
MUHAMMADIYAH'S POTENTIAL ROLE AS A NON-STATE ACTOR IN ADVANCING INDONESIA'S NET ZERO EMISSION 2060 AGENDA

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Abstract:

Climate change has necessitated multi-stakeholder collaboration, where non-state actors play increasingly important roles. Indonesia is committed to achieving Net Zero Emission (NZE) by 2060, an ambitious target requiring participation from all stakeholders, including faith-based organizations. This research analyzes Muhammadiyah's potential as a non-state actor in supporting Indonesia's NZE 2060 agenda through the lens of green diplomacy. The study employs a qualitative approach with library research methods, analyzing policy documents, academic literature, and Muhammadiyah's official publications. This research argues that Indonesia's Net Zero Emission 2060 agenda cannot be optimally achieved without Muhammadiyah's involvement, as its strategic roles in social mobilization, political advocacy, education and innovation, and ethical-theological leadership directly correspond to the core indicators of effective green diplomacy. In the ASEAN regional context, Muhammadiyah potentially bridges state diplomacy with civil society, strengthening Indonesia's position in regional environmental cooperation. The study concludes that optimizing Muhammadiyah's role requires systematic synergy with the government, institutional capacity building, and more structured integration into Indonesia's green diplomacy strategy. This research recommends establishing formal partnership mechanisms between the government and Muhammadiyah, along with enhanced participation of religious organizations in national and regional green policy formulation.

Keywords: *Muhammadiyah, Net Zero Emission, Green Diplomacy, ASEAN.*

Submission : December, 13th 2025

Revision : January 24th 2026

Publication : February 28th 2026

INTRODUCTION

Climate change has emerged as an existential challenge for many nations in the 21st century. Several profound impacts have been identified, including threats to ecological, economic, and social stability on a global scale. Rising global

temperatures, increased frequency of hydrometeorological disasters, biodiversity crises, and sea-level rise constitute tangible manifestations of a systemic crisis demanding swift, comprehensive, and inclusive collective action. In addressing this crisis, international agreements such as the Paris Agreement have established ambitious targets to limit the average global temperature increase to well below 1.5°C to 2°C above pre-industrial levels. Achieving these targets is only feasible through robust national commitments from each nation, subsequently translated into concrete actions across various sectors.

As a nation possessing one of the world's largest biodiversities, the fourth-largest population globally, and the largest economy in Southeast Asia, Indonesia holds a pivotal role in the global climate action landscape. Indonesia has formally declared its long-term strategic commitment to achieve Net Zero Emissions (NZE) by 2060. This commitment not only forms an integral component of national development policy but also serves as a cornerstone of Indonesia's Green Diplomacy. This green diplomacy functions as a foreign policy instrument aimed at attracting investment, facilitating technology transfer, and fostering international cooperation to support the transition to clean energy and sustainable development (Prasodjo, 2024, p. 2). The realization of the 2060 NZE target would yield significant impacts, not only for Indonesia but also for the collective climate mitigation efforts within the Southeast Asian region.

Nevertheless, the pathway to NZE by 2060 is fraught with highly complex, multidimensional challenges. Data and reports from various sources reveal a gap between commitments and their implementation, while also outlining the scale of the issues at hand. The following Table 1 summarizes critical data illustrating the principal challenges at national and regional levels, underscoring the urgency for engagement from all stakeholders.

Table 1: Critical Data on Climate Challenges and Transition Efforts in Indonesia and ASEAN

Aspect	Current Data & Conditions	Implications & Sources
Greenhouse Gas (GHG) Emissions in Indonesia	By 2030, Indonesia is committed to reducing emissions by 31.89% (unconditional) and 43.20% (conditional) against the business-as-usual scenario. The forestry and energy sectors are the largest contributors.	Achieving these targets requires a radical transformation in both sectors, including accelerated cessation of deforestation and transition from coal. (Various NDC Reports)
Dependence on	As of 2021, the national energy mix is	Transitioning to NRE

Fossil Fuels	still dominated by coal, oil, and gas. The contribution of New and Renewable Energy (NRE) remains far from the 23% target for 2025.	requires substantial investment, estimated at up to USD 1,042 billion by 2060 (Prasodjo, 2024, p. 4).
Deforestation & Ecosystem Degradation	Indonesia is the fourth country with the greatest loss of primary tropical forest globally, after Brazil, Congo, and Bolivia (Cahyo & Dahliana, n.d., p. 3).	Deforestation not only releases carbon but also eliminates critical ecosystem buffer functions, exacerbating disaster vulnerability.
ASEAN Regional Vulnerability	Southeast Asia is among the regions most vulnerable to climate impacts, such as floods, sea-level rise, and crop failures, threatening the food and economic security of hundreds of millions of people (WRI Indonesia, n.d.).	Regional resilience heavily depends on the leadership and success of climate action by major countries such as Indonesia.

