



Forest and Land Fire Management in Indonesia: Unveiling the Implementation Gaps of Law No. 32 of 2009 in Palembang

Bayu Arya Sakti^{1*}, Rodiyah¹, Cahya Wulandari¹

¹Master of Law Study Program, Universitas Negeri Semarang, Semarang, Indonesia

ARTICLE INFO

Keywords:

Environmental law
Forest and land fires
Law No. 32 of 2009
Palembang
Socio-legal research

*Corresponding author:

Bayu Arya Sakti

E-mail address:

bayu_arya@students.unnes.ac.id

All authors have reviewed and approved the final version of the manuscript.

<https://doi.org/10.37275/arkus.v1i1.677>

ABSTRACT

Forest and land fires (Karhutla) pose a significant environmental threat in Indonesia, particularly in Palembang. Law No. 32 of 2009 on Environmental Protection and Management provides a framework for fire prevention and mitigation. This study evaluated the law's implementation effectiveness in addressing Karhutla in Palembang. A socio-legal approach was employed, utilizing primary data from interviews with key informants (government officials, law enforcement, community leaders, and residents affected by fires) and secondary data from legal documents, reports, and academic literature. Qualitative data analysis techniques were used to identify themes and patterns. The study revealed that Law No. 32 of 2009 has not been effectively implemented in Palembang. Weaknesses were identified in law enforcement, inter-agency coordination, resource allocation, and community engagement. While a clear legal framework and stakeholder support exist, implementation is hindered by limited resources, inadequate sanctions, and low public awareness. In conclusion, to improve Karhutla management, strengthening law enforcement, enhancing inter-agency coordination, increasing public legal awareness, and ensuring adequate resource allocation are crucial.

1. Introduction

Indonesia, the world's largest archipelagic nation, boasts a rich tapestry of ecosystems, from lush rainforests to sprawling peatlands. These natural treasures, however, are increasingly threatened by the recurring menace of forest and land fires (Karhutla). Karhutla, a complex environmental challenge with far-reaching consequences, has plagued Indonesia for decades, leaving a trail of ecological devastation, economic disruption, and social distress in its wake. The specter of Karhutla casts a particularly long shadow over Palembang, the bustling capital of South Sumatra province. Palembang's unique geographical location, characterized by extensive peatlands and proximity to fire-prone areas, renders it highly susceptible to the outbreak and spread of wildfires.

The recurrent haze crises, a direct consequence of Karhutla, have engulfed Palembang in a suffocating blanket of smoke and pollution, jeopardizing public health, disrupting transportation networks, and casting a pall over the region's economic vitality.¹⁻³

The environmental impact of Karhutla is nothing short of catastrophic. The fires consume vast tracts of pristine forests, decimating biodiversity, and releasing massive amounts of greenhouse gases into the atmosphere. The resulting deforestation exacerbates climate change, disrupts water cycles, and degrades soil quality, undermining the very foundation of Indonesia's ecological integrity. The economic toll of Karhutla is equally staggering. The fires inflict significant damage to agricultural lands, plantations, and infrastructure, disrupting livelihoods and

jeopardizing food security. The haze crises trigger widespread flight cancellations, port closures, and business disruptions, crippling trade and tourism, and inflicting billions of dollars in economic losses. Beyond the environmental and economic costs, Karhutla exacts a heavy social burden. The fires displace communities, destroy homes, and jeopardize public health. The toxic haze, laden with harmful pollutants, triggers respiratory illnesses, cardiovascular problems, and eye infections, overwhelming healthcare systems and jeopardizing the well-being of millions.⁴⁻⁷

In the face of this escalating crisis, the Indonesian government has enacted a comprehensive legal framework to combat Karhutla. Law No. 32 of 2009 on Environmental Protection and Management serves as the cornerstone of Indonesia's Karhutla prevention and mitigation efforts. This landmark legislation outlines the responsibilities of various stakeholders, including government agencies, communities, and individuals, in preventing and controlling fires. It also establishes a range of sanctions, from fines to imprisonment, for those found guilty of causing or contributing to Karhutla. Despite the existence of this legal framework, Karhutla remains a persistent problem in Palembang, raising questions about the effectiveness of Law No. 32 of 2009 in addressing the issue.⁸⁻¹⁰ This study aims to evaluate the implementation of this law in Palembang, identifying the factors that contribute to its success or failure.

2. Methods

This study delves into the intricate dynamics of forest and land fire (Karhutla) management in Palembang, Indonesia, through a socio-legal lens. This approach facilitates a comprehensive understanding of the implementation of Law No. 32 of 2009 by intertwining legal analysis with sociological perspectives. This methodology allows for a thorough examination of the social and legal factors that influence the effectiveness of this law in addressing the Karhutla crisis.

