



# Analysis Of Forest And Land Fire Prevention And Law Enforcement Strategies In The Riau Islands In An Effort To Deal With Environmental Crises and Economic Losses (Research Study In Bintan Regency)

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**Abstract.** Forest and land fires are a serious problem that has a negative impact on the environment and the economy, especially in the Riau Islands region, including Bintan Regency. The background of this research is the high frequency of forest fires that cause ecosystem damage, air pollution, and significant economic losses. This study aims to analyze the forest and land fire prevention and law enforcement strategies that have been implemented and identify obstacles in their implementation. The research method used is qualitative with a case study approach. The data was collected through in-depth interviews with law enforcement officials, forestry officers, and local communities, as well as analysis of documents related to forest fires in Bintan over the past few years. In addition, questionnaires were also distributed to get a broader perspective on the effectiveness of existing strategies. The results of the study show that although there have been various prevention efforts such as routine patrols, socialization, and the installation of prohibition signs, the effectiveness is still not optimal. The main obstacles identified include limited resources, lack of community participation, difficulty in identifying perpetrators, hard-to-reach terrain, and pressure from certain parties. The lack of resources such as personnel and equipment, as well as the low level of public awareness and participation in forest fire prevention, are the main factors hindering the effectiveness of these strategies. In addition, pressure from landowners or influential parties often hinders firm and fair law enforcement. Suggestions for improving the effectiveness of prevention and enforcement strategies include increasing the budget and capacity of officers, the use of advanced technology for monitoring and investigation, and education and empowerment of local communities. In addition, there is a need for increased coordination between agencies and legal protection for officers who face pressure in carrying out their duties. With a comprehensive and inclusive approach, it is hoped that forest and land fires in Bintan can be minimized, so that a more sustainable environment and a stable economy can be realized

**Keywords:** Prevention Strategy, Law Enforcement, Forest Fire

## 1. INTRODUCTION

Forest and land fires are one of the serious problems faced by Indonesia for the past few decades. This phenomenon often occurs on a large scale, causing wide negative impacts on the environment, economy, and public health. The occurrence of forest and land fires not only damages forests and their natural ecosystems, but also threatens the sustainability of the environment, causes dangerous air pollution, and causes significant economic losses. Indonesia is currently also experiencing quite serious problems regarding pollution and environmental damage which are increasing day by day. Environmental problems are still a big responsibility because they will affect the quality of life in the future. Exploitation of natural resources and the environment has caused the quality of the environment, especially natural resources, to worsen. The rampant destruction of nature such as marine ecosystems, the destruction of most of the forests that are the lungs of the world, floods that still occur everywhere, landslides, and

of course many more. One of the most common impacts felt in this region of Indonesia is forest fires, where the problem of forest fires increases almost every year.<sup>1</sup>

Law enforcement in environmental issues has been regulated in Law Number 32 of 2009 concerning Environmental Protection and Management, which is contained in Articles 15 to 97, which explain criminal sanctions for environmental crimes. The articles contained in the Basic Law Number 32 of 2009 concerning Environmental Protection and Management can be used as a guideline to be able to pay more attention to the importance of law enforcement in various environmental problems, especially forest fire cases. Citizens' awareness in protecting and preserving the environment is one of the foundations in realizing sustainable development in the future. Therefore, the focus of research in this paper is how important law enforcement is for environmental problems to realize sustainable development (case study of forest fires in Indonesia).<sup>2</sup> Law enforcement against perpetrators of forest and land burning is very necessary, in addition to providing a deterrent effect for the perpetrators, also to compensate for all losses arising from forest and land burning.

The PPLH Law recognizes three mechanisms for law enforcement against perpetrators of environmental pollution and destruction, namely the administrative sanction approach, the civil sanction approach and the criminal sanction approach. However, so far law enforcement using the Forestry Law, the Plantation Law and also the most common with the PPLH Law, apart from not being deterrent, also does not fulfill a sense of justice. For further discussion, it will be discussed how to prosecute perpetrators of land and forest burning legally using the approach of the Forestry Law, the Plantation Law and the PPLH Law.<sup>3</sup> The forest and land fire crisis presents a complex challenge for the Indonesian government and society. In addition to being a threat to the environment and the sustainability of natural resources, these fires also cause major economic losses due to the loss of productive land, disruption to the agricultural and tourism sectors, and high extinguishing and rehabilitation costs.

