

**Drivers of Deforestation
and Land-Use and Land-Cover Change in Kawthoolei
1990-2020**



**KESAN and KFD
With technical support from Forest Trends**

August, 2021

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Introduction

This report on drivers of deforestation and land-use and land-cover change is intended for the Karen National Union (KNU)'s Forest Department (KFD) to improve their understanding of the different pressures on forests since the 1990s in Kawthoolei and their impacts on the environment and livelihoods. Analysis focuses on changing armed conflict dynamics, commercial logging, agricultural expansion, infrastructure development, and land tenure insecurity. Increased knowledge and awareness on the issues covered in this report should help support more appropriate and effective KFD forest management planning and implementation in Kawthoolei.

Research data and analysis was conducted in Dooplaya, Hpa-an and Doo The Htoo, located on the border between Karen State and Thailand and in the interior along the Mon State and Karen State borders. KNU's Mergui-Tavoy District, in what is also known as Tanintharyi Region, is not included in this study, and therefore does not cover oil palm and rubber agribusiness concessions located in Mergui-Tavoy District. The most significant deforestation pressures and land-use and land-cover change we analyzed based on our field research presented in this report have been found along the border with Thailand. Various armed groups in the late 1990s and 2000s extensively logged forests closer to the Thailand border. More recently since the ceasefire with the KNU, infrastructure development, and in some cases, smallholder agricultural expansion, has presented new pressures on remaining forests near to the Thailand border. These drivers oftentimes act as a catalyst for multiple additional pressures on forests and land-use and land-cover change, such as the influx of migrants. Smallholder corn and cassava cropping that expanded along the Thailand border since the late 2000s mostly is cultivated in lands already previously cleared of forest by armed groups' logging operations. Along the border between Karen State and Mon State, however, significant deforestation resulted from rubber expansion that occurred mostly in the mid- to late- 2000s during the rubber price boom. The transition from customary to private land tenure systems and the rise of land speculation this decade is also found to act as a key accelerator of land-use and land-cover change, landlessness, and inequality.

The report outlines how war and then ceasefires with Democratic Karen Benevolent Army (DKBA), KNU/KNLA-Peace Council (KNU/KNLA-PC) and the Karen National Liberation Army (KNLA) affected different drivers of deforestation and land use transitions. In addition to the ceasefires, the data analysis finds commercial logging, smallholder agricultural expansion, infrastructure development, and land tenure insecurity as significant drivers of deforestation and land-use and land-cover change in Kawthoolei, which is reviewed below. At the end of the briefing we profile two village case studies as examples of these various interrelated drivers of deforestation and land-use and land-cover change. The briefing concludes with recommendations to the KFD on how to use these data findings to improve forest management and planning in Kawthoolei.

Background

Up until KNU's ceasefire in 2012, but especially prevalent in the 1990s and 2000s, the Tatmadaw's "Four Cuts" counterinsurgency against Karen civilians continually interrupted villagers' traditional land and resource management practices. Karen villagers often had to flee with little notice. Some became internally displaced peoples (IDPs), hiding further in more remote forests, while many fled to the safety of Thailand if they could manage. Others, both forced and voluntarily, resettled in new "counterinsurgency villages" (sut see ywa in Burmese) along government roads. The Burmese military consolidated Karen villagers dispersed throughout an area into these resettlement sites, which would be cleared by the authorities of any nearby forest as a counterinsurgency strategy, to help keep KNLA soldiers away and from Karen civilians providing them support. Some villagers would secretly return to their old villages to tend their orchards when and where possible. For others who could not return due to fear over their safety, the forest would begin to reclaim their land. New migrants and soldiers did not respect villagers' customary land claims in their absence. New settlers in these old village sites presents problems if the original villagers were to return, as some already have attempted. Armed conflict dynamics and geopolitics in the 1990s and 2000s created opportunities for significant deforestation and land cover change, especially by large-scale logging operations. The DKBA, a Buddhist group which split from the KNU, broke away in 1994 and signed a ceasefire with the Tatmadaw soon afterwards. With the support from the DKBA, the Tatmadaw launched a major offensive against the KNLA during 1996-97. This created the conditions for a power vacuum that enabled the DKBA to do extensive logging in pristine forest borderland areas, along with opening up some new mines. KNU retreated in defense, and could therefore no longer effectively protect the population or properly govern land and resources.

By the mid-2000s, some villages started to become reestablished by a mix of different people. Karen villages, some of them long established while others the new "counterinsurgency villages", grew from the arrival of armed group family members (mainly the DKBA), voluntarily returning IDPs, and new non-Karen migrants looking for new wage labor and cash cropping opportunities. These growing villages put new pressures on surrounding remaining forests for house construction, charcoal and firewood consumption, and crop production. Cash cropping started to expand by these new arrivals, especially CP corn.