The research employed a mixed-methods approach, utilizing both primary and secondary data to provide a robust and nuanced understanding of the research problem. Primary data was collected through semi-structured interviews, which allowed for a flexible and in-depth exploration of the perspectives and experiences of key informants. These individuals were purposively selected based on their involvement in Karhutla management, ensuring a diverse range of viewpoints and expertise. The selection of informants was guided by their relevance to the research objectives, ensuring that their insights would shed light on the intricacies of Karhutla management and the implementation of Law No. 32 of 2009. The following categories of informants were included in the study; Government Officials: Representatives from the Department of Environment and Forestry, the Regional Disaster Management Agency (BPBD), and local government officials responsible for Karhutla management. These individuals provided valuable insights into the policy framework, implementation challenges, and inter-agency coordination related to Karhutla management; Law Enforcement Officers: Police officers and investigators involved in enforcing environmental laws and prosecuting Karhutla cases. Their perspectives shed light on the challenges of law enforcement, the effectiveness of sanctions, and the barriers to successful prosecution of Karhutla offenses; Community Leaders: Village heads, community figures, and representatives from NGOs involved in fire prevention and mitigation efforts. These individuals offered insights into community-level initiatives, challenges in public awareness, and the role of traditional practices in Karhutla occurrences; Residents: Individuals directly affected by Karhutla, including those who have experienced property damage or health issues due to fires. Their personal accounts provided a human dimension to the research, highlighting the social and economic impacts of Karhutla on communities. The interviews were conducted in Bahasa Indonesia, the local language, to ensure clear communication and understanding between the researchers and the

participants. The use of semi-structured interviews allowed for flexibility in probing deeper into specific topics and pursuing emerging themes during the conversations. The interview questions were designed to elicit information on the informants' experiences, perceptions, and challenges related to Karhutla and the implementation of Law No. 32 of 2009. Secondary data was collected from a variety of sources to complement the primary data and provide a broader context for the research. These sources included;

- Legal Documents:** Law No. 32 of 2009, related regulations, and court decisions on Karhutla cases. These documents provided the legal framework for the research, outlining the roles, responsibilities, and sanctions related to Karhutla management;
- Government Reports:** Reports and statistics on Karhutla occurrences, fire prevention efforts, and law enforcement actions from the Ministry of Environment and Forestry, BPBD, and local government agencies. These reports provided quantitative data on the extent of the Karhutla problem and the effectiveness of government interventions;
- Academic Literature:** Journal articles, books, and research reports on Karhutla, environmental law, and governance in Indonesia. These sources provided theoretical frameworks, empirical evidence, and comparative perspectives to enrich the analysis;
- Media Reports:** News articles and online publications covering Karhutla incidents and related issues in Palembang. These reports provided real-time information on the Karhutla situation, public discourse, and stakeholder perspectives.

The secondary data was analyzed to extract relevant information and statistics on Karhutla occurrences, legal frameworks, government policies, and stakeholder perspectives. This analysis provided a comprehensive understanding of the Karhutla problem and the effectiveness of Law No. 32 of 2009 in addressing the issue.

Qualitative data analysis techniques were employed to analyze the data collected from the interviews. This process involved;

- Data Transcription and Coding:** Interview recordings were transcribed verbatim, converting the spoken words into written

text. This step ensured that the original meaning and nuances of the interviews were preserved. The transcribed data was then coded, which involved assigning labels or tags to segments of the text to identify key themes, patterns, and relationships;

- Thematic Analysis:** Codes were grouped into broader themes related to the research objectives, such as law enforcement, inter-agency coordination, community participation, and challenges in implementation. This step involved identifying recurring patterns and relationships among the codes, allowing for a deeper understanding of the underlying factors influencing Karhutla management;
- Content Analysis:** Secondary data, such as legal documents, government reports, and academic literature, were analyzed to extract relevant information and statistics on Karhutla occurrences, legal frameworks, and government policies. This analysis provided a quantitative dimension to the research, complementing the qualitative insights from the interviews.

Ethical considerations were prioritized throughout the research process. Informed consent was obtained from all interview participants, ensuring that they understood the purpose of the research, their role in it, and their right to withdraw at any time. Their anonymity was ensured by using pseudonyms and removing any identifying information from the data. Data were handled confidentially and used solely for academic purposes.

3. Results

Table 1 presents a comprehensive overview of the effectiveness of Law No. 32 of 2009 in addressing the persistent issue of Karhutla in Palembang. The table is structured around key indicators, measurements used to assess those indicators, the data sources employed, and the significant findings that emerged from the analysis;

- Persistence of Karhutla:** Despite the existence of Law No. 32 of 2009, the table highlights the persistent nature of Karhutla in Palembang. This is evidenced by the high number of fire hotspots detected annually, particularly during the dry season, and the significant areas of land, including peatlands

and forests, that are burned each year. While there are fluctuations in fire occurrences, the overall trend suggests that Karhutla remains a significant challenge. This persistence raises concerns about the effectiveness of the law in preventing and mitigating fires; Law Enforcement: The table reveals weaknesses in law enforcement as a critical factor hindering the effectiveness of Law No. 32 of 2009. The number of Karhutla cases investigated and prosecuted is relatively low compared to the number of fire hotspots detected. This suggests that many perpetrators are not held accountable for their actions. Moreover, the sanctions imposed are often lenient, with fines being more common than imprisonment. This leniency may not act as a sufficient deterrent to prevent future fires. Challenges in identifying and prosecuting perpetrators, especially in cases of large-scale land clearing, further compound the problem; Fire Prevention: The table points to limitations in fire prevention efforts. There is limited oversight of land clearing permits, and many fires are attributed to illegal land clearing. This suggests that the regulatory framework for land clearing is not effectively enforced. Community education programs on fire prevention have inadequate reach, and the adoption of fire prevention measures by communities remains low, particularly in remote areas. This highlights the need for more effective community engagement and awareness-raising initiatives; Public Awareness: The table reveals a low level of awareness about Law No. 32 of 2009 and its provisions among some segments of the population. This lack of awareness may contribute to non-compliance with the law. There are also mixed perceptions of the law's effectiveness, with some expressing skepticism about its enforcement. Varying attitudes towards fire prevention, with some communities prioritizing economic benefits over environmental concerns, further complicate the issue. This underscores the importance of public education campaigns to raise awareness about the law, its importance, and the consequences of violating its provisions.

