

Beyond Emergency Response: From Event-Based Regulations to System Based Regulation in The Governance of Post Disaster Health Crisis Management in Aceh

1st Siska Karina

University Swadaya Gunung Jati

Cirebon, Indonesia

siskakarinal8@gmail.com

Abstract—The historical development of disaster management law in Indonesia reveals a strong tendency toward the enactment of regulations as reactive responses to crisis events (event-based regulation). This pattern has proven ineffective in ensuring the sustainable management of post-disaster health crises, as reflected in the handling of the health crisis following the 2004 Aceh tsunami. This study aims to analyze the paradigmatic shift in the regulation of post-disaster health crisis management from an event-based approach to a system-based regulation approach within the legal governance framework of disaster management in Aceh. The research employs a normative juridical method, using statutory and conceptual approaches, through an analysis of Law Number 24 of 2007 on Disaster Management and Aceh Qanun Number 5 of 2010 on Disaster Management. The 2025 Aceh flood is utilized as an empirical context to assess the effectiveness of the implementation of these regulatory frameworks. The findings indicate that the application of system-based regulation is more effective in limiting the escalation of health crises, ensuring the continuity of health services, and strengthening cross-sectoral coordination, compared to the reactive and fragmented nature of event-based regulation. This study affirms that post-disaster health crises are not inevitable consequences but are largely determined by the regulatory model adopted. Therefore, strengthening the implementation of system-based regulation constitutes a fundamental prerequisite for the protection of disaster victims' right to health within the framework of the rule of law.

Keywords— *Disaster Management; Health Crisis; System-Based Regulation; Natural Disaster.*

I. INTRODUCTION

The historical development of disaster management law in Indonesia demonstrates a strong pattern whereby regulations are frequently enacted as responses to major crises (crisis-driven regulation/event based regulation). Prior to 2007, disaster management in Indonesia lacked a comprehensive and integrated overarching legal framework. Existing policies were sectoral and fragmented in nature, focusing primarily on emergency response after disasters occurred, without a well-developed planning system for prevention, mitigation, and recovery, particularly within the health sector..

The 2004 Aceh tsunami constituted a fundamental turning point in the history of national disaster law. The scale of destruction and the ensuing health crisis ranging from the devastation of health facilities and the collapse of medical service systems to the high number of fatalities resulting from delayed response clearly exposed the inherent weaknesses of an event-based regulatory approach. This disaster demonstrated that the absence of an integrated legal and institutional framework rendered the state unprepared to address health impacts that were massive in scale and long-term in nature.

In this historical context, the enactment of Law Number 24 of 2007 on Disaster Management represents a significant shift in normative paradigm. The shift toward a system-based regulatory model in Indonesia, particularly in Aceh, is also consistent with global commitments in disaster governance. The Sendai Framework for Disaster Risk Reduction 2015–2030 adopted by the United Nations emphasizes the strengthening of disaster risk governance, integration across sectors, and health system resilience as central priorities. The Framework explicitly recognizes that disasters generate

complex and long-term health impacts that require preventive and systemic policy responses rather than reactive emergency measures.² In this regard, the transformation from event-based regulation to system-based regulation in Aceh reflects alignment with international standards in disaster risk governance, particularly in embedding health protection within the broader legal architecture of disaster management. Disaster governance literature further affirms that resilience cannot be achieved solely through emergency response but requires integrated institutional design and long-term regulatory planning. This perspective reinforces the argument that post-disaster health crises must be governed through structured legal systems that operate before, during, and after disaster events. The statute reoriented policy from a predominantly reactive response toward a systemic approach to disaster risk management, integrating the entire disaster management cycle. Normatively, the Law also institutionalizes cross-sectoral and multi-level and the effectiveness of cross-sectoral coordination mechanisms. The 2025 Aceh floods may therefore be regarded as an evaluative moment for assessing the effectiveness of a system-based regulatory approach in the governance of post-disaster health crises.