The study will also investigate the challenges and obstacles in implementing the strategy and find solutions to improve the effectiveness and efficiency in dealing with this fire crisis. By exploring the latest information and data on prevention and law enforcement strategies, this study is expected to provide valuable contributions to efforts to deal with the

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<sup>1</sup> Badan Pusat Statistik, Statistik Lingkungan Hidup Indonesia, Badan Pusat Statistik, Indonesia, 2018, hlm. 3.

<sup>2</sup> Joko Waluyo, Andi Kiki, Yesaya Hardyanto, M Ichwan Hidayatullah, Membangun Model Tata Kelola Pengendalian Karhutla berbasis Multipihak: Studi Kasus Kabupaten Pulang Pisau, Kalimantan Tengah, Kemitraan, Jakarta, 2020, hlm. 112

<sup>3</sup> Dicki Simorangkir, Tinjauan Singkat Kerangka Hukum dan Kelembagaan dalam Penanganan Kebakaran Hutan dan Lahan di Indonesia, makalah dalam prosiding seminar sehari dengan tema: Akar Penyebab dan Dampak Kebakaran Hutan dan Lahan di Sumatera, ICRAF, CIFOR dan Uni Eropa, Bogor, 2011, hlm. 78

environmental crisis and economic losses caused by forest and land fires. The results of this study are expected to provide more effective and sustainable policy recommendations in dealing with this serious challenge, so that Indonesia can be more prepared and responsive in dealing with the fire crisis and protecting natural resources and the environment for future generations. Based on the problems above, the author is interested in making it a scientific work in the form of a thesis with the title "Analysis of Forest and Land Fire Prevention and Law Enforcement Strategies in the Riau Islands in Efforts to Handle the Environmental Crisis and Economic Losses (Research Study in Bintan Regency)".

Based on the background description above, the author raises several problems that will be discussed further. The problems are as follows:

1. How is the legal arrangement of forest and land fire prevention and enforcement strategies in an effort to deal with the environmental crisis and economic losses?
2. How is the implementation of forest and land fire prevention and law enforcement strategies in an effort to deal with the environmental crisis and economic losses in Bintan?
3. What are the obstacles and solutions to forest and land fire prevention and law enforcement strategies in an effort to deal with the environmental crisis and economic losses in Bintan?

Based on the formulation of the problem stated above, it can be seen that the objectives of this research are:

1. To find out and analyze the legal arrangements for forest and land fire prevention and enforcement strategies in an effort to deal with the environmental crisis and economic losses.
2. To find out and analyze the implementation of forest and land fire prevention and law enforcement strategies in an effort to deal with the environmental crisis and economic losses in Bintan.
3. To find out and analyze the obstacles and solutions to forest and land fire prevention and law enforcement strategies in an effort to deal with the environmental crisis and economic losses in Bintan.

## **2. LITERATURE REVIEW**

Forests as part of the environment are a gift from God Almighty and are one of the most important natural resources for mankind. This is based on the many benefits that can be taken from forests. For example, forests support the world's lungs. According to the Black Law Dictionary, a forest is a certain area whose land is covered with trees where all animals live.