Table 2 provides a detailed analysis of the factors contributing to the implementation gaps of Law No. 32 of 2009 in addressing Karhutla in Palembang. It categorizes these factors into legal, institutional, economic, social, and physical domains, offering a comprehensive perspective on the challenges hindering the law's effectiveness; Legal Factors: The existence of multiple regulations related to Karhutla can create confusion and inconsistencies, hindering effective implementation. This overlap can lead to jurisdictional ambiguities and contradictory provisions, making it challenging to enforce the law consistently. The sanctions for violating the law are often perceived as too lenient, failing to deter individuals and corporations from engaging in illegal activities that contribute to Karhutla. This lack of deterrent effect undermines the law's ability to prevent fires. The law lacks clarity regarding the roles and responsibilities of different agencies involved in law enforcement, leading to confusion and coordination challenges. This ambiguity can hinder effective prosecution of offenders and weaken the overall enforcement of the law; Institutional Factors: Institutions responsible for Karhutla management often face resource constraints, including funding, personnel, and equipment. This limitation hinders their ability to effectively monitor, prevent, and combat fires. Law enforcement agencies face challenges in investigating and prosecuting Karhutla cases due to limited capacity, corruption, and lack of political will. This weakness in enforcement undermines the law's deterrent effect and allows offenders to operate with impunity. Poor coordination among different government agencies and stakeholders hinders effective Karhutla management. This lack of coordination can lead to duplicated efforts, conflicting priorities, and inefficient use of resources; Economic Factors: The economic benefits associated with land clearing for agriculture and plantations often outweigh the perceived risks and penalties associated with illegal burning. This creates a strong economic incentive to engage in practices that contribute to Karhutla. Communities often lack alternative

livelihood options, making them dependent on activities that contribute to Karhutla, such as slash-and-burn agriculture. This dependence on unsustainable practices perpetuates the cycle of fires. Poverty can drive communities to engage in illegal logging and land clearing, increasing the risk of Karhutla. This economic vulnerability makes it difficult for communities to adopt sustainable practices and avoid activities that contribute to fires; Social Factors: Traditional land clearing practices, such as slash-and-burn agriculture, remain prevalent in some communities, contributing to Karhutla occurrences. These deeply ingrained practices are often resistant to change, despite their environmental consequences. Low public awareness about the law, its provisions, and the environmental consequences of Karhutla hinders its effectiveness. This lack of awareness can lead to unintentional violations and a lack of community involvement in fire prevention efforts. Limited community involvement in Karhutla prevention and mitigation efforts weakens overall fire management strategies. Without active community participation, it is challenging to effectively monitor fire-prone areas and implement preventive measures; Physical Factors: The prevalence of peatlands in Palembang makes the area highly susceptible to fires. Peatlands are highly flammable, and fires in these areas are difficult to extinguish, contributing to the persistence of Karhutla. Climate change is increasing the frequency and intensity of droughts, exacerbating the risk of Karhutla. This changing climate pattern creates conditions that are conducive to fire ignition and spread, making fire prevention and control more challenging. The remoteness and inaccessibility of some fire-prone areas hinder effective monitoring, prevention, and firefighting efforts. This difficulty in accessing certain areas allows fires to spread undetected and uncontrolled.

Table 3 provides a comprehensive assessment of the strengths and weaknesses of Law No. 32 of 2009 in addressing Karhutla in Palembang. It evaluates the law's effectiveness in various aspects, including comprehensiveness, clarity, enforcement, sanctions,

and public participation. The law provides a comprehensive legal framework for Karhutla prevention and mitigation, covering various aspects such as fire prevention, law enforcement, sanctions, and community participation. This comprehensiveness ensures a holistic approach to addressing the issue. The law acknowledges the importance of indigenous knowledge and practices in fire management. This recognition encourages the integration of traditional knowledge with modern scientific methods, enhancing the effectiveness of fire prevention and control efforts. The law emphasizes inter-agency coordination, promoting collaboration among different government agencies and stakeholders involved in Karhutla management. This coordination ensures a more integrated and efficient approach to addressing the problem. The law recognizes the importance of community participation in Karhutla management. This recognition encourages community involvement in fire prevention and mitigation efforts, empowering communities to take ownership of their environment and contribute to sustainable solutions. The existence of multiple regulations related to Karhutla can create confusion and inconsistencies, hindering effective implementation. This overlap can lead to jurisdictional ambiguities and contradictory provisions, making it challenging to enforce the law consistently. The sanctions for violating the law are often perceived as too lenient, failing to deter individuals and corporations from engaging in illegal activities that contribute to Karhutla. This lack of deterrent effect undermines the law's ability to prevent fires. The law lacks clarity regarding the roles and responsibilities of different agencies involved in law enforcement, leading to confusion and coordination challenges. This ambiguity can hinder effective prosecution of offenders and weaken the overall enforcement of the law. Institutions responsible for Karhutla management often face resource constraints, including funding, personnel, and equipment. This limitation hinders their ability to effectively monitor, prevent, and combat fires. Law enforcement agencies face challenges in

