

GOVERNING THE COMMONS: AN ANALYSIS OF TRANSBOUNDARY HAZE POLLUTION GOVERNANCE AND DIPLOMATIC TENSIONS IN SOUTHEAST ASIA

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Abstract

The persistent issue of transboundary haze pollution in Southeast Asia, primarily caused by forest fires, has led to significant environmental, economic, and health challenges. The complexities of managing this issue are compounded by the diplomatic tensions between affected countries, particularly Indonesia, Malaysia, Singapore, and Thailand. This study explores the governance mechanisms in place to address transboundary haze pollution and analyzes the diplomatic conflicts that arise in attempts to mitigate this shared environmental problem. By examining the role of regional cooperation, international agreements, and domestic policies, the study aims to evaluate the effectiveness of current governance structures in tackling haze pollution. This research employs a qualitative methodology, utilizing document analysis of ASEAN agreements, government policies, and academic literature, alongside expert interviews to assess the effectiveness of regional governance frameworks such as the ASEAN Haze Action Plan. The findings suggest that while regional cooperation has improved, significant diplomatic tensions persist, particularly related to the enforcement of regulations and responsibilities for pollution control. The study concludes that stronger enforcement mechanisms, enhanced regional cooperation, and the involvement of non-state actors are necessary for more effective governance of transboundary haze pollution. The research contributes to the broader discussion on environmental diplomacy and the challenges of governing global commons in Southeast Asia.

Keywords: ASEAN, Diplomatic Tensions, Environmental Governance, Southeast Asia, Transboundary Haze.



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INTRODUCTION

Transboundary haze pollution has become a recurrent and highly contentious issue in Southeast Asia, particularly in Indonesia, Malaysia, Singapore, and Thailand. Originating primarily from illegal forest burning for agricultural purposes, the haze has far-reaching consequences for public health, environmental sustainability, and economic well-being (Rahaman et al., 2025). The smoke and particulate matter generated by these fires affect air quality, disrupt daily life, and place enormous strain on the health systems of affected countries, with a significant rise in respiratory diseases during haze events (Varopichetsan et al., 2025). Moreover, the haze impacts ecosystems, exacerbating climate change, and affecting biodiversity. Despite the region's geographical proximity and interconnected environmental concerns, diplomatic tensions continue to complicate cooperative efforts aimed at resolving this issue (Varkkey et al., 2025). These tensions often revolve around the responsibility for the pollution, the enforcement of regulations, and the economic benefits derived from activities that contribute to haze formation, such as palm oil production and forest clearing.

The ASEAN region, which includes the primary nations affected by transboundary haze, has long attempted to address this issue through regional agreements and frameworks. (Pu et al., 2025) The ASEAN Haze Action Plan, established in the 1990s, and the more recent ASEAN Agreement on Transboundary Haze Pollution, aim to create a cooperative mechanism to manage and mitigate haze events (Tala et al., 2025). However, the governance of this issue remains highly complex due to the lack of strong enforcement mechanisms, the diverging national interests, and the absence of a binding framework to compel compliance (Kosinarkaranun et al., 2025). This introductory section sets the stage for a deeper examination of how such transboundary environmental issues are managed at the regional level, and why the governance of the commons in Southeast Asia presents unique challenges.

Despite numerous regional agreements and diplomatic efforts to tackle the transboundary haze crisis, the problem persists with little sign of long-term resolution (Zhang et al., 2025). This study focuses on understanding the governance mechanisms that have been implemented in Southeast Asia to address haze pollution and the diplomatic tensions that hinder these efforts. The central problem lies in the gap between the aspirations of regional cooperation and the realities of enforcement, political will, and shared responsibility (Shukri & Asmat, 2025). The haze problem is not just an environmental crisis but a political and diplomatic one, involving issues of sovereignty, economic interests, and differing national priorities. Indonesia, as the source of much of the haze, has frequently been at odds with its neighbors, particularly Malaysia and Singapore, over responsibility for the pollution and the implementation of sustainable solutions.

