

AL-MĪZĀN CONCEPTUAL FRAMEWORK FOR ECOLOGICAL MITIGATION: A THEMATIC EXEGESIS OF QUR'ANIC RESPONSES TO HYDROMETEOROLOGICAL CRISES

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Abstract: The hydrometeorological crisis in Indonesia, marked by the catastrophic flash floods and landslides that struck Sumatra and Aceh in late 2025, has been demonstrated to originate primarily from large-scale deforestation and upstream land-use conversion rather than from extreme rainfall anomalies alone. Although disaster mitigation studies in Southeast Asia have advanced substantially in their technical, infrastructural, and institutional dimensions, the spiritual and religious values that motivate community behavior toward ecosystems remain largely overlooked. Likewise, existing studies on Islamic ecotheology have yet to be operationalized into a systematic disaster mitigation framework. This study aims to identify and synthesize the hermeneutical clusters derived from the Qur'an that constitute the *al-mīzān* conceptual framework, examine their conceptual relevance to the causal roots of the 2025 Sumatra–Aceh disaster, and formulate their operational implications for strengthening value-based disaster mitigation. The study employs a qualitative approach using thematic Qur'anic exegesis (*tafsīr mawdū'i*) as its primary methodological framework, complemented by an extensive literature review and empirical-contextual analysis, integrated through three mutually reinforcing analytical layers: hermeneutical-exegetical, comparative-academic, and empirical-contextual. Collectively, they constitute a coherent normative system operating across four analytical dimensions: theological-cosmological, etiologic-diagnostic, structural-normative, and responsive-preventive. This framework exhibits a clear normative-conceptual resonance with the empirical realities of the 2025 Sumatra–Aceh disaster, functioning as an ethical lens through which the structural drivers of the disaster can be critically diagnosed and evaluated, including widespread deforestation, failures in environmental governance, and the inequitable distribution of disaster risks. The study concludes that the *al-mīzān* conceptual framework provides a relevant normative-theological instrument for addressing the underlying crisis of values that drives ecological degradation. Its principal academic contribution lies in bridging the discourse between Islamic ecotheology and disaster mitigation

studies, developing a methodological model that integrates thematic Qur'anic exegesis with empirical disaster data, and offering practical relevance for the formulation of value-based disaster mitigation policies in disaster-prone Muslim communities.

Keywords: *Al-Mizān*, Ecological Justice, Hydrometeorological Disasters, Islamic Ecotheology, Thematic Qur'anic Exegesis.

Abstrak: Krisis hidrometeorologi di Indonesia, yang ditandai oleh bencana banjir bandang dan tanah longsor di Sumatera dan Aceh pada akhir 2025, terbukti bersumber dari deforestasi masif dan alih fungsi lahan di hulu daerah aliran sungai, bukan sekadar anomali curah hujan ekstrem. Meskipun kajian mitigasi bencana di Asia Tenggara telah berkembang pesat pada aspek teknis, infrastrukural, dan kelembagaan, dimensi spiritual dan nilai keagamaan yang menggerakkan perilaku masyarakat terhadap ekosistem masih luput dari perhatian, sementara kajian ekoteologi Islam yang ada belum dioperasionalkan menjadi kerangka mitigasi yang sistematis. Penelitian ini bertujuan mengidentifikasi dan mensintesis kan klaster-klaster hermeneutis Al-Qur'an yang membentuk Kerangka *al-mizān*, menganalisis relevansi konseptualnya terhadap akar kausal bencana Sumatera–Aceh 2025, serta merumuskan implikasi operasionalnya bagi penguatan mitigasi bencana berbasis nilai. Penelitian menggunakan pendekatan kualitatif dengan metode tafsir tematik (*tafsir mawdū'ī*) sebagai metode utama, dipadukan dengan analisis ayat dan kajian pustaka, melalui triangulasi alur hermeneutis-tafsiri, komparatif-akademis, dan empiris-kontekstual. Hasil penelitian menunjukkan bahwa lima klaster, yaitu tauhid ekologis, *al-mizān*, *fasād* ekologis, amanah kekhalifahan, dan keadilan ekologis, membentuk sistem normatif yang saling mengunci pada level teologis-kosmologis, etiologis-diagnostis, normatif-struktural, dan responsif-preventif, yang secara struktural berkorespondensi dengan fakta deforestasi, kegagalan tata kelola, dan ketidakadilan distribusi risiko pada bencana Sumatera–Aceh 2025. Penelitian ini menyimpulkan bahwa kerangka *al-mizān* menyediakan instrumen normatif-teologis yang relevan untuk merespons krisis nilai di balik kerusakan ekologis. Kontribusi akademisnya terletak pada penjabatan diskursus ekoteologi Islam dengan studi mitigasi bencana, pengembangan model metodologis yang memadukan *tafsir mawdū'ī* dengan data empiris kebencanaan, serta relevansi praktis bagi perumusan kebijakan mitigasi berbasis nilai di kawasan rawan bencana berpenduduk muslim.

Kata-kata Kunci: *Al-Mizān*, Bencana Hidrometeorologi, Ekoteologi Islam, Keadilan Ekologis, Tafsir Tematik.

Introduction

Hydrometeorological disasters in Indonesia have exhibited a significant increase in both intensity and frequency over the past decade, with the flash floods and landslides that struck Aceh, North Sumatra, and West Sumatra in late November 2025 representing one of the most destructive manifestations of this trend. The disaster resulted in 1,205 fatalities, 339 missing people, and extensive infrastructure damage affecting 52 regencies/municipalities, 491 districts, and 4,511 villages (Tim News 2026). Post-disaster assessments conducted by various institutions indicate that the determining factor behind this catastrophe was not merely anomalous rainfall but rather the structural and cumulative degradation of upstream ecosystems. Greenpeace Indonesia documented that the majority of river basins on the island of Sumatra are currently in a critical state, with natural forest cover falling below 25% (Prihatini and Widyanti 2025).

Meanwhile, deforestation data for the period 1990–2024 recorded the loss of approximately 1.2 million hectares of forest across the three affected provinces, at an average rate of 99.46 hectares per day (Ajeng 2025). The Independent Forestry

Monitoring Network (JPIK) identified the expansion of extractive industries, large-scale plantation agriculture, and illegal logging as the primary drivers of this systemic environmental degradation (Amaliyah 2025). This finding is consistent with the conclusion of the Center for Environmental Law Studies (Pusat Hukum Lingkungan Indonesia), Faculty of Law, Universitas Indonesia, which identifies the issuance of permits for plantation industries, mining operations, and Industrial Plantation Forests (*Hutan Tanaman Industri*, HTI) as the structural root cause of the problem (Humas FHUI 2025).

This situation places disaster mitigation studies in Southeast Asia before an unresolved epistemological anomaly: why do decisions that have been technically demonstrated to exacerbate disaster risks continue to be repeated despite continuous advances in modeling capacity and early warning systems? Mardila and Fadilla (2025, 256) identified a persistent gap between the production of disaster policy knowledge at the ASEAN regional level and its implementation at the national and local levels, revealing a disconnect that extends beyond purely technical or regulatory dimensions.

In the Indonesian context, Andriyanto et al. (2026, 742–55) developed two-dimensional hydraulic modeling based on IRICNays2D Flood for flood risk mapping in the Konawe River Basin. Chandra Dewi et al. (2026, 120–34) integrated the SWMM-2D model for pluvial flood analysis in South Jakarta, and Rafinzar et al. (2025, 1–12) demonstrated a strong positive correlation between inclusive mitigation policies and community participation, with a correlation coefficient of 0.81. Furthermore, the systematic review conducted by Alvin Yuswan et al. (2025, 65–78) confirmed that research trajectories in flood mitigation have consistently evolved toward digitalization, decentralization, and multidisciplinary coordination. Nevertheless, none of these studies incorporated religious values and value orientations as structural variables that shape long-term ecological behavior at the community level.

The empirical significance of this gap is reinforced by the findings of Aksa (2020, 1–4), who demonstrated that misconceptions regarding Islamic teachings contribute to the development of fatalistic attitudes toward disasters, which in turn constitute a major obstacle to community-based disaster mitigation in Aceh and Indonesia more broadly. These findings indicate that the religious dimension functions as a tangible variable influencing community responses to disaster risks, both as an inhibiting factor when mobilized incorrectly and as a potentially empowering factor when constructively integrated into mitigation systems. Such integration, however, requires a coherent normative foundation derived from an authoritative tradition of Qur'anic exegesis.