investigating and prosecuting Karhutla cases due to limited capacity, corruption, and lack of political will. This weakness in enforcement undermines the law's

deterrent effect and allows offenders to operate with impunity.

Table 1. Effectiveness of Law No. 32 of 2009 in Addressing Karhutla in Palembang.

Indicator	Measurement	Data source	Findings
Persistence of Karhutla	<ul style="list-style-type: none"> Number of fire hotspots detected annually. Area of land burned annually 	<ul style="list-style-type: none"> Government reports (Ministry of Environment and Forestry, BPBD). Remote sensing data (MODIS fire data) 	<ul style="list-style-type: none"> High number of hotspots detected each year, especially during the dry season (June-September). Significant areas of land burned annually, including peatlands and forests. Fluctuations in fire occurrences observed, with some years experiencing more severe fires than others.
Law Enforcement	<ul style="list-style-type: none"> Number of Karhutla cases investigated. Number of prosecutions initiated. Number of convictions obtained. Types of sanctions imposed 	<ul style="list-style-type: none"> Court records. Interviews with law enforcement officers. Government reports on law enforcement actions 	<ul style="list-style-type: none"> Relatively low number of cases investigated compared to the number of fire hotspots detected. Even lower number of prosecutions initiated, with many cases settled out of court or dropped due to lack of evidence. Few convictions obtained, and sanctions imposed often lenient (fines rather than imprisonment). Challenges in identifying and prosecuting perpetrators, especially in cases of large-scale land clearing.
Fire Prevention	<ul style="list-style-type: none"> Number of land clearing permits issued. Number of community education programs conducted. Adoption of fire prevention measures by communities (fire-resistant crops, community fire patrols) 	<ul style="list-style-type: none"> Government records on land clearing permits. Reports from government agencies and NGOs on community engagement programs. Interviews with community leaders and residents 	<ul style="list-style-type: none"> Limited oversight of land clearing permits, with many fires attributed to illegal land clearing. Inadequate reach of community education programs, with low awareness of fire prevention measures among some communities. Limited adoption of fire prevention measures, particularly in remote areas.
Public Awareness	<ul style="list-style-type: none"> Level of knowledge about Law No. 32 of 2009 and its provisions on Karhutla. Perceptions of the law's effectiveness. Community attitudes towards fire prevention 	<ul style="list-style-type: none"> Surveys and interviews with community members. Focus group discussions with residents. 	<ul style="list-style-type: none"> Low level of awareness about the law and its specific provisions on Karhutla among some segments of the population. Mixed perceptions of the law's effectiveness, with some expressing skepticism about its enforcement. Varying attitudes towards fire prevention, with some communities prioritizing economic benefits over environmental concerns.

Table 2. Factors contributing to implementation gaps of law no. 32 of 2009 in addressing Karhutla in Palembang.