Based on the foregoing historical and analytical discussion, this study focuses on examining the implementation of post-natural disaster health crisis governance in Aceh from a legal perspective. The research aims to assess the extent to which the existing regulatory framework operates as an integrated and sustainable system, as well as to identify the normative and institutional challenges that continue to impede the realization of effective health crisis governance within the framework of national disaster management law.

II. METHOD

A. Research Objectation

The object of this study is the governance of post-natural disaster health crisis management in the Province of Aceh from a legal perspective. The research focuses on how the regulatory framework governing disaster management and health crises is implemented in practice, particularly in the aftermath of natural disasters that generate significant health impacts on affected communities.

From a normative standpoint, the object of the study encompasses regulations governing disaster management and health crisis response, principally Law Number 24 of 2007 on Disaster Management and Aceh Qanun Number 5 of 2010 on Disaster Management. These two instruments are analyzed as the primary legal foundations shaping a system-based framework for health crisis governance, including provisions on the allocation of authority, cross-sectoral coordination, and the integration of health considerations throughout the entire disaster management cycle.

Beyond the normative dimension, the object of the research also includes the implementative aspects of these regulations at the regional level, with particular attention to the roles and functions of the Aceh regional government and relevant institutions in managing post-disaster health crises. In this

context, the study examines the working relationships among regional disaster management agencies, health offices, and other supporting institutions in carrying out the legal mandates established by statutory and regulatory instruments.

The large-scale floods that struck Aceh in 2025 are employed as the primary empirical context of this research. This disaster is selected because it reflects the characteristics of hydrometeorological hazards with widespread impacts and complex health consequences, while simultaneously serving as an evaluative moment to assess the effectiveness of regulatory implementation in real-world conditions. Accordingly, the 2025 Aceh floods are positioned not merely as a factual case study, but as a lens through which the functioning of the legal system governing post-disaster health crisis management can be comprehensively assessed.

Within these defined research boundaries, the study does not focus on medical or technical public health analysis, but rather on legal and regulatory governance aspects. The research conceptualizes health crises as legal and public policy phenomena; therefore, the object of inquiry is directed toward the norms, institutions, and coordination mechanisms that constitute the system of post-natural disaster health crisis management in Aceh.

B. Research Method

This study employs a normative juridical legal research method, focusing on the analysis of legal norms governing the governance of post-natural disaster health crisis management. This approach is selected because the research seeks to examine and evaluate the regulatory framework and its implementation within the disaster management legal system, particularly in the context of health crises in the Province of Aceh.

The research approaches employed include the statutory approach and the conceptual approach. The statutory approach is applied through a systematic examination of relevant legal provisions, particularly Law Number 24 of 2007 on Disaster Management and Aceh Qanun Number 5 of 2010 on Disaster Management, as well as regional regulations and derivative policies related to disaster and health crisis management in Aceh. The conceptual approach is employed to analyze key concepts such as event-based regulation, system-based regulation, governance, and health crises within the framework of public law. The legal materials used in this study consist of:

1. Primary legal materials, comprising relevant statutory and regulatory instruments in the fields of disaster management and health.
2. Secondary legal materials, including legal literature, textbooks, scholarly journals, and prior research addressing disaster law, health law, and public policy governance.
3. Tertiary legal materials, utilized as supporting references in the form of legal dictionaries and encyclopedias to clarify the terminology employed in the research.

The collection of legal materials is conducted through library research by tracing, compiling, and critically examining various relevant legal sources. In addition, this study utilizes

secondary data in the form of official government reports and publications issued by relevant institutions as supporting materials to contextualize the implementation of regulations governing post-disaster health crisis management in Aceh, particularly in relation to the 2025 flood events.

The analysis of legal materials is carried out qualitatively using a descriptive-analytical method. The collected materials are examined to identify regulatory patterns, the consistency among legal norms, and gaps between the normative framework and implementation practices. The findings are then systematically organized to elucidate the extent to which a system-based regulatory approach has been applied in the governance of post-natural disaster health crisis management in Aceh.