Article 3 of Law Number 18 of 2013 concerning Prevention and Eradication of Forest Destruction Prevention aims to:

1. Guarantee legal certainty and provide a deterrent effect for perpetrators of forest destruction
2. Guarantee the existence of forests in a sustainable manner while maintaining sustainability and not damaging the environment and surrounding ecosystems
3. Optimize the management and utilization of forest products by paying attention to the balance of forest functions in order to realize a prosperous society
4. Increase the ability and coordination of law enforcement officers and related parties in handling the prevention and eradication of forest destruction

Forest protection is an effort to prevent and limit damage to forests, forest areas and forest products caused by human actions, livestock, fires, natural forces, pests and diseases, as well as to maintain and safeguard the rights of the state, communities and individuals over forests, forest areas, forest products, investments, and devices related to forest management, the definition of forest protection as regulated in the provisions of Article 1 number 1 of Government Regulation Number 45 of 2004 concerning Forest Protection (hereinafter referred to as the PP on Forest Protection). Article 7 of Law Number 18 of 2013 concerning Prevention and Eradication of Forest Destruction states that prevention of forest destruction is carried out by communities, legal entities, and/or corporations that obtain forest utilization permits. Then according to Article 8 of Law Number 18 of 2013 concerning Prevention and Eradication of Forest Destruction states that the Government and Regional Governments are obliged to eradicate forest destruction. Eradication of forest destruction is carried out by taking legal action against perpetrators of forest destruction, whether directly, indirectly, or otherwise related. Legal actions include investigations, inquiries, prosecutions, and examinations in court.

Forest and forest area protection activities are very important and primary activities because the facts show that forest damage in Indonesia has reached a very worrying scale, and therefore it is very appropriate for the government to pay close attention to forest protection. Following up on forest protection, the government issued Government Regulation Number 45 of 2004 concerning Forest Protection replacing Government Regulation Number 28 of 1985 concerning Forest Protection. Forest protection activities are an inseparable part of forest management, this is stated in Article 2 of Government Regulation Number 45 of 2004 which states that forest protection is part of forest management. Forest protection activities as referred to in paragraph (1) are carried out in forest areas in the form of Conservation Forest

Management Units (KPHK), and Production Forest Management Units (KPHP).<sup>4</sup>

Article 1 Paragraph (1) of Government Regulation Number 45 of 2004 concerning Forest Protection. Forest protection is an effort to prevent and limit damage to forests, forest areas and forest products, caused by human actions, livestock, fires, natural resources, pests and diseases, as well as to maintain and safeguard the rights of the State, communities and individuals over forests, forest areas, investment forest products and equipment related to forest management. From the special provisions regarding forest protection as regulated by Government Regulation Number 45 of 2004 concerning Forest Protection, it is the responsibility of the government and regional governments as the implementers of the State's duties to regulate, protect and prosper. Therefore, one of the heavy tasks borne by the government and regional governments is how to make the community prosperous, especially the community living around the forest by not destroying the forest.

The police play a crucial role in enforcing the law against environmental and forest destruction, acting as the vanguard in identifying, preventing, and prosecuting violations of environmental and forestry regulations. Through special divisions such as the Special Criminal Directorate, the police are tasked with conducting investigations and inquiries into cases such as illegal logging, environmental pollution, forest fires, and illegal mining practices that damage the ecosystem. The police work together with other government agencies, such as the Ministry of Environment and Forestry, as well as international institutions and non-governmental organizations, in gathering evidence and information to thoroughly investigate perpetrators of violations. In addition, the police also play an important role in raising public awareness of the importance of environmental and forest conservation through various education programs and campaigns.

Various jurisdictions have laws and regulations designed to prevent, control, and sanction activities that cause forest fires. First, in many legal systems, forest fires are regulated by laws relating to forest and environmental management and protection. These laws typically prohibit burning in forest areas without a valid permit, clearing land by burning that could cause forest fires, and other prohibitions relating to the use of fire in forest areas that are at risk of causing fires. These legal provisions are intended to protect forests from activities that could cause fires, which are often carried out for the purpose of converting land for agriculture, plantations, or development. Second, in the event of a forest fire, an investigation is conducted to determine the cause and the responsible party. This investigation is important to ensure that

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<sup>4</sup> Supriadi, *Hukum Kehutanan dan Hukum Perkebunan Di Indonesia*, PT Sinar Grafika, Jakarta, 2011, hlm. 385.

the legal action taken is targeted and fair. If it is found that the fire was caused by negligence or deliberate action by an individual or corporation, then the party can be charged with certain articles in criminal law relating to the environment. Sanctions for perpetrators of forest fires can vary, from fines, compensation for environmental damage, to imprisonment, depending on the level of damage and the provisions of applicable laws and regulations.

