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# Instability from Climate Change and Environmental Degradation: Indonesia's Emerging Risk Landscape

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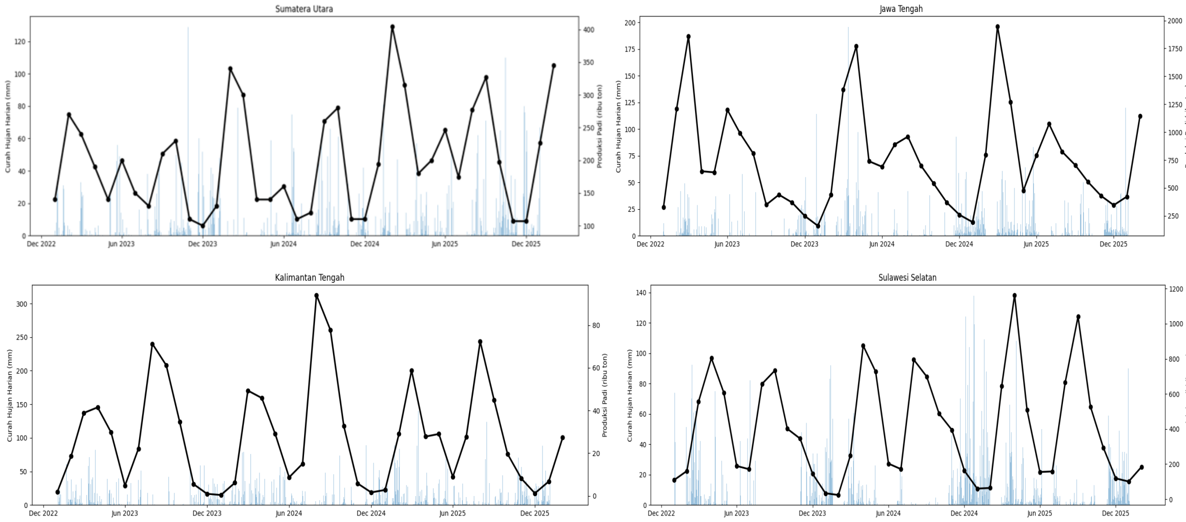
Indonesia is entering a period in which climate change and environmental degradation are no longer just environmental concerns, but a more systemic problem, interacting with economic, social, and political dynamics in ways that increasingly heighten instability. Recent events illustrate this clearly. Just at the end of last year, unprecedented disasters occurred in Sumatra and Aceh. In just these past few weeks, extreme weather has affected many regions across the country, with Jakarta and surrounding areas experiencing widespread flooding.

These risks are already having an impact through rising disaster frequency, leading to economic losses and social impacts; climate change and environmental degradation are interacting in ways that amplify instability in the economic and social systems. At the same time, policies particularly related to land use and resource extraction carry significant environmental implications if not carefully governed. Together, these dynamics are reshaping Indonesia's risk landscape.

## Climate Change and Agricultural Instability

Climate change impacts become a structural risk to Indonesia's agricultural system, particularly through the increasing variability of extreme rainfall. Between 2020 and 2024, estimated economic losses linked to climate change reached IDR 544 trillion, with agriculture accounting for IDR 78 trillion, alongside larger losses in coastal and marine sectors. Without stronger climate risk management, these losses are likely to rise, especially as extreme rainfall events become more frequent and less predictable over time. Evidence from multiple regions shows a clear relationship between rainfall anomalies and rice production volatility (Figure 1). The rising incidence of extreme rainfall events has increasingly disrupted planting and harvesting cycles.

Figure 1 Extreme rainfall and rice production volatility in various regions (2023-2025)




