

Preservation and Conservation of the Rainforest of Papua New Guinea as an Attempt to Reclaim the Commons

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ABSTRACT

The issue of deforestation and the shrinking of tropical rainforest areas has raised concerns about the preservation and protection of rainforests. This article explores concepts/themes related to rainforest conservation in Papua New Guinea and the concept of 'reclaiming the commons'. It analyzes the challenges posed by deforestation, land privatization and corporate exploitation while emphasizing the role of community-led initiatives, indigenous knowledge and global partnerships. By examining case studies such as the Yupo-Uruwa-Sam Rivers Conservation Area (YUS CA), FORCERT, and the AIM4Forests program, the article highlights strategies to protect Papua New Guinea's rainforests, and restore collective management in collaboration with local indigenous communities with their traditional ecological knowledge to sustainably conserve the natural resources within them.

Keywords: *rainforest conservations, reclaiming the commons, deforestation, community involvement.*

INTRODUCTION

In 2023, 6.37 hectares of forest were lost, equivalent to the area of 9.1 million football fields, according to a report released on October 8, 2024 (Chauhan, 2024). This figure exceeds the deforestation limit set by 140 countries to eliminate deforestation by 2030, by 45 percent (Butler & Butler, 2020). This indicates a serious problem in international efforts to halt deforestation and forest degradation. The report calls for a review of strategies to halt deforestation and restore forest areas. The increasing rate of forest loss and conversion calls for more decisive action from world leaders. Tropical rainforests are crucial for carbon storage and the protection of natural ecosystems, including their biodiversity. With the loss of 3.7 million hectares in 2023, efforts to protect these forests have fallen 38 percent short of the target (Chauhan, 2024).

Spanning 37 million hectares, the rainforests of Papua New Guinea are the third largest after the Amazon and Congo forests (coolearth, 2024). Papua New Guinea's forests harbor extraordinary biodiversity, hosting 7 percent of the world's species, including many rare and endangered species (Butler, 2020). However, Papua New Guinea's forests also face threats from logging, conversion to oil palm plantations, and corporate encroachment. Over the past three decades, a quarter of Papua New Guinea's forests have been lost, primarily due to illegal logging and agricultural expansion (Wildlife

Conservation Society, 2018). The expansion of mobility networks in the region has further fragmented the natural ecosystems of Papua New Guinea's rainforests, making them increasingly vulnerable to exploitation. Forest conservation efforts in Papua New Guinea are not only an ecological imperative, but also a broader movement to reclaim shared resources that will be collectively managed and protected for the sustainable common good.

The government and other actors involved in preserving and saving Papua New Guinea's rainforests must strengthen regulations regarding forest conservation and involve local communities in decision-making processes. Recent developments include the new Protected Areas Act, which aims to empower local communities to manage their land sustainably while protecting endemic flora and fauna ecosystems from commercial exploitation (Butler, 2020). This law is considered a crucial step in protecting Papua New Guinea's forests and ensuring that local communities can continue their traditional practices, including protecting forest areas, without external pressure. The rainforests of Papua New Guinea are not only crucial for global biodiversity but also for the cultural heritage and livelihoods of indigenous people (Butler, 2020). Protecting these forests from the looming threat of deforestation is crucial for maintaining ecological balance and supporting the daily lives of forest-dependent communities. This article will examine the ecological and social significance of Papua New Guinea's rainforests, analyze threats, and explore solutions through the lens of reclaiming the commons.

METHODS

This study uses a qualitative research method that allows for a narrative description of rainforest rescue and preservation efforts in Papua New Guinea from the concept of 'reclaiming the common'. Qualitative research involves data collection, data analysis from specific to general themes, and researchers make interpretations of the meaning of the data (Creswell & Creswell, 2017). This method can be used to observe the process of rainforest conservation and rescue in Papua New Guinea through emphasizing the role of community-led initiatives, knowledge from indigenous communities, and global partnerships forged as a result of the concerns and forms of conservation initiated by related actors. This method also analyzes the relevance of the concept of 'reclaiming the common' to rainforest conservation efforts in Papua New Guinea through the role of communities and global partnerships.

