



Juridical Analysis of Strict Liability Application in Forest and Land Fire Cases in Central Kalimantan Based on Law Number 32 of 2009

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ABSTRACT

Forest and land fires (*karhutla*) in Central Kalimantan constitute a recurring environmental problem with massive economic, social, and ecological impacts. This research analyzes the application of the strict liability concept in forest and land fire cases in Central Kalimantan based on Law Number 32 of 2009 concerning Environmental Protection and Management. The research employs a normative juridical method with statutory and case approaches. Secondary data was obtained from primary legal materials in the form of legislation, secondary legal materials comprising literature and court decisions, and tertiary legal materials. The research results show that the concept of strict liability as regulated in Article 88 of Law Number 32 of 2009 establishes absolute liability without the requirement to prove fault for activities that pose a serious threat to the environment. Its application has proven effective in the PT Kumai Sentosa case with a compensation ruling of Rp 175.18 billion for environmental restoration covering 3,000 hectares. However, implementation still faces obstacles in proving causal relationships between business activities and forest fires, complexity in calculating ecological damages, inconsistency in court decisions, and weak execution mechanisms. The study urges improved implementation via technology-based evidence, standardized damage calculations, and stronger judicial understanding.

A. INTRODUCTION

Indonesia, as a country with the world's third-largest tropical forest, faces significant challenges in maintaining environmental sustainability. One of the serious threats faced is forest and land fires (*karhutla*) that occur repeatedly every year, particularly in the regions of Kalimantan and Sumatra. Central Kalimantan is one of the provinces most frequently affected by forest fire disasters with significant intensity and area coverage. Data from the

Ministry of Environment and Forestry shows that Central Kalimantan is one of the areas with the highest levels of forest fires in Indonesia. In 2019, the recorded burned area in Central Kalimantan reached 44,769 hectares, while in 2020 it decreased to 2,980 hectares due to high rainfall conditions. However, the threat of forest fires remains a structural problem that requires comprehensive handling, including through effective legal instruments.

The impact of forest fires is not only local but also regional and global.¹ Economically, losses due to forest fires are estimated to reach trillions of rupiah annually, including losses in the agricultural, tourism, transportation, and public health sectors. Ecologically, forest fires cause loss of biodiversity, land degradation, and significant contribution to global greenhouse gas emissions. Socially, forest fires impact public health disruptions due to smoke pollution, disruption of economic activities, and social conflicts related to natural resources.² Most forest fires in Central Kalimantan are caused by human activities, both intentionally and unintentionally³. The practice of land clearing by burning (slash and burn) that is still carried out by plantation companies and communities is the main cause of forest fires. This condition is exacerbated by the characteristics of peat land that is easily ignited and difficult to extinguish, as well as El Nino climate factors that cause prolonged dry seasons.⁴ In the context of law enforcement, forest fire cases are generally handled through two channels: criminal and civil channels. The criminal channel focuses on the criminal aspect of perpetrators, while the civil channel emphasizes compensation and environmental restoration aspects. However, criminal law enforcement often faces obstacles in proving elements of intent and negligence, so many cases cannot be processed to completion.

¹ Harun All Rosit, Ahid Mardhotillah, Regina Aura Delazenitha, Syarifah Mutiarani, and Tiara Vianney Christina Sulle, "Identifikasi dan Mitigasi Kebakaran Hutan dan Lahan melalui Zonasi Wilayah Rawan Kebakaran dengan Teknologi Geospasial," *Widya Bhumi* 3, no. 1 (2023): 17. See too, Ayu Nurul Alfia, Adji Samekto, and Nanik Trihastuti, "Tanggung Jawab Perusahaan Transnasional dalam Kebakaran Hutan di Riau dalam Perspektif Hukum Internasional," *Diponegoro Law Journal* 5, no. 3 (2016): 10.

² Jessica Cassandra, "Fungsi dan Tanggungjawab Pemerintah Dalam Menghadapi Bencana Alam Buatan Berupa Kebakaran Hutan," *Nusantara: Jurnal Pendidikan, Seni, Sains dan Sosial Humaniora* 1, no. 01 (2022): 23.

³ Badan Penanggulangan Bencana Nasional, Kebakaran Hutan dan Lahan Agustus 2023, *Portal Satu Data Bencana Indonesia*, August, 2023. Retrieved in September 22, 2025 from. <https://data.bnpb.go.id/pages/kebakaran-hutan-dan-lahan-agustus-2023#:~:text=Selama%20bulan%20Agustus%202023%20telah,kejadian%20bencana%20selama%20bulan%20Agustus.>

⁴ Yusdiyanto, Budiyo Budiyo, Ahmad Saleh, Dewi Nurhalimah, and Rachel Sophia Joy Aprilia Gultom, "Legal Approaches to Climate Change Mitigation: Evaluating Implementation Strategies and Mainstreaming Efforts," *Pancasila and Law Review* 5, no. 2 (2024): 75. See too, Nilam Firmandayu, and Ayman Alameen Mohammed Abdalrhman, "Spatial Policy Regarding Carbon Trading for Climate Change Mitigation in Indonesia: Environmental Justice Perspective," *Journal of Law, Environmental and Justice* 3, no. 1 (2025): 12.

Considering the limitations of the criminal channel, the civil channel becomes a strategic alternative in handling forest fire cases. Law Number 32 of 2009 concerning Environmental Protection and Management introduces the principle of strict liability or absolute responsibility in Article 88, which provides that any person whose actions, business, and/or activities involve the use of hazardous and toxic materials (B3), generate and/or manage B3 waste, and/or create a serious threat to the environment shall be held fully liable for any losses incurred, without the necessity of proving fault. In addition to Article 88 on strict liability, there are several other articles in Law Number 32 of 2009 that are relevant to forest fire cases.⁵ Article 87 paragraph (1) regulates that every person responsible for business and/or activities who commits unlawful acts in the form of environmental pollution and/or destruction that causes harm to others or the environment must pay compensation and/or take certain actions. Article 87 paragraph (2) determines that environmental dispute resolution can be pursued through court or out-of-court proceedings, providing flexibility in dispute resolution mechanisms. Article 90 paragraph (1) of Law Number 32 of 2009 regulates the compensation payment mechanism, stating that government agencies and regional governments responsible for the environment have the authority to file compensation lawsuits and certain actions against businesses and/or activities that cause environmental pollution and/or damage. Article 91 regulates the right to sue by environmental organizations, allowing environmental NGOs to file lawsuits if they meet certain requirements.