The data in Table 1 clearly demonstrates that achieving the 2060 NZE target is a crucial vision that cannot be entrusted to the government alone. A *whole-of-society* approach is essential, one that actively engages all components of the nation, including non-state actors such as the private sector, civil society organizations, local communities, and faith-based organizations (FBOs). FBOs, with their deep-rooted networks permeating to the grassroots level, moral authority, and ability to frame issues within spiritual values, possess a unique potential to serve as catalysts for social and behavioral change. They can function as policy communicators, drivers of public awareness, monitors of implementation, and even as partners in concrete conservation and energy transition actions.

Within the constellation of FBOs in Indonesia, Muhammadiyah emerges as an actor with highly relevant capacity and track record. As the largest modernist Islamic organization, with an estimated membership exceeding 60 million and a network of charitable enterprises encompassing thousands of educational institutions, hundreds of hospitals, and various other social institutions, Muhammadiyah's influence is both structural and cultural. More importantly, Muhammadiyah has long internalized ecological insights into its identity and movements. This commitment is rooted in theological interpretation, as reflected in the *Pedoman Hidup Islami Warga Muhammadiyah* (PHIWM) formulated since 2000, which affirms humanity's responsibility as *khalifah* (stewards) to preserve environmental sustainability (Cahyo & Dahliana, n.d., p. 4).

This theological commitment has been translated into tangible institutional actions and social movements. The establishment of the *Majelis Lingkungan Hidup* (MLH - Environmental Council) in 2005 and the Muhammadiyah Disaster Management Center (MDMC) in 2007 serve as institutional evidence (Efendi & Swarga, 2024, p. 1). At the practical level, Muhammadiyah has launched various initiatives such as the *Kader Hijau Muhammadiyah* (KHM - Green Cadre) movement, the Eco-Masjid program focusing on water, energy, and waste management in places of worship, and the *Sedekah Sampah* (Charity through Waste) campaign (Fiyani, 2025, p. 7; Hasna, 2025, p. 4). Muhammadiyah's environmental activism has also expanded into the digital realm, utilizing social media for massive campaigns such as during the commemoration of #Milad111Muhammadiyah with the theme "Ikhtiar Menyelamatkan Semesta" (Endeavor to Save the Universe) (Hasna, 2025, p. 6).

Muhammadiyah's role does not conclude with domestic mobilization. The organization has stepped into the arena of non-state diplomacy by convening the Global Forum for Climate Movement and actively building interfaith collaboration on climate issues (Muhammadiyah, 2023; Muhammadiyah, n.d.). Furthermore, Muhammadiyah is developing *Fikih Energi Berkeadilan* (Jurisprudence of Just Energy), an Islamic normative framework to promote a just and sustainable energy transition (Mosaic Indonesia, n.d.). These steps indicate that Muhammadiyah is not merely an object or executor of government policy but also possesses the potential to be a strategic partner and an active subject in shaping climate discourse, policy, and cooperation.

Therefore, there is an academic and practical urgency to systematically explore and analyze the strategic potential of Muhammadiyah as a non-state actor within the 2060 NZE agenda. This research stems from the question of how a religious organization with a strong mass base, institutional infrastructure, and social capital like Muhammadiyah can have its role optimized to accelerate Indonesia's transition towards a net-zero emissions future. This potential encompasses two domains. First, as a reinforcement of domestic governance through education, advocacy, and community action. Second, as an element of soft power within Indonesia's green diplomacy, capable of enriching the narrative, expanding networks, and enhancing the credibility of Indonesia's commitments in the eyes of the world. Based on the aforementioned background, this research will address two primary questions:

“How can Muhammadiyah's role and potential strengthen the position and effectiveness of Indonesia's green diplomacy, particularly within the context of regional ASEAN environmental cooperation?”

Specifically, the objectives of this research are to analyze the capacity, track record, and strategic potential of Muhammadiyah as a non-state partner within the policy framework and implementation of NZE 2060. Furthermore, this research will examine the actual and potential contributions of Muhammadiyah to Indonesia's green diplomacy and identify opportunities for stronger synergy between state and non-state actors in achieving national and regional sustainable development targets.