The qualitative analysis in this study is conducted through systematic legal interpretation and normative evaluation. Statutory interpretation is applied using grammatical, systematic, and teleological methods to examine the coherence of legal provisions within the disaster management framework. Furthermore, a consistency analysis is undertaken to assess the alignment between national legislation and regional regulations in Aceh. A gap analysis is also employed to identify discrepancies between normative mandates and practical implementation during post-disaster health crises. Conclusions are drawn through deductive legal reasoning by positioning statutory norms as the primary analytical foundation and empirical contextual data as supporting validation. This structured approach ensures that the study meets international academic standards in legal research methodology.

III. RESULTS AND DISCUSSION

Natural disasters in the Aceh context are not merely natural phenomena, but socio-legal events that generate systemic impacts on public health. The 2004 Aceh tsunami vividly demonstrated how the absence of an adequate legal framework led to the comprehensive collapse of the health system. Hospitals, community health centers, medical personnel, and referral systems failed simultaneously, resulting in the State's inability to fulfill victims' fundamental right to health services.

he post-2004 tsunami health crisis was characterized by a surge in environmentally based communicable diseases, poor sanitation, scarcity of clean water, and a heavy burden of psychological trauma. Many victims died not as a direct consequence of the tsunami itself, but due to delayed or absent access to health services. This condition illustrates that the physical disaster evolved into a secondary health crisis of far greater complexity.

At that time, the State had not yet adopted a legal paradigm that conceptualized disasters as threats to the public health system. Disaster management was still understood as a temporary emergency response, lacking long-term legal obligations to ensure the recovery and protection of community health. As a result, health interventions were fragmented and largely dependent on international assistance.

These systemic failures ultimately prompted the enactment of Law Number 24 of 2007 on Disaster Management, which transformed disaster governance into a system- and cycle-based

approach. This Law positions health as an integral component of victim protection, rather than merely a technical concern of the health sector, as affirmed under Law Number 24 of 2007 on Disaster Management:

Article 6:

“The Government is responsible for protecting the public from the impacts of disasters”

And Article 8:

“The Government and regional governments bear responsibility for the implementation of disaster management”

Within the context of Aceh, which enjoys special autonomy, these statutory mandates are further elaborated through Aceh Qanun Number 5 of 2010 on Disaster Management. This Qanun functions as an operational legal instrument that adapts national norms to Aceh's local characteristics as a disaster-prone region, as stipulated in Aceh Qanun Number 5 of 2010 on Disaster Management:

Article 3 letters (a) and (b):

“The objectives of disaster management are: (a) to provide protection to the public from disaster threats; and (b) to ensure the implementation of disaster management in a planned, integrated, coordinated, professional, and comprehensive manner”

And Article 16 paragraph 2 letters (d) to (h):

“Rehabilitation activities as referred to herein include: (d) the provision of logistical assistance; (e) health services; (f) social and psychological recovery; (g) socio-economic and cultural recovery; and (h) the restoration of security and public order”

Accordingly, the Aceh Qanun signifies a critical shift from a charity-based approach toward a rights-based approach. The regional government is no longer positioned merely as a provider of assistance, but is legally obligated to guarantee the right to health of disaster victims. The following presents a comparison of disaster management legal instruments in Aceh in the aftermath of the 2004 tsunami and the 2025 flood disaster:

TABLE I. COMPARATIVE OVERVIEW OF DISASTER MANAGEMENT LEGAL INSTRUMENTS IN ACEH FOLLOWING THE 2004 TSUNAMI AND THE 2025 FLOOD

No	Health Aspects	Aceh 2004	Aceh 2025
1	Legal Basis	Not Available	Laww No. 24 of 2007 and Aceh Qanun No. 5 of 2010
2	Condition of Health Facilities	Total Collapse	Partial Damage
3	Emergency Medical Services	Uncoordinated	Coordinated
4	Sanitation and Access to Clean Water	Extremely Limited	Recognized as Based Needs
5	Prolonged Health	Protracted	Relatively Contained

Crisis		
--------	--	--

Based on the table above, the health crisis in 2004 was systemic and largely uncontrolled, whereas in 2025 the health crisis was more limited in scope and relatively manageable. This contrast reflects the direct impact of the existence of a disaster management legal framework. During the 2025 Aceh floods, health facilities indeed faced severe pressures, including shortages of medical logistics and fatigue among health workers. Nevertheless, health services continued to operate, sanitation was treated as a priority, and communicable diseases were contained through rapid interventions.