In the context of forest fires, Article 69 paragraph (1) letter h of Law Number 32 of 2009 explicitly prohibits land clearing by burning.⁶ Violations of this provision can become the basis for civil lawsuits by applying the strict liability concept. Article 78 paragraphs (1) and (2) regulate the obligation to restore environmental functions, which is relevant to compensation claims in the form of restoring ecosystems damaged by forest fires.⁷ The concept of strict liability is an important breakthrough in Indonesian environmental law because it facilitates plaintiffs in obtaining compensation without having to

⁵ Serlika Aprita, Syamsul Syamsul, and Shafa Nabila Utami, "Implementasi Undang-Undang Nomor 32 Tahun 2009 dalam Pencegahan Masalah Lingkungan di Kelurahan Tanjung Raja Timur," *Samakta: Jurnal Pengabdian Kepada Masyarakat* 1, no. 2 (2024): 66. See too, Muhammad Ainurrasyid Al Fikri, Fatma Ulfatun Najicha, and I. Gusti Ayu Ketut Rachmi Handayani, "Penerapan Strict liability oleh perusahaan dalam rangka konservasi lingkungan hidup di Indonesia," *Indonesian State Law Review* 5, no. 1 (2022): 4.

⁶ Lalu Sabardi, "Peran serta masyarakat dalam pengelolaan lingkungan hidup menurut Undang-undang Nomor 32 Tahun 2009 tentang Perlindungan dan pengelolaan lingkungan hidup," *Yustisia Jurnal Hukum* 3, no. 1 (2014): 84.

⁷ Harun All Rosit, Ahid Mardhotillah, Regina Aura Delazenitha, Syarifah Mutiarani, and Tiara Vianney Christina Sulle, "Identifikasi dan Mitigasi Kebakaran Hutan dan Lahan melalui Zonasi Wilayah Rawan Kebakaran dengan Teknologi Geospasial," *Widya Bhumi* 3, no. 1 (2023): 19.

prove fault from the defendant.⁸ This aligns with international environmental law principles such as the polluter pays principle and the precautionary principle. However, the application of strict liability in practice still faces various challenges, both conceptually, technically, and implementatively.⁹ Several forest fire cases in Central Kalimantan have been resolved through civil channels by applying the strict liability concept.¹⁰ One case that received wide attention is the lawsuit by the Ministry of Environment and Forestry against PT Kumai Sentosa regarding forest fires covering 3,000 hectares in West Kotawaringin Regency, Central Kalimantan. The Palangka Raya High Court won the lawsuit and ordered PT Kumai Sentosa to pay compensation of Rp 175.18 billion for environmental restoration.

The PT Kumai Sentosa case shows that the application of strict liability in forest fire cases can provide effective results in obtaining compensation for environmental restoration. However, there are still various problems in its implementation, such as the difficulty of determining causal relationships between business activities and the occurrence of forest fires, complexity in calculating ecological losses, and challenges in executing court decisions. Furthermore, there is still inconsistency in the application of strict liability by courts. Some court decisions still require proof of fault elements even though normatively strict liability does not require such proof. This shows the need for a deeper understanding of the strict liability concept and its implementation in the context of forest fire cases. From a theoretical perspective, the application of strict liability in forest fire cases also raises academic debate. On one hand, strict liability is considered an effective tool for speeding up compensation and environmental restoration. On the other hand, critics argue that it can place a heavy burden on businesses and may potentially discourage investment in the forestry and plantation sectors.

Based on the above description, the application of strict liability in forest fire cases in Central Kalimantan based on Law Number 32 of 2009 is a complex and multidimensional issue that requires in-depth study. This research is important to analyze the effectiveness of strict liability application, identify

⁸ Diah Ayu Rachma, and Aditya Mochamad Triwibowo, "Penerapan Prinsip Strict Liability dalam Penegakan Hukum Lingkungan di Indonesia," *Jurnal Yudisial* 16, no. 1 (2023): 112. See too, Efa Laela Fakhriah, "Inklusivitas Penegakan Hukum Lingkungan Melalui Tanggung Jawab Mutlak: Suatu Tinjauan Terhadap Gugatan Kebakaran Hutan Di Indonesia," *ADHAPER: Jurnal Hukum Acara Perdata* 2, no. 5 (2017): 354.

⁹ Ryan Hendrich Dharma Wijaya, "Applying the Principle of Strict Liability in Environmental Protection," *Ajudikasi: Jurnal Ilmu Hukum* 6, no. 3 (2024): 246. See too, Sutia Fadli, T. Nazaruddin T. Nazaruddin, and Mukhlis Mukhlis, "Tanggungjawab Negara terhadap Kebakaran Hutan di Indonesia Ditinjau dari Perspektif Hukum Internasional," *Suloh: Jurnal Fakultas Hukum Universitas Malikussaleh* 7, no. 2 (2019): 50.

¹⁰ Muhammad Ainurrasyid Al Fikri, Fatma Ulfatun Najicha, and I. Gusti Ayu Ketut Rachmi Handayani, "Penerapan Strict liability oleh perusahaan dalam rangka konservasi lingkungan hidup di Indonesia," *Indonesian State Law Review* 5, no. 1 (2022): 5.

obstacles faced, and formulate recommendations for optimizing its implementation in the future. This research focuses on the following questions based on the background above how is the concept of strict liability regulated in Law Number 32 of 2009 on Environmental Protection and Management, and how is strict liability applied in forest and land fire cases in Central Kalimantan?

B. RESEARCH METHODS

This research uses a normative legal research approach that focuses on the analysis of legal norms, legal principles, and legal doctrines related to strict liability in the context of environmental protection. Specifically, this research analyzes the implementation of the strict liability concept in forest and land fire cases in Central Kalimantan based on Law Number 32 of 2009 concerning Environmental Protection and Management. Normative legal research was chosen because the issues studied relate to normative gaps, normative ambiguities, and normative conflicts in the implementation of strict environmental liability. This methodology is specifically designed for normative legal research that examines the evidentiary, economic, and implementation aspects of strict environmental liability. This methodology encompasses a multidimensional research approach (statute approach, case approach, conceptual approach, and comparative approach) that aligns with the characteristics of normative legal research. Legal sources are systematically categorized from primary to tertiary legal materials, using collection and analysis techniques that comply with academic legal research standards. Secondary data was obtained from primary legal materials in the form of legislation, secondary legal materials comprising literature and court decisions, and tertiary legal materials.

C. DISCUSSION

1. The Concept of Strict Liability as Regulated in Law Number 32 Of 2009 on Environmental Protection

The concept of strict liability in Law Number 32 of 2009 on Environmental Protection and Management is specifically regulated in two main articles, namely Article 87 and Article 88. Article 87 paragraph (1) of Law Number 32 of 2009 states that: "Any person in charge of a business and/or activity who commits an unlawful act in the form of environmental pollution and/or destruction that causes harm to other people or the environment shall be obliged to pay compensation and/or take certain actions." This provision governs fault-based liability, which requires the existence of an unlawful act. Meanwhile, Article 88 of Law Number 32 of 2009 regulates the principle of strict liability, which states: "Any person whose actions, business, and/or activities use hazardous and toxic substances (B3), produce and/or manage

hazardous and toxic waste (B3 waste), and/or pose a serious threat to the environment shall be absolutely liable for any loss that occurs without the need to prove fault.”¹¹