LITERATURE REVIEW

Green Diplomacy as a Strategic Framework

In studies concerning international cooperation to address environmental challenges, the concept of green diplomacy has emerged as a strategic instrument. Iftime (2014) defines green diplomacy as a specialized form of classical diplomacy adapted to environmental issues, with the goal of harmonizing the interests of the state, every individual, and the preservation and sustainable development of the natural conditions of life (p. 117). This concept developed rapidly since the latter half of the 20th century, emphasizing the role of expert discourse, more direct civic participation, and greater shared responsibility (Iftime, 2014, p. 118). Green diplomacy operates at various societal levels and serves as a primary instrument for international cooperation specifically in the ecological field (Iftime, 2014, p. 119).

The Capacity of Non-State Actors in Diplomacy and Global Goals

Previous studies have increasingly recognized the crucial role of non-state actors, including faith-based organizations (FBOs), in global politics and diplomacy. The concept of public diplomacy expands diplomatic actors beyond governments to include non-governmental organizations, religious groups, and civil society engaged in building understanding and direct relationships with foreign publics (Melissen, 2005 in Adam & Survvandono, 2025, p. 473). Muhammadiyah, as the largest FBO in Indonesia, has demonstrated its capacity in this arena. Research by Husein et al. (2024) examines Muhammadiyah as a model FBO in global humanitarian engagement, which they term 'humanitarian diplomacy.' Using Minear and Smith's (2007) framework, this study identifies four dimensions of Muhammadiyah's activities: orchestration of presence, negotiation of access, mobilization of advocacy, and oversight of programmatic assistance. Their findings indicate that Muhammadiyah's capacity in these four dimensions

has shaped an effective cross-border humanitarian work model, affirming its position as an important non-traditional diplomatic actor.

Furthermore, Muhammadiyah's strategic contribution is not limited to crisis response but also extends to broader sustainable development agendas. In the Indonesian context, green diplomacy is practiced by the government to realize the 2060 Net Zero Emission (NZE) target, partly through building international partnerships for funding and clean technology transfer (Prasodjo, 2023 in Bijaksana et al., 2024, p. 5). A study by Nugroho et al. (2025) finds that Muhammadiyah plays a crucial role and has a strategic plan in various sectors supporting the SDGs, such as education, health, economy, and social services, and even plans to expand into new sectors. A VRIO analysis in that study concludes that Muhammadiyah possesses assets and capabilities that provide sustainable competitive advantage, indicating it is an entity with solid managerial capacity and resources.

The Role of Indonesia and Muhammadiyah in Environmental Issues

Several studies have specifically mapped Indonesia's efforts and the potential of its domestic actors in environmental and climate issues. Research by Bijaksana, Ardian, and Wildan (2024) examines Indonesia's green diplomacy endeavors, analyzing how domestic policies like the NZE target and Renewable Energy (EBT) development support Indonesia's position in international forums like the Paris Agreement (pp. 3-5). They highlight Indonesia's participation in partnerships such as the Just Energy Transition Partnership (JETP) and the Forest and Other Land Uses (FOLU) Net Sink 2030 program as forms of tangible contribution (p. 6). At the regional level, Listianto's (2025) study delves into how Indonesia, during its ASEAN Chairmanship in 2023, leveraged its position to advance environmental diplomacy despite the meeting's main theme not explicitly targeting environmental issues. This research demonstrates that Indonesia successfully initiated and adopted various joint declarations and leaders' statements focusing on climate change, disaster resilience, electric vehicle ecosystem development, and regional environmental governance (pp. 41-43).

Meanwhile, research on Muhammadiyah's direct involvement in environmental and climate issues remains very limited. Existing studies focus more on humanitarian diplomacy in conflict contexts, such as Adam and Survvandono's (2025) work on Muhammadiyah's dilemma in assisting the Rohingya humanitarian crisis in Myanmar. This study reveals the organization's strategies in facing social, political, and cultural barriers, as well as its dependence on government diplomatic channels to access conflict zones (pp. 477-479). The

comparative analysis in this research also places Muhammadiyah's capacity in fundraising and accessing affected areas below that of international organizations like UNHCR and ICRC, which possess stronger global legitimacy and networks (pp. 480-481).