The tradition of Islamic ecotheology has developed a relevant normative foundation for addressing this need the tradition of Islamic ecotheology has developed a relevant normative foundation for addressing this need. Rijal Ali et

al. (2023, 311–38) explored the ecotheological dimensions embedded in *Tafsir Al-Misbah* by Quraish Shihab and identified a value system that encourages active engagement in environmental conservation. Likewise, Kamal and Mufid (2026, 228) demonstrated that the Islamic ecotheological perspective can be directly integrated into the framework of positive environmental law. Through their analysis of pollution in the Citarum, Brantas, and Musi Rivers, they argued that the Qur'anic concepts of *khalīfah* (stewardship) and the prohibition of *fasād* (environmental corruption) reinforce the effectiveness of the Environmental Protection and Management Law (Law No. 32/2009) by shifting public compliance toward a moral and spiritual sense of responsibility.

Azisi et al. (2023, 100–15) thematically identified and mapped Qur'anic messages related to environmental preservation. Helmi et al. (2026, 201–22) advanced a Qur'anic ecotheological critique of extractive economic practices by referring to the doctrines of *khalīfah* and the prohibition of *fasād*. Ismail and Firas (2024, 1–12) argued that the Islamic perspective provides a response operating at the level of value orientation and the human–nature relationship, dimensions that cannot be adequately addressed by technoscientific approaches focused primarily on observable phenomena. Bsoul et al. (2022, 228) further emphasized that the Islamic conception of humanity as the entrusted guardian of nature provides a more deeply rooted ethical foundation for sustainability policies than purely utilitarian approaches.

Relevant previous studies may be categorized into two major streams that have never been systematically integrated. The first consists of technically and institutionally oriented disaster mitigation studies encompassing hydrological modeling, governance policies, and early warning systems. The second comprises Islamic ecotheological studies that examine the normative relationship among human beings, nature, and God based on authoritative religious texts. The absence of an integrating nexus between these two scholarly streams has resulted in a situation in which Islam's normative capacity to shape ecological behavior remains largely untapped within disaster mitigation policy frameworks, while disaster mitigation studies themselves have remained disconnected from value-based resources that have been empirically demonstrated to influence community responses to disasters.

An analysis of the existing literature reveals two complementary yet unresolved limitations. First, studies of Islamic ecotheology consistently remain at the theological and normative level without operationalizing their findings into a framework capable of functioning as a practical instrument for hydrometeorological disaster mitigation. Fauziah et al. (2025, 157–75), in their study on the integration of moderate environmental *fiqh*, and Pohan and Saputra (2025, 297–310), in their discussion of the *maqāṣid* of the Qur'an, made significant contributions to the normative and juridical dimensions but did not address the operational aspects

of disaster mitigation. Kamal and Mufid (2026, 228) advanced this discussion by translating Islamic ecotheological principles into policy recommendations for water pollution control, including stricter industrial waste management, river ecosystem rehabilitation, and environmental education grounded in religious values. Nevertheless, their study remained confined to the context of water pollution in urban and semi-urban environments and did not extend to structurally ecological hydrometeorological disasters.

Similarly, Moge and Abubakar (2025, 1111–26) examined spiritually grounded ecological awareness without translating it into implementable policy recommendations. Second, disaster mitigation studies in Southeast Asia have largely excluded religious values as structural variables within their analytical frameworks. This omission is evident in the systematic review conducted by Alvin Yuswan et al. (2025, 65–78), which identified no value-based religious studies within the corpus of flood mitigation research examined. Collectively, these two limitations indicate the existence of an unresolved disciplinary gap between the discourse of Islamic ecotheology and that of disaster mitigation.

This study is positioned to address this gap by constructing the *al-mīzān* conceptual framework, a normative conceptual framework derived from thematic Qur'anic exegesis, that functions as both an ecotheological paradigm and a value-based analytical lens for disaster mitigation. The framework constitutes the principal scholarly contribution of this study rather than a pre-existing theoretical apparatus. The framework is derived from five hermeneutical clusters of the Qur'an: ecological *tawhīd* (Q.S. Al-Mulk [67]: 3–4), the principle of *al-mīzān* Q.S. Ar-Rahmān [55]: 7–9), ecological *fasād* (Q.S. Al-Baqarah [2]: 205 and Q.S. Ar-Rūm [30]: 41), the trust of *khilāfah* (stewardship) (Q.S. Al-'Arāf [7]: 56), and ecological justice (Q.S. Hūd [11]: 85). These clusters are synthesized through the method of thematic Qur'anic exegesis (*tafsīr mawdū'ī*), drawing upon the exegetical works of Ibn 'Āshūr in *al-Taḥrīr wa al-Tanwīr*, Quraish Shihab in *Tafsīr al-Misbah*, al-Sha'rāwī in *Tafsīr al-Sha'rāwī*, Abū Ḥayyān al-Andalusī in *al-Baḥr al-Muḥīṭ*, al-Harārī in *Ḥadā'iq al-Rawḥ wa al-Rayḥān*, and al-Suyūṭī in *al-Durr al-Manthūr*.

The novelty of this study can be identified in three interrelated aspects that have not yet been simultaneously addressed in existing literature. First, it offers an operational hermeneutical synthesis. Unlike previous ecotheological studies that terminate at the identification of normative values, this research constructs the five Qur'anic hermeneutical clusters into a multilayered analytical system operating simultaneously across four interconnected levels: the theological–cosmological, etiological–diagnostic, normative–structural, and responsive–preventive dimensions. Second, the study demonstrates a normative–conceptual correspondence between the Qur'anic ethical constructs and empirically documented disaster phenomena. Rather than asserting direct physical causation, it establishes that concepts such as *ṭughyān* (transgression) and *khusrān* (loss) within

the *al-mīzān* paradigm function as ethical lenses through which the structural drivers of the 2025 disaster, including the deforestation of 1.4 million hectares involving 631 companies and a 28% reduction in the budget of the National Search and Rescue Agency (BASARNAS), can be critically analyzed and normatively evaluated. This correspondence operates at the level of ethical diagnosis rather than empirical causation (WALHI 2025; Wicaksono 2026). Third, the study proposes an integrative methodological model that combines thematic Qur'anic exegesis with empirical and contextual disaster analysis. To the best of the authors' knowledge, such a methodological design has not previously been implemented systematically in either Qur'anic exegesis or disaster studies.

Based on the identified research gap and the proposed scholarly contribution, this study addresses the following principal research question: How can the *al-mīzān* conceptual framework, derived from thematic Qur'anic exegesis, be constructed as both a normative and an operational response to the hydrometeorological crisis, with particular reference to the 2025 Sumatra–Aceh disaster? This overarching question is further elaborated into three research objectives. First, the study seeks to identify and synthesize the Qur'anic hermeneutical clusters that constitute the *al-mīzān* conceptual framework. Second, it aims to analyze the conceptual relevance of this framework to the causal roots of the 2025 Sumatra–Aceh disaster. Third, it intends to articulate the framework's normative-theological implications for strengthening value-based disaster mitigation in Indonesia, with the understanding that the operationalization of these implications requires further empirical validation through community-based studies. The significance of this study operates across three complementary dimensions. At the empirical level, it demonstrates the potential of theological values to be leveraged within the world's most populous Muslim-majority country, whose geographical characteristics make it highly vulnerable to natural disasters. Academically, it contributes an articulation model that bridges Islamic ecotheology and disaster mitigation studies, two fields that have largely developed independently within the existing literature. From a policy perspective, it provides a normative foundation for developing value-based disaster mitigation programs that may be implemented by institutions such as the National Disaster Management Agency (BNPB) and Regional Disaster Management Agencies (BPBD), in line with the urgent priority of strengthening community-based disaster mitigation identified by Rafinzar et al. (2025, 1–12) and Darmawan et al. (2025, 111–18).

This study adopts a qualitative research approach, employing thematic Qur'anic exegesis (*tafsīr mawḍūʿī*) as its primary methodological framework. The analytical rigor of the proposed framework is strengthened through the integration of three complementary analytical layers: hermeneutical–exegetical analysis, which establishes the theological foundations of the framework; comparative-academic analysis, which positions the framework within the existing body of literature; and

empirical–contextual analysis, which provides the sociological backdrop against which the framework’s normative relevance is examined. These three layers are not conceived as independent methods triangulating the same object of inquiry; rather, they constitute mutually reinforcing analytical dimensions of a single normative-qualitative research design. This methodological design enables the study to move beyond purely expository normative description toward the systematic construction of a normative conceptual framework whose structural pillars are articulated with sufficient precision to serve as the basis for future empirical examination, thereby distinguishing it methodologically from conventional ecotheological studies.