Third, the implementation of criminal law on forest fires also concerns aspects of prevention and education to the community. Criminal law does not only aim to punish the perpetrators but also to prevent future forest fires through coaching and counseling to the community about the dangers and negative impacts of forest fires. In this context, cooperation between government agencies, non-governmental organizations, and local communities is essential to increase public awareness and capacity in sustainable forest management and forest fire prevention. Thus, the criminal law approach to forest fires is part of a comprehensive effort to protect forests and the environment. This requires coordination and cooperation between various parties, as well as fair and effective application of laws, to prevent and manage forest fires in a sustainable manner.

### **3. RESEARCH METHOD**

Research is a managed, systematic, data-based, critical, objective, and scientific investigation or investigation of a specific problem aimed at finding alternative solutions to related problems. Methods are processes, principles and procedures for solving a problem.<sup>5</sup> The specification of this research only carries out analysis up to the level of synthesis, namely analyzing and presenting facts systematically so that they can be more easily understood and concluded.<sup>6</sup> The specification and/or type of this thesis research is normative legal research while combining it with sociological (empirical) legal research using secondary data obtained directly from the first source through field research through interviews and primary data as a source/information material in the form of primary legal materials, secondary legal materials and tertiary legal materials.

The approach method in this study is a combination of the normative approach "legal research" with the empirical approach method "Juridical Sociologies". The research mechanism with this combined approach method is carried out by describing the explanation of the inductive research method leading to the deductive method and vice versa. This is done

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<sup>5</sup> Bambang Sugono, *Metoda Penelitian Hukum*, Jakarta: Raja Grafindo Persada, 2001, hlm. 29.

<sup>6</sup> Irawan Suhartono, *Metode Penelitian Sosial Suatu Teknik Penelitian Bidang Kesejahteraan Sosial lainnya*, Bandung: Remaja Rosda Karya, 2009, hlm. 63.

by the author to help explain the relationship between research variables and research objects so that it can produce an understanding that is very helpful for readers, especially researchers and academics.

The location of this research is carried out in the Riau Islands Province, precisely in Bintan Regency. This location is determined based on forest fire data which is the object of this thesis research. The population is all stakeholder elements who have duties and responsibilities for forest fires. The sample used by the researcher is a random technique to find out for sure related to the research to be studied. As for the sample used by the author is a purposive sampling technique in determining respondents and informants who will be interviewed to meet the primary data needed to complete the research.

#### **4. RESULTS AND DISCUSSION**

##### **Legal Arrangement of Forest and Land Fire Prevention and Enforcement Strategy in Efforts to Handle Environmental Crisis and Economic Losses**

Effective law enforcement, together with prevention efforts involving community participation and education, are key to addressing this problem holistically and sustainably.

- a. Law Number 32 of 2009 concerning Environmental Protection and Management (UU PPLH)

Articles 15-97 of Law Number 32 of 2009 concerning Environmental Protection and Management (UU PPLH) regulate various aspects related to environmental protection and management in Indonesia. These provisions cover all efforts to prevent, control, and overcome environmental damage caused by human activities.

- b. Law Number 41 of 1999 concerning Forestry

Article 50 paragraph (3) letter d in Law Number 41 of 1999 concerning Forestry prohibits forest burning. This prohibition aims to prevent forest fires that can cause ecosystem damage, loss of biodiversity, and various other negative impacts. Forest burning is often carried out to open new land for agriculture or plantations, but this method is very damaging to the environment. This article also encourages preventive measures, such as increased forest monitoring, public education on the dangers of forest fires, and the application of environmentally friendly technology for land management. Through this approach, it is hoped that collective awareness and a legal culture can be created that supports forest and environmental protection, and prevents forest fires that harm various aspects of life.