Since KNU's ceasefire in 2012, there has been a significant increase in political stability and human security in many areas of Kawthoolei, which has resulted in locking in a new land use system. The ceasefire reverted considerable territorial authority from the DKBA (much of which has now been converted to a BGF) back to the KNU. The greater human security offered by KNU's ceasefire encouraged some Karen IDPs and refugees to return to their old village settlements, while others moved to new settlement sites along the Thai border. Alongside this, many more new migrants from outside started to arrive in these areas. Village residents rather quickly shifted away from subsistence swidden cultivation to cash cropping in permanent private household plots. The KNU ceasefire enabled a significant change in KNU's capacity and political will to govern, including regulating commercial logging and agricultural expansion in remaining forest. Most commercial logging has subsequently stopped, especially because DKBA and BGF lost much of their authority to log, although some limited hotspots remain.

Analysis of Major Drivers of Deforestation and land use and land-cover change

KFD extension officers, together with KESAN staff and with technical guidance from Forest Trends, conducted field research in 2020 in a total of 10 Karen-majority villages in three different Districts (Dooplaya, Hpa-an and Doo The Htoo). Village field sites included those in Karen State along the Thailand border and in the interior, as well as in Mon State along the border with Karen State, as shown in **Figure 1**.

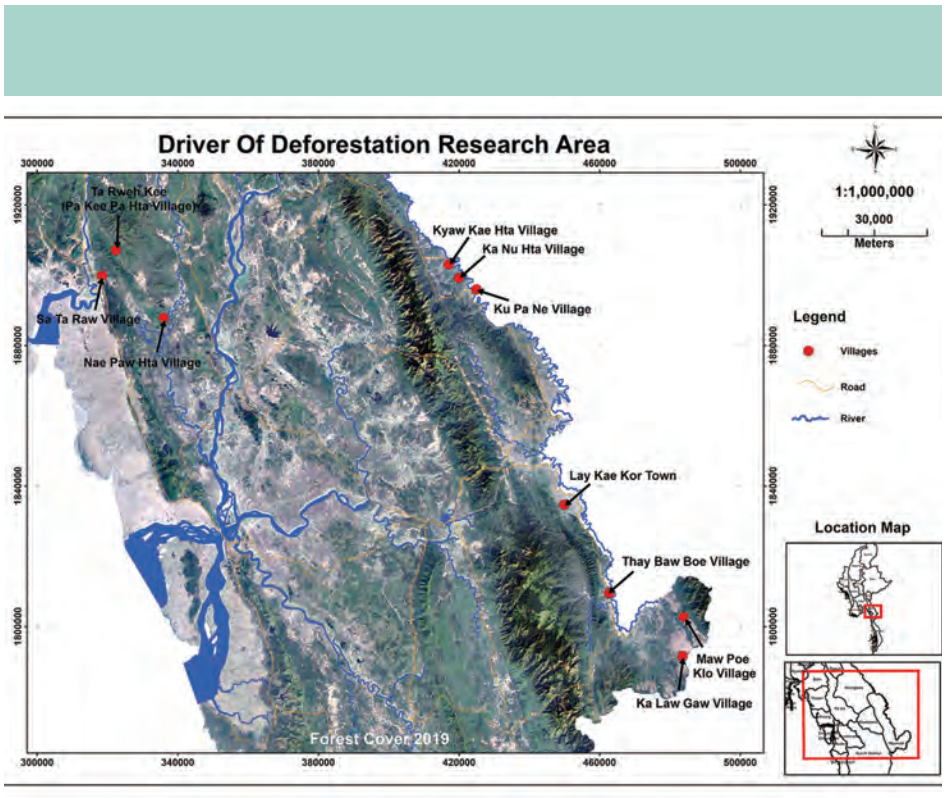


Figure 1. Village study sites

1. Commercial Logging

Since the mid-1990s, there has been increasing pressures on forest resources, although with important differences over time and across Kawthoolei. The borders with Thailand and Mon State, as well as the more remote interior, have experienced different deforestation drivers and degree of pressures before and after KNU's ceasefire. It is important to recognize these differences in forest pressures, and how they have changed in response to changes in armed conflict.

A logging boom along the Thailand border got underway in 1997 due to several factors.

The DKBA ceasefire a few years earlier and then the 1996/97 military offensive gave more power to DKBA units to log. Thailand's 1989 logging ban incentivized Thai businessmen to source timber from across the border. The fighting between Tatmadaw/DKBA and KNLA prevented any logging regulation or responsibilities taken among the respective authorities, especially because the DKBA never has had administrative or governance capabilities. Logging concessions especially appear to have targeted KNU's protected areas. The logging continued through much of the 2000s until KNU's ceasefire.