Gap in Previous Research

Based on the review above, the author identifies a clear research gap. The existing literature confirms Muhammadiyah's capacity as an effective non-state actor in humanitarian diplomacy and its contributions to various SDGs 2030 targets. Studies have also detailed Indonesia's strategies and roles, both nationally and as a regional leader, in advancing green diplomacy and climate agendas. However, no study has specifically investigated the potential, strategies, and actual role of Muhammadiyah as a FBO in advancing a highly technical and policy-based national agenda of Indonesia—namely the 2060 Net Zero Emission target—through a green diplomacy approach. Therefore, this research aims to fill this gap. The author will synthesize several key conceptual frameworks from previous studies:

1. The institutional capacity, operational networks, and humanitarian diplomacy model of Muhammadiyah as an FBO
2. The concepts of green diplomacy and environmental diplomacy as instruments for environmental policy advocacy and cooperation, as practiced by Indonesia
3. The strategic position of non-state actors in public diplomacy and regional governance.

This synthesis is necessary to analyze how Muhammadiyah's social capital, grassroots and international networks, and operational capacity can be transferred and optimized to support Indonesia's energy transition and climate action. This analysis will also explore how Muhammadiyah can serve as a strategic partner strengthening Indonesia's environmental diplomacy at regional and global levels, while simultaneously advocating for and implementing sustainable development principles at the community level.

THEORETICAL FRAMEWORK: GREEN DIPLOMACY AND THE ROLE OF NON-STATE ACTORS IN INDONESIA'S NZE 2060 AGENDA

Green Diplomacy Theory

Green diplomacy represents an approach in international relations and global cooperation that places environmental issues as an integral component of

politics, economics, and society (Iftime, 2014). Unlike traditional state-centric diplomacy, green diplomacy acknowledges that environmental problems like climate change are cross-border in nature and require multi-sectoral collaboration. Its primary focus includes nature protection, biodiversity conservation, sustainable energy transition, and the achievement of global commitments such as greenhouse gas emission reduction (Ioan, 2013).

In contemporary developments, the practice of green diplomacy is no longer the exclusive domain of states. Non-state actors, including civil society organizations, religious institutions, and educational bodies, have emerged as significant driving forces. They engage in policy advocacy, norm-building, and public mobilization for climate action (Dela Cruz et al., 2023). This concept is relevant for analyzing Indonesia's Net Zero Emission (NZE) 2060 agenda because the success of this agenda depends not only on the government's technocratic policies but also on the acceptance, participation, and constructive pressure from all societal elements. Green diplomacy provides a framework for understanding how non-state actors can bridge state policy with grassroots implementation.

Green Diplomacy and the Strategic Position of Non-State Actors

Green diplomacy theory underscores the central role of non-state actors in global environmental governance. They function as moral forces, agents of social change, and critical partners for governments. Religious organizations, in particular, hold a unique position due to their broad mass base, moral authority, established networks, and ability to frame environmental messages within ethical and religious value systems (Kim & Ali, 2016).

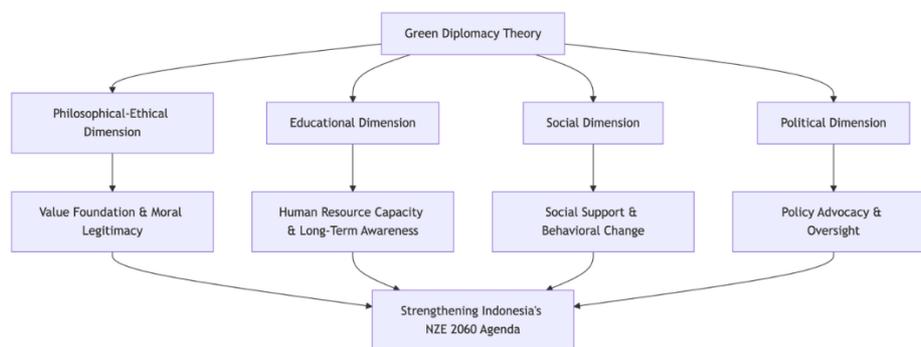
Muhammadiyah, as a progressive Islamic organization with extensive networks in education, health, social, and economic fields, can be positioned as a strategic non-state actor within Indonesia's green diplomacy landscape. This organization has the potential to translate the technical NZE 2060 agenda into a socio-religious movement that is comprehensible and actionable by the community. Through a green diplomacy approach, Muhammadiyah's role extends beyond being a project implementer to being a partner that builds social legitimacy, performs social control, and strengthens the value-based foundation for the government's green policies.