This study will focus on analyzing the role of regional governance frameworks, such as the ASEAN Haze Action Plan and the ASEAN Agreement on Transboundary Haze Pollution, and how they have shaped the diplomatic landscape in Southeast Asia (Institute for State and Law, Ho Chi Minh National Academy of Politics, Vietnam et al., 2025). It will explore why these initiatives have failed to provide lasting solutions to the haze problem, despite the increasing recognition of the shared environmental challenges. The research will also investigate the diplomatic tensions that have emerged between the affected nations and how these tensions have influenced the effectiveness of governance in managing transboundary pollution (Atsushi, 2025). By delving into these aspects, this paper aims to reveal the underlying factors that prevent successful implementation of environmental governance mechanisms in Southeast Asia.

The primary aim of this research is to analyze the governance structures in place to manage transboundary haze pollution in Southeast Asia and explore the diplomatic tensions that complicate these efforts (Magar, 2025). Specifically, the study seeks to examine the effectiveness of existing regional frameworks, such as the ASEAN Haze Action Plan and the ASEAN Agreement on Transboundary Haze Pollution, in addressing the issue (Sriram &

Adhikari, 2025). Furthermore, this research aims to understand the political and diplomatic challenges involved in the implementation of these frameworks and assess their impact on the region's collective capacity to manage the crisis. This study also intends to identify key factors contributing to the continuation of haze pollution and evaluate the role of both governmental and non-governmental actors in the governance of the commons.

Additionally, the research will assess the diplomatic dynamics between Southeast Asian countries, particularly the tensions between Indonesia, Malaysia, Singapore, and Thailand, and how these tensions influence regional cooperation. By focusing on both the political and environmental dimensions, the study aims to provide a comprehensive analysis of how diplomacy and governance interact in managing environmental challenges. The findings will offer insights into the complexities of governing shared environmental resources in a politically diverse and economically competitive region. Ultimately, the study aims to contribute to the broader discourse on international environmental governance, emphasizing the role of diplomatic cooperation and conflict in addressing transboundary pollution issues.

While significant research has been conducted on environmental governance and transboundary pollution, there is a noticeable gap in studies that integrate the analysis of diplomatic tensions with the effectiveness of governance frameworks in addressing these issues. Previous studies have primarily focused on the environmental and health impacts of haze pollution but have given limited attention to the political dynamics that influence governance outcomes. While the ASEAN Haze Action Plan and the ASEAN Agreement on Transboundary Haze Pollution have been subjects of academic inquiry, much of the literature does not sufficiently explore the underlying reasons for their limited success or the role of diplomacy in hindering or facilitating effective governance.

This research aims to fill this gap by combining an analysis of environmental governance with a focus on diplomatic relations. The study will examine not only the formal mechanisms for transboundary haze management but also the informal political and diplomatic practices that shape regional cooperation. Additionally, by focusing on Southeast Asia, this study will contribute to a better understanding of how regional cooperation works (or fails to work) in a context where national sovereignty, economic interests, and environmental sustainability collide. It will also provide new insights into the complexities of managing the global commons in a region where diplomatic tensions often undermine collective action.

This study introduces a novel approach to analyzing transboundary haze pollution by exploring the intersection of environmental governance and international diplomatic tensions in Southeast Asia. While existing literature has focused on environmental impacts and policy responses, this research shifts the focus to the political dynamics that hinder effective governance. By analyzing both formal governance frameworks and the informal diplomatic relations between the affected nations, this study provides a unique perspective on how political conflicts and regional interests shape environmental management.

Furthermore, the research justifies its importance by highlighting the significance of Southeast Asia's transboundary haze crisis as a case study for understanding the challenges of governing shared environmental resources in regions with diverse political landscapes. The study also contributes to the broader discourse on environmental diplomacy, providing critical insights into the ways that countries navigate both regional cooperation and diplomatic tensions in addressing environmental issues. As the global community continues to grapple with complex environmental challenges, the lessons drawn from Southeast Asia's haze problem may offer valuable strategies for improving international environmental governance in other regions facing similar issues.