Since KNU's ceasefire and the DKBA and BGF subsequent loss of authority, there is now only limited large-scale logging, with only a few isolated logging hotspots mostly associated with infrastructure development. The end of extensive commercial logging has been one of the most significant changes in deforestation pressures. Since the past several years, KNU officials appear to be more strict about enforcement against logging and encroachment into forest reserves and wildlife sanctuaries. The more regulatory environment that KNU officials are trying to enforce is helping to contain agricultural expansion to the lowlands where forests have previously already been logged, and maintain forest cover in the hills which are predominately protected forests under KNU administration.

The KFD administers many reserved forests (RF) and wildlife sanctuaries (WS) throughout Kawthoolei. While many have already been demarcated, some are known to exist but still have yet to be properly demarcated and managed. For example, in Dooplaya District there are a total of 29 KNU-recognized RF, but only 15 have had the boundaries officially demarcated so far. In addition to KNU's forest management

system, the Union Government of Myanmar (UGoM) long ago demarcated many RFs throughout the country, including those that encompass KNU territory. In cases where UGoM protected forests fall in KNU territory, they act only as “paper parks” as no UGoM FD staff are present to actively manage them. Both UGoM and KNU relied on the reserved forest maps designed by the British during the colonial period in order to establish protected forests. Therefore, in some cases, KNU and UGoM protected forest areas overlap.

The high prevalence of KNU RFs and WSs that encompass village settlement sites is a significant variable in explaining deforestation and land-use and land-cover change dynamics. Our study findings show that logging by various armed groups in the southeast in the 1990s and 2000s often occurred within RFs and WSs. It is understood that armed group members targeted these forests, and local KNU officials often gave permission for such logging, because these were more remote areas and, following British colonial and UGoM categorization, existed for the purpose of supplying commercial timber. By the time of the KNU’s ceasefire, many of KNU’s RFs and WSs had already been heavily logged and severely degraded as a result, as can be seen by the images below in **Figures 2, 3 and 4**.

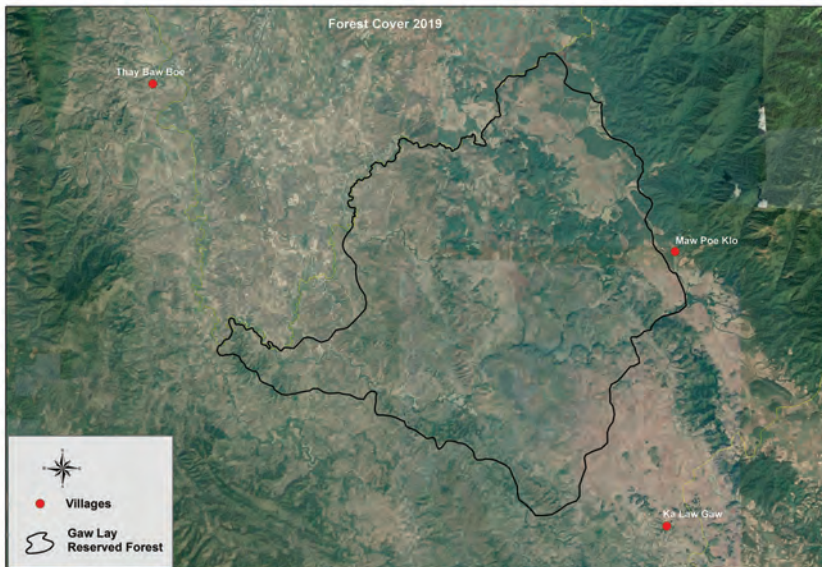


Figure 2. Land Cover in Gaw Lay Reserve Forest, 2019.