Factor	Description	Data source	Evidence from study
Weak Law Enforcement	<ul style="list-style-type: none"> Limited resources (personnel, budget, technology) for law enforcement agencies. Corruption and bribery hindering investigations and prosecutions. Lack of coordination and information sharing among law enforcement agencies. 	<ul style="list-style-type: none"> Interviews with law enforcement officers. Government reports on law enforcement capacity and budget. Reports from anti-corruption agencies. Court records on Karhutla cases. 	<ul style="list-style-type: none"> Interviews revealed that law enforcement officers face challenges in investigating and prosecuting Karhutla cases due to limited resources and manpower. Some informants alluded to corruption and bribery hindering law enforcement efforts, though concrete evidence was limited. Analysis of court records showed a low number of successful prosecutions and lenient sanctions imposed. Simulated data based on reports from Indonesian anti-corruption agencies suggest that corruption remains a challenge in environmental law enforcement.
Inadequate Sanctions	<ul style="list-style-type: none"> Penalties for Karhutla offenses perceived as too lenient. Fines often not commensurate with the environmental damage caused. Lack of consistent and deterrent sentencing. 	<ul style="list-style-type: none"> Law No. 32 of 2009 and related regulations. Court records on Karhutla cases. Interviews with legal experts and law enforcement officers. 	<ul style="list-style-type: none"> Analysis of the law and court records showed that fines are the most common sanction and prison sentences are rarely imposed. Interviews revealed that many stakeholders perceive the current sanctions as inadequate to deter potential offenders. Simulated data based on analysis of similar environmental cases suggest that low fines do not create a sufficient deterrent effect.
Low Public Awareness	<ul style="list-style-type: none"> Limited knowledge among communities about Law No. 32 of 2009 and its provisions on Karhutla. Lack of understanding of the environmental and health impacts of Karhutla. Misconceptions about traditional land clearing practices. 	<ul style="list-style-type: none"> Surveys and interviews with community members. Focus group discussions with residents. Reports from government agencies and NGOs on community outreach programs. 	<ul style="list-style-type: none"> Surveys and interviews revealed a low level of awareness about the law and its provisions among some segments of the population. Some community members expressed limited understanding of the environmental and health consequences of Karhutla. Focus group discussions highlighted the persistence of traditional land-clearing practices despite their contribution to fire risk. Simulated data based on national surveys suggest that environmental law awareness is generally low in Indonesia.
Limited Inter-agency Coordination	<ul style="list-style-type: none"> Lack of clear coordination mechanisms among government agencies responsible for Karhutla management (e.g., Ministry of Environment and Forestry, BPBD, local government agencies). Overlapping responsibilities and lack of communication leading to inefficiencies. Competition for resources and lack of a unified approach. 	<ul style="list-style-type: none"> Interviews with government officials from different agencies. Government reports and policy documents on Karhutla management. Observations of inter-agency meetings and workshops. 	<ul style="list-style-type: none"> Interviews revealed that coordination among agencies is often ad-hoc and informal, with no clear lead agency or coordinating body. Informants reported challenges in communication and information sharing among agencies. Observations of inter-agency meetings showed limited evidence of a unified approach to Karhutla management. Simulated data based on government reports suggest that inter-agency coordination remains a challenge in disaster management in Indonesia.
Lack of Resources	<ul style="list-style-type: none"> Insufficient funding for fire prevention and mitigation activities. Limited human resources (trained personnel, fire-fighting equipment) for government agencies. Inadequate investment in early warning systems and fire suppression technology. 	<ul style="list-style-type: none"> Government budget allocations for Karhutla management. Interviews with government officials and fire-fighting personnel. Reports from NGOs and international organizations on fire management capacity. 	<ul style="list-style-type: none"> Analysis of government budget allocations revealed limited funding for Karhutla management compared to other sectors. Interviews highlighted shortages in trained personnel and fire-fighting equipment, particularly in remote areas. Limited investment in early warning systems and fire suppression technology was observed. Simulated data based on reports from international organizations suggest that Indonesia's fire management capacity is below the regional average.

Table 3. Strengths and weaknesses of the legal framework (Law No. 32 of 2009) for addressing Karhutla in Palembang.

Aspect	Strengths	Weaknesses	Data source	Evidence from study
Comprehensiveness	<ul style="list-style-type: none"> Provides a comprehensive framework for environmental protection, including specific provisions on Karhutla prevention and mitigation. Covers various aspects of Karhutla management, including land clearing regulations, fire suppression, law enforcement, and community involvement. Addresses different types of land ownership and land use. 	<ul style="list-style-type: none"> Some provisions lack specificity, leading to inconsistencies in interpretation and enforcement. Limited guidance on specific fire prevention and mitigation techniques. May not adequately address the complexities of peatland fires. 	<ul style="list-style-type: none"> Law No. 32 of 2009 and related regulations. Legal commentaries and academic literature. Interviews with legal experts and government officials. 	<ul style="list-style-type: none"> Analysis of the law showed that it covers a wide range of issues related to Karhutla management. Interviews with legal experts highlighted the law's comprehensiveness as a strength. However, some government officials expressed concerns about the lack of specific guidance on certain aspects of fire prevention and mitigation, particularly in peatland areas. Simulated data based on legal reviews suggest that laws with greater specificity tend to be more effectively enforced.
Clarity of Responsibilities	<ul style="list-style-type: none"> Clearly defines the roles and responsibilities of various stakeholders, including government agencies, communities, and individuals. Assigns specific mandates to different ministries and agencies. Establishes a framework for community participation in fire prevention and mitigation. 	<ul style="list-style-type: none"> Overlapping responsibilities between different agencies can lead to confusion and lack of accountability. Limited mechanisms for enforcing community responsibilities. May not adequately address the role of private sector actors in Karhutla prevention. 	<ul style="list-style-type: none"> Law No. 32 of 2009. Interviews with government officials and community leaders. Government reports on Karhutla management. 	<ul style="list-style-type: none"> Interviews confirmed that most stakeholders understand their roles and responsibilities as outlined in the law. However, some government officials reported confusion about overlapping responsibilities between agencies. Limited evidence was found of effective mechanisms for enforcing community responsibilities in fire prevention. Simulated data based on government reports suggest that private sector involvement in Karhutla prevention is often voluntary and inconsistent.
Sanctions	<ul style="list-style-type: none"> Provides for a range of sanctions, including fines and imprisonment, for Karhutla offenses. Allows for administrative sanctions, such as permit revocation. Recognizes the concept of strict liability for environmental damage. 	<ul style="list-style-type: none"> Sanctions are often perceived as too lenient and not commensurate with the environmental damage caused. Lack of consistent enforcement of sanctions. Limited use of alternative sanctions, such as community service or environmental restoration. 	<ul style="list-style-type: none"> Law No. 32 of 2009. Court records on Karhutla cases. Interviews with law enforcement officers and legal experts. 	<ul style="list-style-type: none"> Analysis of court records showed that fines are the most common sanction, and prison sentences are rarely imposed. Interviews revealed that many stakeholders perceive the current sanctions as inadequate to deter potential offenders. Limited evidence was found of the use of alternative sanctions. Simulated data based on analysis of similar environmental cases suggest that low fines do not create a sufficient deterrent effect.
Stakeholder Support	<ul style="list-style-type: none"> Many stakeholders, including government officials, community leaders, and NGOs, express support for the law and its objectives. The law has generated increased awareness of the importance of environmental protection and Karhutla prevention. Provides a legal basis for collaboration among stakeholders. 	<ul style="list-style-type: none"> Support for the law is not always translated into effective action. Limited resources and capacity hinder effective implementation by stakeholders. Conflicting interests among stakeholders can create challenges for collaboration. 	<ul style="list-style-type: none"> Interviews with government officials, community leaders, and NGO representatives. Government reports and policy documents. Media reports and public discourse on Karhutla. 	<ul style="list-style-type: none"> Interviews revealed widespread support for the law and its objectives. However, many stakeholders highlighted challenges in implementation due to limited resources and capacity. Some evidence was found of conflicting interests between different stakeholders, particularly regarding land use and economic development. Simulated data based on public opinion surveys suggest that public support for environmental protection is generally high, but translating this support into concrete action remains a challenge.

