

Yos Santasombat *Editor*

# Bio-Cultural Diversity, Ethnicity, and Local Knowledge

From Lanna to Northeast India

 Springer

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# Contents

<b>1</b>	<b>Understanding an Idea of Common Commons Across Southeast Asia and North-East India</b> .....	<b>1</b>
	Prasenjit Biswas	
<b>2</b>	<b>Relationship of Local Wisdom, Biodiversity and Ethnicity on Food of North-East India with Special Reference to Assam: Probing and Understanding from Women’s Perspective</b> .....	<b>17</b>
	Polly Vauquiline	
<b>3</b>	<b>Comparative Ethnobotany between Northern Thailand and Northeastern India: Food Plants of Tibeto-Burman Groups in Lanna and Nagaland</b> .....	<b>43</b>
	Angkhana Inta, Jatupol Kampuansai, Wibhu Kutanan, Metawee Srikummool, Wittaya Pongamornkul, Prachaya Srisanga, Prateep Panyadee, and Neizo Puro	
<b>4</b>	<b>The Forest Guardians: A Comparative Analysis of Indigenous Knowledge and Community Forest Governance in Northern Thailand and Nagaland, India</b> .....	<b>87</b>
	Arratee Ayuttacorn, Lungsang Zeliang, and Khotole Khieya	
<b>5</b>	<b>Bio-Cultural Harmony: Jhum, Livelihood and Forest Conservation in Nagaland</b> .....	<b>123</b>
	Sentitula	
<b>6</b>	<b>Rice-Cum-Fish Agricultural Practices, Cultural Landscape, and Agroecology in Nagaland: A Reflection for Northern Thailand</b> .....	<b>137</b>
	Warong Wonglangka, Repakaba Tzudir, Pandin Ounchanum, Aumpika Amloy, Supakul Ruangwitthayanusorn, Phailin Thongthammachat, and Aranya Siriphon	

**7 A Historical, Gender-Role, and Feasibility-Based Investigation from the Meitei Perspective in Manipur . . . . . 157**  
Pakdeekul Ratana, Bedavati Laishram, and Moirangthem  
Boby Singh

**8 Cultural Commoditization and the Empowerment of Ethnic Women in Community-Based Ecotourism . . . . . 195**  
Ariya Svetamra

**9 Segregation and Struggling Ethnic Women in the Tea Industry in Northeast India and Northern Thailand . . . . . 225**  
Siya Uthai

**10 The Cross, the Crown, and the Creature: Footprints of the Young Legacy Across Centuries. . . . . 243**  
Kengkij Kitirianglarp, Pana Kantha, and Sarid Siriteerathomrong

**11 Lanna and Nagas Wood-Carvings in the Era of COVID-19 Pandemic . . . . . 265**  
Wipawee Panjinda, Rongkakorn Anantasanta, and Thatchai Hongpaeng

**12 Gods and Spirits in the Naga World of Woodcarvings . . . . . 287**  
Iris Odyuo

**13 Understanding Naga Traditional Attires from a Semiotic Perspective . . . . . 311**  
Temjensosang

## Chapter 4

# The Forest Guardians: A Comparative Analysis of Indigenous Knowledge and Community Forest Governance in Northern Thailand and Nagaland, India



Arratee Ayuttacorn, Lungsang Zeliang, and Khotole Khieya

**Abstract** This comparative study critically examines community forest management practices in northern Thailand and Nagaland, Northeast India. It investigates the processes through which forest-dwelling populations establish social networks with non-governmental organizations (NGOs), government agencies, and the private sector. The research further explores the resilience of indigenous knowledge systems and their integration with contemporary practices to enhance the effectiveness of forest management. The research was conducted in five Karen communities in Northern Thailand, recognized as exemplary models of community forest management, as well as in four villages located in the Kohima and Peren Districts of Nagaland, where ecotourism and development projects are actively being implemented. Data collection methods included in-depth interviews, focus group discussions, and participant observation from January 2022 to November 2023. The findings reveal that both Karen communities in Thailand and communities in Nagaland have developed community-based Payment for Environmental Services (PES) schemes, albeit with distinct approaches. The Karen communities use PES to finance not only conservation activities but also social welfare initiatives, leveraging these schemes to position themselves as forest protectors and strengthen their claims to land rights. In contrast, the communities in Nagaland mostly utilize community-based PES to support conservation efforts and finance development projects because they gain from the increased revenue from ecotourism. Their land ownership reduces their dependence on external support; however, the sustainability of these initiatives is constrained by limited resource-sharing across villages. Both indigenous communities in Thailand and Nagaland effectively leverage their social

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networks to secure support for livelihood diversification, emphasizing the significance of collaboration with external institutions to sustain their forest management initiatives. Additionally, Indigenous Peoples in both regions utilize traditional practices and actively construct new indigenous identities to negotiate state policies, foster community cohesion, and promote sustainable forest conservation.

**Keywords** Community forest management · Indigenous knowledge · Social networks · Payment for Environmental Services (PES) · Northern Thailand · Nagaland

## 4.1 Introduction

Forests in Thailand have been governed by the state, so this inadvertently causes significant challenges for forest dwellers due to certain policies regulating the access to and use of forest resources. The establishment of national parks and the implementation of restrictive laws have adversely impacted the livelihoods of residents in 4192 villages, covering 687,200 hectares within national parks and wildlife sanctuaries (Sueb Nakhasathien Foundation, 2020, August 27). These groups have lived in these forest areas for generations, but because of territorial control regulations, they are now considered unlawful residents (Vandergeest, 1996a: 259). Forest governance in Thailand is further complicated by several factors, including ineffective policy implementation (Hirsch, 1990), land tenure insecurity (Walker, 2004), socio-economic transformations (Delang, 2002), and the inadequate integration of indigenous knowledge into forest management practices (Forsyth & Walker, 2014: 415; Salam et al., 2006).

The Thai government has employed strategies such as territorialization through mapping technology (Vandergeest, 1996b; Leblond & Pham, 2014), racialization discourse (Vandergeest, 2003), and narratives around swidden farming (Laungaramsri, 2005) to assert control over forest governance and increase forest cover. These strategies have led to conflicts between state agencies and local communities (Roth, 2008; Hares, 2009). For instance, the Community Forest Act of 2019 adopts a decentralized approach, empowering communities to establish community forests within designated reserved forests and government lands. However, this framework excludes communities residing within national parks and wildlife sanctuaries (Royal Forest Department (RFD), Community Forest Management Office, 2022, November 21). Consequently, indigenous communities living within protected forest areas are not granted the authority to manage or access forest resources.

In contrast to Thailand's forest governance, forests in Nagaland are managed by families and communities. Article 371(A) of the Indian Constitution Act of 1962 provides special provisions for Nagaland, ensuring the protection of customary law,

religious beliefs, and social practices of the Naga people. This constitutional provision requires the consent of the Nagaland Legislative Assembly before any central law can be enforced within the state (Thong, 2023). As a result, customary ownership of land and forests by communities and individuals in Nagaland is protected, and they are exempt from the Forest Conservation Act of 1980.

However, due to illegal logging activities, community-based forest management in Nagaland faces significant challenges related to hunting and deforestation. The state's forest cover has declined notably, from 82.75 percent in 2005 to 75.33 percent in 2017 (Sarma et al., 2019), and further to 73.90 percent in 2021. Between 2019 and 2021, Nagaland reportedly lost 235 square kilometers of forest cover (Morung Express, 2022). Shifting cultivation and high rates of firewood consumption are primary drivers of deforestation (Rawat et al., 2018). Additionally, some communities struggle to regulate logging activities, particularly charcoal production, on private or clan-owned lands (George & Yhome, 2008). In response, the Nagaland state government has initiated efforts to introduce Joint Forest Management (JFM) and support communities in diversifying their livelihoods through tourism, cash crops, and tree plantations.

Joint Forest Management (JFM) in India extends institutional arrangements to Community Conservation Areas (CCAs). The forest department is repositioning itself to control over community initiatives, while self-initiated forest protection groups have gained formal recognition through JFM. Grassroots responses, often promoted by NGOs, aim to build local institutions to strengthen bargaining power and amplify community voices. However, the changes from JFM sometimes disrupt internal power balances, diminishing local decision-making. Village leaders may struggle to mobilize entire communities for forest protection, and some members living outside official village boundaries face disenfranchisement or loss of access to forest areas, leading to conflicts between villages (Sarin, 1997: 23).

Community-based forest management is often presented as a way to empower communities and minimize state interference. The Community-Based Natural Resource Management (CBNRM) model operates on the assumption that communities are effective resource managers owing to their traditional knowledge and practices. CBNRM is promoted to policymakers as a powerful tool to address environmental and social justice issues as a single package (Li, 2002: 267). However, it can unwittingly reinforce state control by aligning communities with state conservation agendas, often oversimplifying internal complexities and conflicts. Indigenous Peoples may not prioritize forest preservation, engaging instead in activities like small-scale logging, resource collection, and cash crop cultivation. Community forestry practices, such as tree ordination ceremony in northern Thailand, are viewed as social movements to reclaim resources that have been distributed unfairly (Hirsch, 1997: 15).

Indigenous Peoples in Thailand, such as the Karen, have portrayed themselves as forest protectors, leveraging this image to transform indigenous knowledge into symbolic power. This creates a space of resistance against the hegemonic discourse imposed by state forestry agencies. Karen leaders combine oral traditions with modern scientific tools, such as maps, to communicate effectively with academics,

NGOs, the Royal Forest Department (RFD), and international movements (Trakansuphakorn, 2008).

Similarly, in Nagaland, indigenous communities have strategically navigated colonial and postcolonial representations to assert their agency. Historically, the region has been depicted as a place of headhunters, perpetuating a narrative of Naga primitivism since British colonial rule (Theunuo, 2016: 90). Through performances at the Hornbill Festival, the Nagas have appropriated these exotic images to engage with audiences around the world. This revitalization of traditional culture and indigenous identities functions as a form of national branding, effectively promoting tourism in the region (Longkumer, 2015).

Thailand and Nagaland present contrasting models of forest governance, each defined by distinct land ownership, legal frameworks, and regulations. However, indigenous communities in both regions share similar approaches to community forest management, including swidden cultivation (Erni, 2015), which is deeply rooted in indigenous knowledge and belief systems.