Disaster Mitigation in Southeast Asia

Hydrometeorological disasters have become one of the most pressing development challenges in Southeast Asia (Chen et al. 2020, 2; Lorenzo and Kinzig 2019, 116; Tan et al. 2025, 16). Situated at the convergence of monsoon systems, active tectonic plates, and extensive land-use conversion, countries across the region are highly vulnerable to floods, landslides, and severe windstorms, all of which have increased in both frequency and intensity. In response to these threats, a wide range of disaster mitigation strategies have been developed, including structural infrastructure, hydrological modeling, early warning systems, and regional governance frameworks (Chansorn et al. 2023, 140; Chitwatkul Siri and Miyamoto 2023, 178; Petpongpan et al. 2021, 204). Nevertheless, closer examination reveals that the existing mitigation frameworks continue to exhibit significant limitations, particularly in addressing the spiritual and value-based dimensions that fundamentally shape community behavior in responding to disasters.

At the regional policy level, the Association of Southeast Asian Nations (ASEAN) has sought to play a normative role in managing climate-related disaster risks. Mardila and Fadilla (2025, 256) identified three strategic functions of ASEAN within this framework: as the architect of regional disaster mitigation policies, as a research and reporting body assessing the capacities of member states, and as the initiator of collaborative platforms among Southeast Asian countries. Through the ASEAN Community Vision 2025, the organization seeks to establish common regional standards for disaster preparedness. However, the study also identified a persistent structural problem, namely the substantial gap between the production of policy knowledge at the regional level and the implementation of concrete actions at the national and local levels. In other words, while policy documents continue to be produced, the adaptive capacities of communities on the ground have not undergone substantive transformation. This gap suggests that disaster mitigation in Southeast Asia is not merely constrained by insufficient regulations or technological limitations but also by the absence of a value-based foundation capable of fostering organic behavioral change from within local communities.

From a cross-national comparative perspective, the study by Moh. Nizar et al.

(2025, 578–97), which compared flood mitigation infrastructure in Malaysia and Indonesia, found that the two countries have adopted different approaches while confronting similar challenges. Malaysia relies primarily on large-scale structural infrastructure, exemplified by the SMART Tunnel in Kuala Lumpur, whereas Indonesia places greater emphasis on non-structural strategies and community engagement. The authors proposed a three-pillar framework consisting of physical–policy integration, artificial intelligence–based technological innovation, and stakeholder engagement. Although these recommendations appear comprehensive, the third pillar, stakeholder engagement, remains largely interpreted in bureaucratic and technical terms rather than as a substantive engagement with the values and cultural orientations of local communities. This finding reinforces the observation that disaster mitigation discourse in Southeast Asia continues to revolve around techno-infrastructure solutions, while the motivational and spiritual dimensions that fundamentally shape societal responses to disasters remain largely overlooked.

Within the Indonesian context, research on flood mitigation has demonstrated remarkable methodological and technical progress. Andriyanto et al. (2026, 742–55) developed a two-dimensional hydraulic model using IRICNays2D Flood to map flood inundation characteristics within the Konawe River Basin, Southeast Sulawesi, producing flood risk maps alongside non-structural mitigation plans that included assembly points, evacuation shelters, and evacuation routes. Similarly, Chandra Dewi et al. (2026, 120–34) integrated the SWMM-2D model to analyze pluvial flooding in South Jakarta and found that most affected areas experienced inundation depths exceeding sixty centimeters, thereby requiring improvements in drainage capacity and Low Impact Development (LID) infrastructure.

At the community level, several studies indicate that mitigation initiatives incorporating community participation tend to achieve greater effectiveness; however, such participation remains largely procedural and technical in design. Rafinzar et al. (2025, 1–12) demonstrated through research conducted in Palembang that there is a strong positive correlation between inclusive mitigation policies and community participation, with a correlation coefficient of 0.81, highlighting citizen involvement and environmental education as the principal determinants of policy effectiveness. Darmawan et al. (2025, 111–18) reported the successful implementation of a participatory early warning education program in Pesanggrahan District, South Jakarta, where senior high school students were trained through evacuation simulations and the use of the InfoBMKG application.

Similarly, Safran Efendi Pasaribu et al. (2025, 3988–95) implemented an Internet of Things (IoT)-based water monitoring system integrated with a mobile application in Southern Thailand, which significantly enhanced community participation in real-time environmental reporting. Despite these achievements, the notion of participation in these studies remains limited to procedural compliance with evacuation protocols and the utilization of technological systems rather than

fostering a deeper transformation in ecological consciousness concerning the relationship between humans and nature. In other words, communities continue to be positioned primarily as recipients of technical information rather than as active subjects whose values and spiritual orientations need to be understood and systematically integrated into disaster mitigation frameworks.

This limitation becomes even more apparent in studies focusing on community adaptation to disasters. Andanusa et al. (2025, 58–78) found that residents living in highly flood-prone areas of Bandung independently adopted physical adaptation measures, including constructing second floors and raising river embankments, as responses to their high levels of exposure. These findings indicate that communities possess considerable adaptive capacity; however, such responses are largely reactive and shaped by accumulated empirical experience rather than by structured, value-based ecological awareness. Comparable findings were reported by Hotimah et al. (2025, 5–10) in their comparative study of Indonesia and the Philippines. Although the two countries differ in their disaster contexts, both continue to rely predominantly on technical and reactive mitigation approaches rather than preventive and transformative strategies. Likewise, the systematic literature review conducted by Alvin Yuswan et al. (2025, 65–78) confirmed a similar global trend, revealing that flood mitigation research has increasingly emphasized digitalization, decentralization, and multidisciplinary coordination, while spiritual, moral, and religious values remain absent as analytical variables within the mainstream literature.

The findings reported by Daryanes et al. (2026, 194–208) in Kampar Regency, Riau Province, further strengthen this argument. Their study revealed that despite the availability of various technical infrastructures, including discharge regulation of the Koto Panjang Hydroelectric Reservoir, flood mitigation efforts in the region remain reactive and institutionally weak. More importantly, the study identified land conversion into oil palm plantations as the principal driver of flood vulnerability but did not investigate the underlying values influencing such land-use decisions or examine whether moral and religious perspectives could serve as normative constraints against environmentally destructive practices. Likewise, the study by Muhamad Taslim et al. (2024, 187–202) concerning the disaster mitigation strategy of the Regional Disaster Management Agency (BPBD) of South Tangerang City innovatively proposed the use of social media and two-way communication as mitigation instruments. Although this represents significant progress in information dissemination, the messages remain predominantly technical and procedural and do not engage local communities' deeper value systems and intrinsic motivations. Similarly, Adni et al. (2025, 2073–85), in their community engagement report from Terengganu, Malaysia, observed that mangrove restoration and establishing community disaster preparedness groups improved coastal communities' adaptive capacity. While these initiatives move

closer to incorporating local wisdom, the underlying value structures motivating such practices were not explicitly articulated.

Collectively, these studies reveal a consistent and identifiable pattern: hydrometeorological disaster mitigation in Southeast Asia and Indonesia has advanced considerably in its technical, infrastructural, and institutional dimensions, yet it continues to leave one critical gap unaddressed: the absence of a coherent spiritual and value-based framework systematically integrated into disaster mitigation systems. Ironically, it is precisely this dimension that exerts the greatest long-term influence on community behavior, determining whether individuals protect the environment because they perceive nature as a divine trust (*amānah*) entrusted to humanity or merely comply with environmental regulations to avoid legal sanctions. Without a robust normative foundation, disaster mitigation will remain predominantly reactive and excessively dependent on technologies that may ultimately fail under extreme conditions. It is at this juncture that the construction of the *al-mīzān* conceptual framework, grounded in the tradition of Qur'anic exegesis, becomes both relevant and urgently needed, as it provides a value-based foundation capable of animating and guiding every level of the disaster mitigation system, from national policymaking to individual behavior within disaster-prone communities.

