term, and a living allowance for nine months. The allocation of these funds can be seen as follows: 5000,000 IDR per family for relocation fund (uang pindah), 5 million IDR per family for two-year house rent (uang kontrak rumah), and 300,000 IDR per person per month as living allowance (jatah hidup).

To implement the Presidential Regulation No. 14 of 2007, Lapindo establishes its subsidiary, named Minarak Lapindo Jaya (MLJ), which is responsible to carry out the payment and to conduct a sale and purchase agreement on behalf of Lapindo. Following the 2007 Presidential Regulation, the MLJ is obliged to pay compensation under the two phases of installments, namely a first installment of 20% of the total price of each claim, and the

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68 Presidential Regulation No. 40 of 2009, art. 15B, par. 9.
69 Presidential Regulation No. 40 of 2009 deletes art. 15 par. 5 of the 2008 Regulation.
70 Badan Pemeriksa Keuangan Republik Indonesia, supra note 3, at 131. Schiller and colleagues also note Lapindo’s promise to provide “other assistance”, including: an unemployment wage compensation payment of Rp. 700,000 per month (to 2,288 factory workers, or Rp. 6.2 billion total), relocation compensation to ten factories (Rp. 5.2 billion), other compensation to nine additional factories (Rp. 47.6 billion), and grants to 306 small- and medium-size enterprises (Rp. 4.3 billion). J. Schiller, A. Lucas, and P. Sulistiyanto, supra note 5, at 66.
second installment of the remaining 80% that will be paid out before the two-year house rent ended. During this payment, the victims had to sign a deed of sale (akte jual beli) indicating the transfer of the title of the submerged land and buildings to Lapindo.\footnote{Id., at 67.}

In reality, however, the payment of the first installment, i.e. the 20% payment, did not take place smoothly because of several causes. The first cause corresponds to the disagreement concerning the price of houses and land. Lapindo claimed that the victims had inflated the prices of their submerged properties, while the victims argued that their claims had been fair.\footnote{Id., at 67.} The second cause of the delay is concerned with the interpretation of ownership of land. In this regard, a problem occurred because many landowners had only a village land record (locally referred to as the Letter C or Pethok D or Gogol or Girik letters), and not the official land certificate (referred to as Sertifikat Hak Milik or Sertifikat Hak Guna Bangunan).\footnote{A.P. Anggoro, Tidak Gampang Dapatkan Ganti Rugi, KOMPAS, May 26th, 2007, at 39.} In any case, compensation could only be conducted after the certificates or land records have been verified by a designated verification team. This verification phase took quite a long time since the team was staffed with only 23 personnel with the tasks of verifying more than 10,000 plots of land.\footnote{Id., at 39.} Added to this slow process of verification was the opposition to the sale and purchase of property, in which some groups of victims refused to be compensated under the sale and purchase scheme, as they wanted to hold the title of their properties.\footnote{J. Schiller, A. Lucas, and P. Sulistiyanto, supra note 5, at 67.}

However, some might argue that the real cause of the delays was Lapindo’s reluctance to compensate the victims. In this case, it was argued that the delays were a deliberate effort of Lapindo, i.e. “a delaying tactic that allowed the company to meet other financial
obligations in the interim”. In addition, Lapindo’s reluctance to compensate the unofficially certified properties was not in line with its initial promise to consider the unofficial land records (the Letter C or Pethok D or Gogol or Girik types of land record) as equally valid evidence of property ownership as land certificate.  

After several demonstrations by the groups of victims, in June 2007 the President took an initiative to temporarily remove his office to Sidoarjo for several days. During these days, the President met several representatives of the victims and conducted site visits to the location of the mudflow and temporary shelters around Porong District. On June 26th, 2007, the President ordered Lapindo to complete the first installment by September 2007.  

The order of the President unfortunately did not necessarily force Lapindo to pay the compensation in time. Schiller et al observe that by June 2007, the company could have only made payment for 522 out of 14,000 plots of land, although some 7,000 plots actually had official land certificates and could, hence, be paid immediately without having to undergo the verification procedures. As a result of such a slow process of compensation, the company finally failed to fulfill the first installment in time as ordered by the President. Only after several massive demonstrations by the victims did the company finally pay the first installment for the majority of claims.

Similar to the payment for the first installment, the second installment for the remaining 80% has taken place very slowly. Initially, the company agreed to complete the payment for the second installment before the two-year house rent ended. This means that the whole payment should have been carried out sometime between 2008 and 2009.

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76 Id. at 68.
77 In May 2007, Lapindo, the representative of victims, and the BPLS signed an agreement indicating that Pethok D, Letter C, Girik and Gogol will be treated as valid evidence of property ownership, and hence, the holders of these records are eligible for the compensation. R.R. Ariyani, R. Rahadiana, and T. Sianipar, Pemerintah Mendesak Lapindo Segera Bayar Ganti Rugi, KORAN TEMPO, May 4th, 2007, at B1.
79 J. Schiller, A. Lucas, and P. Sulistiyanto, supra note 5, at 68.
80 P. Iswara, et al., supra note 48.
However, until now, many of the victims have not received full payment of the remaining 80% of their claims. This delay of full payment occurs because the company was rather reluctant to make the payment. Again, in December 2008, the victims staged massive demonstrations in Jakarta, forcing the President to summon the company’s CEO to the state palace. During the meeting, the company acknowledged that they were only able to pay the second installment through monthly installments of IDR 30 million (less than US$ 3000) for each claim.\textsuperscript{81} This offer is certainly a major change to the installment scheme according to the Presidential Regulation No. 14 of 2007, which implicitly requires the company to pay full compensation between 2008 and 2009. Unfortunately, only few months later the company broke this promise, when in February 2009, the company argued that they could not fulfill the IDR 30 million monthly installment, and hence offered a monthly installment of IDR 15 million (less than US 1500) per victim.\textsuperscript{82}

Despite their disappointment with the offer, the victims had actually no choice but to agree to any promise that Lapindo has made. Unsurprisingly, it seems that the Government was also powerless against the company. Instead of forcing Lapindo to stick to the compensation scheme set forth in the Presidential Regulation No. 14 of 2007, the Government seemed to induce the victims to accept Lapindo’s promise.\textsuperscript{83}

This situation is obviously unfavorable for the victims. Not only has the situation prevented the victims from receiving swift and adequate compensation, but also has potentially contributed to disintegration and distrust among the victims.

Schiller, et al. observe that there are at least three large groups of victims asking different compensation schemes. The first group is the so-called Paguyuban, led by a local Moslem cleric, which asks pure compensation and refuses to sell their properties to Lapindo. The second group, the so-called Tim 16 asks Lapindo to implement the “cash and carry” option. The group agrees to sell victims’ properties to Lapindo, but insists that the payment be made according to the Presidential Regulation No. 14 of 2007, namely the first installment of 20% of the value of each claim, and the second installment of the remaining 80%. The third group is the so-called Pagar Rekontrak group, which refuses the “cash and carry”, and instead asks to be relocated as a united community comprising of 766 families. Schiller et al conclude that the three groups are divided according to those who want to sell their homes and land for cash compensation (the so-called “cash-and-carry” option); those who ask compensation but want to retain the ownership of land; and those who ask for relocation as a united community.  

With such divisions among the victims, one can certainly predict that any effort made by the victims to force Lapindo to pay swift and adequate compensation is doomed to fail. Indeed, this is exactly so. One may also argue that both Lapindo and the Government have, to some extent, contributed to such divisions, and hence, for their part are also responsible for the failure to provide full compensation for the victims.

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84 J. Schiller, A. Lucas, and P. Sulistiyanto, supra note 5, at 73-74. Iswara et al, however, find that among those who agree with compensation based on the sell and purchase of property, there are at least three groups with different views concerning how the compensation should be paid. The first group asks for the “cash and carry” option. The second group wants the so-called “cash and resettlement” option, namely the payment of 20% of the value of each claim, and the remaining 80% will be paid in the form of new land that is approximately equal to the land damaged by the mud. The third group demands the so-called “cash and resettlement plus”, namely the payment of 20% in cash, and the remaining 80% in the form of land and houses chosen and built by Lapindo. See: P. Iswara, et al., supra note 48.
3.2.3. God’s Hand in the Court: a Critical Analysis of Court Ruling on the Mudflow Disaster

As stated earlier, the court ruling in *Dedi, et al. v Perhutani, et al.* is a significant development in Indonesian environmental law, in that the case indicates an introduction of the precautionary principle in tort cases. It is, thus, tempting to see whether this ruling is a precedent that will be followed by other judges in cases involving a defense of natural disaster. Apparently, one does not have to wait long to find the answer, because only few months after the Supreme Court gave its ruling on *Dedi, et al. v Perhutani, et al.*, the District Court of South Jakarta gave its decision on *Walhi v. Lapindo, et al.* This section will analyze how the District Court has addressed the drilling companies’ defense, claiming that the mudflow was caused by a natural disaster, i.e. the Yogyakarta earthquake.

3.2.3.1. Introduction

In *Walhi v. Lapindo, et al.*, the plaintiff claims that the mudflow has resulted from negligence of the drilling companies. According to the plaintiff, the drilling companies’ negligence can be seen in the form of the failures to implement good practices in the drilling operation, to notice the sensitivity of the drilling location, and to take precautionary measures although the drilling operation was conducted in a highly populated area.\(^85\) In addition, the plaintiff also attempted to show the drilling companies’ negligence. On the one hand, the plaintiff argued that the drilling activity was not supported by an environmental impact assessment (EIA). In the plaintiff’s view, as a consequence of the absence of the EIA document, there was no proper anticipation of possible adverse impacts according to good engineering practices.\(^86\) On the other hand, the plaintiff also claimed that the drilling


\(^{86}\) *Id.*
operation was conducted without the installment of a drill pipe casing. The absence of the drill casing, so the plaintiff argues, constituted a violation of a duty of care according to the good practices in drilling operation.\textsuperscript{87}

It should also be noted here that in addition to the negligence rule, the plaintiff asked the drilling companies to be held liable on the ground of strict liability. Strict liability refers to the Article 35 of the 1997 EMA, while the negligence rule refers to the Article 34 of the Act.\textsuperscript{88}

In response to these charges, Lapindo stated that strict liability could not be applied in the case, since the drilling operation it has carried out did not use hazardous substances or produce hazardous wastes.\textsuperscript{89} Lapindo’s argument is based on the formulation of article 35 par. 1 of the 1997 EMA which stated that strict liability is applicable for activities using hazardous substances, producing hazardous wastes, “and/or” giving rise to major or significant impacts to the environment. One may certainly argue that the drilling operation could result in major or significant impacts to the environment, and hence, meets the requirements set forth in the 1997 EMA. However, in Lapindo’s point of view, for strict liability to be applicable, the requirements above should be interpreted cumulatively such that the plaintiff should prove that Lapindo’s drilling activity has, at the same time, used hazardous substances, produced hazardous waste, and caused serious damage.