A paradox arises when examining the state's perspective on swidden agriculture. Both Thai and Nagaland governments classify swidden farming—known as *rai mun wien* in Thailand and *jhum* cultivation in Nagaland—as wasteful, unsustainable, and environmentally destructive practices (Das, 2018: 84; Laungaramsri, 2005). Consequently, government agencies often promote wet-rice cultivation, cash crops (Cramb et al., 2009: 342), and tree plantations (Hirsch & Lohmann, 1989) as alternatives to shifting agriculture. This policy creates a contradictory approach: on one hand, the state implements exclusionary measures to restrict swidden practices for forest conservation; on the other hand, it promotes cash crops like corn to drive economic development, even though these practices can be unsustainable. Moreover, the government has struggled to control the forest encroachment resulting from cash crop cultivation.

While shifting cultivation faces criticism from the state, NGOs and academics often depict Karen agricultural practices as ecologically friendly and subsistence-oriented (Walker, 2001). However, market forces have penetrated Karen villages, leading to the cultivation of cash crops and the use of chemicals to boost productivity (Kanazawa et al., 2006).

This research project aims to identify an effective community forest management mechanism through a comparative study of forest governance practices in Thailand and Nagaland. By examining these two regions, the study seeks to shed light on the specific challenges of forest governance, including issues related to land ownership rights, power dynamics among stakeholders, and the need for alternative livelihood opportunities within indigenous communities. The study examines how communities in both regions develop mechanisms to finance conservation activities, social welfare, and infrastructure development. These communities establish social networks with various institutions, including NGOs, the private sector, and government agencies, to secure support for livelihood diversification and enhance their resilience. The research also explores the integration of indigenous knowledge with contemporary practices, aiming to empower communities, maintain cultural heritage, and improve forest management.

This paper is organized into five sections. The first section outlines the methodology and describes the study areas. The second section provides an overview of forest governance in Thailand and Nagaland. The third section examines community forest management practices and livelihood diversification strategies in both regions. The fourth section explores how communities establish social networks with various institutions to secure financial support. The final section focuses on the resilience of indigenous knowledge, emphasizing its integration with scientific knowledge to enhance conservation efforts and negotiation with state policies.

## 4.2 Method and Study Areas

This comparative study focused on five Karen villages in three provinces in northern Thailand: Chiang Mai, Chiang Rai, and Lampang. It examined communities within reserve forests, demonstrating the best practices in community forest management. These included the Hin Lad Nai Community (Chiang Rai), the Baan Klang and Baan Mae Saan Communities (Lampang), and the Mae Lan Kham and Huay E-Khang Communities (Chiang Mai) (Fig. 4.1). All these villages are struggling with the expansion of national parks and wildlife sanctuaries and the communal land titling implementation.

Huay E-Khang, with 125 households, is located at Mae Win Subdistrict, Mae Wang District, Chiang Mai. It lies within a Class 1 watershed zone and the Mae Khan and Mae Wang Reserved Forests. The community faced discrepancies between a new map created by the Royal Forest Department (RFD) and the one they developed with Mae Win Subdistrict authorities.

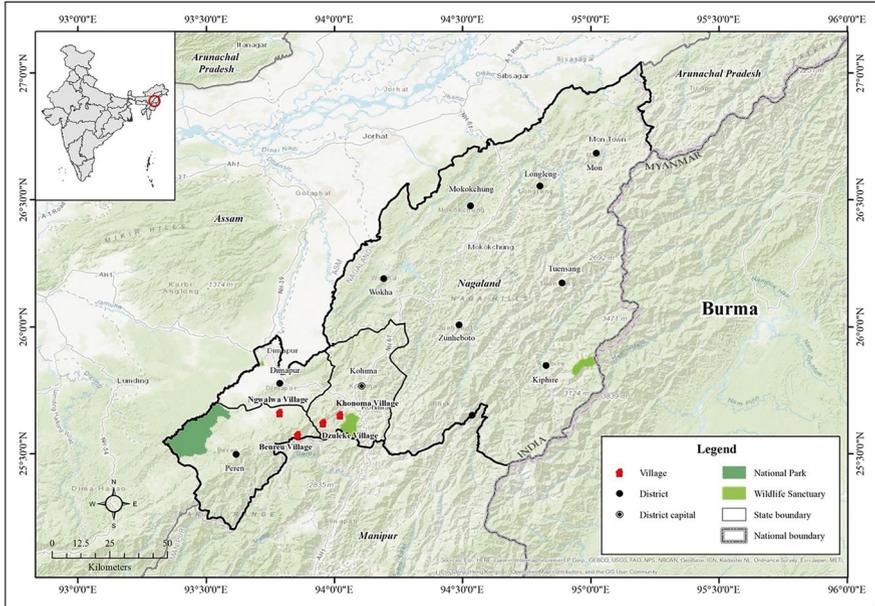
Mae Lan Kham, comprising 144 households, is in Samoeng-Tai Subdistrict, Samoeng District, Chiang Mai. This area, also within a Class 1 watershed zone, falls under the Samoeng Reserve Forest, with parts slated for inclusion in Ob-Khan National Park, where the park's boundary overlaps with a community forest.

Hin Lad Nai, with 24 households, is located at Baan Pong Subdistrict, Wiang Papao District, Chiang Rai. Positioned within a Class 1 watershed zone, it encompasses the Mae Poon-noi, Mae Poon-loung, and Huay Pongment Reserve Forests and is being prepared for designation as a wildlife sanctuary.

Baan Klang, with 78 households, and Mae Saan, with 128 households, are both situated at Baan Dong Subdistrict, Mae Moh District, Lampang. Categorized under the Mae Tah and Mae Mai Reserve Forests, these villages are within Class 1 and Class 2 watershed areas. While facing significant challenges related to the sustainable utilization of forest resources, both were slated for inclusion in Tham Pha-thai National Park at the time of data collection.

The research sites in Nagaland include Khonoma and Dzuleke in Kohima District, as well as Benreu and Ngwalwa in Peren District (Fig. 4.2). Kohima District is home to the Angami tribe, while Peren District is inhabited by the Zeliang and Kuki tribes. These villages were selected because their communities had established Community Conservation Areas (CCAs) and diversified their livelihoods into





**Fig. 4.2** Maps of research areas in Nagaland

eco-tourism, handicrafts, cash crops, and livestock, thereby reducing their reliance on forest resources.

Located at the Dzukou Valley, which is about 20 kilometers from Kohima, Khonoma Village, spans 123 square kilometers at an elevation of 5320 feet above sea level (Papu & Nathani, 2020). Recognized as an Important Bird Area (IBA), Khonoma is situated at the foothills of the Barail Mountains, part of the Eastern Himalayan and Indo-Burma Biodiversity Hotspot. Forests cover 75 percent of the village’s land, with 20 percent allocated to paddy fields and wasteland. The residential area occupies just two square kilometers. Inhabited by the Angami tribe, Khonoma has a population of approximately 2370 people in 424 families as of 2023.<sup>1</sup> Most villagers have practiced Christianity since 1890. On December 11, 1998, the community established the Khonoma Nature Conservation and Tragopan Sanctuary (KNCTS), spanning 70 square kilometers. The primary concern was the rapid decline of the Blyth’s Tragopan bird population. In response, the community implemented a hunting ban and designated the forest as a wildlife sanctuary (Chase & Singh, 2012).

Dzuleke Village originated as an extension of Khonoma Village. Historically, individuals who committed murder were exiled to Dzuleke for seven years before returning to Khonoma. Over time, as Khonoma villagers and newly married couples sought to expand their farmland, they moved to Dzuleke, drawn by its natural

<sup>1</sup> [https://www.indiagrowing.com/Nagaland/Kohima/Sechu\\_Zubza/Khonoma](https://www.indiagrowing.com/Nagaland/Kohima/Sechu_Zubza/Khonoma)

beauty. Eventually, the exiled individuals were relocated, and Dzuleke was fully established as a settlement. As of 2024, Dzuleke had an estimated population of 197 people, comprising 49 families.<sup>2</sup> The primary occupation is agriculture, with local rice varieties cultivated on terraces for subsistence. However, many residents prefer growing cash crops such as potatoes and cabbage in their gardens and jhum fields due to higher productivity. The community has established Community Conservation Areas, managed by the village council board. In 2014, the Dzuleke community began a homestay business with financial support from the Tata Trust to improve their homes.

Benreu Village, located in Peren district of Nagaland, is part of the Mount Pauna Community Conservation Area, an 843-hectare forest known for its rich biodiversity. This forest is home to some of the world's most endangered wildlife, including rare and unique species endemic to the region. Benreu Village collaborates on a long-term conservation plan for the CCA, which includes boundary mapping, biodiversity assessments, and habitat conservation. The community receives support from the Nagaland Empowerment of People through Energy Development (NEPED) and the Foundation for Ecological Security (FES). They enforce strict norms, including bans on logging and hunting within the CCA, as well as seasonal hunting regulations and penalties (Sumi, 2025). These efforts have confirmed the presence of four globally endangered species: the Chinese Pangolin, Western Hoolock Gibbon, Blyth's Tragopan, and Great Indian Hornbill. As of 2023, Benreu Village has a population of 1037 people across 180 families.<sup>3</sup> Traditionally, most residents are farmers who cultivate rice in field terraces, taking advantage of fertile soil and abundant water from a nearby river. In addition to farming, villagers engage in secondary occupations, such as carpentry, stone carving, basketry, weaving, and selling vegetables and fruits, as well as earning income from homestays.

Ngwalwa Village, in Peren district, has 649 residents across 117 households, divided into six colonies.<sup>4</sup> Farmers here earn more from cash crops than traditional ones, with year-round banana sales further encouraging this shift. Government support is crucial, especially for cultivating betel nuts, spices, vegetables, and fruits, with seedlings provided through the NEPED organization. Most collective projects in Ngwalwa focus on land use for securing government aid for cash crops rather than conservation. For example, the village youth group has requested community land for tree planting, including rubber, palm, and bamboo, to generate income for the group.

