

Beyond Conservation: Tesso Nilo National Park, Climate Change, and Indonesia's Environmental Diplomacy

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Abstract: This article examines Tesso Nilo National Park (TNTN) in Riau Province as a critical case study of the failure of subnational climate and environmental governance in Indonesia. The real-world situation in TNTN reveals a stark gap between diplomatic rhetoric and implementation on the ground. The proliferation of illegal oil palm plantations, massive deforestation, and recurring forest fires have reduced natural forest cover to less than 20 percent, released billions of tons of stored carbon, and eroded critical habitat, including for Sumatran elephants. The study adopts a qualitative case study design focused on TNTN, drawing on policy documents, government reports, NGO publications, and academic literature. The analysis is framed by the concepts of environmental diplomacy, multi-level governance, and climate governance failure. The findings suggest that weak vertical coordination, large-scale land-use changes driven by corporate and local actors, and increasing human-wildlife conflict reveal a systemic failure in translating national and international climate and conservation commitments into local outcomes. Therefore, the park represents a significant gap in Indonesia's environmental diplomacy efforts. In response, this article proposes an alternative, bottom-up model of environmental diplomacy that strengthens local actors through community-based conservation, community-based ecotourism, and broader civil society participation in decision-making.

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INTRODUCTION

Climate change has become a major agenda item in contemporary international politics, and the urgency of the ecological crisis has begun to threaten the socio-economic stability of various countries. Global awareness of climate change has resulted in international initiatives such as the 2015 Paris Agreement and a number of other environmental conservation initiatives, demonstrating a collective commitment to limiting the increase in global average temperatures to no more than 1.5 degrees Celsius (UNFCCC, 2015). Behind these diplomatic agreements lies a complex local reality that reveals the gap between international ambition and

national implementation capacity, particularly in developing countries with a high economic dependence on natural resources (Dubash, 2021).

Tropical forests play a strategic role in the global climate change regime as the largest carbon store outside the ocean and guardians of invaluable biodiversity (Malhi et al., 2008). In the context of climate change mitigation, Indonesia's tropical forests account for approximately 10 percent of the world's tropical forests. This strategic position, with carbon stocks reaching billions of tons, contributes to this situation. This situation coincides with intense deforestation pressure, driven by large-scale plantation expansion and increasing habitat fragmentation (Culanth, 2021). This phenomenon clearly reflects the condition of Tesso Nilo National Park (TNTN), one of the lowland rainforest areas in Riau Province.

The National Park (TNTN), located in Riau Province and encompassing Pelalawan, Indragiri Hulu, Kuantan Singingi, and Kampar Regencies, was officially designated a conservation area on July 19, 2004, with an initial area of approximately 38,576 hectares (Diantoro, 2011). After PT Nanjak Makmur agreed to relinquish most of its territory in 2009, the area was expanded to 81,793 hectares (Garadaanimalia, 2022). Although the conservation status was intended to protect the complex tropical ecosystem, empirical conditions indicate severe degradation. According to Garda Animalia (2022), the remaining natural forest covers only 16.8 percent of the TNTN's original vegetation cover, meaning that more than 80 percent of the area has been converted to plantations, primarily oil palm plantations. This figure illustrates a systemic failure in conservation area management in Indonesia, which has a direct impact on global carbon emissions.

Massive deforestation in the National Park (TNTN) has significantly contributed to the release of carbon stocks into the atmosphere. Studies have shown that the forest biomass of the TNTN in 2013 was estimated at 11,774,265.67 tons, with a total carbon stock of 5,887,132,835 tons (Widhi, 2014). When forests are lost, carbon stored in trees and soil is released in the form of CO₂ and CH₄, increasing global greenhouse gas emissions. Furthermore, the loss of forest cover also reduces the natural capacity to absorb new carbon emissions, creating a vicious cycle that accelerates climate change. This condition not only has ecological implications but also reveals a contradiction in Indonesia's environmental diplomacy, where the country has committed internationally to reduce emissions from the forestry sector by 31.89 percent unconditionally and 43.20 percent conditionally by 2030 against the Business as Usual scenario (UNFCCC, 2022).