\textsuperscript{87}Id., at 126.
\textsuperscript{88}Id., at 8. It is however unclear why the plaintiff used the two liability rules simultaneously. Indeed, the way the plaintiff mixed the negligence rule with strict liability has made the complaint unnecessarily obscure. For instance, although the plaintiff has used both the negligence rule and strict liability, the evidence and arguments provided by the plaintiff only attempted to show Lapindo’s negligence. It becomes even more ambiguous when one takes a look at the plaintiff’s statements of claim in which the plaintiff, despite the use of strict liability, still asks the court to hold that all defendants, including Lapindo, have conducted an unlawful act resulting in damage to the people living in three districts in Sidoarjo. \textit{Id.}, at 21. Larasati shows that since the plaintiff’s statement still contains the element of unlawfulness, its motion is similar to a motion based on the negligence rule. A. Larasati, \textit{Pertanggungjawaban Perdata Terkait dengan Teori Kausalitas dalam Kasus Perdata Lingkungan: Studi Kasus Mandalawangi dan Lumpur Lapindo}, Fakultas Hukum Universitas Indonesia, 2010.
\textsuperscript{89}Walhi v. Lapindo Brantas, Inc., et al., 284/Pdt.G/2007/PN.Jak.Sel (South Jakarta District Court, 2007), at 47.
Furthermore, Lapindo also stated that it has carried out no unlawful act. In this context, Lapindo argued that the absence of the EIA document does not constitute an unlawful act, since the drilling activity, which was still in the stage of exploration, was not an activity that requires the EIA documents.\footnote{Id., at 45-46. Indeed, the exploration of oil and gas is excluded from the list of activities that require EIA according to the Regulation of the Minister of the Environment No. 11 of 2006.} In addition, Lapindo also denies the allegation of unlawfulness by stating that the drilling activity has met all requirements, permits, and procedures.\footnote{Id., at 36.} Through its expert witnesses, Lapindo argues that the absence of casing drill was a normal and common practice in oil and gas drilling operation, and hence, the absence of the casing does not prove the company’s fault.\footnote{Id., at 195.}

In addition to those arguments, another more important claim was made by Lapindo, namely that the mudflow was not caused by any negligence on the side of the company during the drilling operation. Instead, so Lapindo argued, the mudflow occurred as a result of a tectonic earthquake that hit Yogyakarta, around 300 km from the drilling site, two days before the first mud eruption.\footnote{Id., at 48.} Some expert witnesses on behalf of Lapindo have also given their testimonies before the court, in order to support Lapindo’s position that the Yogyakarta earthquake was responsible for triggering the so-called mud volcano, which then lead to the mudflow.\footnote{Id., at 153-163 and 194-195.}

The District Court of South Jakarta ruled in favor of the defendants on the ground that the mudflow was caused by a natural phenomenon, i.e. the Yogyakarta earthquake. Hence, all defendants were acquitted from liability. The court further held that the Government and Lapindo have a moral obligation to take measures to restore the damage, stop the mudflow, and address social problems resulting from the mudflow. However, the court was implicitly of the position that the Government and Lapindo had met their moral obligations. In fact, the
Court considered that the Government and Lapindo had taken maximum efforts to handle the mudflow.\textsuperscript{95}

The plaintiffs then brought the case to the Appeal Court of Jakarta, which apparently upheld the lower court’s decision.\textsuperscript{96} The case stopped at the Appeal Court since the plaintiffs failed to submit the case to the Supreme Court.

Based on various cases brought against the Government and Lapindo, it could be argued that the court decisions have been in favor of the Government and Lapindo. The courts apparently consider that both the Government and Lapindo have sufficiently dealt with the mudflow and its resulting damage. The courts’ position might be, to a large extent, affected by the courts’ view that the mudflow is the result of a natural disaster. It is in this context that the court’s ruling in \textit{Walhi v. Lapindo, et al} case merits further discussions.

\section*{3.2.3.2. Lapindo’s Negligence or a Natural Disaster Trigger? Court’s Ruling}

To come to its conclusion, the court asked: “\textit{apakah keluarnya semburan lumpur panas tersebut disebabkan oleh kesalahan Tergugat I dalam pengeboran atau disebabkan oleh fenomena alam}” [translation: whether the mudflow was caused by the First Defendant’s negligence [i.e. Lapindo] in conducting its drilling operation or by a natural phenomenon].\textsuperscript{97}

To answer this question, the court then turned to the testimonies of some expert witnesses provided by both the plaintiff and defendants.

The only technical expert witness provided by the plaintiff stated that the mudflow was due largely to the missing drill casing. The witness also argued that drill casing is an obligation for every drilling operation. The casing functions as a safety procedure to prevent

\textsuperscript{95}\textit{Id.}, at 197. It is, however, not quite clear what the court means by moral obligations. The court did not explain why the Government and Lapindo should bear similar moral obligations. Nor did the court explain why measures already taken by the Government and Lapindo are already sufficient to meet such obligations.


an accident during the operation. Because the casing was not installed when the drilling reached 9270 feet depth, the drilling well could not sustain the high pressure as a “kick” occurred. This series of events eventually led to the explosion of hot-muddy water called the mudflow. The witness also argued that the fact that the muddy water erupts few hundreds meters from the drilling well occurred because of two factors. On the one hand, the drilling well was blocked by drilling equipment, and on the other hand, there was an area of the drilling well where the casing was not installed. Because of this block, the water found the way up through the area where the drill casing was absent and finally reached the surface and burst at around few hundred meters from the well.

This opinion was, however, challenged by four technical expert witnesses brought by Lapindo. The first expert argued that the area where the drilling took place was prone to mud volcanoes. The expert also stated that the occurring mud volcano has nothing to do with human activities. It is solely related to a natural event. Hence, the expert also argued that the mudflow could not be stopped. The second expert argued that the mudflow was triggered by ground motions as an extension of the Yogyakarta earthquake. The third expert agreed that the mudflow was caused by a mud volcano triggered by ground motions, which did not correspond to Lapindo’s drilling operation. The fourth expert stated that according to characteristics of the muddy water, the water comes from an area much deeper than the depth that the drilling had reached. Hence, he argued that the drilling was not the cause of the mudflow. In addition, the expert also considered that an uninstalled drill casing was common, and hence, was not a mistake. There were drilling wells in other regions that had

98 *Id.*, at 125-126.
99 *Id.*, at 126.
100 *Id.*, at 155.
101 *Id.*, at 157.
102 *Id.*, at 158.
no such a casing installed without experiencing similar problem, despite the facts that those wells were much deeper than the well in question.\textsuperscript{103}

Hence, the experts provided by Lapindo seem to agree that the mudflow was a result of a mud volcano, formed by ground motions that were triggered by the Yogyakarta earthquake, taking place two days before the first mud eruption. This conclusion was exactly the same as the conclusion held by the court.\textsuperscript{104} The court also argued that the opinion of one expert provided by Walhi has been ruled out by the opinions of four expert witnesses from Lapindo. The court, hence, concluded that the mudflow was caused by a natural phenomenon, and not by the Lapindo’s negligence.\textsuperscript{105}

3.2.3.3. Some Comments on the Court Ruling

After considering the testimonies of one technical expert witness provided by the plaintiff, and four technical expert witnesses provided by Lapindo, the Court concluded that the Sidoarjo mudflow was caused by a natural phenomenon, namely the Yogyakarta earthquake. Based on this conclusion, the Court held all defendants not liable for the mudflow. It should, however, be underlined here that in concluding that the mudflow was caused by a natural phenomenon, the Court actually did not pay any attention to the question of whether indeed there was negligence on Lapindo’s side.

The way the Court reached its conclusion could actually be criticized. In the first place, the way the Court was asking whether the mudflow was caused by a natural phenomenon or by Lapindo’s fault is not fully adequate because the plaintiff brought the case on the grounds of negligence and strict liability. The question asked by the Court has clearly misunderstood the meaning of strict liability.

\textsuperscript{103}Id., at 160-161.  
\textsuperscript{104}Id., at 196.  
\textsuperscript{105}Id.
In addition, the fact that the Court did not even consider whether there exists negligence on Lapindo’s side might be interpreted that in the Court’s point of view, whenever there is an ‘act of God’, the question of the defendants’ negligence is no longer relevant and the defendants were acquitted from liability accordingly. This way of thinking is unacceptable because there is no basis to release the defendants from liability without considering their contribution to the incurred losses.

It also appears that the Court has moved too fast in concluding that the Sidoarjo mudflow was caused by the Yogyakarta earthquake. Reading the Court’s consideration, one might get a strong impression that one of the reasons used by the Court to support its conclusion is the fact that there is only one expert witness who attributed the mudflow to the way in which Lapindo conducted its drilling operation, as compared to four experts arguing that the mudflow was caused by a natural phenomenon, i.e. the ground motions triggered by the Yogyakarta earthquake.\textsuperscript{106} It seems, thus, that the conclusion was supported by the majority of scientists. This is, however, not the case. Contrary to the Court’s conclusion, the majority of world’s leading geologists, during their meeting in 2008 in Cape Town, believed that the mudflow was more likely to be triggered by Lapindo’s drilling than by the Yogyakarta earthquake.\textsuperscript{107}

Before moving to the further analysis concerning the \textit{Walhi v. Lapindo, et al.} case, this part will first briefly discuss scientific controversies on the question of the trigger of the mudflow. It could be argued here that in general opinions on the trigger of the mudflow can be clustered in two camps.\textsuperscript{108}