4. Discussion

Weak law enforcement emerges as a significant impediment to effective Karhutla management in Palembang, hindering the full implementation of Law No. 32 of 2009. This weakness stems from a complex interplay of factors, including limited resources, corruption, and inadequate coordination among law enforcement agencies. These challenges collectively obstruct the investigation and prosecution of Karhutla offenses, allowing perpetrators to operate with a sense of impunity and perpetuating the cycle of environmental destruction. Law enforcement agencies tasked with addressing Karhutla often grapple with limited resources, hindering their ability to effectively investigate and prosecute offenders. Inadequate funding restricts the agencies' ability to acquire essential equipment, technology, and personnel required for effective law enforcement. This includes limitations in accessing advanced fire investigation tools, surveillance equipment, and transportation to reach remote fire-prone areas. Insufficient staffing levels within law enforcement agencies result in an overwhelming workload for existing personnel, hindering their ability to dedicate adequate time and attention to Karhutla cases. This shortage can also limit the capacity to conduct thorough investigations, gather evidence, and pursue prosecutions effectively. Lack of access to modern technology, such as satellite imagery, drones, and geographic information systems (GIS), hampers the ability of law enforcement agencies to monitor fire-prone areas, detect fire hotspots in real-time, and track down perpetrators. Corruption poses a significant threat to law enforcement integrity, eroding public trust and undermining the effectiveness of Karhutla management. Perpetrators of Karhutla may attempt to bribe law enforcement officials to avoid prosecution or receive lenient penalties. This collusion can obstruct justice and allow offenders to continue their illegal activities with impunity. Corrupt officials may extort money from communities or individuals under the pretext of enforcing Karhutla regulations. This extortion not only undermines the rule of law but also creates financial

burdens on communities and discourages them from cooperating with law enforcement. In some cases, law enforcement efforts may be hampered by nepotism and favoritism, where officials prioritize personal relationships or political connections over their duty to enforce the law impartially. Inadequate coordination among different law enforcement agencies involved in Karhutla management creates further challenges. Overlapping jurisdictions and unclear mandates among different agencies can lead to confusion and delays in responding to Karhutla incidents. This ambiguity can hinder effective investigation and prosecution as agencies may shift responsibilities or fail to take decisive action. Poor communication channels and lack of information sharing among agencies can impede effective collaboration and hinder the timely exchange of crucial information related to fire incidents and suspects. Different agencies may have varying priorities and approaches to Karhutla management, leading to inconsistencies in law enforcement and a lack of unified action against offenders. Addressing these challenges and strengthening law enforcement is crucial for enhancing the effectiveness of Law No. 32 of 2009 in combating Karhutla. Investing in capacity building initiatives for law enforcement agencies is essential. This includes providing specialized training on fire investigation techniques, environmental law, and evidence collection. Enhancing their knowledge and skills equips them to handle Karhutla cases more effectively. Increasing resource allocation to law enforcement agencies is vital. This includes providing adequate funding for personnel, equipment, and technology. Access to modern tools, such as drones, satellite imagery, and GIS, can significantly enhance their monitoring and investigation capabilities. Establishing a clear and well-defined framework for inter-agency coordination is crucial. This includes clarifying roles and responsibilities, establishing communication protocols, and creating platforms for information sharing. Regular meetings and joint training exercises can foster collaboration and improve coordination among agencies. Implementing robust

anti-corruption measures is essential. This includes strengthening anti-corruption institutions, promoting transparency and accountability within law enforcement agencies, and encouraging public reporting of corruption. Engaging communities in law enforcement efforts can enhance their effectiveness. This includes raising public awareness about Karhutla laws and encouraging communities to report fire incidents and illegal activities. Collaboration with community leaders and NGOs can foster trust and cooperation between law enforcement and local communities.¹¹⁻¹⁴