The strict liability regulation in Article 88 has special characteristics in that liability applies automatically without the need to prove negligence or fault by the business actor. This provision clearly imposes liability on the basis of strict liability, whereby pollution and environmental destruction become the absolute responsibility of the polluter or actor engaged in high-risk activities such as the use of hazardous and toxic substances (B3) or the management of B3 waste. This regulation aims to provide stronger legal protection for the environment by making it easier for victims to obtain compensation, as they are no longer required to prove fault on the part of the polluter or destroyer of the environment. The concept of strict liability in Law Number 32 of 2009 on Environmental Protection and Management is a principle of absolute liability imposed on business actors or activities that cause negative impacts on the environment.¹²

Under this concept, an individual or legal entity can be held liable for environmental damage resulting from its business activities without the need to prove fault or negligence. The principle of strict liability applies in particular to business activities that have significant environmental impacts, use hazardous and toxic substances, or produce hazardous and toxic waste.¹³ In this case, polluters or environmental destroyers must pay compensation directly and immediately when environmental pollution or destruction occurs. This concept is intended to provide stronger protection for the environment and society; while also encouraging business actors Efforts to be more cautious in carrying out activities are necessary to prevent negative impacts on the environment. The application of strict liability also aims to make it easier for victims of environmental pollution or damage to claim compensation, as they are not required to prove fault on the part of the polluter, but only to prove a causal link between the business activity and the resulting environmental damage.

The concept of strict liability in Law Number 32 of 2009 on Environmental Protection and Management (*Undang-Undang Perlindungan dan Pengelolaan Lingkungan Hidup/UUPPLH*) is a legal liability system that

¹¹ Angger Darmawan, Rahtami Susanti, and Ika Ariani Kartini, “Penyelesaian Kasus Pembakaran Lahan Tanpa Izin Menurut Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan dan Pengelolaan Lingkungan Hidup (Studi Kasus di Kota Prabumulih Provinsi Sumatra Selatan),” *UMPurwokerto Law Review* 4, no. 1 (2023): 31.

¹² Lalu Sabardi, “Peran serta masyarakat dalam pengelolaan lingkungan hidup menurut Undang-undang Nomor 32 Tahun 2009 tentang Perlindungan dan pengelolaan lingkungan hidup,” *Yustisia Jurnal Hukum* 3, no. 1 (2014): 86.

¹³ Diah Ayu Rachma, and Aditya Mochamad Triwibowo, “Penerapan Prinsip Strict Liability dalam Penegakan Hukum Lingkungan di Indonesia,” *Jurnal Yudisial* 16, no. 1 (2023): 113.

plays a crucial role in environmental protection.¹⁴ In general, strict liability refers to the legal concept of absolute liability (liability without fault), a type of offense in which the element of fault is not required for punishment, but only the existence of an act is required. In the context of environmental law, this concept shifts the burden of proof from the victim to the party suspected of polluting or damaging the environment. The concept of strict liability in the UUPPLH is regulated in two main, complementary articles: Article 87 and Article 88. Article 87 regulates fault-based liability, while Article 88 regulates strict liability. Article 88 stipulates that any individual whose actions, business, or activities involve the use of hazardous and toxic materials (B3), the generation and/or management of B3 waste, or the creation of a serious environmental threat is held strictly liable for any resulting losses, without requiring proof of fault.

The concept of strict liability has several characteristics that distinguish it from ordinary legal liability. In this procedure, the plaintiff does not need to prove fault. The defendant can escape responsibility if the loss or damage occurred due to the actions of another party. This means that victims of pollution or environmental damage do not need to prove fault or negligence on the part of the business actor; instead, they only need to prove a causal relationship between the business activity and the environmental damage. The strict liability provisions in the Environmental Management Law (UUPPLH) do not apply to all types of business activities, but are instead limited to certain categories that pose a high risk to the environment. This provision applies specifically to business activities that use hazardous and toxic materials, generate or manage hazardous and toxic waste, and activities that pose a serious threat to the environment. This limitation is intended to provide legal certainty for business actors while still providing optimal environmental protection.

The strict liability provisions in the Environmental Management Law (*Undang-Undang Perlindungan dan Pengelolaan Lingkungan Hidup*/UUPPLH) aim to provide more effective legal protection for the environment and communities affected by pollution or environmental damage. This requires proof, whether a causal relationship between fault and loss (liability based on faults) or without the need for proof of fault (liability without faults/strict liability). Law Number 32 of 2009 provides flexibility in resolving environmental disputes.¹⁵ This concept also encourages businesses to be more careful in

¹⁴ Lalu Sabardi, "Peran serta masyarakat dalam pengelolaan lingkungan hidup menurut Undang-undang Nomor 32 Tahun 2009 tentang Perlindungan dan pengelolaan lingkungan hidup," *Yustisia Jurnal Hukum* 3, no. 1 (2014): 87.

¹⁵ Lalu Sabardi, "Peran serta masyarakat dalam pengelolaan lingkungan hidup menurut Undang-undang Nomor 32 Tahun 2009 tentang Perlindungan dan pengelolaan lingkungan hidup," *Yustisia Jurnal Hukum* 3, no. 1 (2014): 87.

carrying out their activities and implement the precautionary principle in environmental management. In practice, strict liability makes it easier for victims to claim compensation because they no longer need to prove fault on the part of the polluter.¹⁶ Victims only need to prove that a particular business activity caused environmental damage and the losses they suffered. This provides a fairer balance between the generally economically and technically weak position of victims and businesses with greater resources. The Indonesian Civil Procedure Law system, which still relies on the HIR and RBg, does not recognize environmental civil proceedings with strict liability. Therefore, the provisions in the UUPPLH represent a significant breakthrough in the Indonesian legal system. This demonstrates that lawmakers have recognized the need for a more effective environmental protection mechanism than the traditional fault-based liability system. Thus, the concept of strict liability in Law Number 32 of 2009 represents a progressive and responsive legal framework for environmental protection in Indonesia, emphasizing the prevention of environmental harm and ensuring more accessible compensation for victims of environmental pollution or damage.¹⁷

2. Application of Strict Liability in Forest and Land Fires Cases in Central Kalimantan

The application of strict liability in forest and land fire cases in Central Kalimantan is an important legal concept for understanding accountability without requiring proof of fault. The application of the strict liability principle in forest and land fire cases in Central Kalimantan demonstrates the complex legal dynamics in enforcing environmental liability.¹⁸ Based on various cases that have occurred, its implementation faces serious challenges in Indonesian judicial practice. The Ministry of Environment and Forestry has attempted to implement strict liability through civil lawsuits against several large companies operating in Central Kalimantan. In its research on the application of strict liability, the Ministry of Environment and Forestry (*Kementerian Lingkungan Hidup dan Kehutanan*/KLHK) has filed lawsuits against PT. Bumi Mekar Hijau (PT. BMH), PT. Waringin Agro Jaya (PT. WAJ), and PT. Nasional Sago Prima (PT. NSP). However, the reality on the ground shows that the application of strict liability remains inconsistent, with the KLHK sometimes using ordinary

¹⁶ Muhammad Ainurrasyid Al Fikri, Fatma Ulfatun Najicha, and I. Gusti Ayu Ketut Rachmi Handayani, "Penerapan Strict liability oleh perusahaan dalam rangka konservasi lingkungan hidup di Indonesia," *Indonesian State Law Review* 5, no. 1 (2022): 3.