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\textsuperscript{108} Of course, one might argue that this is oversimplifying the diverging opinions. However, it is not in this article’s capacity to provide detailed discussions about the entire scientific debates regarding the trigger of the mudflow. The simplification of the debates into two camps is made due mainly to the relevance to the legal analysis provided in this section. For a good brief summary of the scientific debates regarding possible causes of the mudflow, one may consult with: D. Normille, \textit{Indonesian Mud Volcano Unleashes a Torrent of}
One camp argues that for various reasons, the mudflow can be attributed to Lapindo’s drilling operation (thus, Lapindo’s activity) and the way the drilling was conducted and the way Lapindo took efforts to control the mudflow (thus, Lapindo’s conduct). To understand the position of this group, one may refer to scientists like Davies and colleagues who argue that the mudflow was a form of mud volcano. The question is, however, what has triggered this mud volcano. In this respect, Davies, et al. argue that the mud volcano can be attributed to Lapindo’s drilling. They observe the creation of the mud volcano as follows. The drilling of the over-pressured limestone has allowed an influx of pore fluid into the well bore, which itself has also provided the pressure connection from the limestone to any shallower aquifers and to the underground over-pressured mud of formation, named the Upper Kalibeng Formation. The authors find that, unlike the creation of mud volcano elsewhere, the mud volcano in Sidoarjo was triggered by the drilling, which has allowed underground fractures to develop and induced a fluid-sediment mix to flow into the wellbore and to the Earth’s surface. Contrary to the opinions of some expert witnesses in *Walhi v. Lapindo, et al.*, Davies and colleagues argue that the fact that the mud volcano was not formed in the wellbore, but in a location of 200 meters away from the wellbore does not necessarily mean that the volcano has nothing to do with the drilling. The authors argue that the transport of the mix through the overburden surrounding the wellbore might occur when pore pressures exceed the strength of fractures in the surrounding overburden. According to the authors, the fractures, referred to as the hydraulic fractures, are most likely to form in the shallowest

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109 According to Davies, *et al.*, a mud volcano refers to the set of structures associated with a constructional edifice (volcano cones) and feeder complex that connects the volcano to its source of fluid. The mud volcano system is driven by pressure and a source of fluid. Above the fluid source is a feeder underground passage (conduit), which probably consists of a complex system of fractures and mud-filled dykes that feed a fluid-sediment mix, which then erupts in the Earth’s surface and forms the “mud volcano”. See: R.J. Davies, *et al.*, *Birth of a Mud Volcano: East Java*, 29 May 2006, 17(2) GSA TODAY 4 (2007), 5.
layers not protected by steel casing. This opinion confirms the opinion of an expert witness in *Walhi v. Lapindo, et al.*, arguing that because the wellbore was blocked by drilling equipment, the water found the way up through the area where the drill steel casing was absent, and finally reached the surface and burst at around a few hundred meters from the well.

Davies, *et al.* also rejected the opinion associating the mudflow with the Yogyakarta earthquake. This rejection is based on several reasons. First, following the Yogyakarta earthquake, there was no report of mud volcano eruption that occurred in Java other than that in Sidoarjo. Second, the mud volcano eruption occurred two days after the earthquake in Yogyakarta, whereas the so-called seismogenic liquefaction (i.e. the transformation of solid or gas into liquid form triggered by seismic events), as a condition of the earthquake-triggered mud volcano, usually occurs at the time of an earthquake or immediately after an earthquake. Third, there was also no report about the existence of a ‘kick’ (the influx of fluid into the wellbore, which could lead to a blowout if it is not properly controlled) at the time of the earthquake. Fourth, the seismogenic liquefaction is in principle more likely to occur on the sand instead of mud, as it is the case in Sidoarjo, because sand is non-cohesive and granular sediment.

On the other side of the camp, some scientists argue that the trigger for the mudflow, and the mud volcano, was a natural cause. They usually point to ground motions, which were triggered by the Yogyakarta earthquake and then allowed the formation of underground fractures, as the cause of mud volcano. In this regard, Mazzini, *et al.* clearly argue that the Yogyakarta earthquake might be the trigger of the mud volcano creation in Sidoarjo. They suggest that the earthquake might have triggered the formation of underground fractures, which facilitated the transport of over-pressured mud into the surface. The rise of this over-

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110 Id., at 7-8.
111 Id., at 8.
pressured mud resulted in a pressure decrease and an exsolution of dissolved gases. This condition enabled the mud to reach the surface at a high speed and to induce the boiling of deep fluids.\textsuperscript{112} Having observed various studies, Mazzini, \textit{et al.} conclude that mud volcano dynamics are linked with tectonic activity, that eruptions can be affected even by earthquakes several thousands of kilometers away resulting in a delay of few days between the earthquakes and the eruption. In addition, based on the data collected from the location of the mudflow, Mazzini, \textit{et al.}, find a long history of active vertical movements of mud. According to the authors, the earthquake contributed to reactivate underground fractures, which then affected the fluid pressure and triggered the eruption.\textsuperscript{113} Mazzini, \textit{et al.}, argued that the data they have collected indicate that the mud volcano was mainly triggered by the energy released by the Yogyakarta earthquake and not by the drilling activity.\textsuperscript{114} Although the authors recognize that based on the available data it is impossible to determine with certainty the trigger of the mudflow, they nevertheless claim that “the hypothesis of an eruption entirely attributed to drilling (e.g. Davies \textit{et al.}, 2007), is inconclusive.”\textsuperscript{115}

In addition to Mazzini, \textit{et al.}, Sawolo and colleagues also attack the conclusion made by Davies, \textit{et al.}, which attributes the mudflow to Lapindo’s drilling activities. Sawolo, \textit{et al.} charge the conclusion drawn by Davies and colleagues as being lack of credibility because it has been built on inconsistent, puzzling, cherry-picked data. Certainly, the conclusion made by Sawolo, \textit{et al.}, supports the conclusion previously made by Mazzini, \textit{et al.}, arguing that the Yogyakarta earthquake is the trigger of the mudflow or, at least, there is no scientific basis to

\textsuperscript{112}A. Mazzini, \textit{Triggering and Dynamic Evolution of the LUSI Mud Volcano, Indonesia, 261 EARTH AND PLANETARY SCIENCE LETTERS 375 (2007), 387.}
\textsuperscript{113}Id., at 384.
\textsuperscript{114}Id., at 386.
\textsuperscript{115}Id., at 387.
attribute the mudflow to Lapindo’s drilling.\textsuperscript{116} Whether this is the case in legal sense is, however, another issue.

So far, one may immediately see how the Indonesian court was actually faced with difficulties in deciding the case amidst such scientific and technical debates. Unfortunately, the Court might have also been in trouble to find Indonesian rules or textbooks regarding the use of natural cause as a defense. In fact, as far as the defense is concerned, one might find no Indonesia textbook or scientific article on tort law that has specifically discussed the meaning of a natural cause in a legal perspective. This is, however, not the case in the US, where one can find discussions on the natural cause defense, referred to as the ‘act of God’ defense, in various textbook, scientific articles, acts, and court rulings.\textsuperscript{117}

If one takes a look at various court rulings in the US, one could observe that the ‘act of God’ defense, requires some evidence to be proved by those who invoke the defense to help them escape liability. The first element to proved is the requirement that the ‘act of God’ should be grave or severe in magnitude. Thus, when parties claim for the presence of ‘act of God’ to absolve them of liability, courts usually ask the parties to prove that the event claimed to an ‘act of God’ is of extraordinary character. In this regard, Sugg observes that in \textit{Sabine Towing & Transportation Co. v. United States} the Court requires that the ‘act of God’ be of great magnitude in order to be qualified as a defense.\textsuperscript{118} It is, thus, clear that not all

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\textsuperscript{116}N. Sawolo, \textit{et al.}, \textit{Was LUSI Caused by Drilling? – Authors Reply to Discussion}, 27 Marine & Petroleum Geology 1658 (2010), 1675.

\textsuperscript{117}In fact, one could find an article on the use of ‘act of God’ defense published as early as 1883. In that article, Murfree, Sr. contrasts the ‘act of God’ with that of human. The author argues that the ‘act of God’ is “something in opposition to the act of man; for everything is the act of God that happens by His permission; everything by His knowledge.” See: Wm.L. Murfree, Sr., \textit{The Act of God}, 16 The Central Law Journal 182 (1883), 182. The author also notes that in the case invoking the ‘act of God’ defense, the defendant bears the burden to prove not only that the damage was caused by an ‘act of God’, but also that there was, on the one hand, no possibility to prevent the loss and, on the other hand, no defendant’s negligence has contributed to the realization of the loss. \textit{Id.}, at 184.

\textsuperscript{118}R.M. Sugg, \textit{Blame It on the Rain? El Niño is no Excuse to Pollute}, 21 Whittier Law Review 737 (2000), 752. In \textit{Sabine Towing & Transp., Co., Inc. v. USA}, the plaintiff (Sabine Towing) filed a lawsuit against the US Government. The plaintiff challenged the Government decision requiring the plaintiff to conduct a cleanup for oil spill resulting from the plaintiff’s vessel. Plaintiff asked the Government to change expenses incurred for the cleanup on the grounds that the oil spill resulted from a natural cause. On March 29, 1975, the
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natural causes fall within the ‘act of God’ defense. Only a grave natural disaster can be used as an ‘act of God’ defense. In *Sabine Towing & Transp., Co., Inc. v. USA*, the Court rejected to categorize both spring runoff of melted snow and the unknown objects that have been ruptured the ship’s hull as a natural disaster.\(^{119}\)

An important point is brought about by Eagle, who observes that the key to pass the test of gravity for an ‘act of God’ defense is to show that an event was not only much more grave and exceptional compared to other past ‘act of God’ cases, but one of the most exceptional character.\(^{120}\) In this regard, one may see that the element of gravity could be seen only in comparison with other similar events, in which the claimed ‘act of God’ must be exceptional in nature compared to other ‘act of God’ events.

The second element of an ‘act of God’, i.e. the element of unforeseeablity, was used by a South Carolina court to define the ‘act of God’. The court, as quoted by Bozeman, defined an ‘act of God’ as “an accident resulting from natural causes, impossible to be foreseen, and therefore impossible to be guarded against”.\(^{121}\)

According to Howe III, unforeseeability is usually tested by showing that the event is unprecedented in a particular area. Howe III observes that some courts interpret the term “unprecedented” in such a way that if a similar event has occurred any time before the particular event, the event will be considered foreseeable, and hence, the ‘act of God’ defense will fail to past the test. As a result, the defendant will be held liable for the event. Other

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\(^{119}\) *Sabine Towing & Transp., Co., Inc. v. USA*, 666 F.2d 561 (Ct. Cl. 1981), at 562-563.


courts conclude that to be qualified as an ‘act of God’ in legal sense, an event must not only be unusual, but also be so unprecedented that its impacts could be anticipated nor prevented.\footnote{J.L. Howe, III, Act of God: A Reconsideration, 18 WASHINGTON AND LEE LAW REVIEW 336 (1961), 337-339.}