Preventing Environmental Degradation Through the Qur'anic Perspective

The Qur'an provides comprehensive guidance that encompasses a cosmological perspective on the relationship between humanity and nature, including a clearly articulated framework for preventing environmental degradation. This framework is not a modern reconstruction imposed upon classical Islamic texts; rather, it is an intrinsic element of the Qur'anic discourse that has been consistently identified by Muslim exegetes across successive generations. What distinguishes the Qur'anic perspective from conventional environmental approaches is that it frames environmental protection not merely as a practical obligation but as a theological imperative rooted in an understanding of the nature of creation, humanity's position within it, and ultimate accountability before the Creator. The relevance of this normative framework in contemporary Indonesia has increasingly attracted scholarly attention.

Kamal and Mufid (2026, 228) demonstrated that the Qur'anic prohibition of *fasād* (environmental corruption) in Q.S. Al-'Arāf [7]: 56 and Q.S. Al-Baqarah [2]: 205, when integrated with the framework of positive environmental law, generates concrete and measurable policy recommendations, including stricter standards for industrial wastewater disposal, strengthened water treatment systems, and the implementation of community-based environmental education programs grounded in Islamic teachings. These findings reinforce the premise that the Qur'an provides not only a theological foundation but also a value-based framework that can be translated into practical measures for preventing

environmental degradation.

The first pillar of the Qur'anic framework for environmental protection is the prohibition of causing corruption after the earth has been restored (*fasād ba'da iṣlāḥ*). Allah states in Q.S. Al-'Arāf [7]: 56:

وَلَا تُفْسِدُوا فِي الْأَرْضِ بَعْدَ إِصْلَاحِهَا وَادْعُوهُ خَوْفًا وَطَمَعًا إِنَّ رَحْمَتَ اللَّهِ قَرِيبٌ مِّنَ الْمُحْسِنِينَ

"And cause not corruption upon the earth after its reformation. And invoke Him in fear and aspiration. Indeed, the mercy of Allah is near to the doers of good."

In *al-Taḥrīr wa al-Tanwīr*, Ibn 'Ashūr explains that the earth was created in an original state of harmony and order (*iṣlāḥ aṣlī*), characterized by a balanced and functional system that fulfills the needs of all living beings. This primordial order was subsequently reinforced through the divine laws revealed to the prophets (*iṣlāḥ shar'ī*), thereby establishing two complementary layers of order: the cosmological and the normative ('Āsyūr 2021, 270–71). Within this conceptual framework, causing corruption after restoration (*fasād ba'da iṣlāḥ*) represents the most reprehensible form of disobedience, as it actively contravenes the divinely established order intended for the welfare of all creation.

Al-Harārī, in *Ḥadā'iq al-Rawḥ wa al-Rayḥān*, further explains that the prohibited domain of corruption encompasses *al-ma'āyish wa al-marāfiq*, human livelihoods and the various facilities supporting life, including agriculture, industry, trade, and the institutions that facilitate human cooperation (Harārī 2001, 352). This broad conception directly embraces every dimension of natural resource management. Within the contemporary Indonesian context, the prohibition may therefore be understood as a theological imperative against deforestation, the conversion of watershed catchment areas, and the excessive exploitation of coastal ecosystems, all of which constitute manifestations of *fasād ba'da iṣlāḥ* and are consequently incompatible with the Qur'anic moral order.

The second dimension of the Qur'anic framework establishes a moral principle of causality linking human conduct with ecological conditions. Q.S. Ar-Rūm [30]: 41 explicitly states that environmental degradation on land and at sea is a direct consequence of human actions:

ظَهَرَ الْفَسَادُ فِي الْبَرِّ وَالْبَحْرِ بِمَا كَسَبَتْ أَيْدِي النَّاسِ لِيُذِيقَهُمْ بَعْضَ الَّذِي عَمِلُوا لَعَلَّهُمْ يَرْجِعُونَ

"Corruption has appeared throughout the land and sea by [reason of] what the hands of people have earned so He may let them taste part of [the consequence of] what they have done that perhaps they will return [to righteousness]."

In *al-Taḥrīr wa al-Tanwīr*, Ibn 'Ashūr emphasizes that the phrase *bimā kasabat aydī al-nās* (because of what people's hands have earned) should not be restricted to physical acts performed by one's hands. Rather, it encompasses the

entire spectrum of human behavior, both outward and inward, including “deviant beliefs and spiritual maladies” (*al-‘aqā'id al-dāllah wa al-adwā' al-nafsiyyah*) (‘Āsyūr 2021, 783). This broader interpretation is particularly significant because it demonstrates that ecological crises cannot be separated from crises of values and governance. A political leader who authorizes illegal mining, a consumer who disregards the environmental consequences of excessive consumption, and an economic system that externalizes environmental costs all fall within the Qur’anic concept of *kasabat aydī al-nās*.

Al-Sha‘rāwī reinforces this interpretation by arguing that environmental degradation is invariably correlated with human intervention; to the extent that humanity interferes with nature without the guidance of divine revelation, environmental destruction inevitably follows (Sha‘rāwī 1991, 868).

The third dimension of the Qur’anic framework for environmental protection is the principle of ecological justice as a mechanism for structural prevention. In the advice of Prophet Shu‘ayb to his people, Q.S. Hūd [11]: 85 commands the faithful observance of just measures and weights while simultaneously prohibiting every form of deprivation of others’ rights (*bakhs*) and corruption upon the earth:

وَيَقُومُوا أَوْفُوا الْمِكْيَالَ وَالْمِيزَانَ بِالْقِسْطِ وَلَا تَبْخُسُوا النَّاسَ أَمْشِيَاءَهُمْ وَلَا تَعْتُوا فِي الْأَرْضِ
مُفْسِدِينَ

“And O my people, give full measure and weight in justice and do not deprive the people of their due and do not commit abuse on the earth, spreading corruption.”

In *al-Taḥrīr wa al-Tanwīr*, Ibn ‘Āshūr identifies a gradual pedagogical method (*tadarruj*) employed by Prophet Shu‘ayb. The Qur’anic discourse progresses from the prohibition of a specific act of fraud in commercial transactions, to the broader prohibition against depriving people of their rights (*bakhs al-nās ashyā’ahum*) and ultimately culminates in the comprehensive prohibition of all forms of *fasād fī al-ard* (corruption on the earth) (‘Āsyūr 2021, 585–86). This progressive structure suggests that an effective system of environmental protection must operate simultaneously at three interconnected levels: the level of individual transactions through justice in exchange; the level of resource distribution, ensuring that no group is deprived of its legitimate rights; and the level of the ecosystem as a whole, where environmental degradation on land and at sea must be prevented.

Al-Harārī further provides a highly relevant interpretation by stating that Justice is the balance of Allah upon the earth (*mīzān Allāh fī al-ard*), both in legal judgment and in human transactions (Harārī 2001, 186–87). Within the context of contemporary environmental governance, this statement implies that inequitable resource distribution, including land monopolization, excessive corporate exploitation of natural resources, and the absence of legal protection

for Indigenous communities inhabiting environmentally vulnerable regions, is not merely a social injustice but also a violation of the *mīzān*, the divinely ordained principle of balance established to preserve the integrity of creation.

The fourth dimension is the active mandate of *islāḥ* (restoration), which extends beyond the mere passive avoidance of environmental destruction. The Qur'an not only prohibits *fasād* but also positively commands restorative action as an integral component of humanity's stewardship (*khilāfah*) on earth. Allah states in Q.S. Al-'Arāf [7]: 56.

In *al-Baḥr al-Muḥīṭ*, Abū Ḥayyān al-Andalusī explains that the prohibition expressed in this verse encompasses every form of corruption: the destruction of life through murder, the destruction of property through unlawful seizure, the corruption of religion through disbelief, the corruption of lineage through adultery, and the corruption of intellect through intoxicants (Andalusī 1993, 313–14).

The breadth of this interpretation demonstrates that the Qur'an does not perceive environmental degradation as an isolated phenomenon but rather as one element within an interconnected system of moral and social corruption. Destroying a river basin simultaneously undermines human livelihoods, devastates agricultural systems, and threatens future generations, a chain of consequences that the Qur'an articulated long before modern ecology recognized it as ecosystem services degradation the degradation of ecosystem services. Quraish Shihab further emphasizes that Allah created the universe in a state of harmony and equilibrium sufficient to meet the needs of all living beings, while also commanding humanity to preserve and improve this divinely established order (Shihab 2002, 123). This interpretation indicates that the Qur'anic concept of *islāḥ* should be understood as an active obligation encompassing ecosystem restoration, biodiversity conservation, and the protection of catchment areas.