In addition to deforestation, the National Park (TNTN) also faces the risk of periodic and destructive forest fires. A major fire event occurred in 2015, devouring the remaining forest area and producing large amounts of carbon emissions in a short period of time. The forest fires have multiple impacts: first, they release massive amounts of carbon into the atmosphere; second, they reduce the area's capacity to absorb future emissions because vegetation regeneration takes a long time; and third, they destroy the habitat of wildlife that depend on the forest for their survival. The social impacts are also significant, with the haze from the 2015 fires causing an increase in respiratory illnesses among the community, particularly children and the elderly, and disrupting economic activity in the wider region.

The situation in the National Park (TNTN) reflects a fundamental paradox in environmental management in Indonesia. On the one hand, Indonesia has adopted an ambitious formal policy framework for climate change mitigation, including a forest moratorium implemented since 2011 and focused on 66 million hectares of primary forest and peatland (WEF, 2019). On the other hand, the implementation of this policy faces complex structural obstacles, including weak subnational governance, tradeoffs between short-term economic interests and long-term environmental sustainability, and a lack of local community participation in decision-making processes (Kartodihardjo & Muhammad, 2019). This failure significantly weakens Indonesia's position in the global climate diplomacy arena, given that the credibility of a country's climate commitments depends on its ability to meet declared emissions targets.

This article analyzes the case of TNTN as a reflection of the failure of Indonesian environmental diplomacy at the subnational level and its impact on global climate resilience. Through a theoretical framework that combines environmental diplomacy, multi-level governance, and the concept of climate governance failure, this article explores the mechanisms of environmental governance failure in TNTN and identifies opportunities for alternative environmental diplomacy that engages local actors as agents of change in conservation and climate change mitigation.

RESEARCH METHOD

This article adopts a qualitative approach through an in-depth case study of Tesso Nilo National Park. Data were collected through document analysis, including government reports, publications by international environmental organizations, academic literature, and media reports. This method was chosen because the complexity of the TNTN's issues requires a holistic understanding of the interconnected ecological, social, economic, and political dimensions. Descriptive-analytical analysis is used to describe empirical facts, identify root causes, and evaluate policy implications.

The theoretical framework of this research is based on three main conceptual pillars. The first conceptual pillar is the idea of environmental diplomacy, which is the process of actors negotiating, agreeing, and working together to create and carry out policies that protect the environment and promote sustainable development (Diplomacy, 2025). Environmental diplomacy encompasses both vertical (between states) and horizontal (non-state actors) dimensions, recognizing that global environmental crises require multi-actor coordination across national boundaries .

Second, the concept of multi-level governance emphasizes the importance of vertical coordination between national, sub-national, and local governments in managing transboundary environmental challenges (Lee, K.N., et. al., 2024). Multi-level environmental governance acknowledges that local governments can handle some environmental management functions more effectively, while national or international coordination is necessary for others. In the context of the National Park (TNTN), the failure of vertical coordination between the Ministry of Forestry, the Riau provincial government, and the Pelalawan district government has resulted in weak governance and inconsistent policy implementation.

Third, the concept of climate governance failure identifies the mechanisms of failure in climate governance. This failure can stem from a misalignment between international commitments and domestic policies, a lack of accountability in implementation, weak law enforcement, and the existence of political-economic interests that override environmental priorities (Dubash, 2021). At the subnational level, climate governance failure in TNNP is manifested through continued land conversion despite being located within a conservation area, the intersection of regulations and illegal practices, and local communities' discomfort with conservation policies that do not accommodate their economic needs.

These three theoretical pillars are combined with a bottom-up environmental diplomacy approach that recognizes the role of non-state actors, particularly civil society organizations, local communities, and NGOs, as catalysts for change in conservation and climate change mitigation (Bolkvadze, K., et al., 2024). This approach is based on the assumption that solutions to the environmental crisis can be achieved not only through top-down state regulation but also through active participation, deliberation, and multi-stakeholder partnerships that connect local knowledge with technical expertise.