- c. Law Number 18 of 2013 concerning Prevention and Eradication of Forest Destruction

Article 3 of Law Number 18 of 2013 concerning the Prevention and Eradication of Forest Destruction stipulates the main objective of this law, namely to ensure legal certainty and provide a deterrent effect for perpetrators of forest destruction. Legal certainty here means the existence of clear and firm rules that can be used as a reference in prosecuting perpetrators of forest destruction, whether individuals, corporations, or other parties involved. This legal certainty is very important to ensure that any violation of forest protection regulations can be followed up fairly and consistently, so that there is no legal vacuum or ambiguity that can be exploited by perpetrators of forest destruction. With legal certainty, law enforcement officers have a strong basis for conducting investigations, prosecutions, and imposing sanctions on perpetrators of forest destruction.

### **Implementation of Forest and Land Fire Prevention and Law Enforcement Strategy in an Effort to Handle the Environmental Crisis and Economic Losses in Bintan**

Forest and land fire prevention strategies in Bintan that should be implemented by the police and forestry officers need to include a comprehensive and sustainable approach. First, strengthening routine surveillance and patrols in areas prone to forest fires is a crucial step. These patrols are not only carried out by forestry officers but also involve the police and local communities to detect burning activities early. The use of sophisticated technology such as drones, satellites, and technology-based monitoring applications, such as "Lancang Kuning," can increase the effectiveness of surveillance. These patrols and surveillance need to be scheduled regularly, especially during the dry season which has a higher risk of fire.

Second, intensive socialization and education to the community about the dangers and impacts of forest fires must be expanded. This education can be done through various media, such as direct counseling, campaigns through local radio and television, and the installation of banners and billboards in strategic places. Educational programs must also target schools and community groups around the forest to instill awareness from an early age. In addition, counseling on environmentally friendly agricultural practices and land management needs to be provided to farmers and business actors in the forestry sector. The community must be given an understanding that clearing land by burning is not only against the law but also damages the environment and is detrimental to the long-term economy.

Third, cooperation and coordination between agencies and active community involvement in prevention efforts need to be improved. Police and forestry officers must work together with local government agencies, non-governmental organizations (NGOs), and local communities to create effective prevention programs. The formation of fire-aware community

groups (MPA) that are trained and empowered to conduct patrols and initial handling when a fire occurs can be a practical solution. The existence of regular communication forums between various stakeholders can ensure good coordination and rapid response in the event of a fire. Adequate funding from the central and regional governments must also be allocated to support all these prevention activities. With an integrated prevention strategy supported by all parties, it is hoped that forest and land fires in Bintan can be minimized significantly.

### **Obstacles and Solutions to the Implementation of Forest and Land Fire Prevention and Enforcement Strategies in an Effort to Handle the Environmental Crisis and Economic Losses in Bintan**

Obstacles and solutions to implementing forest and land fire prevention and enforcement strategies in efforts to address the environmental crisis and economic losses in Bintan, namely:

One of the main obstacles in implementing forest fire prevention and law enforcement strategies in Bintan is limited resources. Both the number of personnel and equipment available for patrols, firefighting, and investigations are often insufficient to cover all fire-prone areas. Data from the questionnaire showed that personnel are often overwhelmed by the vast area to be monitored and the lack of supporting facilities such as patrol vehicles, fire extinguishers, and monitoring technology.

Community participation in forest fire prevention efforts is still low. Based on data from the questionnaire, local communities are often unaware or indifferent to the negative impacts of forest fires. In addition, traditional practices such as burning land to clear agricultural land are still common. The obstacle of minimal community participation in forest fire prevention in Bintan is a significant challenge. Local communities are often unaware or indifferent to the negative impacts of forest fires. Many of them still practice land burning to clear agricultural land, even though they know that this action is against the law and harmful to the environment.