The fifth dimension, arguably the most operational in the context of hydrometeorological disaster mitigation, concerns the causal relationship between unjust governance and ecological disasters. Allah states in Q.S. Al-Baqarah [2]: 205:

وَإِذَا تَوَلَّى سَعَى فِي الْأَرْضِ لِيُفْسِدَ فِيهَا وَيُهْلِكَ الْحَرْثَ وَالنَّسْلَ وَاللَّهُ لَا يُحِبُّ الْفُسَادَ

“And when he goes away, he strives throughout the land to cause corruption therein and destroy crops and animals. And Allah does not like corruption.”

Mujāhid, as narrated by al-Suyūṭī in *al-Durr al-Manthūr* in relation to this verse, explains an ecological mechanism of profound relevance: “When a person assumes authority and governs with hostility and injustice, Allah withholds the rain, causing crops and offspring to perish” (Suyūṭī 2003, 481). From a contemporary scientific perspective, this statement may be understood as illustrating the causal

relationship between poor environmental governance, manifested in decisions such as deforestation, wetland conversion, and the neglect of groundwater recharge capacity, and the heightened risks of flash floods and droughts infiltration capacity, and the increasing risks of flash floods and droughts. The relationship between land-cover degradation and the intensification of hydrometeorological disasters has become a well-established scientific consensus within ecological and hydrological research. What is particularly noteworthy from the perspective of Qur'anic exegesis is that the Qur'an had already articulated this causal dimension as a systemic consequence of human injustice toward the divinely ordained order of nature.

These exegetical findings receive substantial support from contemporary scholarly research. Bsoul et al. (2022, 228) argue that environmental protection, one of the principal objectives of the Sustainable Development Goals (SDGs), has long been embedded within Islamic teachings and was exemplified by the Prophet Muhammad centuries before the emergence of modern sustainability discourse. They specifically emphasize that the Islamic conception of humanity as the entrusted guardian of nature provides an ethical foundation capable of strengthening sustainability policies more profoundly than purely utilitarian approaches.

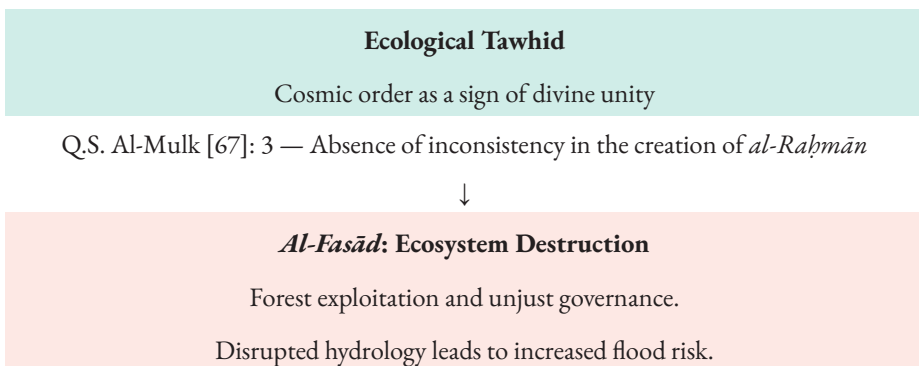
Aksa (2020, 1–4) offers a complementary perspective by demonstrating that misconceptions concerning Islamic teachings can foster fatalistic attitudes toward disasters, despite the fact that the Qur'an nowhere instructs believers to remain passive in the face of calamity. Rather, Islam promotes three active principles: *al-'ilm* (knowledge), *ikhtiyyār* (human endeavor), and *tawakkul* (trust in Allah after exerting one's utmost effort). Ismail and Firas (2024, 1–12) further contend that the Islamic worldview offers a fundamental response to environmental degradation precisely because it addresses the root causes of the crisis, namely, the erosion of moral values and the deterioration of the relationship between humanity and nature. Such foundational issues cannot be adequately resolved through technoscientific approaches that focus solely on the observable manifestations of environmental problems.

The synthesis of these classical exegetical interpretations demonstrates that the Qur'an provides a coherent, multidimensional, and operational framework for preventing environmental degradation, long before ecology emerged as an independent scientific discipline. This framework does not operate primarily through external regulation, in which prohibitions are obeyed merely because of legal sanctions, but through the transformation of internal values that reorient humanity's relationship with nature, from exploitation to *amānah* (divine trust), and from environmental destruction to *islāh* (restoration). It is precisely this characteristic that distinguishes the Qur'anic approach from perspectives that regard religion merely as a supplementary moral consideration

within environmental discourse. Instead, the Qur'an offers an epistemological and ontological foundation that fundamentally situates ecological balance as an intrinsic expression of submission to Allah, the Most Merciful, rather than as a policy option subject to negotiation.

The *al-Mīzān* Conceptual Framework as a Hydrometeorological Disaster Mitigation Model

The preceding sections have established a consistent line of argument demonstrating that hydrometeorological disaster mitigation in Southeast Asia and Indonesia has advanced considerably in its technical, infrastructural, and institutional dimensions. Nevertheless, these approaches collectively continue to leave a significant gap, namely the absence of a systematically integrated spiritual and value-based framework within existing disaster mitigation systems. Ironically, it is precisely this dimension that exerts the greatest long-term influence on human behavior, determining whether individuals protect the environment because they recognize nature as an *amānah* (divine trust) entrusted to humanity, or merely comply with environmental regulations out of fear of legal sanctions. Without a robust normative foundation, disaster mitigation will remain predominantly reactive and excessively dependent on technologies that may fail under extreme conditions. It is at this juncture that the *al-mīzān* conceptual framework, derived from the Qur'anic exegetical tradition, becomes particularly relevant. Rather than replacing existing technical approaches, it provides a normative foundation capable of animating and guiding every level of the disaster mitigation system, from national policymaking to individual behavior within disaster-prone communities. The hydrometeorological disasters that struck Sumatra and Aceh in 2025 may, from the perspective of thematic Qur'anic exegesis (*tafsīr mawḍūʿī*), be understood as manifestations of disruptions to both the cosmological and the socio-ecological order, a concept that the Qur'anic exegetical tradition identifies as *al-mīzān* (balance). This study argues that the Qur'an provides a comprehensive normative and operational framework for understanding and responding to hydrometeorological disasters, hereafter referred to as the *al-mīzān* conceptual framework, as illustrated in Figure 1.



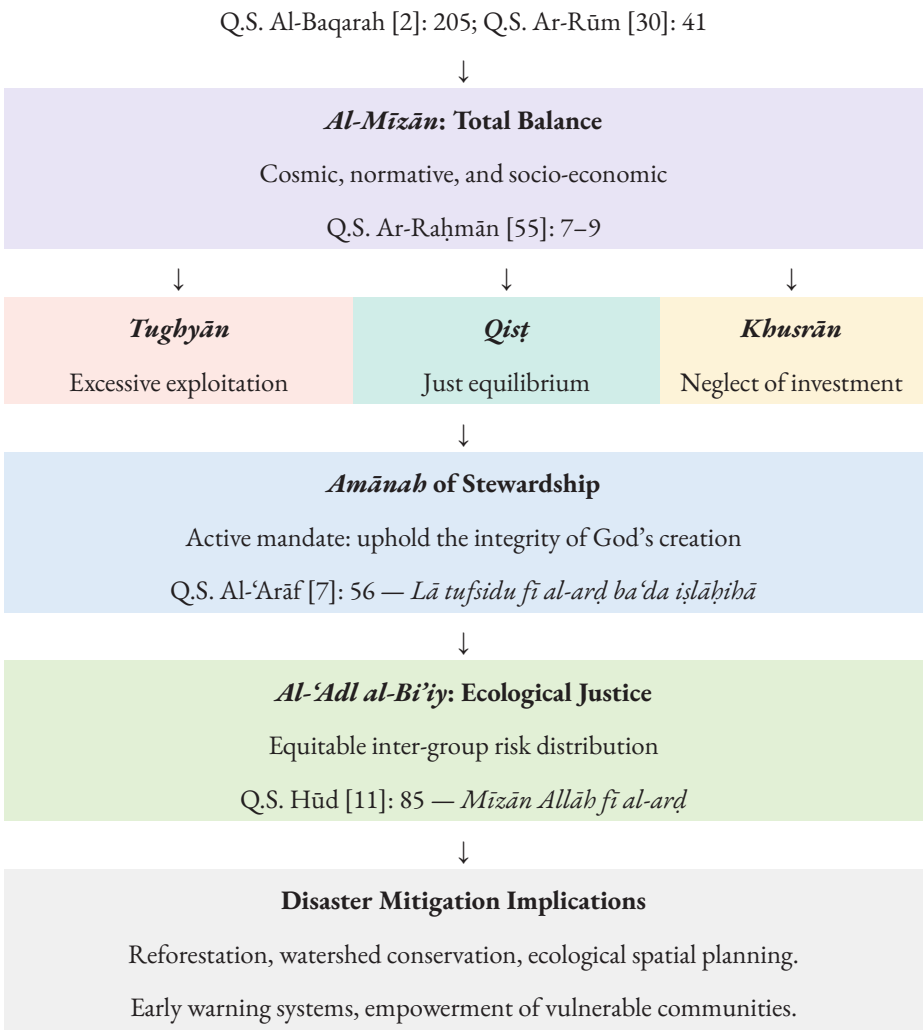


Figure 1. The *al-Mīzān* Conceptual Framework.