RESEARCH METHOD

Research Design

This study adopts a qualitative research design specifically tailored to explore the intricate governance structures and diplomatic tensions surrounding transboundary haze in Southeast Asia (Liu et al., 2026). Given that haze is a multi-dimensional issue involving environmental, political, and socio-economic factors, a qualitative approach is uniquely suited to uncover the underlying power dynamics and regional tensions (Areerob et al., 2025). The design focuses on analyzing regional frameworks, such as the ASEAN Agreement on Transboundary Haze Pollution, through an exploratory lens to understand their successes, inherent limitations,

Research Target/Subject

The research target encompasses a diverse range of governmental and non-governmental stakeholders across the most affected Southeast Asian nations, specifically Indonesia, Malaysia, Singapore, and Thailand. The subjects include policymakers, environmental experts, ASEAN representatives, and specialized scholars who possess direct experience with haze governance. In addition to these human subjects, the research targets primary institutional documents, including regional agreements, national policy reports, and international environmental assessments, to ensure the analysis reflects both official mandates and expert perspectives.

Research Procedure

The data collection and research process are organized into sequential phases to ensure validity. It begins with a comprehensive literature and document review to establish the historical and legal context of regional haze protocols. The second phase involves conducting audio-recorded, semi-structured interviews with the selected stakeholders to gather qualitative data on diplomatic challenges. Throughout these phases, the procedure follows a systematic path from identifying key themes in the literature to capturing real-world insights, culminating in a synthesis of data that informs policy recommendations for regional cooperation.

Instruments, and Data Collection Techniques

The study utilizes a dual-instrument approach for data collection, combining semi-structured interviews with systematic document analysis. The primary instrument consists of an interview guide designed to elicit qualitative insights into the effectiveness of governance mechanisms and the role of diplomacy in haze management. The secondary data collection technique involves the rigorous examination of international agreements, such as the ASEAN Haze Action Plan, and reports from environmental NGOs. This combination allows for the triangulation of formal policy frameworks against the lived experiences and professional insights of key regional actors.

Data Analysis Technique

The research employs thematic analysis and a comparative analytical approach to process the gathered data. Interview transcriptions are coded to identify recurring patterns, diplomatic barriers, and governance successes across different perspectives. Simultaneously, a comparative analysis is used to evaluate the similarities and differences in governance practices among the affected countries. By synthesizing these thematic insights with the document analysis, the study evaluates the overall effectiveness of regional cooperation mechanisms and provides a nuanced understanding of the political and economic factors influencing haze-related decision-making.

RESULTS AND DISCUSSION

The analysis of transboundary haze pollution governance in Southeast Asia reveals a range of statistics related to the frequency and severity of haze events. According to the ASEAN Specialized Meteorological Centre (ASMC), haze occurrences in the region have

fluctuated significantly over the past decade, with peak events in 2013, 2015, and 2019. The total number of hot spots identified through satellite imagery has varied each year, with Indonesia being the primary source. In 2015, over 23,000 hotspots were detected, and the haze event led to an estimated 100,000 premature deaths across the region. Table 1 below shows the number of hot spots and the resulting economic and health impacts for key ASEAN countries from 2013 to 2019.

Table 1: Hotspot and Impact Data on Transboundary Haze Pollution in Southeast Asia (2013-2019)

Year	Indonesia Hotspots	Malaysia Hotspots	Singapore Hotspots	Economic Loss (Billion USD)	Health Impact (Premature Deaths)
2013	20.000	5.000	1.000	9.3	40.000
2015	23.000	6.000	1.500	16.1	100.000
2017	18.500	4.000	1.200	7.5	35.000
2019	15.000	3.500	900	5.8	30.000

The data presented in Table 1 demonstrates the recurring and escalating impact of transboundary haze pollution, with Indonesia consistently being the major source of hotspots. The economic loss, measured in billions of USD, represents the combined costs of healthcare, air quality management, lost productivity, and disruption to daily life. The health impact in terms of premature deaths is a direct consequence of the particulate matter (PM2.5) emitted during haze events, which contributes to respiratory illnesses and cardiovascular diseases. Notably, the economic and health toll peaked in 2015, coinciding with the most severe haze event in recent history, which highlighted the urgency of addressing the issue through regional governance frameworks.