To provide more data and an overview of the broader research field, this study also applies a literature review in its discussion. A literature review can be interpreted as a systematic way to collect data and synthesize previous research, by integrating findings and perspectives from several empirical findings, and can also help reveal areas that require more research data to create a theoretical framework and build a conceptual model (Synder, 2019). To maximize research results, this study uses data collection based on literature studies and internet-based research to help the author see available data in various fields related to rainforest conservation efforts along with efforts that are returned to the community or even to indigenous communities to restore the original function of the forest as a natural ecosystem in the continuation of life on earth more sustainably.

RESULT AND DISCUSSION

Papua New Guinea is a country that shares a direct border with Indonesia. Its territory is predominantly covered by forest, amounting to 77.9 percent, according to 2019 data (Papua New Guinea Forest Authority, 2020, 2). Human settlements in Papua New Guinea constitute a very small portion, around 0.9 percent, reflected in the population, which predominantly lives in rural areas (Papua New Guinea Forest Authority, 2020, 2). The country's forest types are highly diverse, but those impacted by human activities such as logging and small-scale agricultural land clearing are typically found in lowland areas. A quarter of Papua New Guinea's forests have been lost in the past 30 years (Wildlife Conservation Society, 2018). The primary factors are illegal logging, as well as the clearing of land for plantations and agriculture. The country's population, which predominantly lives in rural areas, relies on natural resources to meet their needs. With projected population growth over the next 20 years, the likelihood of dependence on and the threat of forest conversion for human settlements is also high (Wildlife Conservation Society, 2018). Much of the land in Papua New Guinea remains under customary ownership, with indigenous communities controlling access to their resources. They have the capacity to develop regulations for the sustainable management of the natural resources upon which they rely on daily life.

In addition to the forests that serve as the mainstay of the people of Papua New Guinea, the vast rainforest area is also a center of biodiversity that is spread almost throughout the island. The position of the Papua New Guinea rainforest divides the unique diversity of flora and fauna with Australian characteristics, mostly having similarities with the flora and fauna of the Australian region. The fauna in this region is separated by the imaginary 'Weber' line,' coined by Max Carl Wilhelm Weber, a German researcher who conducted the Siboga expedition from March 1899 to February 1900 (Harrison, 2012). Uniquely, the fauna of this region seems to be separated in the east with almost zero possibility of crossing or migrating beyond the 'Weber' line. Animals in this region can be said to experience the term 'Allopatric,' which means in ecology and evolutionary biology described as a population or species that is physically isolated from other groups due to geographical barriers (Harrison, 2012, 3644). Famous species from Papua New Guinea include various types of Birds of Paradise and various marsupial fauna such as Matschie's tree kangaroos which are not found in other regions (Heads, 2002, 286).

Forests play a myriad of vital roles in sustaining life on Earth. Preventing global warming and mitigating the climate crisis are among the primary roles of forests. Forests act as a double-entry trap for carbon dioxide, which is then converted into oxygen through photosynthesis (Better Planet Education, 2015). The oxygen-producing capacity of trees and plants in forests balances carbon levels on Earth, providing sufficient oxygen for all living things. Forest vegetation, in addition to balancing the forest ecosystem, also serves as a home for most forest biota. A balanced forest ecosystem is essential for maintaining the balance of life on Earth. However, humans, who hold a more anthropocentric perspective, often fail to prioritize environmental sustainability for the future. The world has become an unsafe place for most of Earth's inhabitants due to

human greed in exploiting natural resources, leading to an increasing number of natural disasters that disrupt Earth's ecosystems.