The first foundation of this framework is what this study defines as ecological *tawḥīd*, namely the understanding that the orderliness of the cosmos constitutes empirical evidence of the Oneness of Allah while simultaneously expressing the ontological nature of His creation. In *al-Taḥrīr wa al-Tanwīr*, Ibn ‘Āshūr explains that the expression “*mā tarā fī khalqī al-Raḥmān min tafāwut*” (Q.S. Al-Mulk [67]: 3) is not merely an aesthetic description but a declaration of the absence of *tafāwut*, which he interprets as imbalance, instability, or internal contradiction within the entirety of Allah’s creation (‘Āsyūr 2021, 15). According to Ibn ‘Āshūr (‘Āsyūr 2021, 15–16), the deliberate use of the Divine Name *al-Raḥmān* (the Most Merciful) in this context signifies that the harmony of the universe is itself a manifestation of divine mercy: “Had there been imbalance (*tafāwut*) within the created order, humanity would inevitably have been confronted with hardship

and suffering (*aḥwāl wa mashaqqab*).”

Abū Ḥayyān al-Andalusī, in *al-Baḥr al-Muḥīṭ*, expands the meaning of “*khalq al-Raḥmān*” beyond the heavens to encompass the entirety of creation (*al-aflāk wa ḡhayruhā*), thereby affirming that no component of the natural world was created with defect or disharmony (Andalusī 1993, 292). From this perspective, hydrometeorological disasters should not be understood as inherent characteristics of nature itself but rather as indications that the divinely established balance has been disrupted. This premise is epistemologically compatible with contemporary disaster mitigation methodologies that employ root-cause analysis to identify the structural drivers of environmental disasters.

The second pillar provides an etiological diagnosis of the structural causes of disasters. Q.S. Al-Baqarah [2]: 205 portrays the anthropological archetype of environmental destruction: when an individual attains authority (*tawallā*), he spreads corruption throughout the earth (*yufsidu fīhā*), ultimately destroying crops (*al-ḡarṡ*) and progeny (*al-naṣl*). In *Ḥadā'iq al-Rawḥ wa al-Rayḡān*, Al-Harārī explains that the destruction of crops and progeny represents “the ultimate form of corruption” (*ḡḡāyat al-ifsād*), because these two elements constitute “the greatest necessities for the prosperity of worldly life” (Harārī 2001, 253). Mujāhid, as narrated by al-Suyūṭī in *al-Durr al-Manṡḡūr*, further articulates a causal mechanism of remarkable ecological significance: “When a ruler governs with hostility and injustice, Allah withholds the rain, causing crops and offspring to perish” (Suyūṭī 2003, 481).

From the standpoint of contemporary environmental science, this statement may be interpreted as describing the causal relationship between unjust governance and the degradation of hydrological ecosystems. Decisions such as large-scale deforestation, irresponsible land conversion, and environmental policies that disregard ecological carrying capacity directly disrupt hydrological cycles, thereby increasing the risks of floods, landslides, and prolonged droughts. This etiological diagnosis is further expanded in Q.S. Ar-Rūm [30]: 41: “Corruption has appeared throughout the land and sea because of what people’s hands have earned.” In *al-Taḡrīr wa al-Tanwīr*, Ibn ‘Āshūr explains that the phrase “*bimā kasabat aydī al-nās*” encompasses not only outward human actions but also misguided beliefs and spiritual maladies (*al-‘aqā'id al-dāllāḡ wa al-adwā' al-naḡsiyyāḡ*), thereby affirming that ecological crises possess ideological and moral roots that cannot be reduced solely to technical or environmental factors (‘Āsyūr 2021, 783).

Hamka, in *Tafsīr Al-Azḡar*, translates this diagnosis into the language of contemporary ecology by identifying industrial pollution and environmental contamination as concrete manifestations of *ḡṡād* in the Qur’anic sense. Consequently, technological advancement without moral commitment represents a modern form of environmental destruction against which the Qur’an explicitly warns (Hamka 1990, 5533). These exegetical insights correspond closely with

empirical studies demonstrating that land-use intensification and forest-cover degradation in Sumatra are statistically associated with increasing frequency and intensity of flash floods (Susilowati and Kusumastuti 2024, 71–79).

The third pillar of the *al-mīzān* conceptual framework is the normative construction of *al-mīzān* as a comprehensive system of balance, derived from Q.S. Ar-Raḥmān [55]: 7–9. Ibn ‘Āshūr observes that the juxtaposition of the expressions “*rafa‘a al-samā*” (He raised the heaven) and “*wa wada‘a al-mīzān*” (and established the balance) is a deliberate rhetorical arrangement signifying that *al-mīzān* is inseparably linked to the higher cosmic order (*al-‘ālam al-‘ulwī*). Consequently, balance is understood as a divinely ordained principle descending from heaven to earth under Allah’s command, an interpretation reinforced by the classical maxim, “*bi al-‘adl qāmat al-samāwāt wa al-ard*” (through justice the heavens and the earth are sustained) (‘Āsyūr 2021, 188).

Quraish Shihab, in *Tafsir al-Misbah*, synthesizes the multiple dimensions of *al-mīzān* into an integrated concept operating simultaneously at different levels. On the one hand, it represents the cosmic equilibrium that prevents celestial bodies from colliding; on the other, it embodies normative justice governing social and economic relationships among human beings (Shihab 2002, 499). Al-Sha‘rāwī further expands this interpretation by asserting that *al-mīzān* regulates the movements of the sun, the moon, and the planets just as it governs human conduct. Referring to Q.S. Yāsīn [36]: 40, he explains that no celestial body is permitted to overtake another (*lā yanbaghī lahā an tudrika*) because every element of creation operates within divinely established limits (Sha‘rāwī 1991, 14813).

The three successive commands in Q.S. Ar-Raḥmān [55]: 8–9 *allā tatghaw fī al-mīzān* (do not transgress the balance), *aqīmū al-wazna bi al-qist* (establish the balance with justice), and *lā tukhsirū al-mīzān* (do not diminish the balance), constitute a hierarchical normative system in which *qist* (justice) represents the ideal equilibrium between two forms of dysfunction: *tughyān* (transgression or excess) and *khusrān* (deficiency or neglect). Within the context of hydrometeorological disasters, *tughyān* may be interpreted as excessive exploitation of forests, watersheds, and catchment areas beyond their ecological carrying capacity, whereas *khusrān* denotes inadequate investment in disaster mitigation infrastructure, watershed conservation, and early warning systems, particularly for vulnerable communities. Accordingly, *al-mīzān* should not be understood merely as a theological concept but also as an analytical framework for evaluating ecological policies and environmental governance according to the principles of justice, proportionality, and sustainability.

The fourth pillar of the framework is the *trust of khiblāfah* (*amānah al-khiblāfah*), which serves as the ethical foundation for preventive environmental action. The prohibition in Q.S. Al-‘Arāf [7]: 56 “*wa lā tufsidū fī al-ard ba‘da iṣlāḥihā*” (Do not cause corruption upon the earth after it has been restored), contains an

important temporal implication: causing corruption after restoration is morally more reprehensible than corruption occurring before restoration because it destroys an already well-functioning system. Ibn ‘Āshūr explains that the earth was originally created in a condition of *islāḥ aṣlī* (primordial order), which was subsequently reinforced through divine revelation and the laws conveyed by the prophets, referred to as *islāḥ shar‘ī*. Consequently, disrupting this divinely established order constitutes *fāsād ba‘da islāḥ*, corruption after restoration, which the Qur’an condemns as a particularly blameworthy act (‘Āsyūr 2021, 270–71).