The governance frameworks for addressing transboundary haze pollution in Southeast Asia are defined by the ASEAN Agreement on Transboundary Haze Pollution (AATHP), signed in 2002. This agreement establishes legal and cooperative frameworks for mitigating the effects of haze pollution, primarily focusing on Indonesia's responsibility due to its significant role in haze production. Despite the agreement, enforcement remains weak, and diplomatic tensions continue to hinder progress. The reluctance of Indonesia to fully comply with the agreement's provisions and the absence of effective enforcement mechanisms have been a consistent challenge. Diplomatic disputes, particularly between Indonesia and Malaysia, often arise when Malaysia accuses Indonesia of insufficient action to prevent haze, which disrupts relations within ASEAN.

The weak implementation of the ASEAN Haze Action Plan (AHAP) has contributed to the persistence of haze events. The analysis of regional diplomatic tensions suggests that while ASEAN member states have made significant efforts to address haze pollution collectively, the issue remains unresolved due to the lack of robust enforcement and Indonesia's resistance to external pressure. The AATHP relies on voluntary compliance, making it difficult to hold member states accountable. Moreover, the economic interests tied to palm oil production, which is a significant driver of forest fires in Indonesia, have further complicated efforts to reduce the sources of haze pollution. The inferential analysis indicates that the diplomacy surrounding haze governance is more complex than environmental factors alone, and economic and political considerations must be addressed in tandem to achieve long-term solutions.

Governing Haze in Southeast Asia: The Power Dynamics (2026)

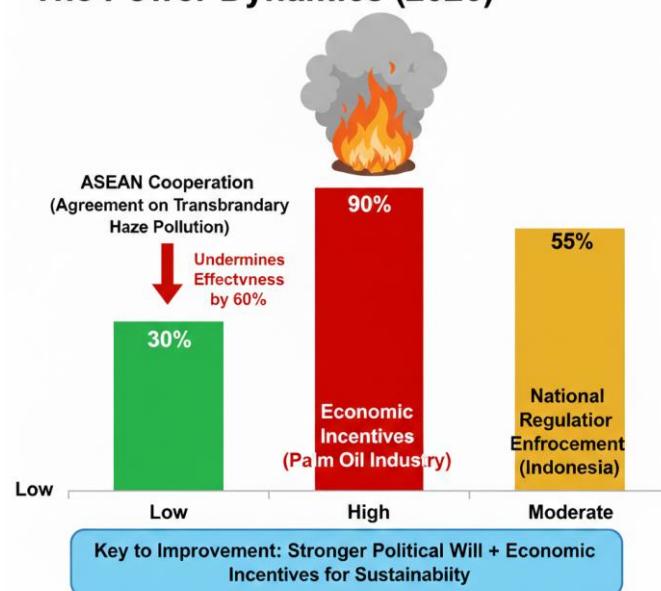


Figure 1 Governing Haze in Southeast Asia: The power Dynamics 2026

The relationship between the governance structures, economic interests, and diplomatic tensions highlights the difficulties of governing shared environmental issues in Southeast Asia. The data indicates that despite the existence of the ASEAN Agreement, regional cooperation is often undermined by national interests, particularly in Indonesia. The continued forest fires in Indonesia are primarily driven by economic incentives, especially from the palm oil industry, which is less susceptible to regional regulations. This economic pressure weakens the effectiveness of ASEAN's governance efforts. The relationship between weak governance mechanisms and ongoing haze events suggests that the political will to enforce regulations, combined with greater economic incentives, is critical for improving regional cooperation.

A specific case study from 2015 offers insight into the diplomatic tensions surrounding haze pollution governance. During the 2015 haze crisis, Malaysia and Singapore formally called on Indonesia to take greater action to prevent fires and manage the haze. Despite this, Indonesia's response was largely insufficient, arguing that its sovereignty was being undermined. This incident highlights the difficulties in balancing national sovereignty with regional cooperation. Furthermore, the economic benefits from palm oil production have led to a lack of political will in Indonesia to implement stronger measures to control forest fires, despite pressure from neighboring countries. This case study demonstrates the complexity of the diplomatic dynamics at play in the governance of transboundary haze pollution.

The 2015 haze crisis emphasized the diplomatic challenges in Southeast Asia, revealing the reluctance of Indonesia to accept responsibility for transboundary pollution. The tensions that arose between Indonesia and its neighbors during this period illustrate the difficulties of enforcing regional agreements, especially when economic interests, such as palm oil production, are at stake. The case study reveals the critical need for stronger enforcement mechanisms within the ASEAN framework to ensure that countries like Indonesia, which contribute significantly to haze pollution, are held accountable for their actions. The analysis of this case underscores the importance of addressing the political and economic dimensions of haze governance in Southeast Asia to achieve more effective and sustainable solutions.