Meanwhile, in Sky Aviation Corp. v. William F. Colt, the Court rejected to categorize wind as natural disaster.\footnote{Sky Aviation Corp. v. William F. Colt, 475 P.2d 301(Wyo. 1970). In this case, the plaintiff, i.e. an aircraft leasing company, sued the defendant (a tenant of an aircraft) for damage to the plane during the taxing of the airplane. In this case, the defendant argued that the strong wind which caused the plane to flip over.} According to the Court, ‘[t]he ordinary force of nature such as winds which are usual at the time and place are conditions which reasonably could have been anticipated and will not relieve from liability the person guilty of the original negligent act’.\footnote{M.T. Rundall, “Act of God” as a Defense in Negligence Cases, 25 DRAKE LAW REVIEW 754 (1976), 755.} The importance of this ruling is that the Court associates a natural event with the time and place where the event took place, such that if the event was common to that particular time and place, the Court would reject to consider the event as unanticipated, and would hence, refuse the ‘Act and God’ defense. This is, perhaps, the reason why a commentator concludes that to see whether an event could have been anticipated or not, the court will take into account the character of the area, the surrounding circumstances, and the history of previous similar events in the area where the event took place.\footnote{Kennedy et al. v. Union Electric, Co. of Missouri, 358 Mo. 504 at 518, 216 S.W.2d 756 (Mo. 1948), at 763.}

To see whether a natural phenomenon is unprecedented, some courts assess it from the ability to anticipate or foresee the natural phenomenon, as well as from the ability to avoid the resulting impacts. In this regard, the Court in Kennedy et al v. Union Electric, Co. of Missouri held that ‘[t]he term “Act of God” in its legal sense, applies only to events in nature so extraordinary that the history of climatic variations and other conditions in the particular locality afford no reasonable warning of them’.\footnote{Kennedy et al. v. Union Electric, Co. of Missouri, 358 Mo. 504 at 518, 216 S.W.2d 756 (Mo. 1948), at 763.} Accordingly, one might
conclude that information on local conditions and past records of natural disaster should enable the parties to anticipate the recurrence of the disaster. In *Apex Oil Company, Inc. v USA*, the Court even held that a major hurricane did not fall within an ‘act of God’ defense if the hurricane occurred in the certain times and areas that allow the hurricane to be foreseen.

Therefore, the rulings imply that a natural disaster, which has occurred in the past, should be seen as something that could recur in the future, so that it is considered foreseeable, despite the fact that the disaster might be extraordinary in nature. In this context, the Court in *Fairbury Brick, Co. v. Chicago, R.I &P.RY.Co*, stressed that:

‘The mere fact that a flood is extraordinary is not sufficient to absolve the defendant from liability. Although a rainfall may be more than ordinary, yet if it be such as has occasionally occurred at irregular intervals, it is to be foreseen that it may occur again; and a party engaged in a public work, the construction of which involves the change or restraint of the flow of water in a natural channel, is guilty of negligence if it fails to make reasonable provision for the consequences that will result from such extraordinary rainfalls as experience shows are likely to recur’.

In *Christopher L. Phillips v. USA*, the Court held that the unforeseeability concept is a flexible concept. If the court finds that the danger is high and prevention relatively simple, the level of foreseeability is considered low; whereas if the level of danger is low and the prevention is considered difficult, the level of foreseeability is considered high. In other words, it can be argued that when the danger is seen to be high and the prevention is simple,

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127 A similar opinion also can also be found in the ruling of *Emil Frank, et al. v. County of Mercer* case stating that floods can only be considered and ‘act of God’ if the history of the climatic variations and other conditions in the particular locality provides no reasonable warning, such that the resulting damage cannot be avoided. When geographical and climatic conditions provide the warning about the recurrence of the floods, they will be considered foreseeable, and hence not the result of an ‘act of God’; although the floods might occurred infrequently. See: *Emil Frank, et al. v. County of Mercer*, 186 N.W.2d 439 (N.D. 1971), at 440.


everyone should increasingly be able to predict the danger and to take the necessary preventive measures. The court further stated that foreseeability is determined not only on the grounds of whether a future harm is more probable than not, but also “whatever result is likely enough in setting of modern life that reasonably prudent person would take such into account in guiding reasonable conduct”.  

Based on various rulings, Binder has argued that the ‘act of God’ can be categorized as the rules regarding intervening causes. According to the author, to be qualified as an ‘act of God’ in legal sense, an event must be an unforeseeable intervening cause of which consequences could not be prevented. In this regard, the defendant is liable for both foreseeable results of foreseeable causes and for foreseeable results of unforeseeable causes.

It is important to note that the test of unforeseeability is carried out by referring to objective standards, in the sense that the defendant should be able to show that the event and its consequences cannot be foreseen, anticipated, or prevented by reasonable person. In this regard, Binder argues that the test is about “what a reasonable person under similar circumstances knew, or reasonably should have known”, and not about “what a defendant thought”. In this sense, if an abnormal situation is foreseeable, then taking normal precaution is not enough to prove that defendant has taken preventive measures to avoid the natural event and its consequences.

It should be noted here that the majority of cases observed by commentators somehow correspond only to certain types of natural event, namely heavy rains, storms, hurricane, floods, or heavy snow. It may, thus, appear that certain natural events, such as an earthquake,

131 Id., at 346. This might simply mean that in assessing the level of foreseeability of an event, one should look at possible future consequences of the event on the basis of modern life (e.g. according to the development of science and technology), and then take these effects into account in one’s decision.


133 Id., at 16-17.
are still qualified as natural events that can be used as an ‘act of God’ defense. This is, indeed, the case in *Slater v. South Carolina Ry. Co.*, in which the court clearly upheld the defendant’s claim bringing up an earthquake as a defense to escape liability.\(^\text{134}\)

However, one might also argue here that similar to other natural phenomena, not all types of earthquake should be accepted as an ‘act of God’. In this regard, only if it was extraordinary, unforeseeable, and unanticipated, will an earthquake be qualified as a defense to escape liability.\(^\text{135}\)

In addition, it is also important to bear in mind that the assessment of whether an earthquake could be qualified as an ‘act of God’ will depend not only on the exceptional character of the earthquake, but also on the ability of existing science and technology to foresee, and hence, to inform the parties to take the necessary anticipation measures. In this regard, one may refer to the court ruling in *Paul Butts et al. v. City of South Fulton*, where the court defined a natural disaster as a natural phenomenon ‘of such character that it could not have been prevented or escaped from by any amount of foresight or prudence, or by the aid of any appliances which the situation of the party might reasonably require him to use’—[italics added].\(^\text{136}\) The ruling indicates that in examining an ‘act of God’ defense the court needs to pay attention to the question of whether those who invoke the defense have previously applied appropriate measures, methods, or technology to prevent the disaster or its possible impacts. Taking into account the rapid development of science and technology, an earthquake might, to some extent, still be reasonably considered foreseeable, anticipated, and preventable. Accordingly, an earthquake should increasingly be more difficult to meet the

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\(^\text{134}\) *Slater v. South Carolina Ry. Co.*, 29 S.C. 96, 6 S.E. 936 (S.C. 1888). It should, nevertheless, be noted here that the Court also stated that the defendant’s ‘act of God’ defense was accepted by the court because the defense was not challenged by the plaintiff and its witness. *Slater v. South Carolina Ry. Co.*, 29 S.C. 96, 6 S.E. 936 (S.C. 1888), at 937.


\(^\text{136}\) *Paul Butts et al. v. City of South Fulton*, 565 S.W.2d 879 (Tenn.App., 1977), at 882.
requirement to be qualified as a reason to escape liability under the context of ‘act of God’ defense.

For this reason, Flatt and Kliner argue “[g]iven the current state-of-the-art knowledge of earthquake hazard assessment, in addition to the ability to provide earthquake resistant structures at a relatively nominal increase in cost, the ‘act of God’ defence should not be viable”. The authors are also convinced that existing scientific understanding is relatively able to predict the possibility of an earthquake to occur in an active fault zone within a certain period of time. In this regard, the authors argue, “[i]n an active fault zone, earthquakes of magnitudes sufficient to cause significant damage are predictable within a given time frame. Thus, they are foreseeable...”

In addition, the current development of science and technology is not only able to predict the potential occurrence of the earthquake along with the impact that can occur, but is also able to create a more accurate prediction and better control over an earthquake. Because humans currently have a better ability to predict and control an earthquake, Flatt and Kliner argue that an earthquake is no longer a powerful reason within the context of ‘act of God’ defense.

The key point here is that the examination of unforeseeability of an ‘act of God’ should also take into account the development of science and technology, by which many previously unpredictable, or even unknown, events or causes have now been known or somehow more predictable. Therefore, it could be argued that with advanced science and technology, it

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138 Id., 38.

139 In this regard, the authors argue, ‘[w]ith today’s advanced research and technology, however, scientists...are better able to forecast an earthquake with an increasing degree of accuracy. Furthermore, advanced seismic design...ensures better survivability. Without the twin pillars of lack of predictability and lack of control, this defense is certainly on the wane as applied to earthquakes. Id., 39.
becomes more difficult to prove that an event is indeed unforeseeable, and its consequences are unanticipated and unpreventable.

The last point to prove in examining the ‘act of God’ defense is the requirement that the act is the sole cause of the loss. This is the requirement to prove that the ‘act of God’ is free from human intervention. The requirement of the sole cause is perhaps the most distinct characteristic of an ‘act of God’ defense. The US courts have indeed shown a high degree of consistency in insisting that the ‘act of God’ is the sole cause of the loss, in the sense that although the parties invoking ‘act of God’ defense are able to prove that an ‘act of God’ has occurred, they will still be liable if they cannot indicate that the loss was entirely caused by the ‘act of God’. In this regard, Fraley notes that “the act of God must be the sole proximate cause of the plaintiff’s damages. The act of God must not only be a cause but also the “entire cause” for the doctrine to preclude liability”.

Although there is no single definition of what constitutes the “sole cause” of an event, Fasoyiro finds that the courts usually require no contributing human factor to the claimed natural cause. Hence, as Fasoyiro notes, to be qualified as an ‘act of God’ defense, the act must be “occasioned exclusively by violence of nature without the interference of any human action”.

In the case involving the negligence rule, the “sole cause” test will look at the question of whether those invoking the ‘act of God’ defense have been at fault or not. Bozeman indicates that where negligence has contributed to the damage in question, then the damage

\[140\] J.M. Fraley, Re-examining Acts of God, 27 PACE ENVIRONMENTAL LAW REVIEW 669 (2010), 675. It should, however, be noted here that the author does not entirely agree with the requirement that the ‘act of God’ is the sole cause of the loss, especially for cases related to climate change. In this regard, the author finds that the requirement emerges from a classical legal fiction imagining that human acts can be meaningfully separated from the acts of nature. According to the author, this separation is no longer applicable when one is examining losses due to climate change, as climate change itself cannot be considered an event free from human intervention. Id., at 689-690.

will not be considered as resulting from the ‘act of God’. Several cases below have indeed confirmed Bozeman’s opinion.