Data collection in northern Thailand occurred from January to September 2022, while in Nagaland, it was conducted between March and November 2023. The methods used included interviews, focus group discussions, participant observation, and the collection of secondary data from documents. Interviews and focus groups

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<sup>2</sup>[https://www.indiagrowing.com/Nagaland/Kohima/Sechu\\_Zubza/Dzuleke](https://www.indiagrowing.com/Nagaland/Kohima/Sechu_Zubza/Dzuleke)

<sup>3</sup><https://www.indiagrowing.com/Nagaland/Peren/Pedi/Benreu>

<sup>4</sup><https://www.indiagrowing.com/Nagaland/Peren/Pedi/Ngwalwa>

were guided by a semi-structured interview format and continued until data saturation was reached.

In terms of language, Thai and English were used in Thailand and Nagaland, respectively. One research team member is fluent in Nagamese, Zeme, and English. For interviews in Khonoma and Dzuleke where respondents could not speak English, an interpreter for the Angami dialect was employed. In northern Thailand, five focus groups were conducted with a total of 20 participants, along with 17 in-depth individual interviews. In Nagaland, 28 in-depth interviews and nine focus groups involving 36 participants were arranged.

### 4.3 Forest Governance in Nagaland and Thailand

Thailand and Nagaland offer distinct models of forest governance, reflecting their unique legal frameworks, cultural practices, and historical contexts. In Thailand, forest management has traditionally been centralized, with state agencies exerting significant control over forest lands, often leading to tensions with local communities. In contrast, Nagaland's forest governance is deeply rooted in customary laws and community-based management, allowing indigenous practices to guide conservation efforts.

#### State Forest Governance in Thailand

Thailand's forest resources are regulated by the Royal Forest Department (RFD) and the Department of National Parks, Wildlife, and Plant Conservation. For decades, forest communities have pushed for legal recognition of their land rights. The RFD proposed the first draft of the Community Forest Act in 1991 to encourage local participation in forest protection, but it was criticized for maintaining state control. Various versions, including those by the People's version, National Economic and Social Development Board (NESDB), and conservationist groups, were debated in parliament (Forsyth & Walker, 2014). Although a revised version was approved by the National Legislative Assembly in 2007, it was rejected by the Constitutional Court. The first Community Forest Law was finally enacted in 2019, after a 28-year struggle (Thai PBS, 2019).

Through the Community Forest Management (CFM) model, the Community Forest Act of 2019 seeks to foster cooperation between communities and the government in the sustainable conservation, management, and use of forest resources and biodiversity. The legislation, however, restricts the establishment of community forests to National Reserved Forests and other government properties—national parks and animal sanctuaries are not included. Consequently, as of 2020, it is prohibited for different communities in 4192 villages, which encompass 687,200 hectares of national parks and wildlife sanctuaries (Seub Nakhasathien Foundation, 2020, August 27), to establish community forests and utilize forest resources.

The northern region of Thailand has the highest forest cover, encompassing 63.53 percent of its land area, compared to the national forest cover of 31.57 percent

in 2022 (approximately 16 million hectares) (Forest Land Management Office, 2023). Community forest initiatives have made significant progress in this region, with 4766 villages establishing community forests by 2021, covering 684,800 hectares. However, this accounts for only 4.3 percent of Thailand's total forest area (Community Development Knowledge, 2021).

Before the 2019 Community Forest Act, the military government established the National Land Policy Board (NLPB) in 2014 to address landlessness. The NLPB allocated plots in reserved forests and government lands for collective use by underprivileged groups, following proposals from civil society. This approach aimed to avoid the challenges of individual ownership and promote watershed conservation. By 2021, the NLPB had issued permits for 267 areas (112,000 hectares), benefiting 60,000 people with access to over 74,000 plots (RECOFTC, 2021, September 17).

Despite its aim to empower communities, the NLPB program faces significant limitations. Land use activities are controlled by provincial governors rather than local organizations, restricting income generation opportunities. For instance, in Mae Tha village, villagers are unable to harvest the teak trees planted on collective land (Green News, 2021). Furthermore, the NLPB criteria exclude most Class 1 and 2 watershed areas (arable land) and national parks, limiting participation for many forest-dwelling communities. Although communal land titles provide some security and benefits (Wittayapak & Baird, 2018), they raise concerns about long-term uncertainty and potential restrictions.

Conflicts have emerged due to discrepancies between NLPB mapping and the RFD. In Huay E-Khang village, Chiang Mai Province, differences between RFD-created official land use maps and community maps certified by Subdistrict Administrative Organizations (SAOs) have resulted in the reduction or disappearance of arable land on official maps, possibly due to the inclusion of rotational farming areas within designated forest zones. Concerns have also been raised about the accuracy of watershed quality distribution on RFD maps.

Furthermore, the NLPB project has exacerbated tensions not only between villagers and the RFD but also within the communities themselves. While some villagers fear losing their land, others seek to engage with the NLPB project for its offer of 20-year guaranteed land use rights, seeing it as a way to legitimize their land claims. However, those who view the land as ancestral inheritance resist participation, perceiving the arrangement as a rental system.

The Thai state continues to employ exclusionary practices to assert control over forest resources, as evidenced by the following cases. First, in 2023, the Department of National Parks, Wildlife, and Plant Conservation initiated plans to designate several communities in the Lampang province, including Baan Klang and Baan Mae San, as part of the Tham Pha Thai National Park. This forest management policy has effectively prohibited residents from accessing and utilizing resources that their communities have long managed and preserved. In response, these communities, in collaboration with the Northern Peasant Federation (NPF) and P-Move, have advocated for the exclusion of community areas from the proposed national park boundaries to mitigate conflicts between local communities and state authorities (Green News, 31 August 2023).

Besides, in November 2024, the Cabinet approved a draft royal decree aimed at the conservation and management of natural resources within national parks and wildlife sanctuaries. However, this legislation has presented significant challenges for forest-dependent communities. The law stipulates that only individuals holding Thai nationality are eligible to reside within the designated areas—a criterion that some individuals are in the process of acquiring. Furthermore, the decree imposes restrictions on land use, limiting it to a 20-year duration and a maximum allocation of 20 rai (3.2 hectares) per household. Affected communities have criticized the legislation as being incompatible with their traditional practices and livelihoods, calling on the government to revise the policy to better align with their circumstances (Green News, 12 November 2024).

This situation highlights the complex challenges of land use management, particularly in areas where state policies intersect with traditional practices and community livelihoods. It underscores the necessity of collaborative approaches that integrate official regulations with community-based management, ensuring that local knowledge and cultural contexts are respected.

### **Community-Based Forest Governance in Nagaland**

Northeast India is notable for its substantial forest cover, representing 25 percent of the country's total forest area (George & Yhome, 2008). According to the 2021 Indian Forest Survey, forests cover 52 percent of Nagaland's geographical area, amounting to 862,900 hectares. Interestingly, community and private ownership account for 46 percent of this forested area, while government forests, including reserved areas and wildlife sanctuaries, constitute only 6 percent (Department of Environment, Forest & Climate Change, Government of Nagaland, 2021). Nagaland is a model of community-based forest management, with 88.3 percent of its forest area under indigenous community control, in stark contrast to the 90 percent managed by government departments in other parts of India. Jhum cultivation, a traditional form of shifting agriculture, is a significant land-use practice in Nagaland, occupying about 45 percent of the land. In Kohima District, for example, swidden cultivation covers a notable 70.2 percent, underscoring the persistence of this traditional practice (Cairns, 2007: 16).

Nagaland's land and forest ownership operates under a customary law framework, which is pivotal in regulating access to forest resources and ensuring both individual rights and collective ownership. This system categorizes land into three types: community, clan (khel), and individual/family. Community land, managed by village committees, includes reserved forests, woodlands, and communal areas. The extent of community land varies by village and tribe; for example, in Chakhro Angami village, community land accounts for 75 percent of the total area, while in other Angami villages, individual lands may dominate (Martemjen, 2017: 54). Community members can request permission from the village committee to use community land or access forest resources for personal or family needs.

Clan land includes areas designated for housing, cultivation, and forested areas, and it is managed and allocated by senior clan members. Individual/family land comprises arable land, rice fields, and private forests, typically following a

patriarchal inheritance system with some modern adaptations, such as daughters receiving land if there are no sons. Land ownership also has a significant social role, with larger holdings often associated with higher status (Kikhi & Ghosh, 2016: 58).

Nagaland's legal framework poses significant challenges for forest governance. Article 371(A) of the Indian Constitution (1962) protects customary practices, limiting the application of central forest laws, such as the Forest Rights Act of 1980, on private and community lands, which often have unclear ownership boundaries. Additionally, the government imposes symbolic taxes on shifting cultivation, collected through local administrators. These taxes, typically just a few rupees per household, serve more to assert state authority and foster loyalty than to generate revenue (Das, 2018: 103).

New land laws have promoted a shift from customary practices like *jhum* toward individual ownership and sedentary agriculture. The Nagaland Jhum Act of 1970 recognized the right to transfer *jhum* land within community boundaries, acknowledging both customary land rights and establishing private authority over the land. *Jhum* cultivation often generates limited income and is perceived by the state as a poverty trap for farmers. To address this, governments have implemented development initiatives promoting cash crop plantations as alternatives to *jhum* practices. This strategy includes encouraging the cultivation of rubber, coffee, and other commercially viable crops in upland areas, with farmers receiving subsidies to extend terrace cultivation for cash crops, while *jhuming* is discouraged (Sarma, 2022).

Local communities in Nagaland have developed their own customary institutions and laws for managing natural resources. Community Conservation Areas (CCAs) have been established based on traditional beliefs and community rules to promote sustainable conservation. Each community has its own enforcement system, with fines ranging from 10,000 to 30,000 rupees (135–410 USD) for violations,<sup>5</sup> particularly to protect endangered species like Blyth's tragopan. However, the effectiveness of these village councils varies. Discrepancies in property rights can undermine conservation efforts; some councils lack the authority to regulate private land use, leading to deforestation for activities like commercial charcoal production. In contrast, other villages successfully impose restrictions on private land, prohibiting logging and even controlling land use for cultivation (George & Yhome, 2008). Additionally, enforcing hunting bans remains difficult due to the deep cultural significance of meat consumption in Naga traditions.<sup>6</sup>

While community regulations, such as logging and hunting bans with fines, serve as deterrents, their effectiveness depends on consistent enforcement across village boundaries. Isolated conservation efforts can lead to a “self-exclusion” scenario, where hunting practices shift to neighboring villages, causing conflict within and between communities. A promising solution is the expansion of CCAs into interconnected networks, creating larger protected areas for wildlife. However, the successful implementation of such networks requires substantial resources. Budgetary

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<sup>5</sup> Interviewed with villagers from Khonoma, Dzuleke, and Benreu.