¹⁷ Ariawan Gunadi, Gunardi Gunardi, and Martono Martono, "The Law of forest in Indonesia: Prevention and suppression of forest fires," *Bina Hukum Lingkungan* 4, no. 1 (2019): 121.

¹⁸ Cristian Andros, and Gunawan Djajaputera, "Analisis Pertanggungjawaban Pidana Korporasi Pada Pembakaran Lahan Berdasarkan Teori Strict Liability," *UNES Law Review* 6, no. 4 (2024): 10133.

tort claims as the basis for lawsuits, and in other cases using a combination of tort and strict liability.¹⁹

One case that has attracted attention is PT Arjuna Utama Sawit, which operates in Katingan, Central Kalimantan. On October 23, 2019, the Palangkaraya District Court (PN) ruled that this Singaporean palm oil plantation company must pay Rp261 billion in compensation for a land fire case. This decision marks one of the relatively successful applications of the principle of strict liability, where the company is deemed responsible for fires that occur in its concession area without the need to prove intent or negligence. Another significant case is PT Kumai Sentosa, located on the western side of Tanjung Puting National Park. This palm oil company was sentenced to a civil penalty of more than IDR175 billion in compensation for fires in its concession area of approximately 3,000 hectares in 2019. Although the judge's verdict was much lower than the initial demand, it shows that the courts are beginning to apply the principle of strict liability in forest fire cases. However, the implementation of strict liability in Central Kalimantan has also experienced significant setbacks.²⁰ The Supreme Court rejected the prosecutor's appeal in a 2,600-hectare forest and land fire case in Central Kalimantan, acquitting a palm oil company, identified by the initials KS, of its claim for Rp 935 billion in compensation. This Supreme Court ruling highlights inconsistencies in enforcing strict liability and reveals the ongoing presence of legal loopholes that companies may exploit to evade responsibility.

The application of strict liability in Central Kalimantan lies in the difficulty of proving a causal relationship between a company's activities and the fires that occur.²¹ In a strict liability system, the defendant is held responsible if forest fires are included in the risks of its activities/business, so proof of fault is not required. However, defendants often argue that the fires occurred due to other factors. Companies often argue that the fires occurred due to natural

¹⁹ Andri G. Wibisana, "Pertanggungjawaban Perdata untuk Kebakaran Hutan/Lahan: Beberapa Pelajaran dari Menteri Kementerian Lingkungan Hidup dan Kehutanan (KLHK) VS PT. Bumi Mekar Hijau (BMH)," *Bina Hukum Lingkungan* 1, no. 1 (2016): 39. See too, Kementerian Lingkungan Hidup dan Kehutanan, *Apel Kesiapsiagaan Penanggulangan Kebakaran Hutan dan Lahan di Kaltim Tahun 2024*, *PPID KLHK*, 2024, Retrieved in September 22, 2025 from. <https://www.menlhk.go.id/news/apel-kesiapsiagaan-penanggulangan-kebakaran-hutan-dan-lahan-di-kaltim-tahun-2024/>; Kementerian Lingkungan Hidup dan Kehutanan, *Kinerja Pengendalian Kebakaran Hutan dan Lahan Tahun 2023*, *Siaran Pers KLHK*, 2024. Retrieved in September 22, 2025 from. https://kemenlh.go.id/news/main/siaran_pers.

²⁰ Triwanto, Alya Maya Khonsa Rahayu, Achmad Riyadi, and Rizaldi Setyo Prabowo, "Implementasi Hukum Lingkungan dalam Mencegah dan Mengatasi Pencemaran sebagai Upaya Perlindungan Ekosistem," *Jurnal Ilmiah Galuh Justisi* 13, no. 1 (2025): 131.

²¹ Muhammad Ainurrasyid Al Fikri, Fatma Ulfatun Najicha, and I. Gusti Ayu Ketut Rachmi Handayani, "Penerapan Strict liability oleh perusahaan dalam rangka konservasi lingkungan hidup di Indonesia," *Indonesian State Law Review* 5, no. 1 (2022): 6.

factors or the fault of other parties, thus giving rise to debate about the limits of absolute liability. The phenomenon of forest fires in Central Kalimantan

Forest fires have indeed become a chronic problem that requires a firm legal approach.²² Citing data from the Ministry of Environment and Forestry in 2019, the area of forested land throughout Indonesia is 94.1 million hectares or 50.1% of the total land area, but the problem of forest fires is a serious problem. This condition encourages the need for consistent implementation of strict liability to provide a deterrent effect to companies operating in the forestry and plantation sectors.²³ In addition to lawsuits from the government, the people of Central Kalimantan have also begun to use legal channels to demand accountability for forest fires. A group of people from Central Kalimantan sued the government (state) for unlawful acts in forest and land fires. This shows the increasing legal awareness of the community in demanding the right to a healthy environment. However, the implementation of strict liability in Central Kalimantan still faces various systemic obstacles.²⁴ Inconsistencies in court decisions, from the first instance to the cassation appeal to the Supreme Court, demonstrate that the understanding and application of the strict liability principle is not yet uniform among law enforcement agencies. Clear standardization is needed in the application of strict liability, including criteria for determining causal relationships, methods for calculating compensation, and mechanisms for executing decisions so that the principle of strict liability can function effectively as an environmental protection instrument in Central Kalimantan.²⁵

Strict liability is a legal principle that holds a perpetrator accountable for losses incurred without the need to prove fault, negligence, or intent. In the context of forest and land fires, this principle means that the party whose activity caused the fire is fully responsible, no proof of intent or negligence is required, and the assessment of liability focuses on the causal relationship between the activity and the loss. Law Number 32 of 2009 concerning Environmental Protection and Management regulates strict liability in Article 88, which states: "Strict liability for businesses that have a significant impact on the environment applies to activities that use hazardous and toxic materials,

²² Joni Sandri Ritonga, Jelly Leviza, and Dedi Harianto, "Pertanggungjawaban Mutlak Korporasi Sebagai Pelaku Pembakaran Hutan Dan Lahan Yang Mengakibatkan Pencemaran Dan/Atau Kerusakanlingkungan Hidup," *Locus: Jurnal Konsep Ilmu Hukum* 2, no. 4 (2022): 159.

²³ Ryan Hendrich Dharma Wijaya, "Applying the Principle of Strict Liability in Environmental Protection," *Ajudikasi: Jurnal Ilmu Hukum* 6, no. 3 (2024): 248.

²⁴ Yahya Filani, "Penerapan prinsip tanggung jawab mutlak (strict liability) dalam penyelesaian gugatan perbuatan melawan hukum sengketa lingkungan hidup," (PhD diss., Universitas Andalas, 2023).