Source: CEIC Database, BPS

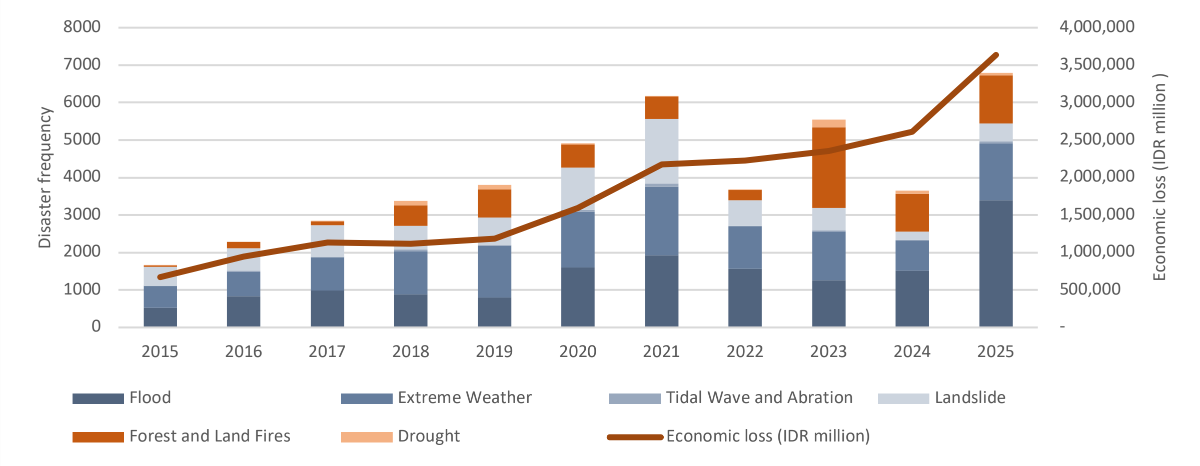
Agricultural vulnerability is asymmetric and spatial. Large production regions face systemic risks when extreme rainfall disrupts planting and harvesting cycles, threatening aggregate supply and price stability. Meanwhile, smaller-scale producing regions are often more sensitive to rainfall anomalies due to land conditions, limited irrigation infrastructure, and lower adaptive capacity. This shows that food security increasingly depends not just on production volumes, but on the effectiveness of climate risk management and adaptation in the agriculture sector. Rising volatility of the agricultural output further increases the risk of food insecurity and food price volatility.

## Rising Hydrometeorological and Ecological Disasters

Climate impacts are most visible in the increase in hydrometeorological and ecological disasters. Over the past decade, disaster events have risen, reaching 6,794 recorded incidents in 2025, with estimated losses of at least IDR 3.6 trillion, excluding the costs of the major

Sumatra disasters that same year (Figure 2). Indonesia faces additional risks in 2026 as an El Niño transition year, historically associated with unstable, extreme weather, a pattern already evident in the first weeks of January.

Figure 2 Hydrometeorological and ecological disaster in Indonesia

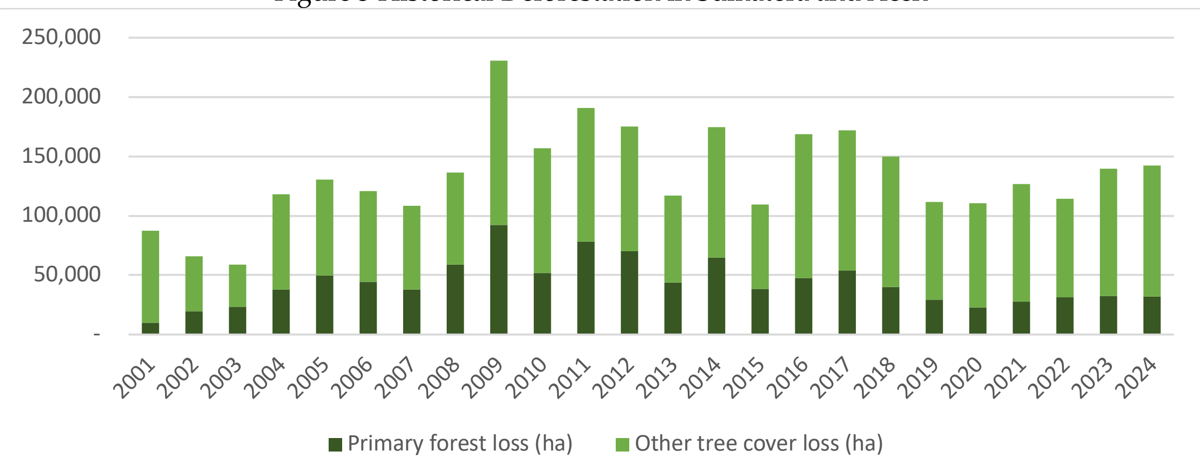



Source: BNPB, BIPI

Disasters in Sumatra and Aceh in late 2025 illustrate how environmental degradation and climate change risk interact to magnify impacts. The affected areas were severely damaged, becoming a national-level concern and attracting social pressure. More than 1,200 people lost their lives, over 260,000 homes were damaged, and at least 53 districts across multiple provinces were affected, with estimated losses ranging from IDR 69 - 200 trillion.[1]

However, the disasters were not purely 'natural' climate events, but occurred in landscapes shaped by deforestation, land-use change, and weakened environmental carrying capacity. Deforestation trends show that poor spatial governance continues to weaken environmental resilience in Sumatra and Aceh (Figure 3). When extreme weather occurs in such degraded environments, impacts are amplified in both scale and frequency.