<sup>6</sup> Interviewed with Khonoma villager on 11 May 2023.

constraints within the Forest Department limit support for all conservation projects, often leading to selective funding based on specific criteria. Furthermore, it is uncommon for communities and the state to work together on Joint Forest Management (JFM) projects, which makes comprehensive conservation efforts even more difficult.<sup>7</sup>

The Nagaland Forest Management Project (NFMP), launched in 2017 with support from the Japan International Cooperation Agency (JICA), aims to enhance forest ecosystems and boost income generation. The project primarily focuses on rehabilitating *jhum* cultivation areas and providing livelihood support. Implementation began in 2019 across 31 villages, with tree plantation being a key activity (Department of Economics and Statistics, 2024: 51).

Nagaland's forest governance integrates traditional practices with state initiatives, with the Nagaland Forest Department prioritizing JFM in collaboration with communities that have established over 1000 CCAs. However, formalizing these CCAs requires meeting International Union for Conservation of Nature (IUCN) criteria, which can restrict activities such as hunting, fishing, and *jhum* cultivation. Currently, only 407 CCAs, managed by clans or colonies, meet these standards.

The Nagaland Forest Department also encourages the establishment of new formal CCAs and the expansion of existing ones to create larger conservation corridors, which would improve connectivity and the monitoring of illegal activities. While financial support was provided to 277 villages in the past, it ceased during 2014–2015. Now, CCAs seeking funding for conservation projects must submit proposals and sign Memorandums of Understanding (MOU) with the Forest Department, detailing conservation activities like building firebreaks and watershed management. Currently, only 128 CCAs participate in this conservation program, covering 88,900 hectares.<sup>8</sup>

The establishment of CCAs by the Forest Department aims to formalize community organizations and secure state recognition. Communities voluntarily create CCAs to receive support from international organizations such as Japan's JICA, Germany's Kreditanstalt für Wiederaufbau (KfW), and the Food and Agriculture Organization (FAO). However, a major obstacle in establishing these conservation areas arises from the state requesting or receiving land donations from the community, clans, and families.

Despite these efforts, the Nagaland Forest Department faces significant challenges. *Jhum* cultivation is seen as a threat to forest preservation, and human-wildlife conflicts occur when animals damage crops. Additionally, the "island syndrome" effect, where conservation areas become isolated pockets surrounded by unprotected land, further complicates broader conservation efforts.

In summary, Thailand's forest governance is primarily state-driven and centralized, with little room for community involvement or control. By prioritizing

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<sup>7</sup>Interviewed with the administrative personnel from the Nagaland Forest Department on 23 May 2023.

<sup>8</sup>Interviewed with the administrative personnel from the Nagaland Forest Department on 8 May 2023.

conservation efforts through top-down laws, the Thai government implements exclusionary tactics that limit community access to forest resources. On the other hand, Nagaland has a community-based strategy in which local governance and traditional rules are important. The state aims to establish its power by formalizing Community-Conserved Areas (CCAs) and Joint Forest Management (JFM) programs, even if the community owns the land and forest. Notwithstanding these disparate strategies, both areas struggle to strike a balance between conservation goals with the needs and the rights of local communities. This emphasizes the critical importance of integrating traditional knowledge and practices with modern forest management strategies to achieve more equitable and sustainable outcomes.

#### **4.4 Community Forest Management Practices and Livelihood Diversification**

A comparative analysis of community forest management practices in northern Thailand and Nagaland reveals shared challenges arising from increasing reliance on forest resources. As resource scarcity intensified, competition emerged among both intra- and inter-community members. In response, these communities devised innovative mechanisms to regulate and equitably distribute forest resources. Notably, the implementation of community-based Payment for Environmental Services (PES) emerged as a common strategy. By collecting fees from resource users and reinvesting in conservation and community development, these communities have effectively mitigated conflicts and fostered resource sharing.

##### **Community Forest Management (CFM) in Northern Thailand**

The Karen communities in the research areas have invented their own systems for managing the forests. These include setting rules and regulations, defining agricultural and community forest boundaries, and designating conservation zones. Notwithstanding their long history of harmonious coexistence with the forest, these communities have faced a lack of government assistance, necessitating self-reliant strategies. To address this, they have established bamboo shoot and honey funds, allocating a portion of sales proceeds to support conservation projects, including infrastructure maintenance, watershed management, fire prevention, and land rights advocacy.

Establishing community funds with proceeds from the selling of bamboo shoots and honey is consistent with the Payment for Environmental Services (PES) principles. By giving monetary value to ecosystem benefits, this mechanism encourages environmental stewardship (Engel et al., 2008). In this situation, the community serves as both the service provider and the service recipient. The money raised is then used to support community welfare programs, like public utilities and health-care, illustrating a system that incentivizes environmental conservation.

In 1999, the Hin Lad Nai community in Chiang Rai Province established the Bamboo Shoot Fund, followed by the Honey Fund in 2013 when beekeeping gained

popularity. Additional contributions to the fund came from study tours and donations from various organizations, such as academics, famous monks, the private sector, and NGOs. The community collects 20,000 baht (US\$555) a year. This fund was utilized by the community to maintain the forest and create firebreaks, addressing the insufficient support from government agencies. The budget provided by the Subdistrict Administrative Organization for firebreaks was limited to covering food expenses only. The community also allocated the funds to maintain the mountain water supply system, roads, and welfare services.<sup>9</sup>

The Baan Klang community in Mae Moh District, Lampang Province, initiated the Bamboo Shoot Fund in 2004, inspired by the Hin Lad Nai community. Villagers collected bamboo shoots three times annually during the rainy season, contributing all proceeds to the fund, which generated up to 60,000 baht (US\$1666) per year. After nearly 20 years, the fund has accumulated a balance of approximately 100,000 baht (US\$2777). The community uses this fund for forest conservation activities, maintaining firebreaks, extinguishing forest fires, and repairing roads and water pipes. Additionally, the community received financial support from the Mae Moh Electricity Generating Authority of Thailand as compensation for the Ban Dong sub-district, where coal mine soil was dumped. These funds were used to repair the church, purchase saplings, and establish a cattle bank to promote animal husbandry as an alternative to corn cultivation. Community leaders advocate animal husbandry, emphasizing the harmful effects of corn farming on soil and forest resources due to its high chemical requirements.<sup>10</sup>

In 2016, the Mae Saan community in Lampang Province, neighboring Baan Klang Village, established a community fund. Contributions are collected from each family that earns income from bamboo shoots and *ma-kwaen* (local herb), accumulating approximately 20,000 baht annually. The community also receives compensation from the Electricity Generating Authority of Thailand and the National Park Office, which brought the total fund to around 400,000 baht (US\$11,111) in 2021. The village uses this fund for building firebreaks and conducting forest conservation activities; however, the budget is sometimes insufficient due to the frequent occurrence of forest fires. To ensure future financial stability, the village committee plans to increase household contributions to the fund, recognizing that the annual income from selling *ma-kwaen* in the village amounts to several million baht.<sup>11</sup>

The Huay E-Khang community in Mae Wang District, Chiang Mai Province, began collecting taxes from community members in 2019, with each person contributing 38 baht (US\$1.05) annually. This amount is based on the cost of maintaining a 1600-hectare area per person. The community also receives contributions from visitors and donors. The funds collected are used for watershed management, creating firebreaks, patrolling the forest, and covering legal expenses for community members prosecuted by the state. This self-reliant approach allows the community

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<sup>9</sup>Interviewed with Hin Lad Nai leader on 28 May 2022.

<sup>10</sup>Interviewed with Baan Klang village head on 14 May 2022.

<sup>11</sup>Interviewed with Mae Saan village head on 12 May 2022.

to manage and care for its own resources independently, without relying on the insufficient state budget for forest resource management.<sup>12</sup>

The Mae Lan Kham community established the Rice Merit Fund in 2004 as an extension of the Rice Bank project, which was initiated by the Thai-Norway project in 1991 to support highland communities. The project originally allowed community members to borrow rice during shortages, with repayment made after the harvest. Although temporarily suspended due to a sufficient rice supply, the initiative was later resumed, with each of the 144 families contributing three sacks of unhusked rice. The rice was sold to raise money for the fund, which was used to finance the purchase of GPS devices for plot mapping, conducted with assistance from the Northern Farmers Network and the IMPECT organization. The community also receives annual financial support from the municipality, the Watershed Management Unit, and a well-known monk for forest fire management.

All Karen communities have utilized their village funds for advocacy purposes. This includes covering travel expenses to Bangkok for land rights advocacy during the resettlement policy, as well as attending seminars on forest fires and rotational farming in Chiang Mai. Additionally, farmers have collaborated with the Northern Peasant Federation (NPF) to negotiate with the state for community-based forest management.

### **Community Conservation Areas (CCAs) in Nagaland and Ecotourism**

In Nagaland, a study on community conservation areas, community networking, and the economy in four villages in Kohima and Peren District found that different methods of managing community forests were used. Khonoma and Dzuleke utilize the community-based PES principle in managing their forest resources, integrating this approach into their conservation strategies. In contrast, Benreu Village does not have community funds but receives support from government agencies and NGOs for its conservation efforts, which include both plant and animal conservation activities. Despite having a community conservation area, Ngwalwa Village lacks a formal management framework to properly manage it.

The Khonoma Nature Conservation and Tragopan Sanctuary (KNCTS), established by the Khonoma village in December 1998, exemplifies the effectiveness of community-driven forest conservation initiatives. Spanning 7000 hectares, KNCTS was created to protect the endangered Blyth's tragopan birds. The villagers implemented a hunting ban after witnessing the detrimental effects of uncontrolled hunting, and since the forest's designation as a wildlife sanctuary, it has become a significant destination for bird watching. KNCTS also enforces strict regulations prohibiting the commercial collection of forest products and promotes eco-friendly fishing practices, with penalties for violators (Chase & Singh, 2012). Although KNCTS operates independently of traditional government frameworks, the Nagaland Village Councils Act empowers village councils to establish mechanisms for forest management, further supporting such community-led efforts.