²⁵ Diah Ayu Rachma, and Aditya Mochamad Triwibowo, "Penerapan Prinsip Strict Liability dalam Penegakan Hukum Lingkungan di Indonesia," *Jurnal Yudisial* 16, no. 1 (2023): 115.

including activities that pose a serious threat to the environment.”²⁶ Regulations related to forest and land fires include Law Number 41 of 1999 concerning Forestry, Government Regulations on Forest Fire Control, and Central Kalimantan Provincial Regulations on Forest and Land Fire Prevention.²⁷

The application of strict liability in forest and land fire cases in Central Kalimantan has shown mixed and inconsistent results.²⁸ On October 23, 2019, the Palangkaraya District Court ruled that Singaporean palm oil company PT Arjuna Utama Sawit must pay Rp 261 billion in compensation for a land fire. A similar case involved PT Kumai Sentosa, which was sentenced to a civil penalty of over Rp 175 billion in compensation for fires in its concession covering approximately 3,000 hectares in 2019. However, its implementation has faced serious obstacles. The Supreme Court rejected the prosecutor's appeal in a case of forest and land fires in Central Kalimantan covering 2,600 hectares, thus acquitting the palm oil company, identified as KS, of its Rp 935 billion compensation claim. This reflects inconsistencies in law enforcement.²⁹ Defendants often claim that fires were caused by other factors, leading companies to attempt to avoid liability by arguing that the fires were not the result of their activities. The Ministry of Environment and Forestry has filed numerous lawsuits against large companies in Central Kalimantan, but the results vary depending on the court's interpretation of the causal relationship between the company's activities and the fires.³⁰ Overall, the application of strict liability in Central Kalimantan is still struggling to establish consistency, with some cases being successful but many encountering obstacles at the enforcement and appeal levels.

Subjects subject to strict liability in forest and land fires in Central Kalimantan include various parties with activities or interests in the burned areas. Palm oil plantation companies are the primary parties most frequently held strictly liable, as in the case of PT Arjuna Utama Sawit and PT Kumai

²⁶ Angger Darmawan, Rahtami Susanti, and Ika Ariani Kartini, “Penyelesaian Kasus Pembakaran Lahan Tanpa Izin Menurut Undang-Undang Nomor 32 Tahun 2009 Tentang Perlindungan dan Pengelolaan Lingkungan Hidup (Studi Kasus di Kota Prabumulih Provinsi Sumatra Selatan),” *UMPurwokerto Law Review* 4, no. 1 (2023): 33.

²⁷ Suwari Akhmaddhian, “Peran pemerintah daerah dalam mewujudkan hutan konservasi berdasarkan Undang-Undang Nomor 41 Tahun 1999 tentang Kehutanan (Studi di Kabupaten Kuningan),” *Jurnal Dinamika Hukum* 13, no. 3 (2013): 449. See too, Ariawan Gunadi, Gunardi Gunardi, and Martono Martono, “The Law of forest in Indonesia: Prevention and suppression of forest fires,” *Bina Hukum Lingkungan* 4, no. 1 (2019): 121.

²⁸ Malvin Edi Darma, and Ahmad Redi, “Penerapan Asas Polluter Pay Principle Dan Strict Liability Terhadap Pelaku Pembakaran Hutan,” *Jurnal Hukum Adigama* 1, no. 1 (2018): 15.

²⁹ Pratomo Beritno, “Efektivitas Penegakan Hukum Terhadap Pembakaran Hutan Dan Lahan Di Kalimantan Tengah,” *Jurnal Ilmu Hukum Tambun Bungai* 4, no. 2 (2019): 235.

³⁰ Andri G. Wibisana, “Pertanggungjawaban Perdata untuk Kebakaran Hutan/Lahan: Beberapa Pelajaran dari Menteri Kementerian Lingkungan Hidup dan Kehutanan (KLHK) VS PT. Bumi Mekar Hijau (BMH),” *Bina Hukum Lingkungan* 1, no. 1 (2016): 39.

Sentosa, which were sentenced to hundreds of billions of rupiah in compensation. Industrial Plantation Forest companies also fall into this category because they manage large-scale forest areas for commercial purposes.

Forest concession holders, whether for the exploitation of timber or other forest products, can be subject to strict liability when fires occur in their concession areas without the need to prove intent or negligence.³¹ Mining companies that Companies operating in Central Kalimantan are also potential victims, especially if their mining activities contribute to conditions that facilitate forest fires.³² Not only large companies, but also individuals or community groups who burn land for agricultural purposes or land clearing are subject to strict liability. Local governments can even be subject to lawsuits if proven negligent in preventing and handling fires. Forest fires within their jurisdiction. In some cases, multiple parties may be held jointly liable when fires involve overlapping or interconnected areas. Strict liability can be applied if a fire occurs in a concession/permit area, there is a causal relationship between the activity and the fire, it causes significant environmental damage, and it impacts public health.³³

Subjects of strict liability include plantation companies, such as palm oil and industrial timber plantation enterprises; forest concession holders; mining companies; and individuals or community groups who carry out land and forest burning activities.³⁴ In strict liability, the plaintiff faces a relatively low burden of proof compared to traditional negligence-based lawsuits fires. The plaintiff only needs to prove three basic elements: first, that the defendant engaged in an activity legally categorized as high-risk or dangerous; second, that the loss or injury actually occurred; and third, that there is a direct causal link between the dangerous activity and the loss suffered. What distinguishes strict liability from the burden of proof is that the plaintiff does not need to prove fault, negligence, or malice on the part of the defendant.³⁵ This system of proof

³¹ Nola Elfi Tumangger, Elita Rahmi, and Hartati Hartati, "Enforcement of strict liability principles in cases environmental law in indonesia: penegakan prinsip strict liability pada kasus hukum lingkungan di Indonesia," *Mendapo: Journal of Administrative Law* 5, no. 1 (2024): 74.

³² Sutia Fadli, T. Nazaruddin T. Nazaruddin, and Mukhlis Mukhlis, "Tanggungjawab Negara terhadap Kebakaran Hutan di Indonesia Ditinjau dari Perspektif Hukum Internasional," *Suloh: Jurnal Fakultas Hukum Universitas Malikussaleh* 7, no. 2 (2019): 51.

³³ Muh Farhan Arfandy, and Ranggalawe Suryasaladin, "Analisis Kritis Strict Liability Dalam Berbagai Peraturan Perundang-Undangan Di Indonesia," *Indonesian Journal of Criminal Law* 4, no. 3 (2024): 125.

³⁴ Rini Purwaningsih, and Achmad Cholidin, "Pertanggungjawaban Korporasi Dalam Tindak Pidana Lingkungan Terhadap Kebakaran Hutan dan Lahan Yang Berdampak Dilampauinya Baku Mutu Kerusakan Lingkungan Hidup," *Al-Qisth Law Review* 7, no. 2 (2024): 283.