In *Oklahoma Ry., Co. v Boyd*, the Court held that ‘[o]ne is not liable for damage resulting solely from an act of God; but if his negligence is a present contributing cause, which, commingled with the act of God, produces the injury, then he is liable, notwithstanding the act of God’. – [italics added]

From this ruling, it appears, thus, that if a natural disaster is combined with the element of negligence on the side of the defendant, then the ‘act of God’ defense will be rejected.

In some rulings, the courts seemed to employ a wider interpretation of ‘negligence’. For instance, in *Paul Butts et al. v. City of South Fulton*, the Court stated that for an ‘act of God’ to be accepted, damages should result solely from natural factors, without any human intervention. Similarly, in *Burdell Curtis, et al. v. E. Lee Dewey, et al.*, the Court held that ‘[t]he distinguishing characteristic of an ‘act of God’ is that it proceeds from the force of nature alone, to the entire exclusion of human agency’. [italics added]

If the court finds that the damage was a result of a natural disaster commingling with human’s actions, either in the forms of active participation, neglect, or the failure to act, then the natural disaster will be humanized, in the sense that the damage will entirely be considered as the result of human actions. As a result, the ‘act of God’ defense will be 

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144 *Paul Butts et al v. City of South Fulton*, 565 S.W.2d 879 (Tenn. App., 1977), at 882.

dismissed. Such a point of view can be found in the ruling of *Winchester Water Works Co. v. Holliday, et al.*, in which the Court explicitly rejected the ‘act of God’ defense when it was found that the natural disaster has somehow cominged with human’s contribution, i.e. the defendant’s negligence. The Court held:

“The principle embodied in all of the definitions is that the act must be one occasioned exclusively by the violence of nature and all human agency is to be excluded from creating or entering into the cause of the mischief. *When the effect, the cause of which is to be considered, is found to be in part the result of the participation of man, whether it be from active intervention or neglect, or failure to act, the whole occurrence is thereby humanized, as it were, and removed from the operation of the rules applicable to the acts of God.* Thus if a party is in default for not performing a duty or not anticipating a danger, or where his own negligence has contributed as the proximate cause of the injury complained of, he cannot avoid liability by claiming that it was caused by an act of God”—[italics added].

It has been shown earlier that for a natural disaster to be qualified as an ‘act of God’, the disaster should be, among others, unforeseeable and unanticipated. The failure to prove that a natural event is unforeseeable and unanticipated will only rule out the entire ‘act of God’ defense, but might also mean that the defendant is negligent. In other words, when a future natural event is considered as foreseeable, and hence, can reasonably anticipate, the defendant bears responsibility to anticipate and to take necessary preventive measures. The failure to anticipate and to take preventive measures will lead to liability, because the defendant is considered to have failed to meet its duty of care. This is indicated in Patterson J.’s dissenting opinion in *Kimble v. Mackintosh Hemphill, Co.*, in which the Judge urged that all foreseeable be considered in determining whether an action is a negligent act. The judge stated:

“It is a primary social duty of every person to take thought and have a care lest his action result in injuries to others. This social duty the law recognizes and enforces, and for any injury resulting from any person’s lack of elementary forethought, the law holds that person accountable. A normal human being is held to foresee those injuries which are the consequences of his acts of omission or commission which he, as a reasonable human being, should have foreseen... *All foreseeable dangers are to be considered in*

the solution of the problem whether the creation of the situation was a negligent act”—[italics added]. 147

Indeed, the examination of the “sole cause” will somehow correspond to the issue of unforeseeability, in the sense that once an ‘act of God’ and its impacts are considered foreseeable, then there is a legal obligation to take due care or foresight to prevent the act. And this obligation will ultimately lead to the examination of the actual conducts of the defendant to anticipate the ‘act of God’ and its consequences. In this regard, as Binder has indicated, the inadequacy of design, construction, inspection, and maintenance will result in the ‘act of God’ being considered as the act of people. 148

It is also important to note how the “sole cause” question is addressed under strict liability. It is generally accepted that under strict liability the absent of negligence will not absolve the defendant of liability. This means that when one invokes the ‘act of God’ defense under strict liability, one cannot use the reason that one is not negligent. This is because, as Fasoyiro observes, the test for the ‘act of God’ defense under strict liability is causation-based, and not fault-based. 149 Accordingly, the proof of the absence of fault/negligence is not sufficient to indicate the ‘act of God’, and hence, to exonerate the defendant of strict liability.

Similarly, Binder argues that under strict liability the analysis should focus on the question of whether the occurring damage falls within the projected risk encompassed by the application of strict liability. If the answer is positive, then the unforeseeable nature of the impact is irrelevant. 150 This is an important note for the examination of the ‘act of God’ defense in *Walhi v. Lapindo, et al.* In this case, one may pose a question of whether the occurring mudflow falls within the risk of conducting a drilling operation, particularly in a

148 D. Binder, *supra* note 132, at 19.
150 D. Binder, *supra* note 132, at 61-64.
mud volcano-prone area. The party invoking the ‘act of God’ in *Walhi v. Lapindo, et al.* should have actually been asked the impossibility of the mudflow resulting from the conducted drilling operation.

Should the Indonesian court asked for evidence similar to that required by the US courts, the result of the *Walhi v. Lapindo, et al.* might have been significantly different. The discussions below show how the US court requirements for the ‘act of God’ defense are applied to the *Walhi v. Lapindo, et al.* case. In particular, the discussions below attempt to answer the questions of whether the Yogyakarta earthquake as an event triggering the mud volcano that eventually leads to the Sidoarjo mudflow was: first, grave in character; second, unforeseeable, unanticipated, and unpreventable; and third, the sole proximate cause that was free from human negligence or intervention.  

*a. The ‘act of God’ should be grave*

In deciding whether the ‘act of God’ defense invoked by Lapindo is valid, the court should have first evaluated whether the Yogyakarta earthquake was a grave natural disaster for the location of the Sidoarjo mudflow, being 300 km away from Yogyakarta. Such a question means that in order to conclude if the earthquake was strong enough to trigger the mudflow, one needs to look into the magnitude of the earthquake actually felt in the location of the

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151 One must note that other commentators might observe more or less requirements in examining the ‘act of God’ defense. For example, Rundall has proposed two-tier test of ‘act of God’ defense. In the first tier, the defendant must prove that an event claimed as an ‘act of God’ can indeed be qualified as an ‘act of God’. Once the act is qualified as an ‘act of God’, the second test takes place. In this test, the defendant has the burden to prove that the ‘act of God’ is the sole proximate cause of the plaintiff’s loss. See: M.T. Rundall, *supra* note 125, at 761-762. However, it could also be argued that the first tier test is indeed the test to show that the claimed ‘act of God’ is both grave in magnitude and unforeseeable.

Other commentators even observe four requirements in examining the ‘act of God’ defense, namely: first, that the event was a grave natural phenomenon of an exceptional, inevitable, and irresistible character; second, whether the event was anticipated; third, whether the event was the sole cause; and fourth, whether the consequences of the event could have been prevented by due care or foresight. See: J. Eagle, *supra* note 120, at 476-487. See also: C.P. Kaplan, *The Act of God Defense: Why Hurricane Katrina and Noah’s Flood Don’t Qualify*, 26(1) THE REVIEW OF LITIGATION 155 (2007), 175-176. It should be noted here the examination of whether the claimed ‘act of God’ is unforeseeable also include the discussions about its consequences, and hence, also include the fourth requirement under the four requirements above.
mudflow. In this context, Manga states that the Yogyakarta earthquake was in fact too small and too far to trigger a mud volcano. Specifically, based on data on earthquakes in the region, Manga observes previous earthquakes that were larger and much closer to the location of the mudflow compared to the Yogyakarta earthquake. Yet, those earthquakes did not trigger the mudflow. Based on this finding, it might be concluded the Yogyakarta could not have triggered a mud volcano in Sidoarjo region in the magnitude of the mudflow currently occurs.

However, one might argue that the distance from the epicenter of the Yogyakarta earthquake and the location of the mudflow should not be an issue, because according to Mazzini, et al. an earthquake is still able to trigger a mud volcano in a location of thousands kilometer away. In this regard, what matters is whether the Yogyakarta earthquake has created a seismic energy that was capable to reactivate the already over-pressured underground fractures in the pre-existing fault zone underneath the location of the mudflow eruption, which then triggered the hot muddy water eruption. Hence, the issue is not about the distance, but about the impacts of energy created by a seismic activity.

To respond to this argument, one indeed needs to investigate and predict how powerful the energy created by the Yogyakarta earthquake was, such that it could trigger ground motions at the location of the mudflow eruption. In this regard, Davies et al. have investigated static and dynamic stress changes caused by the Yogyakarta earthquake, and changes by the drilling work at the site of the mudflow eruption. The authors observe that

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153 According to the authors, earthquakes can expand or contract the Earth crust permanently. These permanent stress changes, referred to as static stress changes, could cause an increase in pore pressure and lead to underground fractures. On the other hand, seismic waves generated by earthquakes also create temporary stress changes as the waves pass through the crust, referred to as dynamic stress changes. These dynamic stresses, if sufficiently large and repeated, can lead to an increase in pore pressure. These increases in pore pressure could eventually lead to liquefaction and sediment flow as the conditions of a mud volcano formation. See: R. Davies, *et al.*, supra note at 152, at 630-631.
changes in pore pressure due to changes in static and dynamic stresses caused by the
earthquake were negligible to lead to a mud volcano. In fact, tens of previous earthquakes,
which had significantly larger ground motions than those of the Yogyakarta earthquake, did not yield enough stresses to cause a mud volcano in the location of the present mudflow.\textsuperscript{154} A less technical interpretation of Davies, \textit{et al.}'s findings is provided by Kilb, who concludes that the dynamic stress changes created by the Yogyakarta earthquake are similar to the stress changes generated by the force of an adult footstep, whereas the static stress changes are even 500 times smaller. In comparison, the nearby Lapindo’s drilling generated drill-pipe pressures able to cause stress changes similar to the pressure generated by about 10 to 20 elephants.\textsuperscript{155} The drilling is, thus, more likely to cause the mudflow as compared to the earthquake. Consequently, it could be argued that felt at the mudflow location, the Yogyakarta earthquake was too small to be considered a grave natural disaster.