Four-Dimensional Analytical Framework: Mapping Muhammadiyah's Potential Contribution

According to the literature, the implementation of green diplomacy manifests across several levels. To analyze Muhammadiyah's potential, this study will focus

on four interrelated dimensions (Ioan, 2013). These four dimensions are not isolated but form a mutually reinforcing ecosystem. The philosophical-ethical dimension provides a value foundation, the educational dimension builds capacity and awareness, the social dimension mobilizes collective action, and the political dimension ensures policy sustainability. The dynamic relationship between these four dimensions can be visualized as an integrated system:

Diagram 1: *Four Dimensions of Green Diplomacy and Their Implications for Muhammadiyah's Role*



The diagram above illustrates how Muhammadiyah's contributions across each dimension will ultimately converge to strengthen the overall NZE 2060 agenda. To provide a more operational overview of the specific form of these contributions within each domain, the analysis proceeds by mapping the theoretical focus, practical applications, and their linkages to NZE targets in the following table:

Table 2: *Analysis of Muhammadiyah's Potential Role in Each Dimension of Green Diplomacy*

Dimension	Theoretical Focus of Green Diplomacy	Application and Potential Contribution of Muhammadiyah	Relevance to NZE 2060
Philosophical-Ethical	Building moral values, environmental ethics, and a worldview (weltanschauung) on human-nature relationships (Ioan,	Developing progressive ecological theology (eco-theology) and environmental jurisprudence (fiqh al-bi'ah). Framing environmental	Provides a strong normative foundation and intrinsic motivation for NZE commitment, extending beyond mere regulatory

	2013).	stewardship as an act of worship (khilafah) and intergenerational justice.	compliance.
Educational	Transferring knowledge, building human resource capacity, and instilling sustainability values across generations (Ioan, 2013).	Integrating climate science, renewable energy, and environmental ethics into curricula across thousands of schools and universities. Conducting climate literacy training for the broader public.	Creates a <i>pipeline of green talent</i> and a climate-literate society, essential for the long-term sustainability of the energy transition.
Social	Mobilizing communities, encouraging behavioral change, and fostering grassroots movements.	Mobilizing members through councils, branches, and charitable enterprises for concrete actions: waste banks, energy gardens, plastic reduction campaigns, and energy efficiency in organizational facilities.	Builds <i>critical mass</i> and a supportive social ecosystem vital for translating national policies into community norms and practices.
Political	Conducting policy advocacy, engaging with decision-makers, and participating in governance forums (Dela Cruz et al., 2023).	Acting as a critical yet constructive government partner in climate policy formulation and evaluation. Utilizing networks for social lobbying and amplifying public voices in national forums.	Enhances the accountability and quality of NZE policies. Support from a major mass organization like Muhammadiyah can strengthen the political legitimacy of the agenda.

This four-dimensional framework demonstrates that Muhammadiyah's contributions can be holistic and multidisciplinary. From building a value-based foundation at the philosophical level to fostering collective action at the social level

and influencing policy at the political level, Muhammadiyah possesses the tools and networks to engage across all fronts. Analysis through the lens of green diplomacy not only maps this potential but also highlights how these various levels of engagement are mutually reinforcing, creating a synergistic effect capable of accelerating Indonesia's journey towards NZE 2060.

METHOD

This research is developed as a qualitative study focused on an in-depth exploration of the potential of a socio-religious organization within the context of a national strategic issue. The approach employed is library research with a descriptive-analytical character, which enables the researcher to delve into and comprehend the complexity of the social phenomenon under investigation. As explained in methodological literature, qualitative research is highly suitable for exploring the meaning and understanding of an issue from the perspective of participants or, in this case, from documents that represent the voice and position of the organization in question (Creswell, 2009, pp. 22; 26). Consequently, this approach is selected to deconstruct the narratives, capacities, and opportunities held by Muhammadiyah within the constellation of green diplomacy and the national Net Zero Emission (NZE) agenda.

The data sources for this research are entirely derived from written materials, which are classified into two main categories. The first category encompasses secondary academic literature discussing key concepts such as Net Zero Emission, green diplomacy, and faith-based diplomacy. The review of this literature aims to establish a theoretical and contextual foundation, including understanding the dynamics of ASEAN regional cooperation in the environmental sector. The second category consists of official documents serving as primary and secondary sources. These documents include Muhammadiyah's policy archives, such as the outcomes of its National Congress (*Muktamar*), Leadership Council Meetings (*Tanwir*), and various official publications addressing environmental jurisprudence (*fiqh*), humanitarianism, and sustainable development. It also includes Indonesian government policy documents related to the NZE 2060 target and ASEAN strategic documents in the environmental sector.