Al-Harārī further specifies that the prohibited forms of corruption encompass *al-ma‘āyish wa al-marāfiq*, namely human livelihoods and the facilities that sustain them, including agriculture, industry, commerce, and the institutional systems supporting social cooperation (Harārī 2001, 352). In contemporary terms, these domains directly correspond to natural resource management, environmental infrastructure, and disaster mitigation systems. Al-Sha‘rāwī provides an equally significant theological argument by emphasizing that, because human beings are the only creatures endowed with *ikhtiyār* (free choice), environmental degradation is invariably proportional to the extent of human intervention.

To the extent that human beings interfere, corruption emerges (Sha‘rāwī 1991, 868). This perspective stands in fundamental contrast to the fatalistic attitudes toward disasters that remain prevalent in many Muslim communities, a problem identified by Aksa (2020) as a principal obstacle to community-based disaster mitigation in Aceh and Indonesia. This interpretation corresponds closely with Aksa’s (2020, 1–4) findings, which identify religious fatalism as one of the principal obstacles to community-based disaster mitigation in Aceh and Indonesia. Accordingly, the mitigation implications of the *khilāfah* principle are profound. Stewardship is not merely a symbolic theological status but an active collective obligation to preserve the condition of *islāḥ* established by Allah. Consequently, reforestation programs, watershed conservation, ecosystem-based spatial planning, and the empowerment of local communities should all be understood as expressions of a collective theological responsibility rather than merely environmental policy initiatives.

The fifth pillar completes the framework through the principle of ecological justice (*al-‘adl al-bī‘ī*), derived from Q.S. Hūd [11]: 85. Although the verse initially commands the people of Madyan to give full measure and weight, its normative significance extends far beyond commercial ethics. Rather, it establishes a comprehensive model for the equitable distribution of resources and the fulfillment of social rights. In *al-Taḥrīr wa al-Tanwīr*, Ibn ‘Āshūr explains that Prophet Shu‘ayb employed a method of *tadarruj* (gradual progression): beginning with the prohibition of fraudulent measurement, expanding to the prohibition of depriving people of their rights (*bakhs*), and ultimately culminating in the prohibition of every form of *fāsād fī al-arḍ* (corruption upon the earth) (‘Āsyūr

2021, 585–86).

Al-Harārī further emphasizes that: “Justice is Allah’s balance upon the earth (*mīzān Allāh fī al-ard*), both in legal judgment and in human transactions” (Harārī 2001, 186–87). Within the context of hydrometeorological disasters, this ecological justice dimension addresses an aspect frequently overlooked in conventional disaster mitigation discourse. Disasters arise not only from ecological imbalance but also from the inequitable distribution of environmental risks. Poor communities residing along riverbanks, unstable hillsides, and other hazard-prone areas often bear the greatest consequences of disasters structurally generated by corporate exploitation or inequitable development policies.

This interpretation resonates strongly with the findings of Kamal and Mufid (2026, 228), who identified a similar pattern in the context of river pollution in Indonesia: while extractive industries capture the economic benefits of resource exploitation, the environmental degradation and public health burdens are disproportionately borne by communities living downstream of polluted waterways. Likewise, the statement attributed to Sa’id ibn al-Musayyib, cited by al-Harārī, is: “Whenever a people diminish the measure and the balance, Allah withholds their sustenance.” This may be interpreted ecologically as expressing a causal relationship whereby systematic injustice in resource exploitation progressively weakens the ecological carrying capacity upon which human life depends. This interpretation closely corresponds to contemporary ecological scholarship concerning ecosystem services degradation resulting from unjust extractivism (Harārī 2001, 187).

Synthesizing these five pillars, the *al-mīzān* conceptual framework may be conceptualized as a normative system operating simultaneously across four interrelated levels. First, at the theological-cosmological level, nature exists in its original state of equilibrium (*iṣlāḥ*), and disasters should be understood as signals indicating disturbances to that divinely established balance. They are therefore not expressions of an unavoidable fatalistic destiny to be passively accepted, but rather invitations to *tafakkur* (critical reflection) and *i’tibār* (drawing lessons), encouraging humanity to investigate the underlying causal mechanisms of environmental crises. Second, at the etiologi-cal-diagnostic level, disasters are understood as consequences of *fāsād* (corruption) produced by human actions through transgressing ecological carrying capacities, distributing environmental resources unjustly, and abandoning a sound normative framework (*manhaj*) for environmental governance.

Third, at the normative-structural level, *al-mīzān* functions as the governing principle of comprehensive balance and must be operationalized through public policies implemented across three interconnected sublevels: The cosmic level, by respecting natural hydrological cycles and ecological laws; The ecological level, by maintaining equilibrium between resource exploitation and ecosystem restoration;

and the social level, by ensuring the equitable distribution of environmental risks, benefits, and mitigation resources. Fourth, at the preventive-responsive level, humanity, as Allah’s *khalīfah* (vicegerent), bears an active obligation not merely to avoid *fasād* but to preserve and sustain the condition of *islāh* established by Allah. This conceptual framework is illustrated schematically in Figure 1 above. What fundamentally distinguishes the *al-mīzān* conceptual framework from conventional disaster mitigation approaches is its spiritual dimension. Within this framework, disaster mitigation extends beyond technical preparedness and institutional capacity; it is intrinsically connected to value orientation and moral commitment. As Allah commands in Q.S. Al-‘Arāf [7]: 56, believers are instructed to invoke Him “*khawfan wa tama’an*” (*with fear and hope*). Likewise, every effort toward disaster mitigation should be undertaken with the awareness that safeguarding the balance of nature constitutes an integral act of worship and devotion to Allah, the Most Merciful, whose mercy is “near to those who excel in doing good” (*inna raḥmat Allāhi qarībun mina al-muḥsinīn*). Such spiritual consciousness forms the normative foundation of what contemporary scholarship describes as transformative community-based disaster mitigation, in which long-term behavioral change originates from deeply rooted theological convictions rather than merely from external regulations or technological interventions (Nejati-Zarnaqi et al. 2024, 159).

The operationalization of the *al-mīzān* conceptual framework is grounded in empirical and contextual realities by systematically connecting each hermeneutical pillar with observed disaster phenomena. Table 1 presents this mapping by correlating the five pillars of the *al-mīzān* conceptual framework with empirical evidence from the hydrometeorological disasters that struck Sumatra and Aceh in 2025:

Table 1. The *al-Mīzān* Conceptual Framework: Normative Synthesis of the Qur’an and Its-Disaster Mitigation Implications for the 2025 Sumatra–Aceh Hydrometeorological Disaster.

Framework Pillar, Qur’anic Foundation and Concept	Normative Construction (Exegetical Evidence)	Empirical Phenomena: Sumatra–Aceh 2025	Ecological–Structural Causality	Disaster Mitigation Implications
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Ecological <i>Tawhīd</i> Q.S. Al-Mulk [67]: 3–4	Ibn ‘Āshūr: the absence of <i>tafāwut</i> (disequi- librium) consti- tutes the original characteristic of Allah’s creation. Abū Ḥayyān: <i>khalq al-Raḥmān</i> encompasses the entire cosmic order. Disasters are understood as signals that the primordial state of <i>islāḥ</i> has been disrupted.	Extreme rainfall exceeding 300 mm/day, triggered by Tropical Cy- clone Senyar (26 November 2025) (Nurhakim 2025; Zahro 2026), caused more than 867 fa- talities, 521 missing persons, and over 835,000 displaced across Aceh, North Sumatra, and West Sumatra (PUSDAT- INKOM BNPB 2025; Batubara 2025). Twenty-two villages disappeared from the map in Aceh (Ulya 2025).	BMKG issued early warnings beginning on 21 November 2025, yet miti- gation respons- es remained in- adequate. The resulting devas- tation indicates that extreme weather served as the trigger rather than the sole underlying cause.	Promotes a root-cause analysis paradigm of disaster risk; rejects fatalis- tic narratives; encourages <i>tafakkur</i> (critical re- flection) and causal reason- ing in public policy.
<i>Al-Mizān</i> (Com- prehensive Bal- ance) Q.S. Ar-Raḥmān [55]: 7–9	Ibn ‘Āshūr: justice is the foundation upon which the heavens and the earth are sustained. Quraish Shihab: <i>al-mizān</i> func- tions simulta- neously at the cosmic, ecological, and socio-eco- nomic levels. Al- Sha’rāwī: <i>ṭughbyān</i> (excess) and <i>khusrān</i> (deficiency) represent two forms of imbal- ance.	Sumatra contains 1,907 active mining permits (IUPs) cov- ering 2.458 million hectares (Jatamnas 2025). Approxi- mately 1.4 million hectares of forest in Aceh, North Suma- tra, and West Suma- tra were deforested between 2016–2025 by 631 companies (WALHI 2025). Budgets for BNPB and BASARNAS were reduced (Ham- dani 2025).	<i>Ṭughbyān</i> : ex- cessive exploita- tion through mining, oil palm plan- tations, and hydropower de- velopment be- yond watershed carrying capac- ity. <i>Khusrān</i> : insufficient investment in disaster mitiga- tion, watershed conservation, and early warn- ing systems.	Establishes a three-tiered policy frame- work: cosmic (respecting hydrologi- cal cycles), ecological (balancing exploitation and ecosys- tem resto- ration), and social (ensur- ing equitable disaster gov- ernance and budgeting).