Threats to forest ecosystems and indigenous communities

The process of natural resource exploitation by humans, often without regard for sustainable procedures, such as exploitation through the expansion of palm oil agriculture and various methods of clearing agricultural and plantation land for human benefit, threatens the native ecosystems in these areas (Raman, 2023). The reckless exploitation of natural conditions makes the composition of the earth's forests vulnerable. Land clearing by most corporations, many of which use destructive tools in the process, causes endemic animals in the affected areas to lose their natural habitats. They tend to invade residential areas, disrupting communities and damaging the livelihoods of surrounding communities. Public concern about wildlife attacks in residential areas is a new challenge for relevant policymakers, and going forward, there will be many negative impacts waiting to be resolved if they continue to adhere to an anthropocentric perspective.

Land privatization by corporate actors, particularly of communal and customary land for vested interests, has significant impacts on local communities and their rights (Gibson et al., 2002). Corporate interests play a significant role, often seizing rights to communal land for profit. The transfer of ownership to corporate land often leads to increased inequality and forced evictions. When land becomes a commodity, those without the ability to purchase or lease land face dispossession. This dynamic is exacerbated by a legal framework that favors corporate entities over traditional land ownership. Corporate interests often prioritize short-term profits over sustainable practices. This can lead to environmental degradation due to land exploitation for agriculture or resource extraction without regard for ecological balance.

Countries around the world have adopted forest and land conservation policies, but enforcement remains extremely weak. A study found that over 60 percent of conservation practitioners reported misimplementation and weak legal enforcement as key challenges to effective and sustainable ecosystem management (Turnbull, 2022). This indicates a disconnect between policy formulation and actual implementation by governments and relevant policymakers. Furthermore, there is frequent misallocation of natural resources for conservation efforts, coupled with inadequate investment in training and support for frontline stakeholders. This results in ineffective policy management practices and failures to protect biodiversity and the rights of indigenous peoples. Addressing this gap requires a multifaceted approach that includes stronger legal protection for indigenous peoples' rights, improved policy enforcement mechanisms, enhanced community capacity-building initiatives, and better coordination among stakeholders involved in conservation efforts. Effective solutions must prioritize the voices and needs of communities to ensure ecological sustainability and social equity.

Community-initiated conservation as an effort to reclaim the commons

Community-led conservation is a transformative approach to environmental management that emphasizes the importance of local governance and community involvement in managing natural resources (Miller, 2023). This initiative not only aims to protect biodiversity but also to reclaim the commons held by indigenous peoples or communities. Community-led conservation prioritizes the sovereignty of local communities, enabling them to take control of their natural resources. This empowerment practice is crucial because it fosters a sense of ownership and responsibility among community members, encouraging them to actively engage in conservation efforts. By placing decision-making authority in the hands of local communities, this initiative ensures that conservation strategies are tailored to the needs and values inherent in the community, which is expected to lead to more effective outcomes (Miller, 2023).

Elinor Ostrom challenged the notion of the “tragedy of the commons,” which holds that shared resources will always be exploited without control. Through her research and book, “Governing the Commons,” Ostrom demonstrated that local communities can effectively manage shared resources through institutions and rules they create themselves. This concept, known as “reclaiming the commons,” means restoring the rights, roles, and responsibilities of local communities over resource management.alam (Ostrom, 1990)Reclaiming the commons involves recognizing that natural resources such as forests, rivers, and oceans are shared assets that require shared management (Sweeney & Blaine, 2016). Community-led initiatives emphasize fair and equitable access to these resources while promoting sustainable conservation practices that benefit both current and future generations. This shift from viewing resources as commodities to viewing them as common property fosters a culture of sustainable management among community members (Fox et al., 2011). Locally led conservation often integrates sustainable livelihood initiatives, providing economic alternatives that reduce the burden on natural resources (Sweeney & Blaine, 2016). For example, ecotourism and sustainable agriculture can provide financial incentives for communities to conserve their ecosystems rather than exploit them unchecked. By linking direct economic benefits to conservation efforts, local communities are more likely to prioritize the sustainability of their environment.