The analysis process is conducted thematically on these texts. Data from various sources are collected, selected, and then categorized based on emerging themes. Through in-depth interpretation of these categories, the researcher seeks to identify patterns, substantive capacities, strategic opportunities, and to formulate arguments regarding Muhammadiyah's potential contributions. This method emphasizes deep textual analysis to produce a rich and argumentative

synthesis, without involving direct field data collection, thus ensuring all conclusions are built upon the analysis of documented discourse (Creswell, 2009, pp. 41-42; 56).

RESULT AND DISCUSSION

National and Regional Policies on Net Zero Emission 2060

The achievement of Indonesia's Net Zero Emission (NZE) target by 2060 depends not only on domestic policy but also on a regional cooperation ecosystem. This section will outline the national policy map and the regional framework that constitute the strategic context for non-state actor engagement.

Table 3: *Policy Map and Challenges of Indonesia's NZE 2060*

Policy Aspect	Main Document/Pillar	Key Targets	Key Implementation Challenges
Global Commitment	Paris Agreement (Law No. 16/2016)	Limit global temperature rise to 1.5°C – 2°C.	Coherence and ambition of NDCs with long-term targets.
Long-Term Strategy	LTS-LCCR 2050, ENDC	NZE by 2060 or sooner; emission reduction of 31.89% (unconditional) and 43.20% (conditional) by 2030.	Gap between CPOS, TRNS, and LCCP scenarios; persistent investment need.
Energy Transition	PLN's Electricity Supply Business Plan (RUPTL) 2021–2030, National Energy Policy	>51.6% share of renewable energy in the electricity generation mix by 2030.	Continued reliance on coal-fired power plants (PLTU); technological and financing constraints for renewables.
Land-Based Emission Control	FoLU Net Sink 2030, Forest Moratorium	Forestry sector becomes a net carbon sink by 2030.	Ongoing deforestation; land-use conflicts; weak law enforcement.
Economic Instruments	Harmonized Tax Law (Carbon Tax), Presidential Regulation on Carbon Economic	Introduce carbon price signals on emissions.	Sector readiness, economic burden risks, and carbon market effectiveness.

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The table above underscores that, although the policy framework for NZE 2060 is relatively comprehensive, a significant implementation gap persists. The primary challenges are structural, encompassing economic aspects (investment), governance (law enforcement), and social dimensions (public acceptance). This creates a critical space for non-state actors, such as community organizations, to serve as partners, mobilizers, and guardians of policy implementation.

ASEAN plays a crucial role as a facilitator for Indonesia's NZE agenda. Through the ASEAN Plan of Action for Energy Cooperation (APAEC) 2016-2025, member states are committed to increasing the share of renewable energy to 23% by 2025. This cooperation materializes in initiatives like the ASEAN Power Grid for electricity grid connectivity and joint projects in solar, wind, and bioenergy. For Indonesia, participation in this regional forum is not solely about achieving domestic targets but also about positioning itself as a leader in the regional green energy transition, attracting investment, and accelerating technology transfer. The synergy between national policy and regional momentum will determine the pace of Indonesia's transition.

The Role of Muhammadiyah as Non-State Actors in the Green Diplomacy Agenda for a Collaborative Ecosystem

Conventional policy approaches are deemed insufficient within the context of this research. Consequently, green diplomacy emerges as a diplomatic paradigm that integrates environmental issues into all layers of international relations and public policy. Modern green diplomacy does not view the state as the sole actor. This approach creates space for the involvement of corporations, academics, NGOs, and especially faith-based organizations (FBOs). These non-state actors function as force multipliers: they expand the reach of policy socialization, provide moral legitimacy, mobilize grassroots action, and serve as critical partners in policy evaluation. In the highly religious context of Indonesia, the role of FBOs becomes particularly central, as religion constitutes the most influential source of values and motivation for collective behavior (Puglisi & Buitendag, 2022). Among various FBOs, Muhammadiyah offers unique strategic potential. This potential can be mapped through its substantial social capital and institutional capacity.