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<sup>12</sup>Interviewed with Huay E-Khang village head on 2 March 2022.

In 2005, the Nagaland Forest Department played a crucial role in securing official status for the Khonoma Nature Conservation and Tragopan Sanctuary (KNCTS) by designating it under the India Wildlife Protection Act. The KNCTS committee comprises representatives from three village clans: *Merhuma*, *Thevoma*, and *Semoma*. Their responsibilities include developing conservation strategies, patrolling the area to prevent hunting, and documenting their activities. Additionally, they conduct annual seminars for specific groups, such as women and youth, to raise awareness and foster a sense of ownership within the community.

However, KNCTS lacks its own income source, prompting the committee to actively seek funding from various stakeholders. This includes the Nagaland Forest Department, NGOs, and international conservation organizations such as the International Union for Conservation of Nature (IUCN) and the World Wildlife Fund (WWF), as well as other organizations from neighboring Assam. The funds acquired support alternative livelihood programs for villagers who previously relied on the forest. These projects encourage villagers to move away from unsustainable practices by distributing livestock, such as pigs and chickens, as well as providing rice to support their transition.

KNCTS has implemented a robust system to prohibit illegal hunting, with the village council establishing clear rules and guidelines, including outlined penalties. The Khonoma Youth Organization (KYO) plays a crucial role in patrolling these protected areas. Violators are subject to community fines, which get harsher for repeated infractions. First-time offenders face a fine of 20,000 rupees (US\$238), while subsequent offenses incur a higher fine of 30,000 rupees (US\$357). Additionally, fines are even higher for individuals from outside Khonoma. KYO previously operated a reward system where informants reporting hunting activities could receive one-third of the collected fine, with the remainder split between KYO and the informant's clan. KYO's patrolling and monitoring activities require financial resources, and they rely on the funding from the Eco-Tourism Management Committee (ETMC), which generates income from tourism.<sup>13</sup>

The villages in the study areas of Nagaland which are Khonoma, Dzuleke and Benreu have focused on eco-tourism as an alternative livelihood to generate household income. Communities have established village funds, which they use for forest conservation activities and monitoring costs, given that the budget from the Forest Department is insufficient for all communities.

The villages of Khonoma, Dzuleke, and Benreu in the Nagaland study areas have prioritized ecotourism as a substitute source of income for their households. Since the budget from the Nagaland Forest Department is insufficient, the communities have established village funds, which they can utilize for forest conservation activities and monitoring costs.

On October 25, 2005, Khonoma Village received support from the Nagaland Tourism Department and the Union Ministry of Tourism and Culture, amounting to 30 million rupees (US\$357,142) for ecotourism development. Government

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<sup>13</sup>Interviewed with the head of KNCTS on 8 May 2023.

agencies established the Khonoma Green Village Project (KGVP) to implement the country's first green village initiative. The project includes infrastructure development, sanitation improvements, solar power systems, and landscape enhancements to attract tourists. The goal of this project is to create an ecotourism village that serves as a model for other villages in Nagaland and beyond (Papu & Nathani, 2020).

The Ecotourism Management Committee (ETMC) was established in 2003, with directors selected from three clans to oversee tourism and community welfare. The community views tourism as a community enterprise that provides services; therefore, tourists are expected to pay for these services. At the same time, the community hopes to gain attention from tourists for the high quality of its products. When Khonoma Village began its tourism business, the goal was to ensure that visitors felt safe and welcome. To achieve this, the community organized training for homestay owners to improve service quality, encouraging tourists to willingly pay entrance fees: 10 rupees (US\$0.1) for students, 50 rupees (US\$0.6) for adults, and 100 rupees (US\$1.2) for foreigners.

While tourism generates income for the community, the ETMC also recognizes that it can pose challenges. Due to the presence of endangered birds, the community is a delicate source of biodiversity that is susceptible to biological asset theft. Therefore, efficient tourism management is crucial to limiting the impact of tourists on the environment. All visitors must register before visiting the village and hire a guide to guarantee this.<sup>14</sup>

Income from guest houses has become a primary source of livelihood for many families in Khonoma, largely due to the high unemployment rate in Nagaland. Finding work in the city is challenging, even for those with a bachelor's degree, as government jobs, which are stable, often require connections. Those unable to find work in Nagaland often migrate to other parts of India. However, the village's status as a tourist destination has allowed many who previously worked in cities to return to their community, opening restaurants and guest houses. Many of the local youth work as guides and participate in organizing traditional performances, such as dances, to welcome tourists.

Khonoma villagers also produce processed food products like dried fruits, pickled vegetables, chilies, and bamboo shoots for sale to tourists. However, production remains limited due to a lack of marketing channels and financial support. Women's groups generate additional income through weaving. When not working on farms or in gardens, they can produce up to 20 pieces of cloth per year, providing an important supplementary income for their households.<sup>15</sup>

For families with the resources to renovate or expand their homes into homestays, tourism provides a significant source of income through accommodation and food services. Women typically take on the primary caregiving roles, including cooking and cleaning. Room rates in Khonoma Village range from 1500 to 2000 rupees (US\$18–24) per day, excluding meals. Currently, there are only 12 registered

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<sup>14</sup>Interviewed with the ETMC secretary on 10 May 2023.

<sup>15</sup>Interviewed with a group of guesthouse owners on 13 May 2023.

homestays in the village. Homestay owners are required to pay an annual registration fee to the ETMC based on the number of rooms in their guesthouse. For two to four rooms, the fee is 500 rupees (US\$6) per room per year; for five rooms or more, the fee is 3000 rupees (US\$36) per year. Guides also pay a registration fee of 3000 rupees (US\$36) per year. A portion of the income collected by the ETMC is allocated to the Khonoma Youth Organization (KYO) to support the monitoring of illegal activities related to logging and hunting.

After 2005, Khonoma Village implemented the Green Project, funded by government agencies and supported by various organizations, to promote alternative livelihoods such as growing cash crops, fish farming, and tourism. Community organizations, including youth and women's groups, established Self Help Groups (SHGs) to receive funding from the government in the form of loans or subsidized projects. These funds were used to purchase capital, tools, machines, and weaving equipment. Additionally, since many of the men were skilled carpenters, they formed construction companies and raised funds to support their ventures.

Dzuleke Village, an extension of Khonoma Village, was established for married young people seeking to expand their arable land. The main occupation of Dzuleke villagers is agriculture; they grow local rice varieties for consumption and cash crops for income. Every household raises chickens, ducks, and pigs for food, while cows and Mithun are kept as investments. In 2014, the Dzuleke community began operating homestays with the support of the Tata Trust through the Northeast Development Agency (NEDA).

Currently, only four families in Dzuleke Village operate homestays. The Dzuleke Ecotourism Board (DETB) manages the allocation of tourists, ensuring that each homestay receives guests approximately two to three times per month. According to local informants, income from the homestay business has become the main source of livelihood for these families, supplementing the seasonal income from growing vegetables. However, during winter, when snow prevents vegetable cultivation, the homestay business becomes even more critical as a steady source of income.<sup>16</sup>

In 2014, the Dzuleke community established the Dzuleke Ecotourism Board (DETB) to manage local tourism. The community earns income through village entrance fees, where all visitors, both foreigners and Indians, must pay 20 rupees per person. DETB also collects a 10-percent tax on income from homestays, village entrance fees, and tent rentals. This tax revenue is used for community development projects, such as building public bathrooms, installing trash cans, hiring cleaners, and purchasing new camping equipment.

Some villagers earn additional income by working as guides. However, tourism in Dzuleke faces several challenges, particularly communication issues. The community has no direct connection with the Department of Tourism, resulting in insufficient financial support. Corruption, poor infrastructure, bad road conditions, and weak telephone signals further hinder tourism, as tourists struggle to contact the

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<sup>16</sup>Interviewed with homestay owner on 14 May 2023.

community directly. Additionally, the village faces challenges in disposing of non-biodegradable waste.

For the Dzuleke's CCA Project, the state does not provide financial support. Despite the lack of a budget, the community has initiated tree plantation efforts using local species, with villagers participating as volunteers. The community opposes government control of the forest, as state regulations often restrict tourism activities and access to resources, which the villagers rely on.<sup>17</sup>

Benreu Village has received state support to develop into a tourist destination. This includes the construction of a large resort, Mt. Pauna Tourist Village, which was eventually transferred to the community. Only eight households run homestays, with the World Bank providing infrastructure support like restrooms. Hiking, bird-viewing, and butterfly watching are the main activities for visitors. However, tourism development faces several challenges, particularly in infrastructure. Tourists find it challenging to get in touch with the community directly due to unfinished road work and restricted telephone signals. Furthermore, despite operating since 2019, homestay owners have failed to adequately promote their establishments, even though many villagers frequently use social media sites like Facebook.

Benreu has yet to establish a tourism management organization. Tourists do not pay entrance fees, and homestay owners and guides do not contribute taxes to the community. As a result, the community lacks its own budget for managing tourism and conservation projects, relying instead on support from government agencies and NGOs for forest conservation activities.

A popular community product in Benreu Village is rhododendron juice, which is used to treat various ailments, including inflammation, diarrhea, dysentery, headaches, diabetes, arthritis, fever, high blood pressure, and cancer. Rhododendron flowers could also be developed into a kind of tea. During the winter, women collect mustard leaves to make a paste used in chutneys (a local condiment made with chili paste) and pickles. Chamomile flowers, which grow abundantly along the roads, have the potential to be developed into tea, but this has not yet been pursued. Food processing activities could be further developed through SHGs, which provide women with investment funds.