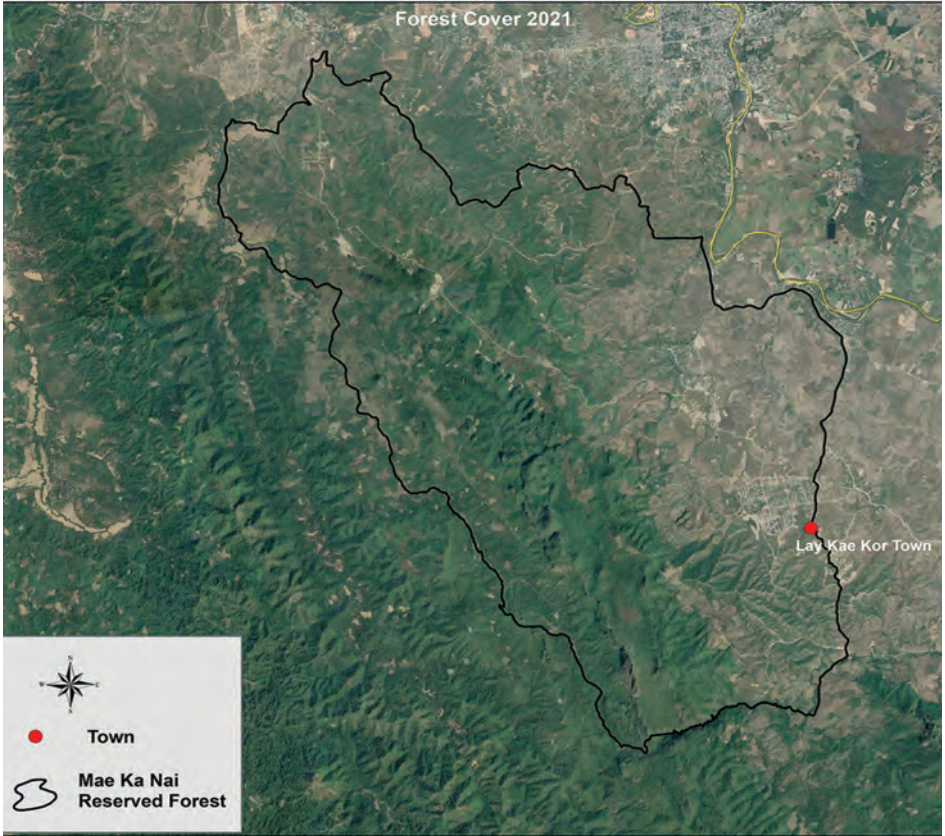


Figure 3. Land Cover in Mae Ka Nai Reserve Forest, 2021.

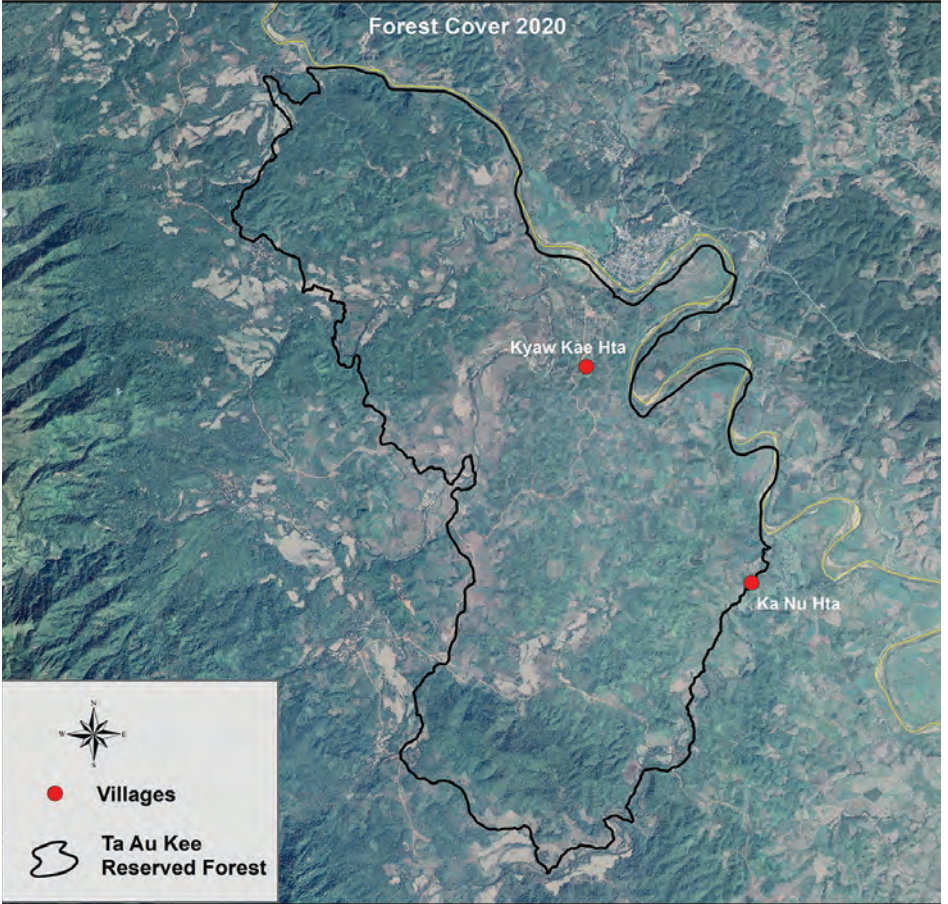


Figure 4. Land Cover in Ta Au Kee Reserve Forest, 2020.

2. Smallholder Agricultural Expansion

Until the 2000s, rural Karen villagers relied upon traditional shifting cultivation practices based on customary communal tenure rights. Apart from widespread war disruptions, farmers grew what they needed to eat in their rotating swidden cultivation fields in the hills that surrounded their mostly forest-based settlements. Households recognized land and forests as collective property, and they followed traditional customary land and resource management practices, such as with rotational farming.