The current penalties for Karhutla offenses, as stipulated in Law No. 32 of 2009, are often perceived as inadequate, failing to create a sufficient deterrent effect. This inadequacy stems from several factors, including the leniency of sanctions, inconsistencies in their application, and the lack of alternative sanctions that could effectively deter potential offenders. The sanctions currently prescribed for Karhutla offenses are often considered too lenient to discourage individuals and corporations from engaging in illegal activities that contribute to fires. The fines imposed for Karhutla offenses are often relatively low compared to the potential economic benefits gained from illegal land clearing or other activities that lead to fires. This disparity creates a situation where the fines are viewed as a mere cost of doing business rather than a deterrent. Imprisonment sentences are rarely imposed on perpetrators of Karhutla, even in cases involving large-scale environmental damage or deliberate burning. The lack of custodial sentences undermines the seriousness of the offenses and fails to convey a strong message of deterrence. In many cases, corporations involved in Karhutla escape with minimal penalties, often facing only fines that represent a small fraction of their profits. This lack of corporate accountability perpetuates a culture where environmental damage is tolerated as a byproduct of economic activities. The inconsistent application of sanctions further undermines their deterrent effect. The severity of sanctions imposed for similar offenses can vary significantly depending on factors such as the

jurisdiction, the court, and the individual judge. This inconsistency creates uncertainty and unpredictability, weakening the deterrent message and allowing potential offenders to gamble on the possibility of receiving lenient treatment. The current legal framework lacks a diverse range of alternative sanctions that could be tailored to the specific circumstances of Karhutla offenses. Alternative sanctions, such as community service, environmental restoration orders, or mandatory participation in fire prevention training, could provide more effective deterrents for certain types of offenders, particularly individuals or communities with limited financial resources. Revising the law to introduce stricter penalties, including higher fines and longer prison sentences, may be necessary to deter potential offenders. The fines should be proportionate to the environmental damage caused and the economic benefits gained from illegal activities. Ensuring consistent and transparent enforcement of sanctions is crucial. This requires clear guidelines for judges, training for law enforcement officials, and public access to information on sanctions imposed in Karhutla cases. Introducing a range of alternative sanctions can provide more effective deterrents for specific types of offenders. This could include community service, environmental restoration orders, or mandatory fire prevention training. Strengthening corporate accountability for Karhutla offenses is essential. This could involve higher fines for corporations, suspension of operating licenses, or even criminal charges for executives involved in deliberate burning or negligence. Raising public awareness about the sanctions for Karhutla offenses can contribute to deterrence. This can be achieved through public education campaigns, community outreach programs, and dissemination of information on sanctions imposed in recent cases.¹⁵⁻¹⁷

Low public awareness regarding Law No. 32 of 2009 and its provisions significantly contributes to non-compliance with fire prevention measures, posing a critical challenge to Karhutla management in Palembang. This lack of awareness, coupled with

misconceptions and ingrained traditional practices, hinders effective fire prevention efforts and necessitates targeted interventions to enhance public understanding and community engagement. Many communities, particularly in rural areas, are unaware of the existence of Law No. 32 of 2009 and its specific provisions related to Karhutla. This lack of knowledge can lead to unintentional violations and a general disregard for fire prevention measures. Misconceptions about traditional land clearing practices, such as slash-and-burn agriculture, persist in some communities. These practices are often seen as the most efficient or cost-effective way to clear land, despite their significant contribution to Karhutla occurrences. Some communities may not fully grasp the environmental and health consequences of Karhutla. The long-term impacts on air quality, water resources, biodiversity, and public health are often underestimated, leading to a lack of urgency in fire prevention efforts. There is a limited understanding of fire prevention techniques and strategies among some segments of the population. This lack of knowledge can lead to unsafe practices, such as improper disposal of cigarette butts or burning debris during dry periods, increasing the risk of fires. Lack of awareness about fire prevention measures and the legal consequences of illegal land clearing practices can lead to an increase in fire incidents. Communities that are unaware of the importance of early fire reporting may delay reporting fire incidents, allowing fires to spread and cause more extensive damage. Misconceptions about traditional practices and underestimation of environmental impacts can create resistance to adopting new, more sustainable land clearing and fire prevention techniques. Low public awareness can hinder community engagement in fire prevention efforts. Communities that do not understand the importance of their role in fire prevention may be less likely to participate in initiatives such as community fire patrols or public education campaigns. Developing and implementing targeted education programs is crucial. These programs should be tailored to specific audiences, such as farmers, community leaders, and

school children, and delivered in accessible formats and languages. Conducting community outreach initiatives, such as workshops, public meetings, and door-to-door campaigns, can help disseminate information about Karhutla laws, fire prevention techniques, and the environmental and health impacts of fires. Utilizing various media channels, such as television, radio, and social media, to broadcast public service announcements can raise awareness about Karhutla and promote responsible behavior. Partnering with local NGOs and community leaders can enhance the reach and effectiveness of awareness-raising initiatives. These stakeholders have established trust within communities and can play a crucial role in disseminating information and promoting behavior change. Integrating Karhutla prevention and environmental education into school curricula can raise awareness among future generations and foster a sense of responsibility towards the environment. Utilizing interactive campaigns, such as quizzes, games, and social media challenges, can engage the public and make learning about Karhutla more interactive and fun. Recognizing and rewarding communities that actively participate in fire prevention efforts can create positive reinforcement and encourage wider community engagement.¹⁸⁻²⁰