In summary, communities in both Northern Thailand and Nagaland have established community forest areas and implemented rules and regulations to ensure the sustainable use of forest resources. With limited state support for conservation activities, such as fire management and monitoring, these communities have adopted community-based Payment for Environmental Services (PES) schemes to cover costs and fund social welfare and infrastructure development. Notably, communities in Nagaland, benefiting from higher income generated through ecotourism, have been able to establish community funds. However, these funds alone are insufficient to sustain conservation efforts, prompting communities to seek support from NGOs and their networks. Additionally, local communities in both regions have diversified their livelihoods through activities such as ecotourism, weaving, the

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<sup>17</sup>Interviewed with the Dzuleke community's leader on 14 May 2013.

cultivation of local herbs, and livestock farming, thereby reducing their reliance on forest products.

## 4.5 Social Networks for Community Forest Management

Communities in northern Thailand's forest areas have formed watershed networks with other communities facing similar challenges, collaboratively driving policy initiatives. This networking has strengthened these communities, enabling them to negotiate more effectively with government agencies. They have also received support from organizations like the Northern Peasant Federation (NPF), the Northern Development Foundation (NDF), and the Sustainable Development Foundation to map out and clearly define agricultural boundaries, preventing further land clearance. These plot maps have become essential tools for negotiating land rights with the government.

Additionally, these communities have partnered with the Northern Development Foundation and both domestic and international educational institutions to research agroforestry methods, rotational cultivation, forest management, climate change, and food security for highland farmers. The research findings challenge common misconceptions by showing that rotational cultivation does not contribute to global warming.

The role of community leaders has been crucial in this process. These visionary leaders introduce new knowledge and practices, excel in building networks with government agencies, private organizations, educational institutions, NGOs, and businesses, and are proactive in organizing activities that enhance the community's visibility.

For instance, the leaders of Hin Lad Nai have cultivated strong relationships with various organizations, receiving substantial support from the Meditation Fund of Phra Methee Wachirodom and collaborating with renowned chefs who organized community events. These chefs also facilitated the sale of community products, ensuring that profits returned to the community. During the 2019 forest fires, leading chefs prepared and sold food to raise funds for firefighting equipment. Additionally, the strategic use of media to publicize these activities has enhanced the community's visibility and garnered further support from the broader society.

The Hin Lad Nai Community serves as a learning center for researchers, students from both domestic and international educational institutions, as well as private organizations and other communities. Visitors come to study the community's livelihood, culture, traditions, and indigenous knowledge related to resource management, with the goal of expanding this management model to other communities.

Ban Huay E-Khang offers ecotourism activities, including hiking, homestays, and health-focused services like herbal medicine lessons, steaming, and massages. A female community leader has built networks with both domestic and international groups, such as Taiwan study groups learning natural dye weaving and Danish students exploring the navel forest and community livelihoods. All activities are

collaborative efforts, with earnings partly going to the community fund, ensuring that income generated from local resources is reinvested in their upkeep. Additionally, the community has created nature trails and lodgings to promote educational tourism, which aids tourists in comprehending the support for the community's way of life.

Communities in Nagaland have partnered with government agencies and NGOs to promote tourism, alternative livelihoods, and forest conservation. The Ministry of Tourism and Culture supports ecotourism, while the Forest Department collaborates with NEPED, the Japan International Cooperation Agency (JICA), Germany's Kreditanstalt für Wiederaufbau (KfW) Development Bank, and the Food and Agriculture Organization (FAO) to establish CCAs and support alternative livelihood projects. Aaranyak, an Assam-based NGO, plays a key role in biodiversity conservation by educating and empowering communities.

These partnerships have greatly enhanced conservation efforts in Nagaland. For example, the KfW-supported Forest & Biodiversity Management in Himalaya (FBMH) project strengthens CCA management in 35 villages, promoting long-term sustainability. The project also encourages alternative income sources, such as rubber and coffee plantations, to reduce dependence on swidden farming and hunting. To mitigate human-animal conflicts, the Forest Department funds Community Game Watchers and provides essential monitoring equipment.<sup>18</sup>

The JICA-supported Nagaland Forest Management Project involves 185 villages, aiming to improve forest cover, biodiversity, and community livelihoods while strengthening local institutions. Its key activities include promoting sustainable agroforestry, offering training programs, and supporting infrastructure development like water harvesting systems and farmhouses. All initiatives are implemented with the community's informed consent. Additionally, JICA empowers local communities by supporting Self-Help Groups (SHGs) in each village.<sup>19</sup>

In 2014, 22 CCAs in Nagaland established the Nagaland Community Conserved Area Forum (NCCAF) to collaborate on biodiversity conservation. This network provides a platform for sharing knowledge, ideas, and skills, with the goal of unifying the voice of all CCAs in Nagaland and ensuring that their initiatives are recognized at national and international levels. The NCCAF's objectives include promoting the plantation of indigenous species, conserving forests, wildlife, and biodiversity, advancing ecotourism, supporting scientific research, and raising awareness about sustainable resource use (NCCAF website, 2023). The Foundation for Ecological Security (FES), a non-profit organization, supports the NCCAF and helps communities across India restore soil, water, and forest resources.

Members of Khonoma Village have formed SHGs, each with about 10 members, to receive financial support from government organizations and NGOs. Women's weaving groups, for instance, generate income from weaving, and the earnings are

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<sup>18</sup>Interviewed with the administrative personnel from the Nagaland Forest Department on 8 May 2023.

<sup>19</sup>Interviewed with the administrative personnel from the Nagaland Forest Department on 8 May 2023.

reinvested into the group, allowing new members to borrow funds for their own investments. This revolving fund aims to expand group membership. The weaving group, established 15 years ago, has received support from various institutions and primarily produces woven scarves. Originally, large scarves sold for 4000 rupees, but the group has since developed smaller scarves priced at 500 rupees each to make them more affordable. These products are typically sold in souvenir shops in Kohima and within Khonoma Village.<sup>20</sup>

The Dzuleke community has received support from Tata Trust through the Northeast Development Agency (NEDA) to improve their houses and gain knowledge on running a homestay business. Additionally, government agencies, including the Department of Fisheries, have contributed to tourism development by building weirs and constructing houses for tourists, providing the community with a source of income for further development. The Department of Fisheries has also launched a pilot Rainbow Trout Farming Project in the community. If successful, this project will offer the community an opportunity to generate income and increase their food sources through fish farming.<sup>21</sup>

The Benreu community has been developed into a tourism village with infrastructure support from government agencies and the World Bank, enabling families to earn additional income through homestay businesses. As part of the Paona Conservation Area and the NCCAF network, the Benreu community has also received support from the FES and NEPED to implement resource conservation activities and promote alternative livelihoods.

Ngwalwa Village is supported by government agencies to grow cash crops such as betel nuts (areca nuts), spices, vegetables, and fruits. Ngwalwa Village is widely known as the “Betel Nut Village” due to its reputation for producing high-quality betel nuts. In 2023, NEPED distributed 100 betel nut seedlings to each family, enabling farmers to begin harvesting within five to six years and earn around 80,000 rupees (US\$952) annually. According to field data, the village generates an annual income of approximately 3,500,000 rupees (US\$41,666) from betel nut cultivation. Betel nut brokers often reserve the trees in advance and handle the harvest and transportation to Assam for sale.<sup>22</sup>

In addition to cultivating betel nuts for over 50 years, Ngwalwa villagers grow king chilies in jhum areas, selling them for 200–300 rupees (US\$2–3.6) per kilogram. Bananas are the primary fruit crop, with several large plantations on private land. Other key crops include *yongjak* (stink bean), various vegetables, and fruits. The community has also adopted beekeeping, with honey from domesticated bees selling for 1000 rupees (US\$12) per liter and honey from stingless bees, known locally as *Teliane dui*, fetching 2000 rupees (US\$24) per liter. Some villagers collect honey from the forest, earning about 100,000 rupees (US\$1200) per family.<sup>23</sup>

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<sup>20</sup>Interviewed with the Khonoma weaving Self-Help Group on 9 May 2023.

<sup>21</sup>Interviewed with the Dzuleke community’s leader on 14 May 2013.

<sup>22</sup>Interviewed with the Ngwalwa village chairman on 6 May 2023.

<sup>23</sup>Interviewed with the Ngwalwa women’s group on 6 May 2023.

The World Bank supports Ngwalwa Village through Self-Help Groups (SHGs), providing a revolving fund of 3000,000 rupees (US\$35,714) annually. A Nagaland state agency also promotes sericulture, offering training and 20,000 rupees (US\$238) per family to establish silk farms, with the state purchasing the produced silk.<sup>24</sup>

The 25 SHGs in Ngwalwa Village, each with ten or so members, use the money for projects like planting trees and loans to build rental homes. The community does not yet have a system in place to manage conservation areas, and tourism development has not yet been pursued. Most village programs concentrate on planting large trees, such as bamboo, palm, and rubber trees, which usually stop after harvest with little further work. The Nagaland Forest Department has not supported conservation efforts. Although the community is not entirely aware of the detrimental impact of cash crop production on biodiversity and soil quality, it is becoming more noticeable.

In summary, this comparative study underscores the critical role of social capital in facilitating the livelihood strategies of communities in both regions. All communities have established networks with NGOs, the private sector, and government agencies to support conservation activities, infrastructure development, and alternative livelihoods. However, implementing joint forest management in Nagaland presents unique challenges, as forest land is owned by the communities themselves, making cooperation essential. The case of Ngwalwa exemplifies this issue, where local priorities are focused on cash crops and tree plantations, leading to reduced emphasis on forest conservation. This reflects the power of the community to prioritize monetary gains while avoiding CCA projects to bypass strict rules and regulations governing access to forest resources.

## 4.6 Indigenous Knowledge as Negotiation

Local knowledge is resilient, enabling communities to cope with and adapt to social, political, and environmental changes. This study highlights how the Karen community in Thailand and communities in Nagaland have preserved their traditional knowledge while integrating it with scientific knowledge. Through this fusion, they have developed resource management strategies and created new, flexible identities that are well-suited to an evolving context.

The rituals and local wisdom of Karen communities began to fade with the advent of modern knowledge and their conversion to Christianity. However, Karen communities are actively working to revive and pass on this wisdom to younger generations, teaching them about seeds, herbs, and rituals related to their traditional agricultural systems. Women in these communities play a crucial role in preserving various seeds. The Baan Mae Saan community maintains over 30 rice varieties and more than 70 types of vegetables in their rotational fields.

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<sup>24</sup>Interviewed with the Ngwalwa Self-Help Group on 6 May 2023.