Figure 3 Historical Deforestation in Sumatera and Aceh




Source: Global Forest Watch

[1] BNPB (2026). Rekapitulasi Terdampak Bencana. https://gis.bnpb.go.id/bansorsumatera2025/

In the context of such a major disaster, local fiscal capacity is insufficient to bear the burden of the enormous damage. Therefore, assistance from the central government is also needed. However, the state's capacity to respond is narrowing. The budget of the National Disaster Management Agency (BNPB) was cut by nearly 50% to around IDR 2.01 trillion, significantly limiting rapid response and early recovery. The planned allocations for 2026 are set to fall further to approximately IDR 491 billion.

These fiscal constraints are compounded by governance ambiguities. The absence of a national disaster status for the Sumatra and Aceh events created uncertainty over authority, fiscal responsibility, and command structures between national and local governments. On the other hand, the centralization of several land concession authorities limits local governments' ability to manage risks on the ground while bearing the direct impacts

**Extractive Growth and Environmental Depletion**

Parallel to rising climate risk is an expansion of extractive, resource-based economic growth. Data shows a decline in forest rent, a rise in mineral and energy rent, and an increase in natural resource depletion, indicating a development trend of increasingly reliance on non-renewable extractive rents, where forest loss functions as a facilitating land-use change and overall growth is achieved through accelerated liquidation of natural resources (Figure 4a). Meanwhile, environmental costs are disproportionately borne by the producing regions. This pattern intensifies environmental risk while heightening social and economic vulnerability at the local level. Natural resource depletion data, which show consumption of natural wealth beyond regeneration and reserves relative to GNI, have been rising, signalling the drawing down of natural resource capital (Figure 4b). Over time, if not managed well, this would potentially risk deepening instability.

Figure 4 (a) Natural resources rents

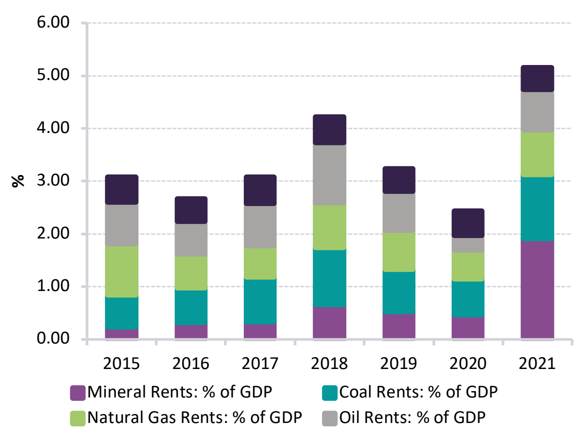
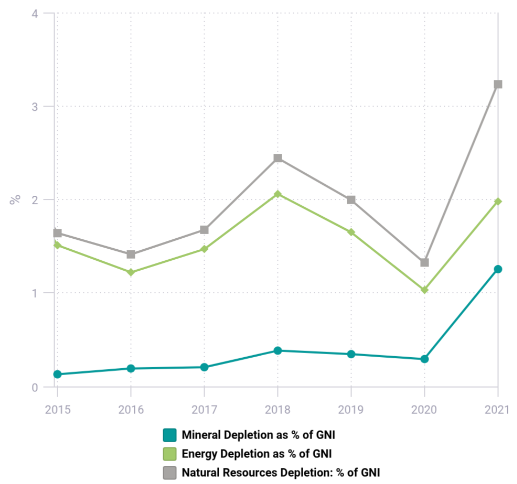