RESULT AND DICUSSION

Tesso Nilo National Park in the Global Change Regime

Tesso Nilo National Park (TNTN) has strategic significance in the global climate change regime due to its dual role as a carbon store and habitat for species that have experienced drastic declines in the last decade. Furthermore, the rainforests on Sumatra Island, which previously had a vast coverage, have been transformed into small, scattered fragments, one of which is TNTN, which remains relatively intact despite being in poor condition recently. TNTN's carbon stock of over 5.8 billion tons places this area in a crucial position in national and regional carbon emission calculations. When natural forest was reduced from 83,068 hectares to only 16.8 percent—approximately 13,971 hectares—this means that 69,097 hectares of the initially stored carbon stock has been released into the atmosphere or stored in systems with much lower capacity, such as monoculture plantations (Widhi & Murti, 2014). These calculations indicate that TNTN's deforestation directly contributes to increasing global carbon dioxide concentrations, accelerating global warming that has become an existential threat to the entire planet.

In the context of the Paris Agreement and Indonesia's Nationally Determined Contributions (NDC), TNTN should symbolize the country's commitment to climate change mitigation. Indonesia has committed to achieving a Forestry and Other Land Use (FOLU) Net Sink target of -140 MtCO₂ by 2030, achieved through reducing emissions from deforestation, increasing natural forest carbon storage, reducing emissions from peat fires and decomposition, and law enforcement (Aliando et al., 2021). However, the actual condition of TNTN, which shows 83 percent forest cover loss, indicates that this NDC target is very difficult to achieve without significant intervention in degraded conservation areas. In other words, TNTN is not only an area that contributes negatively to global climate targets, but also an indicator of the failure of national climate policy implementation.

Failure of Sub-National Environmental Governance and Indicators of Governance Crisis

The failure of environmental governance in the National Park (TNTN) can be identified through several structural indicators that demonstrate weaknesses in coordination, enforcement, and participation. The massive land conversion is the most obvious manifestation of this governance failure. More than 60 percent of the TNTN area has been converted into illegal oil palm plantations by both large companies and local communities. More specific data shows that 40,000 hectares of the area have been used for illegal oil palm plantations and settlements (Indonesia Business Post, 2025). This conversion not only violates formal regulations designating the TNTN as a conservation area but also reflects the weak capacity of government institutions to conduct oversight and enforce the law.

The complexity of land conversion dynamics goes beyond the simplistic view that deforestation is for good; in reality, there are indications that it benefits only a few parties. This is also true in the TNNP, where the majority of local people clearing land in the TNNP are migrants or local communities facing limited access to legally productive land. When formal sector employment options are limited and productive land outside conservation areas is unavailable, clearing oil palm plantations within the TNNP becomes a rational survival strategy from a household economic perspective, despite its social and ecological consequences (Tua & Sundari, 2021). The local palm oil political economy encourages the expansion of small-scale plantations and land mafias, where communities rely on palm oil as their primary livelihood due to a lack of alternative employment opportunities, triggering agrarian conflicts concerning the conservation status of the National Park (TNTN). Win-win relocation policies fail due to illegal land certificates and entrenched economic dependency, exacerbating ecosystem degradation.

Local government neglect of illegal land clearing, both due to limited capacity and political considerations, has allowed this practice to continue unhindered. Regional governments such as Riau Province and Pelalawan Regency actively support TNTN restoration through local budgets, integration into the Regional Medium-Term Development Plan (RPJMD), and population verification for humane relocation. However, the effectiveness of these roles is often eroded by normative inconsistencies in forest management and the lack of participatory dialogue mechanisms from the planning stage, ultimately facilitating lax oversight of land intrusion activities.