The integration of local and scientific knowledge is clearly demonstrated by the youth group of Hin Lad Nai. These young people have had the opportunity to exchange knowledge with students and academics from both domestic and international institutions who visit for research or study. This exposure has enabled them to acquire academic knowledge, enhance their use of technology for online business, and improve their English language skills.<sup>25</sup>

The youth group of Huai Hin Lad Nai has built a network with other villages in Lampang and Chiang Mai provinces by organizing camps. These camps provide opportunities for youths studying in urban areas to exchange knowledge with those who remain in the community, facilitating the transfer of indigenous knowledge and culture to those living outside the community. According to the youth group leaders, it is crucial for young people to understand the history of previous generations' struggles to coexist with the forest. The community has also demarcated land-use boundaries and established regulations for resource conservation, enabling them to negotiate effectively for the stewardship and sustainable utilization of forest resources.<sup>26</sup>

Similarly, the women in Huay E-Khang have created video content to share their knowledge about herbs and healthcare on Facebook through the page "Ethnic Women's Community Interpreter." They also published a booklet on using herbs to treat diseases in children and adults, a resource based on community knowledge that is distributed in schools and health centers. Looking ahead, they plan to develop this indigenous knowledge into ecotourism ventures that could generate income for the community.<sup>27</sup>

Ban Huay E-Khang has initiated activities to revitalize indigenous Karen knowledge among the youth, organizing events multiple times each year. These initiatives aim to educate young people about traditional practices, including food, seeds, rituals, and the production processes of rotational farming. To preserve and transmit this indigenous knowledge, particularly in relation to food security, community leaders—supported by various networks—have invited elders to share Karen folktales and impart their expertise on plant varieties and medicinal herbs found in rotational farms. This effort plays a vital role in preserving and revitalizing indigenous knowledge.

During the government's Zero Burning policy, aimed at combating PM 2.5 pollution and global warming, Mae Lan Kham villagers faced challenges as they were unable to burn their rotational farms according to the growing season. To work around this, villagers used information from NGO networks to identify when satellites would monitor hotspots, allowing them to burn their fields undetected.<sup>28</sup>

Since 2021, through the proposed Protection and Promotion of the Livelihoods of Ethnic Groups Act, the indigenous peoples in Thailand have been advocating for

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<sup>25</sup> Interviewed with the Hin Lad Nai youth group on 29 May 2022.

<sup>26</sup> Interviewed with the Hin Lad Nai youth leader group on 29 May 2022.

<sup>27</sup> Interviewed with the Huay E-Khang women's group on 6 March 2022.

<sup>28</sup> Interviewed with the Mae Lan Kham village head on 13 March 2022.

their rights to access forest resources. This legislation aims to preserve traditional cultures and livelihoods, encourage the participation of ethnic groups in national development, and ensure sustainable access to natural resources. It seeks to reduce inequalities and prevent discrimination against ethnic communities (Policy Watch, 8 February 2024). The draft has garnered support from civil society, political parties, and academic institutions. However, it has faced challenges in the House of Representatives due to concerns that the definition of “Indigenous Peoples” may conflict with national security interests (IMN Voices, 25 September 2024). Despite these obstacles, the proposed law represents a significant hope for the indigenous communities who strive to protect their livelihoods and maintain their presence in protected areas.

Like the Karen communities in northern Thailand, the Nagas preserve their indigenous knowledge by passing it down through generations, traditionally through the Morung house—a dormitory where boys learned about livelihood and socialization from elders. In the past, Morung served as an institution of culture and learning. However, with the conversion to Christianity, boys and girls began attending Christian schools. Despite this shift, Morung remains an important institution for cultural, traditional, and etiquette training, with young people often visiting the centers. The existence of Morung has helped preserve indigenous culture, even as Christianity has influenced the community since 1890.

Morung has since evolved into the Age Group House, continuing its role in cultural transmission. Peer groups are formed within each clan, divided by an age gap of five to ten years. In Khonoma Village, each of its three clans has its own peer group led by a mentor who provides guidance and discipline. These peer groups are named after their mentors, reflecting the age and clan of the members.

Peer groups in Khonoma compete to raise funds for community development projects, such as building sidewalks, organizing village feasts, and hosting group gatherings. During school breaks, groups of 30–100 youths often work in the fields, earning money that contributes to a fund for community development. In 1992, eight peer groups collaborated to build walkways and stairs around the village. The senior groups are particularly influential. For example, businesspeople from the *Thenoma* clan have built large houses for younger members and donated land in Dimapur and a rental house in Kohima to the community, generating regular income.<sup>29</sup>

The Morung social structure and learning system have greatly strengthened the community, with youth groups playing a crucial role in community development, infrastructure projects, and conservation efforts. These groups actively raise funds to support various projects and are key players in monitoring CCAs. The integration of traditional knowledge with the new education system in the villages allows for the use of cultural practices to promote forest conservation projects.

Despite the influence of Christianity, traditional Naga beliefs related to resource conservation continue to endure. For the Nagas, cosmology encompasses a

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<sup>29</sup>Interviewed with Khonoma’s senior member of the Age Group House on 21 May 2023.

three-dimensional relationship between nature, humans, and the supernatural, all of which are intricately interconnected. They perceive the world as comprising numerous valuable elements—such as mountains, forests, rivers, and valleys—that require careful stewardship. The earth, regarded as the home of animals, trees, and plants that provide sustenance, is treated with profound respect and reverence.

According to Naga legends, animals and humans share a common ancestor, with tigers regarded as man's older brothers. If a villager kills a tiger or leopard, it is treated with the same gravity as taking a human life, and the person must undergo a period of strict isolation, typically lasting around 30 days, and perform rituals to honor the tiger's spirit.

Naga beliefs hold that spirits inhabit every aspect of their environment, including houses, barns, rice fields, forests, and rivers, and they are represented by the sun, moon, and stars. These spirits are believed to influence health, happiness, success, and abundance, making their worship essential for ensuring survival and prosperity. For example, the Trans-Dikhu-Doyan tribes believe that after death, a person's spirit enters a hawk, which flies over the village to carry souls to *Asilim*, the Land of the Dead. As a result, consuming hawks or eagles is forbidden (Nienu, 2015: 139–146).

Following animistic traditions, hunters in Khonoma once sought blessings at a cliff known as the "Face of Woman." A smiling face was seen as a sign of good fortune in hunting, while a sad face indicated likely failure. Although most villagers have converted to Christianity, many still maintain their belief in spirits. Rituals for blessings before and after planting are still common, though they have evolved. Instead of traditional animal sacrifices, villagers now invite priests to bless their crops, asking God for a bountiful harvest. These rituals are performed individually by each household rather than collectively.<sup>30</sup>

In Benreu village, a respondent shared a story about "*Siperai*," a spirit believed to protect the village and its forest. According to the legend, whenever a storm, earthquake, or other natural disaster occurs, people seek refuge in Benreu. Villagers continue to narrate the story of *Siperai* to younger generations even after converting to Christianity. *Siperai* was said to be a man who married a woman from the village and asked for soil from his father-in-law's land. The next morning, a large amount of soil had disappeared, taken by *Siperai* to build the largest mountain, Paona. Villagers believe that *Siperai*'s home is atop this mountain. If someone cuts down trees or branches on the mountain, they must perform a ritual called *kena*, involving the sacrifice of a pig to feed the entire village. Additionally, those who reach the mountain's peak must leave behind a coin or a piece of clothing; otherwise, they risk becoming lost in the forest or unable to return home.

Khonoma has favorable climate and soil conditions for growing medicinal plants. In recent years, many households have begun cultivating medicinal plants that are not native to the area to boost their income. However, the indigenous knowledge of Khonoma's people regarding medicinal plants continues to be passed down orally, with no written documentation (Chase & Singh, 2013). Only a few traditional

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<sup>30</sup>Interviewed with the Khonoma's guide on 9 May 2023.

healers possess this knowledge, and the younger generation shows little interest in preserving it, placing these traditions at risk of fading away.

To ameliorate the gradual decline of their indigenous knowledge over the generations, communities in Tuensang and Peren Districts organized village storytelling and drawing competitions across 13 villages in November 2022. This was done in collaboration with NEPED and funded by KfW Germany Bank. Adults competed in storytelling, sharing traditional livelihoods, folktales, and personal experiences with nature, while children participated in drawing competitions on topics such as traditions, legends, history, and nature. Additionally, a competition related to village infrastructure provided communities with the opportunity to draft project proposals for village development, addressing societal, economic, and environmental needs. This initiative not only revitalized their indigenous knowledge and traditions but also fostered trust between communities and state agencies, creating a sense of participation in development projects (The Naga Republic, 6 December 2022).

In addition to playing a key role in conserving for the community forest, the youths of Khonoma village are also involved in entrepreneurship, particularly in homestay businesses, tourism companies, and as community guides. NGOs have been instrumental in helping them develop their potential. For instance, Peter, a 31-year-old from the village, learned about the environment and biodiversity through a training course supported by Assam's Aaranyak NGO and Green Hub. The training equipped him with skills in videography, flora and fauna identification, and expertise in biodiversity, making him one of the few specialists in the Khonoma community. In 2019, Peter began creating videos to share the community's conservation stories, and he has produced content for National Geographic and various NGOs.<sup>31</sup>

In summary, the focal communities in northern Thailand and Nagaland have effectively utilized traditional beliefs and indigenous knowledge for forest conservation, despite their conversion to Christianity. Local traditions, such as Morung, play a crucial role in reinforcing indigenous identity and supporting communities in their efforts toward infrastructure development and conservation activities. Indigenous Peoples have successfully integrated traditional knowledge with contemporary practices to enhance their capacities and facilitate the transfer of knowledge to younger generations. This integration of knowledge is particularly important for the Karen communities in Thailand, as it strengthens their position in negotiating with the state regarding forest governance.

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<sup>31</sup> Interviewed with Peter on 10 May 2023.

## 4.7 Discussion

This research explores sustainable community forest management in northern Thailand and Nagaland, India. Despite differences in land ownership systems between the two regions, the findings indicate that community-based forest management in both countries encounters significant challenges in environmental conservation. Effective community forest management cannot function independently but requires collaboration with state authorities and NGOs. Building partnerships through community-based institutions is essential to securing the necessary support for sustainable practices.