Figure 4 (b) Natural resources depletion



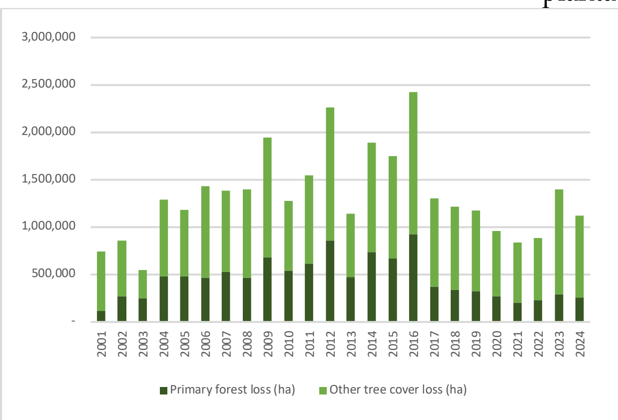

Source: CEIC Database

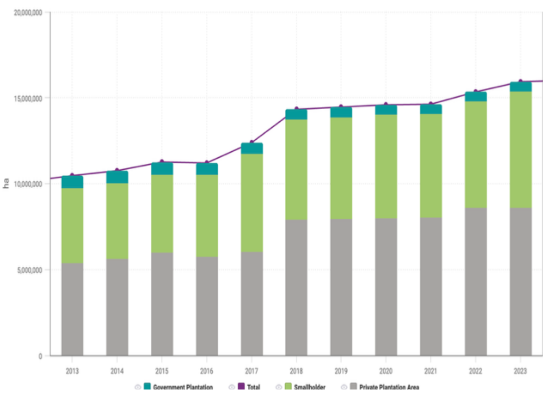
However, policy implementation in this context is further complicated by conflicts of interest and oligarchic structures, particularly in regions where extractive industries dominate local economic structures. On the other hand, environmental and climate policies in these regions are often constrained by political-economic power dynamics, weakening enforcement and accountability.[2]

### Food and Energy Security: Risky Feedback Loops

Deforestation rates in Indonesia have historically fluctuated, but have increased over the past five years (Figure 5a). In 2024, the primary drivers of deforestation included logging (18%), oil palm expansion (13%), timber and pulpwood production (6%), and mining (5%). The Merauke region alone accounted for 3% of deforestation linked to food estate development. Indonesia's food and energy security strategies, particularly food estate and biofuels that require large-scale land conversion, may generate feedback loops that worsen environmental degradation. Land conversion leads to deforestation, which diminishes environmental capacity and may compromise long-term stability, as previously discussed.

Figure 5 (a)Deforestation trend in Indonesia Figure 6 (b) Agricultural area for palm oil plantation




Source: Global Forest Watch, CEIC Database

Oil palm production continues to rise in line with plantation area expansion, largely driven by private estates (Figure 5b). However, projections indicate an optimal limit for oil palm plantations of 17.67 million hectares by 2030 to maintain environmental carrying capacity. Yet, planted area already exceeds this threshold, at approximately 18.22 million hectares[3]. Thus, rather than enhancing resilience, further uncontrolled land expansion for palm oil production risks new instability, ranging from declining environmental carrying capacity, social conflict over land, to economic vulnerabilities, that could undermine the projects' original objectives.

[2] CSIS (2025). Lanskap Kebijakan Perubahan Iklim di Indonesia: Refleksi Pusat-Daerah, Catatan Kritis, dan Tantangan.

[3] CSIS (2025). Cap On Oil Palm Acreage in Indonesia Based on Environmental Carrying Capacity for Decarbonisation Strategies. https://dfdlab.org/publikasi/cap-on-oil-palm-acreage-in-indonesia-based-on-environmental-carrying-capacity-for-decarbonisation-strategies/

**Way Forward**

Evidence highlights a critical aspect of Indonesia's risk landscape. Climate shocks intensify both physical damage and economic losses in already degraded environments. Inadequate spatial planning and reliance on extractive resource development further diminish environmental resilience, while fiscal and institutional limitations constrain effective response. Addressing these challenges requires a shift from sectoral and reactive approaches. Integrating climate risk and environmental carrying capacity into policymaking needs to be in a coherent and coordinated manner, supported by clear institutional mandates and enhanced cross-sectoral alignment. Additionally, it is essential to carefully reassess policies that may contribute to further environmental degradation.

Stronger inclusion of local governments as strategic partners in planning, implementation, and monitoring is essential. Despite being on the frontline of climate impacts and environmental degradation, local governments often function as passive implementers of centrally designed policies, constrained by limited authority and fiscal space. Strengthening subnational capacity, alongside more transparent and inclusive financing and decision-making processes, would improve policy effectiveness while reducing distributional and governance risks at the local level.

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