³⁵ Bayu Haritia, "Penerapan Asas Strict Liability dalam Tindak Pidana Kebakaran Hutan dan Lahan Yang Dilakukan oleh Korporasi," *Recidive: Jurnal Hukum Pidana dan Penanggulangan Kejahatan* 8, no. 2 (2019): 117.

reverses the burden of risk, where the defendant engaging in the dangerous activity must bear the legal consequences regardless of the level of care exercised. However, the defendant can still file a defense in the form of force majeure, the victim's own fault, or proving the absence of a causal relationship between his activities and the losses incurred.³⁶ This evidentiary approach is designed to provide optimal protection to victims while encouraging perpetrators of high-risk activities to take maximum precautionary measures in carrying out their activities, determining the causal relationship between activities and fires, namely; The causal relationship between activities and fires in the context of strict liability must be proven through a clear and legally accountable chain of causes and effects.³⁷ The plaintiff must show that the defendant's high-risk activity was a direct cause or a significant contributing cause to the fire. To prove this causal relationship, two types of causality must be established.

The first is factual causality, or "but-for causation," where the fire would not have occurred without the activity. The second is legal causality, or "proximate cause," which assesses whether the fire was a reasonably foreseeable consequence of the risky activity. For example, if a chemical plant stores flammable materials and a fire occurs, a causal relationship can be proven through forensic analysis showing that the source of the fire originated in the storage area. However, a causal relationship can be broken if it is proven that an unforeseen external factor, such as sabotage or a natural disaster, was the independent cause of the fire.³⁸ Proving this causal relationship often requires expert assistance to analyze the fire's spread pattern, starting point, and other technical factors that can link the defendant's activities to the resulting losses.

Measuring the magnitude of environmental losses Measuring the magnitude of environmental losses is a complex process that combines scientific, economic, and legal assessments to determine appropriate compensation for ecosystem damage. Calculating these losses involves several key components that must be systematically identified and quantified.³⁹ The first component is direct losses, which can be physically measured, such as the area of contaminated land, the volume of contaminated soil or water, the

³⁶ William C. Hennings, Sarah A. Abdellatif, and Awad S. Hanna, "Proper risk allocation: Force majeure clause," *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction* 14, no. 1 (2022): 248.

³⁷ Malvin Edi Darma, and Ahmad Redi, "Penerapan Asas Polluter Pay Principle Dan Strict Liability Terhadap Pelaku Pembakaran Hutan," *Jurnal Hukum Adigama* 1, no. 1 (2018): 17.

³⁸ Ariel Jacoby, "Burning down the House: Analyzing California's Inverse Condemnation Strict Liability Rule for Utility-Caused Wildfires," *S. Cal. Interdisc. LJ* 31 (2021): 107.

³⁹ Alessandra La Notte, and Charles Rhodes, "The theoretical frameworks behind integrated environmental, ecosystem, and economic accounting systems and their classifications," *Environmental Impact Assessment Review* 80 (2020): 106.

number of dead or damaged flora and fauna, and the degradation of air quality. This assessment requires in-depth field surveys and laboratory analysis to determine the extent of damage and the concentration of hazardous substances remaining in the environment. The second component is indirect losses, which are more difficult to quantify, including the loss of ecosystem functions such as carbon sequestration, water regulation, natural pollination, and other environmental services.

Environmental economists use valuation methods such as the replacement cost method, the travel cost method, or contingent valuation to assign a monetary value to lost ecosystem functions. Temporal aspects are also important considerations, with losses calculated based on the timeframe for environmental recovery. Some damage may be permanent or require decades to fully recover, so loss calculations must account for the time value of damage and inflation. Furthermore, the costs of environmental restoration and rehabilitation, including the necessary remediation technologies, are an integral part of the total amount of damage that must be paid as compensation. Proving the boundaries of the area of responsibility Proving the boundaries of the area of responsibility in environmental strict liability cases requires establishing a clear geographic zone where the impact of the damage can be directly attributed to the defendant's activities.⁴⁰ This process involves scientific impact mapping to determine the extent to which the harmful activity spreads and affects the surrounding environment. Determining the boundaries of the area begins with identifying the source point or epicenter of the harmful activity, followed by analyzing the spread of the impact through various media such as air, land, and water.⁴¹ Environmental experts Using pollutant dispersion modeling, hydrological analysis, and meteorological studies to map how contaminants spread from their source. Technologies such as GPS mapping, remote sensing, and Geographic Information Systems (GIS) help create accurate visualizations of impacted areas. In a legal context, liability boundaries do not always follow administrative boundaries such as sub-districts or districts, but rather are based on the scientific trail of the impact. For example, water pollution can follow a river that crosses several administrative areas, so legal liability follows the contamination path. Factors such as topography, dominant wind direction, and local geological characteristics are important determinants in establishing the boundaries of

⁴⁰ Ryan Hendrich Dharma Wijaya, "Applying the Principle of Strict Liability in Environmental Protection," *Ajudikasi: Jurnal Ilmu Hukum* 6, no. 3 (2024): 249. See too, Panca Sarjana Putra, "The Corporate Liability as Perpetrator of Environmental Pollution Crime," *Jurnal Akta* 11, no. 2 (2024): 467.

⁴¹ Hafrida, Helmi, and Bunga Permatasari, "The implementation of the strict-liability principle to the perpetrators of forest and land burning," *Padjadjaran Jurnal Ilmu Hukum (Journal of Law)* 7, no. 03 (2020): 321.

this area. Strong scientific evidence is required to demonstrate that damage in a specific area is indeed caused by the defendant's activities and not by other sources. This includes pollutant concentration analysis, environmental baseline studies prior to the activity, and comparisons with unaffected control areas to ensure the accuracy of the responsibility area boundaries.

The economic aspects of environmental strict liability encompass various complex financial dimensions, from calculating losses to compensatory mechanisms for those involved in high-risk activities.⁴² This dimension involves not only a monetary valuation of the damage that has occurred but also projections of the long-term costs of remediation and prevention of similar damage in the future. The calculation of economic losses includes direct costs such as environmental cleanup and remediation, medical treatment for affected victims, and compensation for the loss of livelihoods for local communities. Indirect costs include lost regional economic productivity, decreased property values in the affected area, losses to the tourism sector, and the loss of long-term economic potential due to natural resource degradation. Valuations must also include the opportunity cost of resources that could have been used for other productive activities. From a business perspective, strict liability creates an economic incentive to invest in prevention technology and improved risk management systems.⁴³ While initial compliance costs may be high, it can reduce exposure to potentially much larger compensation claims.

Environmental insurance and environmental bonding mechanisms are important financial instruments for transferring this economic risk. The distribution of the economic burden is also taken into consideration, with the "polluter pays" principle ensuring that the costs of environmental externalities are internalized into the company's cost structure. This encourages efficient allocation of economic resources and creates a market mechanism that better reflects the true cost of production, including the resulting environmental impacts.

3. Community Participation

The implementation of strict environmental liability imposes a heavy financial burden on business actors. The financial consequences may reach

⁴² Nola Elfi Tumangger, Elita Rahmi, and Hartati Hartati, "Enforcement of strict liability principles in cases environmental law in Indonesia: penegakan prinsip strict liability pada kasus hukum lingkungan di Indonesia," *Mendapo: Journal of Administrative Law* 5, no. 1 (2024): 73. See too, Agus Widodo, and Mohammad Belayet Hossain, "The Reconstructing Legal Policies of The Management and Control of Environmental Impacts for Industrial Areas in Urban of Central Java," *International Journal of Law Reconstruction* 6, no. 2 (2022): 244.