Accordingly, the application of event-based regulation in Aceh's 2004 disaster management can be concretely observed in the State's response to the post-tsunami health crisis. At that time, there were no legal norms specifically governing the preparedness of the health system in the face of disasters, including the protection of health facilities, the deployment of reserve medical personnel, or mechanisms for sustainable emergency health services. As a result, when the tsunami struck, hospitals such as Zainoel Abidin General Hospital and the majority of community health centers in coastal areas collapsed entirely, without any legal framework regulating the transfer of service functions or the activation of alternative health facilities. The State only intervened after the health crisis had already emerged, and such interventions were reactive, unstandardized, and heavily dependent on international humanitarian assistance.

Another concrete illustration of event-based regulation can be observed in the handling of communicable diseases following the 2004 tsunami. Outbreaks of diarrhea, acute respiratory infections, and skin diseases spread widely due to poor sanitation and the absence of access to clean water. However, there was no explicit legal obligation requiring the government to immediately provide emergency sanitation systems or to guarantee the supply of clean water as part of disaster victims' right to health. Health interventions were undertaken only after morbidity rates increased, and even then they took the form of temporary, fragmented programs lacking systemic integration. From a positivist legal perspective, this condition indicates that the health crisis was treated merely as a collateral consequence of the disaster event, rather than as a legally regulated object requiring systematic governance.

The event-based regulatory approach was also reflected in the handling of psychological trauma among tsunami victims in 2004. Mental health services were almost entirely neglected, as no legal norms required the State to provide psychosocial recovery as part of disaster management. Trauma care was delivered sporadically by non-governmental organizations and foreign volunteers, without coordination with national or regional health systems. The State could not be held juridically accountable for the absence of mental health services, precisely because no positive legal norms imposed such an obligation.

By contrast, the application of system-based regulation during the 2025 Aceh floods demonstrates a markedly different pattern, particularly in the management of health crises. With the enactment of Law Number 24 of 2007 and Aceh Qanun Number 5 of 2010, health crises were positioned as an integral

component of the disaster management cycle that must be anticipated from the outset. Concretely, although several health facilities sustained damage due to flooding, health services did not experience a total collapse, owing to legal mechanisms that enabled the activation of referral health facilities, the deployment of additional medical personnel, and the coordinated distribution of health logistics.

A tangible example of system-based regulation can be seen in the control of communicable diseases following the 2025 Aceh floods. Sanitation and access to clean water are legally classified as basic needs within disaster management, thereby mandating intervention from the earliest phase of emergency response. Environment-based diseases were prevented from escalating into a prolonged secondary health crisis, as had occurred in 2004. From a positivist standpoint, this outcome was not merely the result of technical policy choices, but rather a consequence of legal norms that obligated the government to act in a preventive and structured manner.

The application of system-based regulation is further evident in the continuity of health services beyond the emergency phase. Aceh Qanun Number 5 of 2010 explicitly incorporates health services and psychosocial recovery within the rehabilitation stage. In practical terms, during the 2025 flood disaster, health services did not cease once floodwaters receded, but continued through community health monitoring, targeted interventions for vulnerable groups, and the restoration of victims' psychological well-being. This reflects an understanding of health crises as processes requiring sustained management, rather than as momentary responses to discrete disaster events.

Despite the relatively improved performance of system-based regulation during the 2025 Aceh floods, several practical challenges remain evident. First, fiscal capacity constraints at the regional level limit the rapid mobilization of health logistics and emergency infrastructure, particularly in remote districts. Second, bureaucratic fragmentation between disaster management agencies and health offices occasionally generates operational delays despite formal legal mandates. Third, disparities in institutional capacity among regencies and municipalities affect the uniformity of regulatory implementation. These practical obstacles demonstrate that while system-based regulation provides a stronger normative foundation, its effectiveness remains dependent upon administrative capacity, budget allocation, and inter-agency governance performance. Contemporary public health governance studies similarly emphasize that resilient disaster systems require not only legal mandates but also institutional strengthening and sustainable policy integration. Accordingly, regulatory reform must be accompanied by structural governance enhancement to ensure optimal implementation.