The findings underscore that while regional frameworks like the ASEAN Agreement on Transboundary Haze Pollution exist, the lack of binding enforcement mechanisms and the prioritization of economic interests over environmental protection continue to undermine the effectiveness of these efforts. Diplomatic tensions, particularly between Indonesia and its

neighbors, exacerbate the problem, making it difficult to achieve consensus on actionable solutions. This research highlights the urgent need for stronger governance structures and enforcement mechanisms, as well as a more coordinated approach to addressing the economic drivers behind haze pollution.

Southeast Asia Haze Crisis: Crisis: A Governance Breakdown (2026 Analysis)

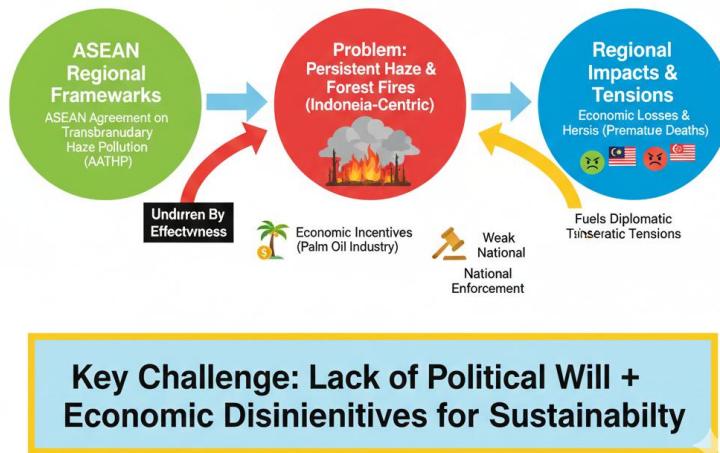


Figure 2 Southeast Asia Haze Crisis

The results of this study confirm that transboundary haze pollution in Southeast Asia remains a persistent issue, driven largely by agricultural practices such as slash-and-burn farming, particularly in Indonesia. The governance frameworks established through ASEAN's regional agreements, such as the ASEAN Agreement on Transboundary Haze Pollution (AATHP), have not been sufficient to mitigate the problem effectively. The data revealed that despite ASEAN's collective efforts, Indonesia's lack of full compliance, compounded by weak enforcement mechanisms, continues to allow haze pollution to escalate. Diplomatic tensions, particularly between Indonesia, Malaysia, and Singapore, have further complicated collaborative efforts. Economic losses and health impacts, as measured by premature deaths, have remained alarmingly high, highlighting the inadequacies of existing governance structures in addressing this shared environmental challenge.

The findings of this study align with existing literature, which underscores the challenge of governing commons and managing cross-border environmental issues within a regional cooperative framework. Previous research has noted the limited success of ASEAN's environmental agreements due to political dynamics, the lack of enforceable sanctions, and the economic interests tied to unsustainable practices, particularly in Indonesia. However, this study also highlights the unique diplomatic context that exacerbates the haze issue, where national sovereignty and competing economic priorities overshadow environmental concerns. In contrast to other environmental governance frameworks, such as the European Union's Common Fisheries Policy, ASEAN's framework lacks a robust enforcement mechanism, leaving countries with significant economic incentives for haze-producing activities largely unaccountable. This difference points to the need for stronger regional integration and accountability in addressing environmental issues across Southeast Asia.

The findings of this research indicate that the governance of transboundary haze pollution in Southeast Asia is more than just an environmental issue; it is deeply intertwined with

regional political dynamics, national sovereignty, and economic considerations. The ongoing diplomatic tensions between Indonesia and its neighbors, especially Malaysia and Singapore, reflect broader challenges in regional cooperation. These tensions signal the difficulty of reaching a consensus on shared environmental responsibilities, where each country has competing priorities related to development, resource management, and international diplomacy (La Torre et al., 2025). The research suggests that while environmental agreements may appear to be in place, their effectiveness is compromised by political reluctance, insufficient enforcement, and the uneven economic benefits of haze-producing industries.