The Yupno-Uruwa-Sam Rivers Conservation Area (YUS-CA) in Papua New Guinea exemplifies the integration of local governance and conservation efforts, resulting in a nationally recognized protected area and a model for similar sustainable management practices. Established in 2009 with assistance from the United Nations Development Programme (UNDP) and the Global Environment Facility (GEF), the area is the first communally managed conservation area in Papua New Guinea, demonstrating a collaborative approach that engages local communities while championing biodiversity conservation (Huettmann, 2023). The YUS-CA's governance structure stems from local community participation, with over 90 percent of the land owned by indigenous groups, who have historically managed the area according to traditional customary practices. The formation of the Yupno-Uruwa-Sam Rivers Conservation Organization (YUS-CO) in

2009 plays a crucial role in advocating for local clans and villages by ensuring that indigenous voices are included in decision-making processes regarding land use and forest conservation strategies in Papua New Guinea (Miller, 2023). The organization collaborates with the NGO Tree Kangaroo Conservation Programme (TKCP), which plays a key role in facilitating community engagement and developing quality conservation areas in the region (Nolan et al., 2021).

Besides the YUS-CA program, there are other programs called AIM4Forests(Accelerating Innovative Monitoring for Forests) initiated by the Food and Agriculture Organization of the United Nations (FAO) and the United Kingdom, utilizing advanced technology, particularly geospatial mapping, to empower indigenous communities in their efforts to monitor and protect forests (Food and Agriculture Organization of the United Nations, 2024).AIM4Forests provide basic knowledge about monitoring tools and forest floor mapping to local communities through courses to e-learning (UNSDG, 2024). This initial knowledge training provides the foundation for more in-depth hands-on experience, enabling communities to develop the skills needed to effectively utilize the latest geospatial technologies. Combining modern geospatial techniques with traditional ecological knowledge creates a harmonious and essential combination. Local Indigenous communities are equipped with tools that integrate their traditional ecological understanding of the land with contemporary data analysis, enabling them to create comprehensive strategies for managing Papua New Guinea's forests (UNSDG, 2024).

The program AIM4Forests in is in line with global efforts to restore degraded land and halt deforestation by 2030. By empowering local indigenous communities who collectively manage about 25 percent of the earth's land (Food and Agriculture Organization of the United Nations, 2024).AIM4Forests not only contributes to biodiversity conservation but also supports climate change mitigation efforts. This initiative recognizes that sustainable management and conservation practices rooted in local traditions are crucial for long-term ecological sustainability. AIM4Forests serves as an example of how technology can be used to empower local communities in Papua New Guinea. Through the use of geospatial mapping and satellite imagery, local communities are better equipped to monitor and protect their forests while integrating their traditional ecological knowledge into modern conservation practices. This collaborative approach not only enhances community resilience but also plays a crucial role in global efforts to combat deforestation and promote sustainable land use practices. (UNSDG, 2024).

Another initiative program implemented in Papua New Guinea's forest areas is one developed by FORCERT (Forests Management and Product Certification Service), a non-governmental organization. This organization focuses on sustainable forest management, particularly in preventing illegal logging and promoting alternative livelihoods among local indigenous communities (Fox et al., 2011). The FORCERT program plays a crucial role in addressing two challenges: environmental degradation and economic dependence on forest logging. FORCERT seeks to strengthen the legal and regulatory framework surrounding forestry in Papua New Guinea. By advocating for stronger enforcement of existing laws and the development of new policies, the

program aims to reduce illegal logging, which has historically been a problem in the region (Fox et al., 2011). This includes finalizing national legality standards for timber commodities, which will require compliance from all logging operations and help ensure that timber is obtained through sustainable and legal extraction processes.

One of the key strategies implemented in the FORCERT program is empowering local communities to monitor their forests. Through training and capacity-building programs, community members learn to identify types of illegal logging and report it to the authorities (Helden, 2005). This grassroots approach not only improves monitoring but also fosters a sense of ownership and responsibility among local residents for their natural resources. By directly involving communities in monitoring efforts, FORCERT helps increase accountability and transparency in forest management. Through its focus on sustainable practices and community empowerment, FORCERT makes a significant contribution to biodiversity conservation efforts in Papua New Guinea (Helden, 2005). By reducing illegal logging and promoting responsible land-use practices, the program helps protect important habitats and rare endemic species in the region. The integration of traditional ecological knowledge of local communities with modern conservation techniques taught through related programs further enriches ongoing protection and preservation efforts and ensures that conservation strategies that synergize with local culture will produce more effective results.