Subsistence farming and collective property was the mainstay of the village economy. In addition some households who had the means also cultivated betel nut orchards near to the house, operating more as recognized household parcels of land rather than as collective property. Villagers also relied on collecting nearby firewood for making charcoal, harvesting non-timber forest products (NTFPs), and selling their labor for local logging outfits. Fighting and forced displacement caused significant disruptions to these traditional farming and forest uses, however.

Over the past 15 years since the mid-2000s, rural Karen villagers have become much less reliant on natural resources and customary collective land management for sustaining their livelihood. Most villagers in our study field sites transitioned to cash cropping based on individual private property concepts since the past decade. Nearing the time of KNU's ceasefire, and which accelerated over the years since, villagers began to plant different crops for the regional market economy, in particular rubber, CP corn, and most recently, cassava. As these cash crop booms arrived to Kawthoolei through exchanges with Mon State (rubber) and Thailand (CP corn and cassava), villagers increasingly transitioned from subsistence to cash cropping. This meant household's replaced their rotational swidden fields with permanent agricultural plots 'fixed' in place. This transition to cash crop booms has been led by villagers themselves as smallholders, with very few larger-scale investments by companies as agribusiness concessions (as more commonly seen in other parts of Myanmar). This rapid transformation to cash cropping can be seen in the image in **Figure 5** below with most of the land cultivated by permanent agriculture and very little shifting cultivation sites.



Figure 5. Land Transition to Cash Cropping Around Maw Poe Klo Village, 2020.

In the mid- to late-2000s along the Thailand border, villagers began to plant CP corn with encouragement by, and investments in inputs from, Thai middlemen from across the border. After KNU's ceasefire and increased political stability in the area, CP corn rapidly expanded along this border, especially as word spread among farmers that you could make quick profits. In addition to smallholders investing in CP corn production, some DKBA/BGF and KNU officers and their families are also investing in CP corn. Even outside investors from across the Thailand border have been finding opportunities to buy land from villagers and armed group officers to invest in corn, despite being illegal according to KNU's Land Policy.

However, by the mid-2010s, the market price of CP corn reportedly started to fall, in addition to decreasing CP corn yields due to high chemical inputs added year after year. Households increasingly ran into problems with debt as a result (see more below), which has been shown in another study to be a major problem among CP

corn farmers in North Shan State. As a result, in the past few years many villages along the Thailand border have since started to transition away from CP corn and towards growing cassava as the next cash crop. Thai middlemen and investors are reportedly also encouraging this new cash crop along the border.

In our field study sites along the Thailand border, CP corn production mostly did not directly lead to deforestation, however. Corn cultivation sites had in most cases already been previously mostly logged by armed group actors. In other cases, farmers planted CP corn in their fallow fields, converting their subsistence ‘taungya’ plots into corn plantations. Smallholder CP corn cultivation in some cases may have directly resulted in deforestation and further forest degradation in forests previously degraded from overuse and selective logging. In only a few documented cases in our village study sites did medium-scale investors (not smallholders) expand corn cultivation into forests, in these cases further up forested mountain slopes. In these cases, corn expansion directly resulted in deforestation, as seen in the image in **Figure 6** below.



Figure 6. Land Transition to Corn Cash Cropping Around Ka Law Gaw Village, 2019.

As the price of harvested CP corn declined the past few years, yet with still high input costs, poorer households growing CP corn started to have financial problems. Some of the more marginalized households experienced debt from growing CP corn, according to interviews in study sites. They had to rely on many different coping mechanisms, one of which included selling their land to pay off their debts – a coping mechanism also seen in North Shan State in another study. More wealthy local villagers and outside investors eagerly bought up the indebted households' lands as a business opportunity. In other cases, indebted households sold their land to their moneylenders, who then rented the land back to the poor households to continue to grow corn in the hopes of the indebted households paying off their loans. However, this practice of buying, renting and selling of land is illegal according to KNU's Land Policy. After households lost their land due to paying off debts from CP corn cultivation, some family members would clear new farm lands to start over again, sometimes contributing to deforestation. In other cases, family members became on-farm wage laborers for wealthier households in the village or in a nearby village, or even migrated to Thailand to work on plantations. In other cases, some of the younger men joined armed groups as newly recruited soldiers.

After a decade or more of CP corn cultivation in these villages, land distribution and access among households in the village has grown increasingly unequal. Landlessness among poorer households who have less means available to them has become a growing problem, according to villagers. In the villages we studied, a few households in each village had accumulated more and more land over the years, which they had done from buying land from indebted corn-growing households in the village. Land inequity is expected to increasingly become a problem, which will have severe social, economic and political consequences in the village and in Kawthoolei more widely.