Furthermore, weak enforcement of conservation policies is reflected in the lack of significant penalties for violators. Although the forestry law provides administrative and criminal sanctions, their implementation in the field is very limited (Tohir, 2018). The limited number of forestry officers is unable to match the vast area that must be monitored, while the budget allocation for law enforcement operations is also inadequate. Furthermore, there are indications that several major actors, including plantation companies operating illegally, have strong political ties with local governments, resulting in selective and incomprehensive law enforcement operations (Gurning, 2024). Furthermore, human-wildlife conflict is an indicator of a multidimensional governance crisis. TNTN is an important habitat for Sumatran elephants, a species that has been categorized as critically endangered on the IUCN Red List. The Sumatran elephant population, which was previously spread across the island, has now drastically decreased to around 1,500 individuals in the wild, scattered in isolated fragmented populations. Deforestation and habitat fragmentation in TNTN have forced elephants out of forest areas in search of food, leading them to enter community-owned plantations or agricultural land. The resulting conflict not only results in economic losses for farmers due to damaged crops, but also poses safety risks for humans and the elephants themselves. Data

shows that 69 percent of elephant habitat in Sumatra has been lost in the past 25 years, and 85 percent of the remaining habitat is outside conservation areas (WRI Indonesia, 2018). Vertical coordination between the Ministry of Environment and Forestry, the Ministry of Environment and Forestry/Environmental Agency (BPLH), and the Tesso Nilo National Park Office is evident in the formation of the Integrated Restoration Team and the PKH Task Force to regulate the area, based on the principle of one map, one data. Challenges arise from the lack of cross-sector integration, with the offices struggling to manage conflicts without strong central support, such as those related to elephant-community conflicts.

This situation indicates that protected area-based conservation strategies that rely on the establishment of protected areas without intervention in plantations outside these areas have proven ineffective (Rijksbaron et al., 2021). Human-wildlife conflict in TNNP also impacts community perceptions of conservation policies. When communities experience economic losses due to wildlife entering plantations or perceive threats to them, preventing them from farming, they tend to view conservation policies, when these problems arise as always benefiting the animals to protect them but harming them, thus reducing social support for conservation efforts. This phenomenon creates a governance dilemma where successful ecological conservation actually produces negative externalities for local communities, thereby reducing the social legitimacy of these policies.

Tesso Nilo National Park and Indonesia's Environmental Diplomacy: A Blind Spot in Global Commitments

The contradiction between Indonesia's international commitments in the climate and biodiversity arenas and the reality on the ground in TNTN reveals a fundamental blind spot in national environmental diplomacy (Irwan & Firdaus, 2022). Indonesia has signed and ratified several international environmental agreements, including the Paris Agreement (2015), the Convention on Biological Diversity (CBD), the Ramsar Convention, and various other multilateral environmental agreements. Through the Enhanced NDC submitted in 2022, Indonesia has increased its emission reduction target to 31.89 percent unconditionally and 43.20 percent conditionally by 2030. This ambitious target demonstrates Indonesia's intention to position itself as a leader in global climate action, particularly considering the forestry sector's contribution of 97.2 percent of the total national emission reduction commitments (UNFCCC, 2022).

However, the condition of the TNNP, which shows 83 percent forest cover loss, operates as a counter-narrative that contests the diplomatic narrative constructed by the Indonesian government (Irwan & Firdaus, 2022). While Indonesian delegates speak at international forums about their commitment to forest conservation and climate change mitigation, the ongoing reality in the TNNP shows that formal regulatory instruments have not been able to translate these commitments into measurable conservation outcomes.

This blind spot occurs due to several structural factors. First, Indonesia's environmental diplomacy tends to focus on the macro level, namely bilateral negotiations with international donors, setting national targets, and developing a formal policy framework. While paying little attention to the sub-national dynamics that influence policy implementation at the ground level (Dubash, 2021). In other words, national environmental diplomacy lacks an effective feedback mechanism from conservation areas like TNNP to national policy centers, resulting in local implementation failures that do not significantly influence global diplomatic narratives and strategies.