\textit{b. The 'act of God' should be unforeseeable and unanticipated}

The next question that should have been addressed by the Court is whether the mudflow, as a form of mud volcano, should have been foreseen and anticipated. Davies, \textit{et al.} consider that the Sidoarjo mudflow was originated from an \textit{undersurface blowout}.\textsuperscript{156} This opinion is, of course, challenged by Sawolo, \textit{et al.}, who argue that even two months after the eruption the drilling bit was still in the original position, suggesting that the muddy water has never flown up the well,\textsuperscript{157} and more importantly, the drilling well and the casing shoe remained intact after the mudflow eruption, indicating that there is no connection between the drilling and the

\textsuperscript{154} Id., at 635.
\textsuperscript{155} D. Kilb, \textit{Throwing Mud}, 1 NATURE GEOSCIENCE 572 (Sept. 2008), 573.
\textsuperscript{156} R.J. Davies, \textit{et al.}, supra note 109, at 9.
\textsuperscript{157} See: N. Sawolo, \textit{et al.}, supra note 116, at 1671.
mudflow. In responding to this challenge, Davies, et al. argue the facts that the well was still intact and the drill bit was still in its original position do not indicate that the blowout did not occur. According to Davies, et al., the re-entry of the well does not indicate that the well remained intact. In addition, they also argue that the drill bit can remain in its original position particularly in zones of highly swelling clays and if the large volumes of cement have been pumped into the wells, such as in the Lapindo’s drilling well case. Hence, according to Davies, et al., the facts submitted by Sawolo, et al., do not prove that the mudflow was not caused by an undersurface blowout.

Davies, et al.’s argument above will, inevitably, give rise to a serious legal consequence because if the mudflow was indeed caused by blowouts, then the ‘act of God’ defense will automatically be rejected. This is because blowout is considered a common phenomenon in drilling practices, which leads to the responsibility of those engaged in drilling operation to foresee and anticipate. This is very clearly stated in Green v. General Petroleum, in which the Court rejected a defense arguing blowouts amounted to an ‘act of God’. The Court held that it is common knowledge that “the inner earth contains powerful gaseous forces, frequently found in proximity to and in connection with deposits of petroleum substances”. For this reason, the Court contended that the blowouts did not constitute an ‘act of God’.

Moreover, the fact that the area where Lapindo’s drilling operation is located is an area prone to mud volcanism is admitted not only by the camp which attributes the mudflow to Lapindo’s drilling, but also by those who argue that the Sidoarjo mudflow is an earthquake-triggered mud volcano. Sawolo, et al., clearly state that the Sidoarjo mudflow “is

158 Id., at 1667.
162 See, for example: Davies, et al., supra note 159 at 1656.
a new mud volcano in a region prone to mud volcanism. Along the vicinity of the Watukosek fault, where LUSI is situated, there are at least five other known mud volcanoes.”—[italics added]. Similarly, even during the Court hearing, an expert witness submitted by Lapindo, argued that mud volcano is a common phenomenon in Sidoarjo region.  

The fact that mud volcanism is a common and known phenomenon in the Lapindo’s drilling site should have had an impact on the Court ruling. Because the drilling was carried out in a location prone to mud volcanism, the possibility of mud volcano should have been foreseen and anticipated. In this context, the Court should have investigated whether the design and operation of Lapindo’s drilling activities had foreseen and anticipated the possibility of mud volcanism. The Court should also have considered whether Lapindo had taken appropriate measures to mitigate the occurring mud volcano. Unfortunately, these two legal consequences were overlooked in the Court ruling. Lessons from the US courts rulings show that common and known natural events, regardless of the magnitude, impose obligations on parties who carry out an activity to foresee and anticipate the events, and take preventive measures accordingly. Failures to foresee, anticipate, and prevent such common events mean that the parties are negligent and leads to the rejection of the ‘act of God’ defense.

c. The ‘act of God’ should be the sole cause

The last question that needs to be answered is whether the mudflow occurred independently of human intervention, either in the forms of negligence or human act, or in simpler words, whether the mudflow would still have occurred even if Lapindo did not conduct its drilling operation. As discussed earlier, the Court in *Walhi v. Lapindo, et al.* overlooked the question

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of whether there was human intervention in the case. The Court seems to be of the opinion that the presence of an ‘act of God’ could rule out any man-made contributions. It is, hence, important to analyze whether there was human intervention in the mudflow case, either in the forms of Lapindo’s negligence (in the case of the negligence rule) or Lapindo’s drilling operation (in the case of strict liability).

One common reason to show Lapindo’s fault is the fact that there was an area of open hole, where the drill casing was not installed into the well. Rubiandini argues that the installment of drill casing is part of the standard operating procedure within the drilling practice. He compares the casing with the helmet for a motor rider, where both function as a safety procedure to reduce risks.\footnote{R. Rubiandini, \textit{Interviu: Mereka Sudah Keterlaluan}, VI(18) TRUST 56, 57 (2008). It seems also that initially Davies thought that the absence of casing was a primary trigger of the mudflow. See: R.J. Davies, \textit{et al.}, \textit{supra} note 109, at 9.}

Another factor that might cause the mudflow is the way the drilling operators have dealt with the blowout phenomenon. In this regard, Bachtiar, as quoted by Cyranoski, stated that one of the possible causes of the mudflow was that the drill was removed too quickly when the blowout was happening, such that the pressure inside the well becomes uncontrollable.\footnote{D. Cyranoski, \textit{supra} note 4, at 814.} To some extent, Davies \textit{et al.} agree with this opinion. They argue that the absence of the casing was only a contributing factor for the mud volcano. The main factor triggering the formation of mud volcano is the removal of the drill bit and drill pipe on 27\textsuperscript{th} to 28\textsuperscript{th} of May 2006, i.e. the days when the ‘kicks’ were occurring and where the hole was extremely unstable, which then caused an influx of formation fluid and gas into the wellbore.\footnote{R.J. Davies, \textit{et al.}, \textit{supra} note 152, at 637.}

In addition to these factors, Davies \textit{et al.}, also indicate two other critical errors in the way the drilling was operated. There errors are overestimating the ability of the well to
sustain pressure and the failure to identify the ‘kick’ more rapidly.\textsuperscript{168} Certainly, it could also be added to these errors the possibility that Lapindo has failed to foresee, anticipate, and take necessary preventive measures against a common and known phenomenon of mud volcanism. All of these factors should eventually lead to the conclusion that some defendant’s negligence was present in the mudflow case.

Even if one agrees with Mazzini \textit{et al.’}s opinion that it is impossible to determine the cause of the mudflow with certainty, one cannot, however, entirely dismiss the presence of negligence in the drilling operation. Consequently, if the Court applied the US court’s criterion that the ‘act of God’ should free from defendant’s negligence, the Court would have rejected the ‘act of God’ defense submitted by Lapindo.

In addition, one could also indicate the Lapindo’s contribution to the incurred damage by referring to the fact that the drilling operation was carried out in an area not suitable for a drilling operation, and was conducted by an inexperienced sub-contractor. For this reason, the BPK’s audit report on the mudflow is merit consideration. The report reveals that the drilling took place in a highly populated area. The drilling location was only a few meters away from residential or industrial areas.\textsuperscript{169} In fact, according to the spatial plan of the region, the location of the drilling was not directed for mining operation.\textsuperscript{170} In addition, the report also found that the drilling was conducted by Lapindo’s contractor, which appears to have very limited experience in conducting drilling operations. The report shows that the operator had apparently conducted only one drilling operation before it was involved as Lapindo’s contractor.\textsuperscript{171}

\textsuperscript{168} R.J. Davies, \textit{et al.}, \textit{supra} note 159, at 1656.
\textsuperscript{169} The report of BPK (the Indonesian Supreme Audit Board) found that at one point, the location of the drilling operation was only 5 meters away from a residential areas, and less than 100 meters away from public facilities. Badan Pemeriksa Keuangan Republik Indonesia, \textit{supra} note 3, at 27-28.
\textsuperscript{170} \textit{Id.}, at 29.
\textsuperscript{171} \textit{Id.}, at 32. In addition to Lapindo’s contribution, the BPKK’s report also points to Government’s failure to undertake a proper inspection as another contributing factor for the occurring mudflow. According to the report, Lapindo never submitted its daily drilling report to the BP Migas, i.e. a state agency responsible to
Another important question is whether the mudflow would still have occurred even in the absence of Lapindo’s drilling. One way to answer this question is to compare the impacts of the Yogyakarta earthquake and Lapindo’s drilling on the location of the mudflow eruption. Recalling Davies et al. comparison on stress changes mentioned earlier, one could see that compared to the earthquake, the drilling has created much larger and more powerful stress changes capable to increase pore pressure, which could eventually lead to the eruption. Again, the studies of Manga and also Davies et al., show that previous tens and even hundreds earthquakes that were much larger and closer than the Yogyakarta earthquake did not cause a mud volcano at the same location.

Hence, if one considers that the conclusion solely attributing the mudflow to the drilling is inconclusive, one cannot nevertheless completely rule out the possibility that the drilling might have impacts on the mudflow. In this regard, even Mazzini, a leading scientist arguing that the mudflow was triggered by the Yogyakarta earthquake, still admits the possibility that the drilling might have contributed to the mudflow.172

These facts give rise to two possible consequences to the rulings of Walhi v. Lapindo, et al. First, the Court should have rejected the ‘act of God’ defense on the ground that it is impossible to rule out the possibility of the drilling’s contribution to the mudflow, and hence, it cannot be proven that the Yogyakarta earthquake was the sole cause of the mudflow. Second, the Court could have found that there was a possibility of comingling between the earthquake and the drilling, but held Lapindo liable for all incurred losses due to its failure to make an apportionment regarding the contribution of the earthquake and Lapindo’s contributing acts to the incurred losses.

regulate and control oil and gas mining in Indonesia. However, according to the BPK’s report, the agency apparently never imposed any sanction on Lapindo for its failure to report its drilling operation.

4. Lessons from the Mandalawangi Landslide and Sidoarjo Mudflow Cases

Previous sections have discussed how compensation system has been addressed in various acts, and how the Indonesian courts have dealt with liability for damage caused by environmental disasters. In this section, the paper attempts to analyze some weaknesses of compensation system in Indonesia. The paper also proposes a legal reform to improve the compensation system such that it also comprises alternatives that function when liability rules are ineffective in providing swift and adequate compensation for the victims.

4.1. Weaknesses of Provisions on Compensation System in Indonesia

Provisions on compensation and liability rules presented in the previous section indicate some weaknesses of the compensation mechanisms for the victims of environmental pollution in Indonesia. These weaknesses might on the one hand preclude the victims from full compensation, and on the other hand cause the compensation and liability rules to fail to induce the potential polluters to take necessary preventive measures. The weaknesses can be seen in the following discussions.

a. Conflicting provisions concerning liability rules

Conflicts between different statutes are common in Indonesia. This is also the case with respect to the compensation issue. The most obvious and crucial conflicts can be seen in the choice of liability rules.

Under the environmental act regime, liability could be based on the negligence rule or on strict liability. Similar provisions on the choice of liability rules can also be found in Act No. 41 of 1999 on forestry (hereinafter referred to as the 1999 Forestry Act).