Even before KNU's ceasefire, Karen villagers in Doo The Htoo (Thaton) District started to establish small rubber plantations. They had learned from Mon rubber smallholders living in their vicinity who had grown rubber for two generations and made considerable profits. At the height of the rubber market price in the mid- to late 2000s, some Karen farmers started to invest in their own rubber plantations as well in the hopes of making a good living as their fellow Mon villagers had done. Karen rubber farmers established their rubber plantations in plots previously cleared of forests from commercial logging by armed groups and their own subsistence farming practices. Although rubber plantations are directly linked to deforestation

in other areas, we did not find any evidence of rubber directly causing deforestation in our Karen village study sites. See **Figure 7** of the rubber landscape in Doo The Htoo District.

It does not appear that the KNU ceasefire had much, if any, effect on the rubber industry here. Households transitioned to rubber farms in the 2000s, and there has been almost no expansion of rubber since KNU’s ceasefire, despite greater political stability. This can be explained by the low rubber latex price during this ceasefire period. Some of the households who established rubber plantations received permission to do so – either from the UGoM or from KNU, depending on who had the greater authority in the village. Some, however, received no such permission from any authority figure.

Soon after Karen villagers invested in their household rubber plantations, the rubber market price started to quickly go down in the late 2000s and early 2010s, and is still very low. Farmers are therefore no longer converting land into rubber



Figure 7. Land Transition to Rubber Plantations in Doo The Htoo District, 2020.

plantations. Karen farmers are barely able to make any profit from tapping their young rubber trees as a result, which has caused significant livelihood challenges for them, especially because of their initial big investment. Since the rubber trees are still young, we did not find any evidence of farmers cutting down their rubber trees to sell as rubber wood. Instead, we found that households have sent family members to work in Thailand to send money home to support their family. These remittances financially support rubber households during this challenging time – but which is being disrupted by COVID-19.

The only rubber concession owned by a company that we found in our research is the Shwe Yaung Pya 5,000-acre rubber plantation that the military allocated in the early 2000s to Max Myanmar Company, of which less than 3,500 acres have been planted so far, according to villagers. Villagers have since received some monetary compensation per acre confiscated, although conflict with the community remains (see village case study below).

3. Infrastructure Development

During the period of war before KNU's ceasefire, armed battles, human insecurity and political instability largely impeded significant infrastructure development, both large-scale and at the village level. However, after KNU's ceasefire, the UGoM, international financial institutions, and regional ASEAN governments drew up plans for achieving better infrastructural connectivity in the southeast of Myanmar. Road development on both sides of the Thai border received considerable attention, especially by ADB's Asia Highway that connects Mae Sot, Thailand with Karen State via Myawaddy. As shown elsewhere in the world, new or improved roads are linked to increased pressures on the surrounding agricultural land, forests and natural resources through a variety of underlying drivers, such as arrival of migrants, land speculation, and the expansion of agriculture.

In addition to building roads, villages required some level of rebuilding with the return of some refugees and IDPs and the arrival of migrants in search of work. The rebuilding of houses, for example, increased demand for nearby timber. Greater village populations also increased demand for firewood and charcoal for cooking needs. House building and energy use put new and greater pressures on those remaining forests nearby to village settlements, most of which have already been logged to various degrees during the previous conflict period.

Three different major infrastructure development projects impacted our field study sites, and are briefly reviewed here. The first is in Thay Baw Boe village in Dooplaya District located on the border with Thailand. The dirt road that runs through the village has been recently upgraded to an all-weather concrete transportation route, which heads north towards Myawaddy, where it intersects with the Asia Highway at Thingannyinon that lies just west of Myawaddy. See **Figure 8** for a map of the area. The UGoM, who is responsible for the road upgrade, says it will be good for increased border trade activity through Myawaddy, rather than smuggled illegally across the Moei River to Thailand through these border villages. Villagers believe this will provide them with greater market access opportunities, specifically for agricultural products such as CP corn and cassava that rapidly expanded in this settlement area this past decade.