Second, there is a separation between the institutions responsible for climate diplomacy, with institutions responsible for the governance of conservation areas at the sub-national level, namely the National Park Office and local governments (Kartodihardjo & Muhammad, 2019). Horizontal and vertical coordination between these institutions is weak, resulting in a misalignment between declared international commitments and implementation capacity on the ground.

Third, Indonesia's environmental diplomacy narrative often overlooks the fundamental contradiction between an economic development model reliant on natural resource extraction and ambitious conservation targets (Culanth, 2021). The Indonesian government has promoted oil palm plantations as an engine of economic growth, primarily through the empowerment of small-scale farmers, while simultaneously committing to reducing deforestation. This compromise is reflected in the National Park (TNTN), where local

governments implicitly tolerate land conversion for oil palm plantations due to their contribution to PAD (Regional Original Income) and employment, even though this undermines national conservation commitments.

Alternative Environmental Diplomacy: The Role of Local Actors as a Governance Opportunity

Facing the deadlock of top-down environmental diplomacy, the role of local actors including civil society, environmental NGOs, indigenous communities, and local community groups opening up opportunities for alternative, more participatory and sustainable models of environmental diplomacy. Bottom-up approach This environmental diplomacy recognizes that solutions to environmental crises do not only come from negotiations between countries or the authority of central governments, but also from grassroots initiatives that grow from local understanding of ecosystems and community needs. Bottom-up strategies begin with empowering local communities as stakeholders in the management of National Parks (TNNP). Unlike traditional conservation models that rely on exclusionary fortress conservation, community-based conservation (CBC), which emerged in the 1980s, emphasizes the importance of involving local communities, particularly landowners and resource users, in the formulation and implementation of conservation policies. In the context of TNNP, CBC can be developed through co-management arrangements, where responsibility for managing the conservation area is shared between the government and local communities (Putri & Kahfi, 2019). This model has been successful in several countries, where communities are provided with economic incentives and recognition of their management rights, significantly increasing their motivation to protect the ecosystem.

Implementing community-based conservation in the National Park (TNTN) can include several concrete initiatives. First, the development of community-based ecotourism that provides direct economic benefits to local communities while maintaining the ecological function of the forest. Through ecotourism, communities can earn income from activities such as tour guides, homestay accommodations, and the sale of local products, reducing their dependence on illegal plantation practices (Andita & Kahfi, 2019). Ecotourism also has a multiplier effect in promoting environmental awareness, as communities serving tourists tend to be more concerned about environmental quality.

Second, developing a sustainable and community-beneficial system for utilizing non-timber forest products (NTFPs). TNNP has significant potential for producing various NTFPs, such as honey, rattan, and traditional medicinal plants, that can be managed without damaging the forest ecosystem (Rohman et al., 2021). By granting business rights and stable market access, communities can earn sustainable income from the forest without the need for land conversion.

Third, strengthening the role of NGOs and civil society organizations in advocacy and monitoring. Organizations such as WWF Indonesia, Eyes on the Forest, and various local NGOs have played a crucial role in exposing illegal practices in the TNTN, documenting governance failures, and advocating for more progressive policies (Eyes on the Forest, 2019). The presence of these actors creates a complementary accountability mechanism to weak formal government mechanisms. NGOs can serve as whistleblowers, catalysts for change, and providers of accurate information to the wider public, helping to increase political will for reform.

Fourth, strengthening the capacity of local communities in deliberation and decision-making. Through participatory forums, communities can be encouraged to actively participate in TNNP management planning, ensuring that their needs are considered and that local perspectives are an integral part of conservation strategies (Sulistiyo & Rinaldi, 2023). This kind of deliberation not only improves the quality of decisions but also builds trust and social legitimacy in conservation policies.

Fifth, develop a local innovation ecosystem that connects traditional knowledge with modern technology. Indigenous communities surrounding the National Park (TNTN) possess a deep understanding of the local ecosystem, accumulated over centuries. Integrating this traditional knowledge with modern tools such as monitoring technology, geographic information systems, and early warning systems can yield more effective and contextual conservation solutions.