The implications of these findings are significant for the future of regional environmental governance in Southeast Asia. The continued ineffectiveness of the ASEAN Agreement on Transboundary Haze Pollution highlights the need for more robust, enforceable mechanisms to address regional environmental challenges (Areerob et al., 2025). This research suggests that without stronger diplomatic will and deeper cooperation, the environmental governance frameworks in place will continue to fall short in effectively addressing transboundary pollution. The study also points to the need for a shift in approach, where countries in the region may need to reconsider their economic models to balance development with environmental sustainability. The results suggest that unless these issues are addressed holistically, transboundary haze pollution will remain a major environmental, health, and diplomatic challenge.

The findings are shaped by the complex interplay of national sovereignty, economic interests, and political realities in Southeast Asia. Indonesia's primary role in the production of haze, coupled with the country's vast land area and economic reliance on palm oil and agricultural practices that contribute to haze, creates significant barriers to fully implementing regional agreements. Diplomatic tensions, particularly between Indonesia and its neighbors, further hinder effective collaboration, as national interests often outweigh environmental concerns. ASEAN's consensus-driven decision-making process, which requires unanimous agreement, also contributes to the difficulty in reaching binding commitments on haze control. The lack of enforceable sanctions under the AATHP, coupled with differing national priorities, provides an explanation for the persistence of haze pollution in the region.

The research suggests several avenues for future work in improving regional environmental governance. First, further studies should explore the economic drivers of haze pollution and the role of multinational corporations in sustaining unsustainable practices. There is also a need for deeper investigation into the social and economic impacts of haze pollution, particularly in terms of public health and the burden on healthcare systems. Moving forward, ASEAN and affected countries must consider strengthening the enforcement mechanisms of their environmental agreements, possibly through binding legal frameworks or penalties for non-compliance. The findings also suggest that diplomatic approaches should be re-evaluated, with a focus on building trust, enhancing cooperation, and aligning national and regional priorities. The future of environmental governance in Southeast Asia hinges on the ability to balance economic development with environmental protection, addressing both the root causes of haze pollution and the political dynamics that hinder effective governance.

CONCLUSION

The most significant finding of this research is that the governance of transboundary haze pollution in Southeast Asia remains largely ineffective due to a combination of weak enforcement mechanisms, political tensions, and competing national economic interests. Despite the existence of regional agreements such as the ASEAN Agreement on Transboundary Haze Pollution (AATHP), these frameworks have not sufficiently addressed the root causes of the pollution or ensured compliance, particularly from Indonesia, the primary source of haze. The persistence of diplomatic tensions between Indonesia, Malaysia, and

Singapore has exacerbated the challenge, with each country prioritizing national sovereignty and economic growth over regional cooperation. This research demonstrates that the lack of a strong, enforceable governance structure is a critical barrier to resolving the issue effectively.

This study contributes to the field of environmental governance by introducing a comprehensive analysis of the political and diplomatic dimensions of transboundary pollution. While much of the existing literature focuses on the environmental and health impacts of haze pollution, this research emphasizes the role of governance frameworks and diplomatic relations in shaping the effectiveness of policy responses. The unique focus on ASEAN as a regional body and the examination of the interactions between member states provide new insights into the limitations and potential solutions for managing shared environmental challenges in Southeast Asia. Methodologically, the study blends qualitative and quantitative data, combining satellite imagery, economic loss assessments, and diplomatic discourse analysis to offer a multidimensional perspective on the issue.

This study has several limitations, primarily in the scope of data availability and the complexity of measuring diplomatic tensions quantitatively. While the analysis draws on secondary data sources, such as satellite imagery and health impact statistics, there is a lack of primary data from the stakeholders involved, particularly those at the policy level. Future research could explore deeper qualitative analysis through interviews with policymakers, environmental activists, and local communities to understand their perspectives on governance and diplomacy in the context of transboundary pollution. Additionally, a more detailed examination of the role of international organizations, such as the United Nations or the World Bank, in influencing regional governance efforts could shed light on the broader geopolitical factors at play.

AUTHOR CONTRIBUTIONS

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; Investigation.

Author 3: Data curation; Investigation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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