The process of identifying forest fire perpetrators faces many obstacles, including a lack of strong evidence, difficult terrain, and a lack of eyewitnesses. This often results in the perpetrators not being able to be prosecuted. The difficulty in identifying forest fire perpetrators in Bintan is one of the main challenges in law enforcement efforts. One of the complicating factors is the lack of strong evidence. In many cases, forest fires occur in remote and large locations, making it very difficult to collect physical evidence such as footprints, fuel residue, or burning tools. In addition, fires often destroy existing evidence, making it difficult for the investigation team to find clues that can lead them to the perpetrators. Insufficient evidence

also complicates the trial process, because the court requires clear and convincing evidence to convict the perpetrators.

Difficult terrain obstacles in handling forest fires in Bintan are significant challenges that hinder the effectiveness of prevention and control efforts. Many forest areas in Bintan are in remote areas with very limited access. Inadequate roads, muddy, rocky, or densely vegetated soil conditions make it difficult for firefighters and law enforcement teams to reach fire locations quickly. As a result, fires can spread wider before rescue teams can arrive at the scene, causing greater environmental damage. In addition, the lack of basic infrastructure such as trails and monitoring posts in the forest worsens the situation, reducing the speed and efficiency of firefighting teams' response. The rugged terrain also adds to the difficulty of firefighting and investigation operations. Firefighting teams often have to carry heavy equipment through difficult paths, such as steep slopes, valleys, and swamps.

## **5. CONCLUSION AND SUGGESTION**

### **Conclusion**

Based on the discussion in the previous chapter, the following conclusions can be drawn:

- a. Legal arrangements for forest and land fire prevention and enforcement strategies in Indonesia, especially in Bintan, are strictly regulated in Article 69 paragraph (1) letter h and Article 108 of Law Number 32 of 2009 concerning Environmental Protection and Management prohibiting land burning and establishing severe criminal sanctions for violators. Article 50 paragraph (3) letter d and Article 78 paragraph (3) of Law Number 41 of 1999 concerning Forestry also prohibit forest burning and regulate criminal sanctions for perpetrators, while Article 3 and Article 4 of Law Number 18 of 2013 concerning Prevention and Eradication of Forest Destruction emphasize legal certainty and deterrent effects and include prevention, eradication, institutions, community participation, international cooperation, witness protection, financing, and sanctions.
- b. The implementation of forest and land fire prevention and law enforcement strategies in Bintan is still not optimal, to overcome the environmental crisis and economic losses caused by forest fires, a more comprehensive and inclusive approach is needed, including increasing the budget and capacity of officers, the use of sophisticated technology, community education and empowerment, and transparent and fair law enforcement.
- c. Obstacles to the implementation of forest and land fire prevention and law enforcement strategies in Bintan are limited resources, minimal community participation, difficulty in

identifying perpetrators, difficult-to-reach terrain, and pressure from certain parties. These obstacles reduce the effectiveness of the efforts made and require comprehensive solutions to overcome. Suggested solutions include increasing budget allocations for equipment and training, the use of sophisticated technology for monitoring and investigation, intensive education and community economic empowerment, and increasing cooperation and coordination between agencies. In addition, protection for law enforcement officers and transparency in the legal process are essential to ensure fair and effective law enforcement.

### **Suggestion**

From this conclusion, the author can provide several suggestions, namely:

- a. It is recommended that police and forestry officers receive intensive and continuous training in forest fire investigation techniques, the use of forensic technology, and evidence collection. Investment in advanced technologies such as drones, satellite imagery, and application-based fire monitoring systems should be increased to improve the effectiveness of monitoring and rapid response to forest fires in hard-to-reach areas.
- b. It is recommended that local communities should be actively involved in forest fire prevention efforts through intensive education programs and awareness campaigns about the dangers of forest fires and the benefits of forest conservation. The formation of fire-aware community groups (MPA) needs to be expanded and empowered with adequate training and incentives to increase community participation in patrolling and monitoring forest fires.
- c. It is recommended that the central and regional governments allocate adequate budgets to support forest fire prevention and control activities, including the procurement of modern equipment, officer training, and alternative economic programs for communities that depend on land burning. In addition, there needs to be increased coordination and cooperation between related agencies, such as the police, forestry services, and non-governmental organizations, to create effective synergy in handling forest fires and environmental conservation.

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