Bottom-up environmental diplomacy also involves strengthening networks of local actors to create collective power to influence policymakers. When local individuals or organizations speak alone, their voices are often overlooked by policymakers at the national level. However,

when they organize into cohesive networks and share a shared narrative, their influence on the policy formulation process increases significantly. Such networks can facilitate the exchange of experiences, shared learning, and more coordinated collective action.

CONCLUSION

The case of Tesso Nilo National Park reveals a fundamental crisis in Indonesia's environmental diplomacy at the sub-national level and its implications for global climate resilience. The degradation of the conservation area, supposed to be the last bastion of Sumatra's rainforest, reflects a profound gap between diplomatic ambitions on the international stage and implementation capacity on the ground. More than 80 percent of the TNTN's forest cover has been lost, demonstrating that formal regulatory instruments and international commitments have been unable to prevent ongoing massive land conversion.

An analysis of the failure of subnational environmental governance identifies several crucial mechanisms contributing to the TNNP crisis. First, weak vertical coordination between national policies and local implementation has resulted in inconsistent governance and selective law enforcement. Second, massive land conversion is driven not only by corporate greed but also by limited access by local communities to legally productive land, creating a trade-off between subsistence and conservation that is not addressed by mainstream policies. Third, the increasing incidence of human-wildlife conflict demonstrates that the protected area-based conservation model has failed to protect critical habitats outside of officially designated areas and has resulted in social externalities that undermine public support for conservation efforts.

At the level of environmental diplomacy, the TNTN serves as a blind spot, demonstrating the contradiction between the narrative of ambitious climate commitments and the reality of weak implementation. Indonesia has unconditionally increased its emissions reduction target to 31.89 percent by 2030, but the continued deterioration of strategic conservation areas like the TNTN indicates that this target will be difficult to achieve without fundamental reforms in subnational environmental governance. This blind spot arises from a disjuncture between actors responsible for international climate diplomacy and those responsible for local conservation area governance, preventing local implementation failures from significantly impacting global diplomacy strategies.

Facing this impasse, the role of local actors opens up opportunities for alternative environmental diplomacy that is more participatory, contextual, and sustainable. Bottom-up environmental diplomacy, involving civil society, NGOs, local communities, and the government in equal partnerships, can produce conservation solutions integrated with the economic and social needs of communities. This strategy includes developing community-based ecotourism, sustainable NTFP systems, strengthening the role of NGOs in monitoring and advocacy, and empowering communities in deliberations and decision-making. This model is not only more effective in achieving conservation goals but also builds stronger social legitimacy and long-term resilience.

The successful transformation of Indonesia's environmental diplomacy from a top-down model to a more inclusive and multi-actor model depends on three crucial factors. First, the political will of national and subnational governments to recognize the limitations of formal regulatory instruments and open up space for the participation of local actors. Second, capacity building to strengthen local institutions, including NGOs, community cooperatives, and local governments, so they can play an effective role as governance partners. Third, support from the international community, both in the form of technical assistance and financial support, to facilitate the transition to a more inclusive management model.

The TNTN experience holds important lessons not only for other conservation areas in Indonesia, such as Gunung Leuser National Park in Aceh and Sebangau National Park in Central Kalimantan, which face similar challenges, but also for other developing countries facing the dilemma of balancing economic development with environmental protection. If the community-based environmental diplomacy model can be implemented effectively in TNTN, the area could transform into an exemplary model demonstrating how ecosystem conservation can align with local community well-being and contribute to global climate goals.

Thus, the future of TNTN will not only be determined by Indonesia's commitment to international negotiations, but more fundamentally by its ability to build an inclusive, responsive governance ecosystem based on the principles of social justice and ecological sustainability. To be credible and effective, Indonesia's environmental diplomacy must go beyond rhetoric and translate into concrete actions at the conservation area level, such as TNTN, where local actors play a central role in shifting the trajectory of environmental degradation toward sustainability.

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