⁴³ Bayu Haritia, "Penerapan Asas Strict Liability dalam Tindak Pidana Kebakaran Hutan dan Lahan Yang Dilakukan oleh Korporasi," *Recidive: Jurnal Hukum Pidana dan Penanggulangan Kejahatan* 8, no. 2 (2019): 113.

very significant proportions and even threaten corporate survival, particularly for small and medium enterprises that lack adequate capital reserves.⁴⁴ The uncertainty of the amount of compensation to be paid creates a difficult-to-predict financial risk, because calculating environmental damage often involves complex, long-term valuations and can reach billions of rupiah for major cases. The cost structure that must be borne includes multiple layers with different time levels. Immediate response costs such as emergency cleanup and medical treatment for victims must be paid immediately after the incident occurs. This is followed by long-term remediation costs, which can last for years, such as soil treatment, groundwater restoration, and ecosystem rehabilitation. Furthermore, there are ongoing monitoring costs to ensure the effectiveness of remediation efforts and prevent recurrence of damage. The financial impact is not limited to direct compensation but also includes additional operational costs such as increased insurance premiums, legal and expert witness fees, and potential business disruption during the litigation process. Reputational damage can lead to long-term revenue declines, difficulty accessing capital markets, and increased borrowing costs due to a lowered credit rating. For certain industrial sectors, such as mining, chemicals, or heavy manufacturing, this burden can create high barriers to entry and drive industry consolidation, with only large companies with deep pockets able to survive. This situation requires strategic financial planning, including the establishment of environmental reserve funds and comprehensive insurance coverage to mitigate risks.

In response to these financial pressures, resistance from industry toward the implementation of strict environmental liability has emerged in various systematic and organized forms. Such resistance ranges from political lobbying aimed at weakening environmental regulations to legal strategies intended to avoid or minimize liability. Industry often argues that strict liability will hamper economic growth and investment, creating a climate of fear that can encourage capital flight to countries with looser environmental regulations.⁴⁵ This resistance is often manifested through the formation of industry coalitions that advocate for a more flexible regulatory framework, with an emphasis on a fault-based liability approach that provides broader room for defense. They also tend to encourage the adoption of self-regulatory mechanisms and voluntary compliance programs as alternatives to mandatory strict liability regimes, arguing that industry better understands the technical

⁴⁴ Piatur Pangaribuan, and Muhammad Zamhuri, "Pertanggungjawaban Hukum Korporasi Terhadap Kebakaran Hutan Dan Lahan Yang Menyebabkan Kerusakan Lingkungan Hidup Di Kalimantan Timur Dan Kalimantan Utara," *Journal de Facto* 5, no. 2 (2018): 180.

⁴⁵ Muhammad Ainurrasyid Al Fikri, Fatma Ulfatun Najicha, and I. Gusti Ayu Ketut Rachmi Handayani, "Penerapan Strict liability oleh perusahaan dalam rangka konservasi lingkungan hidup di Indonesia," *Indonesian State Law Review* 5, no. 1 (2022): 7.

complexities of their operations.⁴⁶ From a technical perspective, industry often challenges scientific evidence. The industry has also developed defensive strategies through corporate restructuring, such as separating high-risk assets into limited liability subsidiary companies, transferring risky operations to jurisdictions with weaker legal protections, and using complex corporate structures to complicate accountability.⁴⁷ This resistance creates implementation challenges that require a more sophisticated regulatory response and stronger enforcement mechanisms.

Against this backdrop, the availability of an adequate environmental insurance mechanism becomes a crucial instrument in the effective implementation of strict environmental liability. Environmental insurance functions as a financial bridge between a company's ability to pay and the potentially enormous scale of environmental losses.⁴⁸ Without a robust insurance system, many companies will face the risk of sudden bankruptcy when an environmental incident occurs, which is actually detrimental to victims because there is no accessible source of compensation. The design of environmental insurance requires a different approach than conventional insurance, because environmental damage has unique characteristics such as long tail claims where the impact is only detected years later, uncertainty in the calculation of losses, and the potential for massive aggregate losses from a single event. Insurance pool mechanisms provide a solution where multiple insurers share the risk, while government backstops can provide coverage for catastrophic events that exceed the capacity of the private insurance market. Insurance premium structures should reflect accurate risk-based pricing, where companies with a good safety record and adequate investment in preventative technology are incentivized to pay lower premiums. Conversely, high-risk companies will face substantial premiums, creating a market mechanism to encourage behavioral change toward more environmentally friendly practices. The regulatory framework also needs to accommodate mandatory insurance requirements for high-risk sectors, with minimum coverage amounts tailored to the maximum potential impact of those activities. Financial guarantee mechanisms such as surety bonds or captive insurance

⁴⁶ Bayu Haritia, "Penerapan Asas Strict Liability dalam Tindak Pidana Kebakaran Hutan dan Lahan Yang Dilakukan oleh Korporasi," *Recidive: Jurnal Hukum Pidana dan Penanggulangan Kejahatan* 8, no. 2 (2019): 115. See too, Nita Triana, Ade Tuti Turistiati, and Lincoln Monk, "Progressivity of Judges in Using The Principle of Strict Liability as A Legal Reasoning in Forest Fire Cases," *Varia Justicia* 19, no. 2 (2023): 121.

⁴⁷ Piatur Pangaribuan, and Muhammad Zamhuri, "Pertanggungjawaban Hukum Korporasi Terhadap Kebakaran Hutan Dan Lahan Yang Menyebabkan Kerusakan Lingkungan Hidup Di Kalimantan Timur Dan Kalimantan Utara," *Journal de Facto* 5, no. 2 (2018): 180.

⁴⁸ Aleksey Pavlovich Anisimov, Buynta Injieva, and Anatoliy Ryzhenkov, "Environmental insurance in the mechanism of environmental protection in Russia: how to improve its efficiency with the help of law?," *Journal of Property, Planning and Environmental Law* 15, no. 3 (2023): 135.

companies can be an alternative for large companies with self-insurance capabilities, ensuring the availability of a liquid and readily accessible source of compensation when needed.