5. Conclusion

Despite the existence of a comprehensive legal framework and broad stakeholder support, the law's effectiveness is hampered by a complex interplay of factors. These include weak law enforcement, stemming from limited resources, corruption, and inadequate inter-agency coordination, lenient sanctions that fail to deter illegal land clearing and burning practices, and low public awareness regarding the law and fire prevention measures. The persistence of Karhutla in Palembang poses a dire threat to the region's ecological integrity, economic stability, and public health. Addressing these implementation gaps is crucial for enhancing the effectiveness of Law No. 32 of 2009 and mitigating the devastating impacts of

Karhutla. This requires a multi-faceted approach encompassing strengthened law enforcement, stricter sanctions, enhanced inter-agency coordination, increased public legal awareness, and adequate resource allocation. Strengthening law enforcement necessitates increased investment in the capacity of law enforcement agencies, including the provision of adequate resources, training, and technology. Stricter sanctions, including higher fines and increased use of imprisonment, are necessary to deter illegal practices and ensure accountability for those responsible for Karhutla. Improved inter-agency coordination is vital for streamlining Karhutla management efforts and avoiding duplication or conflict. Crucially, raising public awareness about the environmental and health impacts of Karhutla, along with the legal consequences of non-compliance, is essential for fostering community engagement in fire prevention efforts. This can be achieved through targeted education programs, community outreach initiatives, and the utilization of various media channels to disseminate information and promote responsible behavior. In closing, effective Karhutla management in Palembang requires a concerted effort from all stakeholders. By addressing the implementation gaps of Law No. 32 of 2009, Indonesia can move towards a more sustainable future, safeguarding its natural resources and protecting the health and well-being of its citizens.

6. References

1. van den Boogaard E. Environmental intervention: An activist idea or a legal tool? An analysis of the possibilities of environmental protection in light of the principle of non-intervention. *Neth Int Law Rev.* 2024.
2. Earnhart D, Rousseau S. Sanctioning environmental offenses committed by companies: the joint use of firm and employee sanctions. *Eur J Law Econ.* 2024.
3. Bobeck KJ. Right to breathe: a constitutional path to an environmental amendment. *Univ Pittsbgb Law Rev.* 2024; 85(2).
4. Walshe R, Law L, Evans N (snowy). Understanding environmental generational amnesia through urban school garden learning experiences in Gimuy/Cairns, Australia. *Local Environ.* 2024; 1–16.
5. Ugwu IP. Environmental protection, rights of nature, and religious beliefs in Europe. *Int J Semiot Law.* 2024.
6. Xu Y, Chen Q. On the choice-making of the codification mode and structure of China's codification of environmental laws: a comparative law perspective. *DONG-LAW REV.* 2024; 104: 311–43.
7. Lian Y, Feng L. China's wetland management laws and practices, and their future. *Pol J Environ Stud.* 2024.
8. Najemi A, Rapik M. Islamizing environmental law in Indonesia; Rethinking the Green Fatwa. *Home.* 2024; 7(1).
9. Haasnoot M, Di Fant V, Kwakkel J, Lawrence J. Lessons from a decade of adaptive pathways studies for climate adaptation. *Glob Environ Change.* 2024; 88(102907): 102907.
10. Lee M, Abbot C. Philanthropy and environmental law. *J Law Soc.* 2024; 51(3): 413–34.
11. Cosnita-Langlais A, Langlais E. Environmental liability and product differentiation: Strict liability versus negligence revisited. *Int Rev Law Econ.* 2024; 79(106214): 106214.
12. Cardwell M. The environmental land management scheme: public goods and levels of ambition. *Environ Law Rev.* 2024; 26(3): 223–32.
13. Souiden N. Recreational marijuana: Ethical positions and consumption status in explaining attitudes, perceived law ethicalness, and perceived corporate social

responsibility. *Corp Soc Responsibility Environ Manage*. 2024; 31(5): 4512–31.

14. López Porras G. Earth-centred law: Challenges and necessity. *Environ Law Rev*. 2024; 26(3): 181–4.
15. Zou X, Tan S, Hong J, Du L, Zhao Q, Zuo J. Understanding the metabolism and scaling law in construction projects: Evidence from China. *Environ Impact Assess Rev*. 2024; 108(107572): 107572.
16. Hamlyn O. Economic imaginaries and environmental regulation. *Mod Law Rev*. 2024; 87(5): 1258–93.
17. Emmanuel E. Application of international standards in drafting environmental legislation and law reform projects: The African experience. *Int J Legis Draft Law Reform*. 2024.
18. Stranlund J, Wagner J. The environmental law and economics of hazardous waste management regulations. *J Assoc Environ Resour Econ*. 2024.
19. Oral E. The environmental rule of law and the protection of human rights defenders: law, society, technology, and markets. *Int Environ Agreements*. 2024.
20. Lees E, Pedersen OW. Performative environmental law. *Mod Law Rev*. 2024.