Table 4: *Social Capital and Strategic Capacity of Muhammadiyah*

Capacity Dimension	Description and Scope	Relevance to NZE 2060 Agenda
Mass Base &	Over 60 million members and sympathizers; thousands of	Direct channels for communication and

Network	mosques, schools, universities, hospitals, and orphanages across Indonesia.	mobilization that reach broad segments of society at the grassroots level.
Moral & Theological Authority	As a modernist Islamic organization with recognized religious authority, capable of issuing fatwas and religious interpretations.	Can provide religious legitimacy to environmental policies, transforming technical issues into moral obligations (e.g., MUI's environmental fatwa).
Education & Research Capacity	Operates 172 higher education institutions and thousands of schools; hosts the Institute for Environment and Sustainable Development (LLHPB).	Centers for education, research, human resource development, and technological innovation to support the energy transition and green economy.
International Network & Diplomacy	Member of various international Islamic forums; active in interfaith and cross-civilizational dialogue.	Can act as a track-two diplomacy actor, building global networks and solidarity for climate issues, and strengthening Indonesia's position in green diplomacy.

Opportunities and Potential of Muhammadiyah in Supporting the Implementation of Net Zero Emission 2060

Leveraging its substantial strategic capital encompassing a mass base of over 60 million, a nationwide network of institutions, and recognized moral authority Muhammadiyah is uniquely positioned to contribute to Indonesia's Net Zero Emission (NZE) 2060 agenda across multiple, interdependent domains. Its potential can be systematically examined through a framework of four reinforcing levels of intervention: social, political, educational, and philosophical. These levels are not isolated but form a synergistic system: philosophical foundations motivate action, education builds capacity, social mobilization creates scale, and political advocacy ensures supportive governance. The table below synthesizes Muhammadiyah's specific potential actions and their contributions to the NZE 2060 agenda within this framework.

Table 5. *Multidimensional Opportunities for Muhammadiyah in Supporting NZE 2060*

Level of Intervention	Muhammadiyah's Potential Actions	Direct Relevance & Contribution to NZE 2060 Agenda
Social	<ul style="list-style-type: none"> Implementing and scaling the "EcoMasjid" program for sustainable mosque management (Purwanto et al., 2024). Launching coordinated digital awareness campaigns (e.g., #Milad111Muhammadiyah) to shape public discourse (Hasna, 2025). 	Fosters community-level behavioral change and creates a supportive social ecosystem essential for adopting low-carbon lifestyles and technologies. Builds public mandate for green policies.
Political	<ul style="list-style-type: none"> Developing and deploying "Fiqh of Just Energy" as a normative framework for policy advocacy (Mosaic Indonesia, n.d.). Facilitating multi-stakeholder policy dialogues between government, business, and communities. 	Enhances policy quality and equity, ensuring a just transition. Strengthens political legitimacy and accountability of NZE policies through critical yet constructive partnership.
Educational	<ul style="list-style-type: none"> Integrating climate and sustainability into curricula across its educational network. Developing university-based research hubs for green technology. Providing vocational training in green skills (solar installation, waste management). 	Builds the essential long-term human resource pipeline (green talent). Drives innovation and technological diffusion. Ensures community capacity for implementation and adaptation.
Philosophical	<ul style="list-style-type: none"> Theologically reaffirming <i>khilafah</i> as environmental stewardship. Issuing religious edicts (fatwas) on specific environmental obligations. Promoting the concept of nature as <i>ayat kauniyah</i> (divine signs) 	Provides a deep, intrinsic motivational framework beyond regulation. Offers religious legitimacy, transforming

	(Efendi & Swarga, 2024).	environmental action into an ethical and spiritual imperative for millions.
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By activating its strategic capital across this integrated framework, Muhammadiyah can transition from a peripheral supporter to a central pillar in Indonesia's collective journey toward a net-zero future. The organization's multi-domain engagement ensures that the NZE agenda is not only a governmental policy but also a deeply rooted socio-religious movement.

Muhammadiyah's Contribution to Green Diplomacy and ASEAN Regional Cooperation

Muhammadiyah's role and influence are not confined to Indonesia's domestic sphere; its global vision and extensive networks position it as a significant non-state actor capable of bolstering Indonesia's regional standing through green diplomacy. As an organization with active participation in international Islamic forums and a history of interfaith engagement, Muhammadiyah can effectively translate its domestic environmental initiatives into instruments of regional soft power and cooperative action (Muhammadiyah, 2023; Muhammadiyah, n.d.). This potential manifests primarily through two interconnected avenues: building people-to-people diplomacy networks and strengthening ASEAN cooperation through non-governmental channels.