Ecological <i>Fasād</i> Q.S. Al-Baqarah [2]: 205 and Q.S. Ar-Rūm [30]: 41	Al-Ḥarārī: destruction of <i>al-ḥarth wa al-nasl</i> (crops and progeny) represents the ultimate form of corruption. Mujaḥid: unjust rulers disrupt natural cycles. Ibn ‘Āshūr: <i>fasād</i> includes moral and ideological corruption. Hamka: industrial pollution is a contemporary manifestation of <i>fasād</i> .	Deforestation in Aceh increased by 274% in 2025, with 61.5% occurring within the Leuser Ecosystem (CNN Indonesia 2026). The Batang Toru ecosystem lost 72,938 hectares of forest (Redaksi Ekuatorial 2025). Evidence of illegal logging and forest clearing on steep slopes was documented (Rahmah 2026).	Deforestation in upstream areas reduced watershed retention capacity, increased surface runoff, and intensified flash floods and landslides.	Calls for concession audits in critical watersheds, an immediate halt to deforestation in the Leuser and Batang Toru ecosystems, and disaster diagnosis based on structural causality rather than isolated climatic events.
Trust of <i>Khilāfah</i> (Stewardship) Q.S. Al-‘Arāf [7]: 56	Ibn ‘Āshūr: the earth possesses both <i>islāḥ aṣlī</i> (primordial order) and <i>islāḥ shar‘ī</i> (revealed order); damaging either constitutes <i>fasād ba‘da islāḥ</i> . Al-Ḥarārī: corruption includes livelihoods and public infrastructure. Al-Sha‘rāwī explicitly rejects environmental fatalism.	BMKG’s early warnings were not followed by adequate action (Safitri and Prabowo 2025; Herlambang 2026). The government neither declared a national disaster nor accepted international assistance (Riyandanu 2025). Distribution of emergency logistics was delayed in several remote regions (Redaksi 2025).	The principal failure lays not in technological capacity but in the weak commitment to preserving <i>islāḥ</i> . Social fatalism further constrained community-based mitigation efforts.	Reforestation, watershed conservation, ecosystem-based spatial planning, and effective early warning systems are understood as collective theological obligations.

Ecological Justice (<i>Al-ʿAdl al-Biʿrī</i>) Q.S. Hūd [11]: 85	Ibn ʿĀshūr: the prohibition of <i>bakhs</i> develops into a prohibition against all forms of corruption on earth. Al-Ḥarāʾī: justice is Allah’s balance upon the earth (<i>mīzān Allāh fī al-ard</i>). Saʿīd ibn al-Musayyib associates economic injustice with the loss of divine blessing and ecological equilibrium.	Poor communities living along riverbanks and unstable slopes suffered the greatest losses (Husna 2025). A total of 242,200 people were displaced, thousands of homes were destroyed, and public facilities collapsed (Narasi Newsroom 2026).	Environmental risks are distributed inequitably: corporations capture the economic benefits of resource exploitation, while downstream vulnerable communities bear the environmental and social consequences.	Promote recovery grounded in ecological and social justice, emphasizing state and corporate accountability together with strengthened fiscal mechanisms for rehabilitation and disaster mitigation.
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Table 1 operationalizes the empirical–contextual dimension of the *al-mīzān* conceptual framework by systematically correlating each normative pillar with verified evidence from the 2025 Sumatra–Aceh hydrometeorological disaster. The Normative Construction column presents the exegetical positions of classical and contemporary Qur’anic commentators, while the Empirical Phenomena column shows how these interpretations structurally correspond to documented field evidence. The 2025 Sumatra disaster claimed at least 442 lives, with 402 individuals reported missing as of 30 November 2025. Experts from the Bandung Institute of Technology (ITB) and the Mining Advocacy Network (JATAM) emphasized that environmental degradation, changes in land cover, and extractive industrial activities within upstream ecosystems constituted the principal factors amplifying the disaster’s severity, rather than extreme rainfall alone (Maulana 2026).

These findings are further reinforced by data from HAKA (2026), indicating that approximately 71% of Aceh’s deforestation in 2025 occurred within the Leuser Ecosystem Area, the region’s last major hydrological buffer sustaining millions of residents throughout Aceh. Moreover, approximately 80% of the recorded deforestation took place within state forest areas that are legally designated for protection. This empirical evidence demonstrates a striking correspondence between the Qur’anic concept of *ṭughyān*, understood within the *al-mīzān* framework as transgressing ecological limits, and the documented deforestation of approximately 1.4 million hectares by 631 corporations. Likewise, the concept of *khusrān*, referring to negligence or deficiency, corresponds closely to the 28% reduction in BASARNAS’s operational budget and the government’s

decision not to declare the event a national disaster. Consequently, the *al-mīzān* conceptual framework functions not merely as a descriptive theological model but as an analytical and structural framework capable of diagnosing the underlying causes of hydrometeorological disasters (Wicaksono 2026).

Conclusion

This study addresses the three research objectives formulated at the outset. First, the five hermeneutical clusters, ecological *tawhīd*, *al-mīzān*, ecological *fasād*, the trust of *khilāfah*, and ecological justice, can be synthesized into a coherent normative framework. Second, the conceptual relevance of this framework to the 2025 Sumatra–Aceh hydrometeorological disaster demonstrates a normative-structural correspondence, an alignment between the ethical diagnostic categories of the Qur’anic framework and the structurally documented drivers of the disaster, as evidenced by the parallel between the concepts of *ṭughyān* and *khusrān* within the *al-mīzān* pillar and the phenomena of large-scale deforestation by extractive corporate entities together with reductions in the national disaster management budget. This correspondence operates at the level of ethical diagnosis and normative critique rather than at the level of physical causation. Third, these findings generate an important operational implication: value-based disaster mitigation requires an explicit theological foundation and cannot rely solely on technical and infrastructural instruments.

Based on these findings, this study argues that the Qur’an provides a causal diagnostic framework that can be positioned alongside, and function as a complementary counterpart to, technoscientific approaches within disaster studies. Consequently, the long-standing dichotomy between scientific and religious approaches in disaster mitigation discourse, which has generally been maintained within the mainstream literature, warrants reconsideration. Both approaches ultimately seek to answer the same causal questions, albeit from different yet fundamentally compatible epistemological foundations rather than mutually contradictory ones.

This study nevertheless has several methodological limitations that should be acknowledged. The contribution presented here constitutes a normative conceptual framework derived from thematic Qur’anic exegesis and has not yet been empirically validated with respect to community acceptance, internalization, or behavioral change. Accordingly, several directions for future research are proposed. First, empirical validation of the *al-mīzān* conceptual framework should be conducted through qualitative and quantitative field studies involving communities residing in river basins and disaster-prone coastal regions to assess the extent to which these theological values are manifested in actual ecological practices. Second, comparative studies across different exegetical schools (*madhāhib al-tafsīr*) and diverse local contexts throughout Southeast Asia, including the Nusantara exegetical tradition, which lies beyond the scope of the present study,

are needed to evaluate the framework's broader applicability and generalizability. Third, educational modules and dissemination materials grounded in the *al-mīzān* conceptual framework should be developed for integration into religious educational institutions as well as the communication strategies of the National Disaster Management Agency (BNPB) and Regional Disaster Management Agencies (BPBD) operating in disaster-prone regions. Such initiatives would constitute an important first step toward translating this framework into practical disaster mitigation policies and community-based resilience programs.

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