In Thailand, conservation forests are governed by the state, specifically the Royal Forest Department, which faces challenges due to limited budgets and ineffective policies. As a result, forest-dependent communities have developed their own resource management systems. This initiative allows them to establish regulations and define clear land-use boundaries for farming, forest utilization, and conservation. These communities showcase their sustainable livelihoods while actively conserving forests to legitimize their rights to reside within forested areas.

In Nagaland, land ownership is held by communities, clans, and families, with the state lacking authority to manage forests without local consent. While this private and common property regime allows for independent resource access, it also presents challenges. Social and economic changes have led to deforestation and hunting for trade, posing significant issues for community forest conservation.

Communities in both Thailand and Nagaland face challenges related to forest resource degradation, resource competition, and conflicts both within and between communities, as well as with the state. In response, Karen communities in Thailand and those in Nagaland have developed community-based resource management mechanisms using the principle of Payment for Environmental Services (PES). In this system, the community acts as both the user and steward of the resources, receiving compensation for their forest protection efforts. PES initiatives enhance the capabilities of local institutions and generate social, economic, and environmental benefits (Brownson et al., 2019). This dual role strengthens community forest management while delivering tangible benefits to the community.

However, community-based PES initiatives cannot depend solely on a strong conservation ethos for successful implementation. Several factors can hinder the effectiveness of PES schemes. For instance, in Benreu Village, the remote location and inadequate infrastructure make it challenging to collect entry fees from tourists, prompting the community to rely on NGO support for conservation activities. Similarly, the case of Ngwalwa highlights that communities may prioritize income generation through cash crops, often at the expense of focusing on conservation efforts.

In addition, the Karen in Thailand use community-based PES as a tool to construct their identity as innovative forest guardians, helping to secure their land rights. Similarly, engaging in conservation initiatives, the Nagas aim to transform

their image from headhunters to forest protectors, leveraging this new identity to promote ecotourism.

The Community Forest Management (CFM) model serves as a platform for communities to build social networks with academics, NGOs, and government agencies. Both regions benefit from the support for alternative livelihoods and conservation activities, such as payments for guards, fire management, self-help groups (SHGs), and cattle banks. In Thailand, the Karen communities also receive support for land rights advocacy from the networks. Moreover, this model has the potential to reduce conflicts within communities, as well as between communities and government agencies.

The establishment of community conservation areas, while beneficial, can have unintended negative consequences, such as self-exclusion (Hall et al., 2011). Local groups, including women, artisans, and pastoralists who rely heavily on forest resources, may face marginalization due to the rigid community rules and governance structures. To foster broader participation and mitigate these impacts, livelihood diversification is critical. The formalization of Community Conserved Areas (CCAs) in Nagaland and community forests in Thailand aims to gain state recognition, which is vital for securing financial support from government institutions and NGOs. This external support is essential for developing sustainable alternative livelihoods, such as ecotourism, homestays, handicrafts, and livestock farming. These initiatives not only reduce dependency on forest resources but also enhance community resilience and socio-economic well-being.

It is crucial to mention that Joint Forest Management (JFM) cannot fully replace self-organized community forest management systems. The evidence from a village in Orissa, India, shows that the introduction of JFM has led to a decline in common property rights and weakened reciprocal relationships with neighboring villages. Furthermore, the administration of forest resources became a tool for political influence and monetary gain, undermining the core principles of equitable resource management (Nayak & Berkes, 2008). JFM often relies on a superficial understanding of communities, viewing them as small, homogeneous units with clearly defined boundaries (Karlsson, 2011). This “one-size-fits-all” approach fails to account for the complex social dynamics of forest-dependent communities and undermines the shared social value of forest benefits across village boundaries. By implementing Joint Forest Management (JFM) and similar Community-Based Natural Resource Management (CBNRM) models, the state can exert greater control over community initiatives, potentially leading to inequality among villages (Sarin, 1997). In contrast, the Dzuleke community in Nagaland demonstrates that communities with land ownership are less reliant on external support and enjoy greater autonomy. However, they face challenges in sustaining conservation initiatives and effectively monitoring reforestation efforts.

The Community Forest Management (CFM) is often oversimplified, assuming that all villagers are actively engaged in conservation practices. However, the indigenous peoples living in forests do not necessarily prioritize conservation (Li, 2002). For instance, many Karen communities participate in cash-cropping and forest product harvesting (Walker, 2001: 160). Similarly, in Nagaland, the indigenous

peoples grow cash crops and implement tree plantation projects—such as those involving teak, firewood, and bamboo—in *jhum* fields. These projects typically last only three to five years and often lack mechanisms for monitoring their long-term success (Tiwari, 2022). The reforestation project in Ngwalwa village, Peren district, illustrates how a group sought state support for tree plantations with a primary focus on income generation rather than conservation. Once the bamboo was harvested, no further tree planting occurred. Additionally, the Ngwalwa community members have chosen not to engage in CCA formalization to avoid state influence, which could potentially restrict their utilization of forest resources.

This study highlights the resilience of indigenous knowledge, demonstrating its role not only in forest conservation but also in its integration with scientific knowledge to enhance well-being and promote alternative livelihoods. The Naga's social structure and the Morung learning system have strengthened the community, enabling youth groups to play a crucial role in community development and the success of forest conservation projects. However, indigenous knowledge in both regions is at risk of decline. While the Indigenous Peoples actively work to revitalize and transmit their knowledge to younger generations, they also leverage social media to promote and disseminate this cultural heritage. Additionally, indigenous knowledge is vital for the Karen communities in Thailand, as it has been strategically utilized to enhance their negotiating position with the state on matters of forest governance.

The governments of Thailand and Nagaland have sought to discourage indigenous practices, such as rotational farming systems, which have been practiced for generations in both regions. These practices are perceived as unsustainable by the state (Erni, 2015; Rawat et al., 2018). As a result, development policies in both regions have encouraged local communities to transition from traditional rotational farming to cash crops and tree plantations. This shift has led to increased water and land use, exacerbating deforestation and environmental degradation (Cramb et al., 2009; Delang, 2002; Yano & Lanusosang, 2013). However, the focal Karen communities have resisted these policies by continuing their rotational farming practices, emphasizing livestock farming rather than adopting cash crop cultivation. This resistance highlights their commitment to sustainable practices and forest conservation.

In contrast, the Thai state could draw valuable lessons from Nagaland, where rotational farming systems have been sustained for generations, enabling communities to conserve forest cover without direct state intervention. This highlights that rotational farming can serve as a sustainable land-use practice, balancing ecological preservation and livelihood needs.

This study highlights the crucial role that communities play in conserving forests in both northern Thailand and Nagaland, though the approaches and contexts vary between the regions. However, for these efforts to be successful, it is vital for government agencies to provide support in terms of funding and legal frameworks to facilitate the establishment of forest communities.

Thai government agencies should grant long-term land use rights to local inhabitants in protected areas and increase budget allocations to support community-based PES schemes. With secure land rights, communities could expand their

conservation efforts to include REDD+ projects and directly receive funding from international institutions. This would not only strengthen community engagement in forest conservation but also reduce the government's manpower and resource burden.

It is essential for the Nagaland Forest Department to provide greater support to communities in establishing CCAs. Expanding CCA corridors to neighboring communities could help reduce conflicts and address the issue of isolated conservation areas. Additionally, the Nagaland Forest Department, NEPED, and international organizations like JICA and the German Development Bank should expand their support for alternative livelihoods that reduce dependency on forest resources. Additionally, fostering constructive dialogue between the state and communities is crucial to promoting more sustainable community forest management practices.

## 4.8 Conclusion

This research highlights the complexities of sustainable community forest management in northern Thailand and Nagaland, India, uncovering both shared challenges and region-specific dynamics. Both regions grapple with critical issues such as deforestation, resource degradation, and socio-economic pressures.

In Thailand, forest governance is state-centric, with conservation forests managed by government agencies like the Royal Forest Department. Communities in protected areas face challenges due to the lack of secure land rights, often relying on advocacy to negotiate access to forest resources. In contrast, Nagaland operates under a decentralized governance system, where communities, clans, and families own the land. This autonomy allows communities to independently manage their forests, though it also presents difficulties in ensuring consistency across villages. While Thailand struggles with community-state conflicts, Nagaland's governance model avoids direct state intervention but faces challenges in achieving conservation strategies.

In both regions, community-based forest management mechanisms are central to conservation efforts, supported by robust social networks. In Thailand, communities have developed PES practices to finance conservation activities, infrastructure, and social welfare, relying on collaboration with NGOs, academics, and other institutions. Similarly, in Nagaland, communities utilize community-based PES mechanisms, but their dependence on local resources and land ownership reduces reliance on external support. However, the sustainability of these initiatives in Nagaland is hindered by limited resource-sharing across villages. In both cases, social networks play a crucial role in mobilizing resources and facilitating alternative livelihoods.

Indigenous knowledge remains a cornerstone of forest management in both regions, though it faces distinct pressures. In Thailand, the indigenous peoples, such as the Karen, employ traditional practices like rotational farming and their ethnic identity to resist state policies and assert their rights to forest lands. This knowledge

is further incorporated into community-based PES initiatives, enhancing sustainable practices and reinforcing their identity as forest protectors.

In Nagaland, indigenous knowledge is deeply intertwined with social structures, such as the Morung learning system, which strengthens community cohesion and promotes conservation practices. Participation in community forest management has transformed their identity from headhunters to forest protectors, fostering ecotourism development. However, economic transitions, including the shift toward cash crops and short-term income generation, threaten the preservation of traditional knowledge in both regions.

This research demonstrates that while Thailand and Nagaland employ different governance systems and management practices, both regions underscore the importance of community-based approaches to forest conservation. Thailand's reliance on community-based PES highlights the potential for locally-driven solutions to fund and sustain conservation efforts, even within a state-centric framework. Nagaland's governance empowers communities with autonomy, though it necessitates greater focus on long-term sustainability and resource-sharing mechanisms. Preserving indigenous knowledge, strengthening social networks, and fostering inclusive community-led initiatives are critical to achieving sustainable forest management in both contexts.

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