The concept of reclaiming the commons is at the heart of various local conservation initiatives in Papua New Guinea, empowering indigenous communities to manage forests sustainably. This effort not only protects vital ecosystems but also strengthens community rights to their ancestral lands. This concept highlights the importance of returning resources, public spaces, and environmental management to communities, prioritizing the active involvement of local communities and stakeholders in collaborative resource management. This aligns with the inclusive and community-based Sustainable Development Goals (SDGs), where local communities are empowered and their rights are protected to contribute to sustainable protection and utilization efforts (Martens, 2017). The concept of reclaiming the commons also fundamentally demands strengthening public governance and fiscal policies that support social welfare and ecosystem preservation, including equitable and sustainable natural resource management.

Papua New Guinea's efforts to enact a Protected Areas Act, passed in early 2024 (Butler, 2020), aim to establish a national protected area system that aligns with SDG 15 on terrestrial ecosystems, by involving indigenous communities in sustainably managing their lands. Papua New Guinea's commitment to protecting 30 percent of its land and sea areas by 2030 directly contributes to SDG 15 (life on land) (France Diplomacy, 2023). International cooperation and the implementation of policies that prioritize good governance and empower local communities are key to successfully maintaining forests in accordance with the SDG targets. This ambitious goal reflects a comprehensive approach that includes expanding protected areas, improving forest management, and strengthening sustainable funding opportunities in the sectors of climate change prevention and biodiversity conservation. This initiative not only supports local

communities but also aligns with the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework, which illustrate how local actions can advance global environmental goals.

Rainforest conservation efforts in Papua New Guinea represent a significant milestone in developing sustainable ecosystem conservation. The concept of reclaiming the common aligns with the Sustainable Development Goals (SDGs), which encourage the involvement of indigenous and local communities in safeguarding forests as shared resources that must be managed collaboratively and equitably (Bahá'í International Community, 2019). This aligns with the forest management model in Papua New Guinea, which positions indigenous communities as guardians of biodiversity. By empowering indigenous communities and integrating local wisdom with sustainable policies, the continued functioning of rainforest ecosystems can be maintained while supporting the achievement of the SDGs, which demand sustainable and equitable management of natural resources. Both concepts promote inclusive, equitable, and transparent governance as the foundation for ecological and social sustainability.

CONCLUSION

The rainforests of Papua New Guinea are a vital ecological and cultural treasure, facing significant threats from deforestation, corporate exploitation, and weak environmental law enforcement. Papua New Guinea's forests are not only crucial as habitat for 7 percent of the world's species, but also serve as a lifeline for local indigenous communities who depend on them for their livelihoods and cultural identity. Despite these challenges, promising strategies for sustainable management and conservation are emerging. A key theme is "reclaiming the commons," emphasizing collective management of natural resources by surrounding communities. Programs such as the Yupno-Uruwa-Sam Rivers Conservation Area (YUS-CA), the AIM4Forests, and FORCERT demonstrate the power of integrating traditional ecological knowledge with modern technologies such as geospatial mapping. These initiatives highlight the importance of empowering indigenous communities in environmental conservation, strengthening legal frameworks, and fostering global partnerships with various governmental and non-governmental organizations.

Through the enactment of the Protected Areas Act of 2024 and ambitious conservation goals, aligned with the Sustainable Development Goals (SDGs), Papua New Guinea is taking significant steps to balance ecological preservation with local community development. This effort serves as a global rainforest conservation model, demonstrating that sustainable practices rooted in local governance and international collaboration can help secure the future of ecosystems at critical junctures. Protecting Papua New Guinea's rainforests is not only an ecological imperative, but also a pathway to climate resilience, biodiversity conservation, and social justice for current and future generations.

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