However, when it comes to damage from a nuclear facility, the 1997 Nuclear Energy Act, i.e. Act No. 10 of 1997, provides only strict liability as the basis of civil liability. In this
regard, liability arises for nuclear accidents that occur within the site of nuclear installation.\textsuperscript{173}

In contrast, Act No. 4 of 2009 on mineral and coal mining (hereinafter referred to as the 2009 Mining Act) provides only the negligence rule as the basis for liability. This Act states that those who suffer direct negative impacts of a mining operation are entitled to file a lawsuit and get compensation for damage resulting from the fault of the mining operation, i.e. an operation that violates regulations.\textsuperscript{174} The provision indicates that liability should be based on fault, where fault is proven through the violation of regulations (written laws). This is obviously inconsistent not only with liability rules adopted in environmental acts, which cover both liability based on fault and liability without fault, but also with the concept of negligence rule adopted by the Indonesian Civil Code, which defines unlawfulness as violations of written or unwritten laws.\textsuperscript{175}

Similar to the 2009 Mining Act, the 2008 Solid Waste Management Act also excludes strict liability as a basis for compensation. The Act states that compensation for damage resulting from solid waste management can only be based on an unlawful act claim, in which the plaintiff should prove the defendant’s fault, the damage suffered, and the causal

\textsuperscript{173}Act No. 10 of 1997, art. 28. In Article 1 point 12 of the 1997 Nuclear Act, the definition of nuclear installation includes a nuclear reactor; facilities used for nuclear purification, conversion, nuclear enhancement, fabrication of nuclear fuel, or for the treatment of nuclear wastes; and facilities used to store nuclear fuel or wastes.

\textsuperscript{174}The 2009 Mining Act, art. 145 par. 1 reads:

“Masyarakat yang terkena dampak negatif langsung dari kegiatan usaha pertambangan berhak:
a. memperoleh ganti rugi yang layak akibat kesalahan dalam pengusahaan kegiatan pertambangan sesuai dengan ketentuan peraturan perundang-undangan.
b. mengajukan gugatan kepada pengadilan terhadap kerugian akibat pengusahaan pertambangan yang menyalahi ketentuan.”

[translation: “those who suffer direct negative impacts of mining activity are entitled to:
a. get adequate compensation as a result of a fault in the mining operation according to regulations
b. file a lawsuit for damage resulting from a mining operation that violates regulations”]

\textsuperscript{175}Note that Indonesian legal scholars agree that liability for unlawful act adopted in the Indonesia Civil Code covers not only acts that violate written laws, but also acts that violate general the duty of care, including duties recognized in unwritten laws. See for example: M.A.M. Djojodirdjo, \textit{PERBUATAN MELAWAN HUKUM}, 35-51 (1979). See also: R. Agustina, \textit{PERBUATAN MELAWAN HUKUM}, 35-41 (2004).
relationship between the defendant’s fault and the damage.\textsuperscript{176} This clearly indicates a rule of liability based on fault.

Conflicts of liability rules may also correspond to the types of damage. Environmental acts (various EMAs) cover all types of damage resulting from environmental pollution and degradation. The 2009 EMA even specifically recognizes environmental damage as a type of damage that could be compensated.\textsuperscript{177} However, most sectoral acts do not define environmental damage as a type of damage to be compensated.\textsuperscript{178}

In Indonesia, the application of liability rules and compensation is limited not only through the exclusion of strict liability from the choice of liability rules, and the type of damage to be covered, which excludes environmental damage, but also through the limitation concerning the incident triggering compensation. Under the environmental act regime, the triggering acts may cover any act as long as it causes damage to the victims.\textsuperscript{179} Such a broad definition is also adopted in the 1997 Nuclear Energy Act, in which nuclear accident, which triggers liability, is defined as any accident or a series of accidents that cause damage.

Unfortunately, some sectoral acts do not provide such a broad definition concerning the triggering act. The 2008 Solid Waste Management clearly states that compensation can only be made for damage stemming from a final waste disposal site.\textsuperscript{180} The 2007 Disaster Management Act, i.e. the Act No. 24 of 2007, goes even further by limiting compensation

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\textsuperscript{176} Act No. 18 of 2008, art. 35.

\textsuperscript{177} Article 90 par. 1 of the 2009 EMA provides legal standing for government’s environmental agencies at national and local governments to undertake a lawsuit and ask for compensation against the undertaking that causes environmental damage. The elucidation of this Article states that environmental damage means any damage to non-private properties.

\textsuperscript{178} The 1997 Nuclear Energy Act is an exception to these sectoral acts. Article 1 point 16 of Act No. 10 of 1997 defines nuclear damage as any damage including death, disability or illness, damage to property, and environmental pollution and degradation.

\textsuperscript{179} This is especially the case for strict liability according to Article 88 of the 2009 EMA. For liability based on fault, the formulation is rather different. In this case, according to Article 87 of the 2009 EMA the triggering act should be an unlawful act that results in environmental pollution or degradation, and this environmental pollution or degradation that eventually causes damage to the victims.

\textsuperscript{180} Act No. 18 of 2008, art. 25 par. 1.
only for damage caused by construction failure.\textsuperscript{181} This is a serious mistake, given the fact that the 2007 Disaster Management Act covers not only natural disaster, but also man-made disaster.\textsuperscript{182}

The differences in terms of the choice of liability rules, the type of damage, or the scope of applicability of compensation or liability rules, matters a great deal when one considers a case so disastrous as the Sidoarjo mudflow. In this regard, the 2001 Oil and Gas Act, i.e. Act No. 21 of 2001, as the relevant sectoral act does not provide any provision concerning liability and compensation for damage resulting from mining activities. The only provision that implicitly refers to compensation is an article about dispute settlement for land-use in mining activities.\textsuperscript{183} In this regard, one may pose a question of whether the mudflow case should strictly follow the provisions under the 2001 Oil and Gas Act or should also include provisions under the environmental management act. Furthermore, one may also ask whether the compensation should be based on the negligence rule or on strict liability.

\textit{b. Insurance is not well developed}

The explanation of article 35 of the 1997 EMA has introduced the possibility of mandatory environmental insurance in Indonesia. Similar explanation is reiterated in the explanation of

\textsuperscript{181}Article 26 par. 3 of Act No. 24 of 2007 states that every person is entitled to compensation for disaster caused by construction failure. For other types of damage, the Act employs other terms, such as “assistance” or “financial assistance”.

\textsuperscript{182}The 2007 Disaster Management Act defines a disaster as:

\textit{“P}eristiwa atau rangkaian peristiwa yang mengancam dan mengganggu kehidupan dan penghidupan masyarakat yang disebabkan, baik oleh faktor alam dan/atau faktor nonalam maupun faktor manusia sehingga timbulnya korban jiwa manusia, kerusakan lingkungan, kerugian harta benda, dan dampak psikologis [translation: an event or a series of events threatening and hampering the lives of society, caused by natural or unnatural factors, or by human factor, which results in loss of life, environmental damage, property damage, and psychological impacts].

\textsuperscript{183}Article 35 par. 2 of the Act No. 21 of 2001 states that dispute settlement related to land-use shall be done through consensus on land transactions providing reasonable compensation to the property holders.
Article 88 of the 2009 EMA. In addition, Article 43 Par. 3f of the 2009 EMA states that the Government has the obligation to develop the implementation of environmental insurance.\footnote{The explanation of Article 43 par. 3f states that environmental insurance is the type of insurance that provides protection at the event of environmental pollution or degradation.}

Based on these provisions, one may assume that environmental insurance has been well developed and implemented in Indonesia. This is apparently not the case.

So far, there is only one regulation addressing mandatory insurance. The regulation, i.e. the Regulation of the Minister of the Environment No. 18 of 2009, states that company, of which core business is hazardous waste management, has to be protected with an environmental insurance providing a minimum coverage of 5 billion IDR.\footnote{The Regulation of the Minister of Environment No. 18 of 2009, art. 8.} The insurance is mandatory because it is one of several conditions to obtain permit related to hazardous waste management.\footnote{The Regulation of the Minister of Environment No. 18 of 2009, art. 10 par. 3 and Annex III.} This regulation is, nevertheless, questionable for at least two reasons. First, it provides mandatory insurance only for those whose core business is hazardous waste management, and hence, those who produce or transport the wastes are excluded from this requirement. Second, it is unclear whether those who have obtained the permit prior to the enactment of this regulation will also be required to hold environmental insurance.

Certainly, the demand for environmental insurance is influenced by several factors. In Indonesia, it seems that one important factor for the demand is the obligation to hold an environmental insurance. Interviews with two major insurance companies in Indonesia confirm that the absence of mandatory environmental insurance has contributed to the low demand for environmental insurance in Indonesia.\footnote{The two companies claim to be able to provide high coverage for environmental insurance, which certainly depends on the amount of the premium. In addition, the two companies also welcome if environmental insurance is promoted as mandatory insurance, so long as the amount of the premium is not determined by the Government and environmental law is fully enforced in order to ensure that the insured parties have low risk of environmental pollution. See: A. Wibisana and P.K. Putri, Analisa Law and Economics atas Kompensasi dan Asuransi Lingkungan di Indonesia: Sebuah Kritik atas Kompensasi tanpa Sistem, 39(4) JURNAL HUKUM DAN PEMBANGUNAN 531 (2009), 557-558.} Accordingly, the fact that insurance is
not required for most activities that have the potential to create large environmental pollution might be the reason for the lack of demand for environmental insurance.

c. Too much reliance on government regulation

As explained earlier, the 2009 EMA has provided several provisions concerning compensation mechanisms. In addition to liability rules, the Act also urges the government to establish regulations concerning mandatory environmental insurance, guarantee fund (*dana jaminan pemulihan*), a mitigation fund (*dana penanggulangan*), and an environmental fund (*dana hibah/bantuan*). In this regard, these regulations are expected to set forth provisions that will make the environmental funds and insurance implementable.

However, the problem is that none of those regulations have been promulgated yet. Ironically, the 2009 EMA has explicitly required the Government to enact all implementing regulations within one year after the Act came into force, i.e. 2010. Obviously, in this particular case, the Government has indeed failed to meet what has been mandated by the 2009 EMA. Due to the absence of those implementing regulations, the compensation mechanisms introduced by the 2009 EMA are not applicable yet.