The most fundamental distinction between the two approaches lies in the timing and legal basis of health interventions. Under event-based regulation, health interventions are undertaken only after a crisis has occurred and escalated, without clear legal standards. Conversely, under system-based regulation, health interventions are grounded in pre-existing legal obligations established prior to the disaster, thereby conferring both legitimacy and duty upon the State to

act from the earliest stages. Within a positivist legal framework, this demonstrates that post-disaster health crises can be controlled when law functions as a normative system governing the entire disaster cycle.

Accordingly, the concrete experiences of Aceh in 2004 and 2025 underscore that health crises are not inevitable consequences of natural disasters, but rather reflections of the regulatory model employed. Event-based regulation has proven to exacerbate health crises due to its reactive and non-systemic nature, whereas system-based regulation is capable of limiting the escalation of health crises through comprehensive legal governance. These findings reinforce the thesis that, within a positivist rule-of-law framework, the effectiveness of health protection for disaster victims is largely determined by the extent to which health crises are explicitly integrated into the disaster management regulatory system.

IV. CONCLUSIONS

Based on the findings of the normative analysis of post-natural disaster health crisis governance in Aceh, this study concludes that the event-based regulatory approach has proven incapable of providing effective health protection for disaster-affected communities. The experience of the 2004 Aceh tsunami demonstrates that the absence of a systemic legal framework resulted in health responses that were reactive, poorly coordinated, and reliant on ad hoc interventions, thereby allowing the health crisis to escalate on a massive and prolonged scale. Within a positivist legal framework, this condition reflects the absence of legal norms that explicitly obligate the State to undertake preventive and sustained measures to protect the right to health of disaster victims. The paradigm shift toward system-based regulation through Law Number 24 of 2007 on Disaster Management and Aceh Qanun Number 5 of 2010 marks a fundamental transformation in post-disaster health crisis governance. These regulations position health as an integral component of a comprehensive disaster management system encompassing the entire cycle, from preparedness to rehabilitation. The concrete comparison between the 2004 Aceh tsunami and the 2025 Aceh floods demonstrates that the existence of an integrated legal framework is capable of limiting the escalation of health crises, ensuring the continuity of medical services, and preventing the emergence of prolonged secondary health crises.

Accordingly, this study affirms that post-disaster health crises are not inevitable consequences of natural disasters, but rather the result of the regulatory model applied. System-based regulation has proven to be more effective in guaranteeing the protection of disaster victims' right to health, as it establishes clear legal obligations, structured coordination mechanisms, and preventive interventions. Therefore, strengthening regulatory implementation and ensuring the consistent integration of the health sector within the disaster management system constitute essential prerequisites for the realization of effective and sustainable health crisis governance in Aceh. Accordingly, this study affirms that post-disaster health crises are not inevitable consequences of natural disasters, but rather

the result of the regulatory model applied. System-based regulation has proven more effective in guaranteeing the protection of disaster victims' right to health, as it establishes clear legal obligations, structured coordination mechanisms, and preventive interventions.

To ensure sustainability, regulatory harmonization at the technical level is essential. The integration of disaster management norms into gubernatorial regulations, regental and municipal regulations, and operational standard procedures is necessary to translate statutory mandates into concrete administrative action. Without such harmonization, the regulatory framework risks remaining confined to statutory and Qanun levels without sufficient operational clarity. From a broader governance perspective, effective disaster health management requires an integrated legal system capable of addressing complex and interconnected public health risks. Therefore, strengthening vertical and horizontal regulatory synchronization constitutes a strategic step toward institutionalizing sustainable health crisis governance in Aceh.