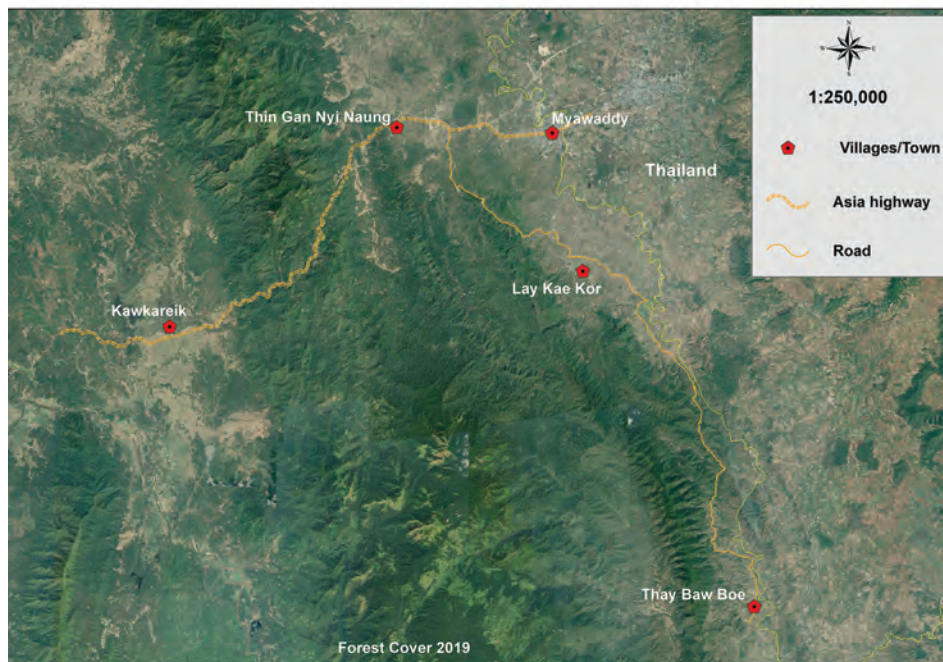


Figure 8. Land Transition and Infrastructure Development near Myawaddy in Dooplaya District, 2019.

The second infrastructure project located in our study sites is the JICA-financed road in Maw Poe Klo village in Kawkareik Township, also in Dooplaya District (see case study further below). Together with assistance from the Na Ta La as part of the Tatmadaw's border development strategy, the plan is to upgrade a road that is currently a dirt track to offer a shortcut through the Dawna mountain range on route to Myawaddy / Mae Sot. See **Figure 9** for a map of the area. The road, once finished, will increase connectivity and reduce travel time to major trade hubs located along the Asia Highway. The road upgrade, much like for the previous example, is expected to be a boom for agricultural production and trade, in this case CP corn and cassava. The village will have much easier access to the main trading town once the road will be finished, providing an increased incentive for expanding cash cropping. The road already has proven to add significant new logging pressures in the area, as it passes through mountain forests that had been initially spared from logging in the 1990s and 2000s. The road corridor in the vicinity of the village when it was still the original dirt

road got logged in 2018, after which villagers planted fruit trees and teak in its place. But when JICA started to upgrade the road, construction crews cleared all these planted trees, which made villagers, according to interviews, feel very discouraged.

The third infrastructure development project located in our study sites is the “Shwe Koko” project (also known as “new city” or “Chinatown”) being built twenty miles north of Myawaddy. Although our study sites did not include the location of Shwe Koko, our study sites north along the Thai border had all been impacted by it. The amount of wood needed to build such a massive infrastructure project is substantial. Timber is being sourced up and down these new infrastructure corridors being upgraded, as reviewed above. In addition, those interviewed report that wood furniture factories in Shwe Koko have been built to supply the vast amount of furniture needed for the casinos and other establishments located in Shwe Koko, which is putting further pressures on remaining timber. Many respondents in our study sites further north believe that the logging being done along the road upgrades is to supply the wood demand for Shwe Koko.

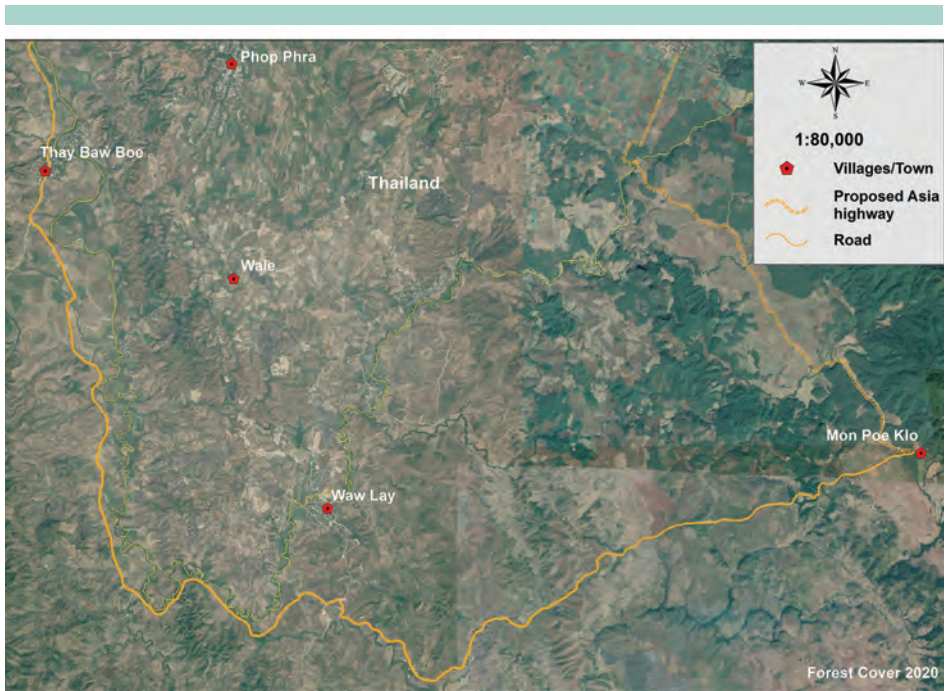


Figure 9. Land Transition and Infrastructure Development in Kawkaireik Township, Dooplaya District, 2020.