As a result, litigation, and hence, liability rules become the only way for the victims to get compensation. When the victims are reluctant to file a lawsuit against the polluters, they will not have a clear legal basis to insist for compensation. Without such a legal basis, compensation mechanisms will be uncertain, as a result of which full compensation will become highly unlikely. This is clearly shown when examining the compensation for the victims of the mudflow case.
4.2. An Ideal Compensation Mechanism

The Sidoarjo mudflow has provided at least two important lessons. First, there was something wrong with various court rulings related to the mudflow, especially the *Walhi v. Lapindo, et al.* case. The previous section has quite intensively discussed and criticized the ruling. A consequence from this lesson would suggest the Indonesian court to apply some rules practiced in the US courts in assessing an ‘act of God’ defense. The rules are that a claimed natural event should be a grave natural disaster, that the event should be unforeseeable, reasonably unanticipated, and unpreventable, and that the event should be the sole cause of the incurred losses, without contribution of human intervention either in the form of a negligence act or human activities.

The second lesson from the previous discussions is that, having experienced the failure of the current compensation system to provide adequate, prompt, and just compensation for the victims, there is an urgent need for the government to establish an idealized compensation mechanism.

Theoretically, an excellent compensation system is the one that provides several alternatives for compensation. In this regard, one may first refer to the 1993 EC Green Paper on Remedying Environmental Damage. The *Green Paper* explains not only the development of liability rules for environmental pollution in Europe, but also explains various factors that may prevent liability rules to work effectively. According to the Green Paper, liability rules can only work effectively if the following conditions are met: *First*, the damage is calculable and is not latent. *Second*, the damage results from certain activities or incidents, and not from the accumulation of various activities or incidents. *Third*, the damage was caused by an identifiable party, being held liable according to the negligence rule or strict liability.\(^{188}\)

When these conditions are not met, hence, the system of liability fails to function as an effective compensation mechanism, the Green Paper promotes the use of compensation funds.\textsuperscript{189}

In addition to liability rules and a compensation fund, a good compensation system might also include a liability insurance scheme, some alternatives to liability insurance, and some types of compensation fund. Various studies have, for example, proposed that a liability insurance scheme might be complemented with some alternative schemes, such as risk sharing agreement, first party insurance, and environmental damage insurance. In addition to these alternatives for liability insurance scheme, a compensation fund system could also be employed. Such a compensation fund system might be of high importance when the polluters’ assets are less than the damage, when the victims are unable to get compensation through civil liability system, when there are valid legal reasons for the polluters to escape liability, when the polluters are thought to be liable as much as their contribution to the available fund, when the victims are considered to be better compensated in advance of an accident, or when it is considered that the compensation system might be better functioning if it is included in general compensation system organized or provided by the state. A compensation fund system may, hence, take forms as guarantee funds, complementary and autonomous funds, limitation funds, advancement funds, general compensation system, and direct compensation by the state.\textsuperscript{190}

\textsuperscript{189}Id., at 28. The term used by the EC Green Paper to refer to the compensation fund is “Joint Compensation Mechanisms”.

These reflections concerning the ideal compensation system lead to several important lessons. In the first place, a good compensation system should seek to provide the victims of environmental pollution with prompt and adequate compensation. To achieve this goal, a good compensation system should always be bound to the polluter-pays principle, in the sense that it is the polluter who should eventually bear the costs of pollution. Secondly, a good compensation system should consist of not only liability rules, but also several alternatives that will be exerted whenever it is expected that liability rules will not work effectively.

Unfortunately, compensation in Indonesia is still far from such an idealized compensation system. The Indonesian compensation system for environmental pollution relies heavily on liability rules. Mandatory liability insurance is still rarely in place, while voluntary insurance is rarely used. In addition, although the 2009 environmental management act has stipulated some provisions regarding several forms of compensation funds, these mechanisms are still inapplicable since none of these provisions are implemented through the necessary government regulations. Leaving aside the fact that there are some conflicts between different statutes regarding liability rules, one might argue that liability rules specified within the environmental management act regime are already good enough. Indeed, the environmental management act regime has embraced not only the negligence rule, but also strict liability, equipped with some provisions on NGO’s legal standing, class actions, or even the government’s legal standing, which allow innovations in Indonesian civil procedures. However, as it has been discussed earlier, despite these innovations, reliance on liability rules without the availability of necessary alternatives is very likely to fail to achieve the goal of adequate compensation. In some cases, compensation or environmental recovery

needs to be conducted immediately. In other cases, it might be highly difficult, if not impossible, to attribute damage to certain parties. For the latter case, one might expect that liability rules cannot work effectively.

It should also be noted here that under the Disaster Management Act of 2007, Indonesia has also developed a system of compensation funds, in which the central and local government set aside a certain portion of the national or local budget to be allocated as disaster funds. This can be considered as a positive development in the compensation mechanism for disasters in Indonesia, given the fact that previously compensation was conducted on an ad hoc basis, where no allocation in the national or local budget was given for compensating the victims of disasters. However, under the 2007 Disaster Management Act, man-made disasters are also included in the definition of disasters covered by the Act, such that it might mean that the victims of environmental pollution can also be compensated through these disaster funds. The main problem with this arrangement is that there is no single provision in this act, nor in other acts, requiring the government to file a lawsuit against possible injurers whenever public funds have been used to compensate the victims. This arrangement has the potential to violate the polluter pays principle.

The Sidoarjo mudflow case is indeed an ultimate test for the effectiveness of the current compensation system in Indonesia. Considering the drawbacks of the system, it is not surprising that the system is almost completely paralyzed. No lawsuit against the drilling operators has been submitted by the victims, despite the fact that this lawsuit is the only

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191 The 2007 Disaster Management Act states that the government is responsible to compensate the victims of a disaster. In this regard, the government is responsible, among others, to fulfill the rights of the victims and refugees of a disaster, to rehabilitate the location of a disaster, and to provide financial aid for the victims of the disaster. See: Act No. 24 of 2007, art. 6(c) and (d), and art. 69.

192 In addition, according to the Government Regulation No. 22 of 2008, as an implementing regulation of the 2007 Disaster Management Act, the funds directed for disaster management and compensation take form as general disaster management fund, allocated in the national and local budgets and used in the pre-disaster, emergency, and post-disaster stages. See: Government Regulation No. 22 of 2008, art. 5 paras. 1–3; and art. 6 point f.

See the definition of disaster set for in the 2007 Disaster Management Act, supra note. 182.
viable way for them to get just compensation. Instead, victims have relied on an out-of-court settlement to achieve compensation agreements with Lapindo and the government. This is a very difficult way for the victims. In fact, various out-of-court settlements are doomed to fail due to several factors. First, there are so many victims involved in the case. Second, the victims have various interests, which apparently tend to be more divergent as Lapindo offers several promises. Third, the victims have no equal bargaining position vis a vis the politically and economically powerful drilling company. Fourth, the victims’ lack of bargaining position also arises from the fact that they are in dire need for compensation as the mudflow keeps inundating their properties. Fifth, there are also some clear examples of strategic behavior demonstrated by Lapindo, ranging from breaching its promises to inducing divisions among the victims. Sixth, it is also apparent that the Government cannot force Lapindo to comply with several Presidential Regulations regarding compensation and the control of the mudflow. Not only does the Government lack political will to take over Lapindo’s compensation scheme, the Government has also no firm legal basis to force the company to pay compensation. The only legal basis for this compensation is provided by various Presidential Regulations requiring Lapindo to pay compensation. The problem is, however, the Government itself seems to support Lapindo’s position that the mudflow was caused by natural disaster,¹⁹³ although the Government still forces Lapindo to pay compensation.

¹⁹³In one occasion, Mr. Bachtiar Chamsyah, then the Minister of Social Affairs, commented that “[t]he regulation states that Lapindo is responsible for building and maintaining the embankments. However, the Supreme Court has found the company not guilty of negligence, so this is our responsibility as the government (to resolve the case).” See: Naf, Government to Take Over Mudflow Responsibility, THE JAKARTA POST, June 19, 2009, available at: <http://www.thejakartapost.com/news/2009/06/19/government-take-over-mudflow-responsibility.html-1>. This is of course a misleading statement, since the statement means that the Supreme Court ruling was about the cause of the mudflow. In fact the ruling was on whether the Government and Lapindo were liable for human right violations, especially with respect to the way they managed the mudflow and conducted compensation for the victims of the mudflow. See: YLBHI v. Presiden RI, et al., 2710K/Pdt/2008 (Indonesia Supreme Court, 2008). This ruling is a different case from the Walhi v. Lapindo, et al. case discussed earlier.
5. Concluding Remarks

The Indonesian compensation system has several key problems. It relies heavily on liability rules as the only viable way for the victims of environmental pollution to seek compensation. Liability insurance is not well developed, because mandatory liability insurance is limited only to activities related to nuclear installations and hazardous waste management, while voluntary insurance is not fully welcome by the undertakings. Various compensation funds introduced under the 2009 EMA are not applicable, since these funds require implementing government regulations which are still absent today. Hence, the only compensation fund available is through direct compensation by the state allocated to various disaster funds. However, these funds are rather problematic if used to compensate damage resulting from an allegedly man-made disaster.

The article is of the opinion that there is an urgent need for a major reform of the Indonesian compensation system. The reform is necessary to create a system that embraces not only liability rules, but also several compensation mechanisms. In this regard, liability insurance needs to be developed by introducing more mandatory insurance schemes on the one hand, and preparing the well-suited market for this liability insurance. In addition, compensation funds introduced in the 2009 EMA should immediately put into action through the enactment of unambiguous government regulations.

Indonesian courts inevitably need to make some serious studies regarding various decisions on the ‘act of God’ defense. In this regard, it is important for the Indonesian courts

Another statement supporting Lapindo’s position was also given by Mr. Kusmayanto, then the Minister/Chairman of the State Agency for the Assessment and Application of Technology, BPPT (Badan Pengkajian dan Penerapan Teknologi), who stated that the mudflow was a natural phenomenon, namely a mud volcano. See: K. Budi, *BPPT Simpulkan Lumpur Lapindo Bencana Alam, TEMPO INTERAKTIF*, March 18, 2008, available at: [http://www.tempo.co/read/news/2008/03/18/055119419/BPPT-Simpulkan-Lumpur-Lapindo-Bencana-Alam](http://www.tempo.co/read/news/2008/03/18/055119419/BPPT-Simpulkan-Lumpur-Lapindo-Bencana-Alam). This is clearly a biased statement in favor of Lapindo. As discussed earlier, one could see that although scientists might agree that the mudflow is a form of mud volcano, the majority of them believe that the mud volcano was triggered by the nearby drilling operation, i.e. the one conducted by Lapindo.
to learn from the US courts in resolving the ‘act of God’ defense. For this purpose, the article reveals that various US court decisions the ‘act of God’ defense requires that those who claim for the defense have to prove that the claimed natural forces are grave, unforeseeable, and unanticipated and that the natural forces are the sole cause of the damage and no human intervention or negligence was involved.