Beyond financial and insurance considerations, strengthening regulations is essential to ensure the effective enforcement of strict environmental liability. Regulatory reform requires a comprehensive transformation of the existing legal framework, encompassing improvements in legal substance and institutional capacity.⁴⁹ Strong regulations must provide legal certainty for all parties while ensuring optimal environmental protection and easy access to justice for victims of environmental damage.⁵⁰ Harmonization of laws and regulations is a top priority, given that overlapping authority between various agencies and levels of government often creates legal gaps that can be exploited by business actors to avoid accountability. Integration between the Environmental Law, the Mining Law, the Industrial Law, and other sectoral regulations needs to be strengthened with a clear hierarchy of norms and an effective inter-agency coordination mechanism. Procedural law also requires strengthening, including simplified class action procedures to facilitate collective community lawsuits, specialized environmental courts with judges with technical expertise, and faster and more cost-effective alternative dispute resolution mechanisms. A more favorable burden of proof for victims needs to be explicitly regulated, including the presumption of causation in certain cases and a reversed burden of proof for technical matters that are easier for business actors to prove. Enforcement mechanisms need to be strengthened through increased investigative capacity, the establishment of specialized environmental prosecution units, and the development of scientific evidence-gathering capabilities. Proportional administrative and criminal sanctions need to be recalibrated to create appropriate legal frameworks.⁵¹ adequate deterrent effect, while whistleblower protection and public participation mechanisms need to be strengthened to support more effective monitoring and enforcement from the grassroots level, which must be supported by criteria for implementing strict liability,

⁴⁹ Akhmad Zaki Yamani, "Legal drafting untuk perubahan hukum: Tantangan dan solusi dalam penyusunan regulasi dan undang-undang yang adaptif," *Journal of Law and Nation* 3, no. 4 (2024): 1026-1036.

⁵⁰ Abdulkadir Nacar, "Probabilistic Liability and Judicial Insurance for Environmental Risks," *İstanbul Hukuk Mecmuası* 83, no. 2 (2025): 612.

⁵¹ Fathul Achmadi Abby, and Junaidi Arif, "Konsep Pertanggungjawaban Berdasarkan Asas Vicarious Liability dalam Tindak Pidana Kebakaran Hutan dan Lahan," *Jurnal Pendidikan Kewarganegaraan* 11, no. 01 (2021): 99. See too, Irene Mariane, "The legal philosophy of environmental management based on Pancasila justice," *Jurnal Pembaharuan Hukum* 11, no. 2 (2024): 348.

standardization of loss calculation methods, and integration with the licensing system.⁵²

Institutional capacity is a crucial foundation for the effective implementation of strict environmental liability, but it often faces significant challenges, especially in developing countries where legal and administrative infrastructure is still under development. This capacity weakness creates an implementation gap between existing regulations and enforcement on the ground, making strict liability an ineffective deterrent to environmentally damaging behavior.⁵³ The justice system requires profound transformation, starting with the establishment of specialized environmental courts with judges with technical backgrounds and a deep understanding of the complexities of environmental cases. Training programs for judges, prosecutors, and legal practitioners need to be intensified to build expertise in environmental law, scientific evidence evaluation, and damage assessment methodologies. Court-supporting systems such as expert witness registries, environmental forensic laboratories, and case management systems need to be developed. Support a quality adjudication process. The capacity of regulatory agencies also requires substantial strengthening, including increasing the number and quality of environmental inspectors, developing monitoring technologies, and establishing rapid response teams for environmental emergencies. Inter-agency coordination mechanisms need to be strengthened to address the frequent fragmentation of authority, while data sharing systems and integrated environmental information systems need to be developed to support evidence-based decision-making. From a civil society and public participation perspective, capacity building programs need to be directed at strengthening community capacity in environmental monitoring, legal advocacy, and access to justice. Legal aid institutions specialized in environmental cases need to be developed to ensure equal access to justice, while academic institutions need to strengthen environmental law programs to produce qualified practitioners and researchers who can support the development of a more robust environmental law system. These efforts include increasing law enforcement capacity, strengthening environmental forensic laboratories, and developing comprehensive environmental loss databases.⁵⁴

⁵² Hafrida, Helmi, and Bunga Permatasari, "The implementation of the strict-liability principle to the perpetrators of forest and land burning," *Padjadjaran Jurnal Ilmu Hukum (Journal of Law)* 7, no. 03 (2020): 323.

⁵³ Diah Ayu Rachma, and Aditya Mochamad Triwibowo, "Penerapan Prinsip Strict Liability dalam Penegakan Hukum Lingkungan di Indonesia," *Jurnal Yudisial* 16, no. 1 (2023): 116.

⁵⁴ Pratomo Beritno, "Efektivitas Penegakan Hukum Terhadap Pembakaran Hutan Dan Lahan Di Kalimantan Tengah," *Jurnal Ilmu Hukum Tambun Bungai* 4, no. 2 (2019): 233.

Community participation in strict environmental liability is a vital element, serving as an early warning system, watchdog mechanism, and driving force for more effective enforcement. Communities living near high-risk activities are often the first witnesses and direct victims of environmental damage, so their active involvement is essential for early detection and documentation of impacts. Participatory mechanisms can be implemented through various instruments, ranging from community-based monitoring programs, where communities are trained to conduct routine observations of the quality of the surrounding environment, to citizen reporting systems that enable real-time reporting of environmental incidents through digital platforms. The establishment of environmental watch groups and community paralegals can strengthen the community's capacity to understand their rights and available legal procedures. Transparent access to information is a fundamental prerequisite for meaningful participation. Right-to-know provisions need to be strengthened so that the public can obtain information about the types of activities taking place around them, the potential risks that may arise, and the preventative measures that have been taken. Environmental impact assessment processes should involve substantive public consultation, not simply a procedural formality.

Protection for environmental defenders and whistleblowers is crucial, given the frequent intimidation or retaliation against those who speak out on environmental issues. Legal empowerment programs, including paralegal training and legal aid access, need to be developed to ensure communities have the tools.

Adequate legal capacity to participate in the legal process. Class action mechanisms and public interest litigation procedures need to be simplified to allow the public to access the justice system collectively at an affordable cost. Involve indigenous communities in oversight, empower environmental groups, and increase public legal awareness. The application of strict liability in forest and land fire cases in Central Kalimantan is an effective legal instrument for environmental protection, although its implementation still faces various challenges.⁵⁵ The key to success lies in strengthening institutional capacity, improving regulations, and committing all parties to preserving forests.

D. Conclusion

Strict liability has proven to be a potential legal instrument for addressing forest and land fires in Central Kalimantan, with measurable

⁵⁵ Muh Farhan Arfandy, and Ranggalawe Suryasaladin, "Analisis Kritis Strict Liability Dalam Berbagai Peraturan Perundang-Undangan Di Indonesia," *Indonesian Journal of Criminal Law* 4, no. 3 (2024): 126. See too, Cristian Andros, and Gunawan Djajaputera, "Analisis Pertanggungjawaban Pidana Korporasi Pada Pembakaran Lahan Berdasarkan Teori Strict Liability," *UNES Law Review* 6, no. 4 (2024): 10134.

success, but its implementation still requires significant refinement. Although several court decisions demonstrate the ability of this principle to hold corporate actors accountable without the need to prove fault, inconsistent judicial interpretations, difficulties in establishing causal relationships, and the absence of standardized methods for calculating environmental losses continue to hinder its effectiveness. Strengthening the evidentiary system through scientific and forensic approaches, harmonizing regulations, standardizing environmental loss assessments, enhancing judicial and law enforcement capacity, and developing adequate environmental insurance mechanisms are essential to ensure legal certainty and deterrence. In addition, greater community participation and institutional coordination are crucial to support enforcement and prevent future environmental damage. Optimizing these aspects will enable strict liability to function more effectively as a sustainable legal framework for environmental protection and justice in Central Kalimantan.

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