A primary contribution lies in fostering People-to-People Diplomacy Networks. By leveraging its affiliations with global bodies such as the World Muslim League, Muhammadiyah can cultivate strategic alliances focused on climate issues across the Muslim world and beyond. This network facilitates the cross-border exchange of community-driven best practices. For instance, the successful "EcoMasjid" model in Indonesia—which integrates water and energy conservation, waste management, and ecological awareness into mosque activities—can be shared and adapted with similar faith-based environmental initiatives in Malaysia, Singapore, or Thailand (Purwanto et al., 2024). Furthermore, Muhammadiyah's established platforms for interfaith dialogue can be deliberately steered towards the ecological crisis, building a unique form of multi-religious solidarity within ASEAN. This collective moral voice from diverse faith communities can generate substantial social pressure and foster a shared regional commitment to climate action, operating in parallel to formal state-led processes.

Concurrently, Muhammadiyah can Strengthen ASEAN Cooperation through Non-Governmental Channels by actualizing its potential in several concrete forms. The organization's vast educational infrastructure, comprising 172 higher education institutions, provides a foundation for cross-border academic collaboration. This could include establishing twinning programs, facilitating student and faculty exchanges, and launching joint research initiatives with universities across ASEAN, with a focused agenda on sustainability studies, renewable energy technologies, and climate adaptation strategies. Beyond academia, Muhammadiyah's representative capacity allows it to function as a credible voice for Indonesian civil society in regional policy dialogues. Through its networks, it can advocate for more ambitious, equitable, and culturally-attuned climate policies within ASEAN forums, ensuring that grassroots perspectives and ethical considerations inform regional governance (Listianto, 2025). Crucially, Muhammadiyah can champion an "Indonesian model" of environmental stewardship that synergizes religious values with concrete action. Promoting proven programs like EcoMasjid and religious edicts (*fatwas*) on environmental protection as best practices enhances Indonesia's soft power, presenting it as a leader in innovative, culturally-grounded approaches to sustainable development.

This analysis affirms that Indonesia's ambitious NZE 2060 target necessitates a collaborative ecosystem where state and non-state actors engage as equal partners, a core tenet of modern green diplomacy. Within this ecosystem, Muhammadiyah emerges as an entity with multidimensional strategic value. It operates simultaneously as an agent of social change, mobilizing its mass base towards low-carbon lifestyles; a partner in political advocacy, offering ethical frameworks like the *Fiqh of Just Energy* for policy dialogue; an institution of education and innovation, building critical human capital and driving research; and a moral and philosophical authority, providing deep theological legitimacy for the environmental movement (Mosaic Indonesia, n.d.; Efendi & Swarga, 2024). These mutually reinforcing roles not only fortify the domestic pillars of the NZE agenda but also significantly enrich Indonesia's green diplomacy portfolio. By strategically engaging Muhammadiyah as a partner, Indonesia can accelerate its domestic energy transition while solidifying its leadership in climate diplomacy within ASEAN, leveraging a distinctive form of socio-religious capital that is both influential and authentically Indonesian.

CONCLUSION

The imperative to achieve Indonesia's Net Zero Emissions (NZE) 2060 target requires robust engagement from all societal actors, including faith-based

organizations. This research demonstrates that Muhammadiyah, with its extensive grassroots network of over 60 million members and thousands of educational, health, and social institutions, possesses substantial potential to accelerate Indonesia's NZE agenda. As evidenced by its establishment of the Environmental Council (MLH) in 2005, the Eco-Masjid program for sustainable mosque management, the digital #Milad111Muhammadiyah climate campaign, and ongoing development of a *Fiqh of Just Energy* framework, Muhammadiyah has moved beyond rhetoric to tangible, value-driven environmental action.

These concrete initiatives illustrate how Muhammadiyah's involvement can significantly enhance Indonesia's green diplomacy. Domestically, it acts as a force multiplier by translating technical climate policies into ethical and religious imperatives, mobilizing community action, building climate literacy through its educational system, and advocating for just transition policies. Regionally, Muhammadiyah's international networks and participation in forums such as the Global Forum for Climate Movement position it as a soft power asset, capable of strengthening Indonesia's leadership in ASEAN environmental cooperation through faith-based diplomacy, cross-border educational partnerships, and the sharing of community-based models like Eco-Masjid.

To fully harness this potential, structured and formalized collaboration is essential. It is recommended that the Indonesian government establish a dedicated partnership framework with Muhammadiyah, integrating the organization systematically into national and regional green policy design and diplomacy strategies. Concurrently, capacity-building support should be provided to strengthen Muhammadiyah's environmental governance, while its educational and research institutions should be further leveraged as centers for green innovation and talent development. Through this synergistic approach, Muhammadiyah can evolve from a supportive actor into a core strategic partner, significantly bolstering both the domestic realization and the international credibility of Indonesia's NZE 2060 commitment.

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