REFERENCES

- [1] M. B. S., "Kampung siaga bencana sebagai instrumen kebijakan pengurangan risiko bencana berbasis komunitas di Indonesia: Politik pembangunan dan partisipasi dalam diskursus pembangunan kebencanaan," *Jurnal Sosio Konsepsia*, vol. 5, no. 1, pp. 292, 2015.
- [2] M. A. Hapsari, Suswoto, and N. Ariyani, "Politik hukum hubungan pusat dan daerah dalam penanggulangan bencana," *Journal of Law and Policy Transformation*, vol. 6, no. 1, pp. 142, 2021.
- [3] S. Hadisutisna, "Mitigasi bencana dalam perspektif sosiologis: Teori, praktik, dan strategi kultural*," Yogyakarta: K-Media, 2025, pp. 63.
- [4] A. Maulana, A. Rahman, and N. A. Aulia, "Paradigma penanggulangan bencana: Tanggung jawab pemerintah daerah dan mitigasi berbasis kearifan lokal," *Collegium Studiosum Journal*, vol. 7, no. 2, pp. 667, 2024.
- [5] L. A. Mokoginta, D. T. Antow, and H. Tuwaidan, "Kajian yuridis kedudukan dan fungsi badan nasional penanggulangan bencana (BNPB) dalam menanggulangi korban bencana alam," *Jurnal Lex Administratum*, vol. 10, no. 4, pp. 2, 2022.
- [6] N. N. S. Hayati, S. Warjiyati, and Muwahid, "Analisis yuridis konsep omnibus law dalam harmonisasi peraturan perundang-undangan di Indonesia," *Jurnal Hukum Samudra Keadilan*, vol. 16, no. 1, pp. 5, 2021.
- [7] K. Benuf and M. Azhar, "Metodologi penelitian hukum sebagai instrumen mengurai permasalahan hukum kontemporer," *Jurnal Gema Keadilan*, vol. 7, no. 1, pp. 22, 2020.
- [8] S. Tripa, "Diplomasi bencana: Lesson learned dari Aceh*," Banda Aceh: Bandar Publishing, 2024, pp. 52.
- [9] A. Ratukore and J. D. B. S. Nono, "Meretas jalan keadilan: Peta jalan pendampingan hukum kelompok rentan berbasis komunitas*," Kupang: Tangguh Denara Jaya Publisher, 2025, pp. 35.
- [10] M. H. Tubagus, "Pelaksanaan penanggulangan bencana gempa Cianjur tahun 2022 oleh pemerintah daerah berdasarkan Undang-Undang Nomor 24 Tahun 2007 tentang penanggulangan bencana perspektif dusturiyah," *Jurnal Ilmu Multidisiplin*, vol. 4, no. 2, pp. 1110.
- [11] B. D. Putranti and Y. T. Subagya, "Jerat bantuan, jerit pengungsi: Penanganan kesehatan reproduksi di posko pascakonflik," *Academia*, 2010, pp. 66.
- [12] United Nations Office for Disaster Risk Reduction, "Sendai Framework for Disaster Risk Reduction 2015–2030*," Geneva: United Nations, 2015.
- [13] L. O. Gostin and E. A. Friedman, "A retrospective and prospective analysis of the West African Ebola epidemic: Robust national health systems at the foundation and an empowered WHO at the apex," *The Lancet*, vol. 385, no. 9980, pp. 1902–1909, 2015.
- [14] I. Kelman, J. C. Gaillard, and J. Mercer, "Climate change's role in disaster risk reduction's future: Beyond vulnerability and resilience,"

International Journal of Disaster Risk Science, vol. 6, no. 1, pp. 21–27, 2015.

- [15] A. K. Lal, “Health governance and disaster risk reduction: Lessons from global health emergencies,” *Global Public Health*, vol. 14, no. 3, pp. 345–357, 2019.
- [16] S. Eriksson and A. McPhearson, “Public health and disaster governance: Building resilience in complex systems,” *International Journal of Environmental Research and Public Health*, vol. 17, no. 12, 2020.