4. Change in Tenure Systems and Land Speculation

Villagers within a settlement area traditionally considered the surrounding landscape to be collective property, and fellow villagers would uphold customary land rights. Neighboring villages would also respect their respective collective land rights. Households grew a mixture of crops for subsistence use within small plots near to their houses (“homegardens”), and engaged in shifting cultivation further away in the hills to meet most of their subsistence needs. This had been the only tenure system and land use practices in place up until the 2000s in our study sites. Since then, Karen villagers have undergone a dramatic transformation in their relationship to land, property and livelihoods.

Beginning in the early to mid-2000s, which then accelerated after KNU’s ceasefire, farmers rather quickly transitioned from traditional farming practices and collective customary property rights to commercial farming under notions of privatized property. Since the late 1990s and early 2000s, Thai investors have been looking to expand industrial crops across the border in Myanmar. The first such crop has been CP corn (see previous section). Dreams of development and modernization that Karen farmers see on television and hear on the radio and from other farmers encouraged them to try to “get rich quick” through growing these cash crops. Farmers thus started to take out loans from middlemen, some from across the border in Thailand, and turn their subsistence fields into CP corn plantations. Since the corn fields belonged to individual households and would be planted in CP corn year after year without “shifting” – as had their taungya fields previously done – property became to be seen as ‘belonging’ to these individual households. Those households who did not transition to the cash crop economy may have thus lost their ability to declare a plot of farming land as individually “belonging” to them.

With the expansion of cash crops and the corresponding transition to ideas of private individual property, outsiders became more interested in finding business opportunities in these village areas, especially in agricultural investment. This is because with the idea of private property came the possibility of buying and selling of land, a concept which could not exist when land was considered collective among the villagers. Those households and outsiders with the financial means looked for opportunities to buy land to invest in expanding cash crops in order to make more money. They bought land from those poor households who had gone into debt by

turning their farm fields into CP corn plantations, a situation that has become more common in the past few years.

In the worst reported cases, some entrepreneurs would clear forest land, usually with illegal permission from local UGoM or EAO representatives, and then illegally sell the land parcel to outsiders looking to plant cash crops as an investment opportunity. These transactions directly resulted in deforestation, illegal actions in the selling of land, expansion of cash crops, and encouraged migration to previously low population areas. Land is most commonly bought and sold and land speculation most widespread along transportation corridors (especially for roads being upgraded, see previous section) and in villages on the Thai border.

An important aspect of KNU's increased capacity to govern is issuing land ownership titles to those households with agricultural plots outside KNU-designated protected areas, which villagers felt offered them much better tenure security. According to KNU's Land Policy, however, it is not possible to have official land ownership rights for smallholder agriculture if it is located in a KNU protected area. These protected areas are instead under the sole authority of the KFD. Some of those cultivating crops inside protected forest areas – which is the majority of households – have been able to receive an informal land use certificate from KFD which confers some level of tenure security. Farmers feel these certificates only offer them marginally improved tenure security rights, however, and would prefer full ownership recognition like available to those cultivating outside protected areas.

If in mixed administration territory, households have also applied for a land use permit (Form 7) from the UGoM for added tenure security. Those villages that wanted to protect remaining village forests sometimes applied for a community forestry permit from the KFD – but no one reported doing this through UGoM channels. The issuance of agricultural land titles and community forests is part of KNU's drive for improved land and forest management planning and regulation.

For those households and outside investors who are able to buy additional land, they have access to authorities and the cash on hand needed to obtain these land use certificates or ownership titles. Obtaining these documents affords them greater land tenure security compared to the majority of others who cannot get these documents, further marginalizing poor households and giving greater protection to the wealthy and better connected. In some cases, villagers sold their land even though the KNU Kawthoolei Agriculture Department (KAD) prohibited it because

of the high land prices offered by outside investors. Conflicts are already starting to emerge between those who have, and those who do not have, land tenure documents. In several reported cases, outside investors who buy agricultural plots and obtain a land ownership title have encroached into adjacent land plots cultivated by poorer households who have no formal land tenure documents.

The transition to notions of private property and the expansion of cash crops that require high inputs is quickly worsening problems with landlessness and household debt. Growing land inequality within villages, and landless farm workers looking for work opportunities, presents a worrisome situation in these rural environments with few limited livelihood opportunities and a dwindling resource base to help subsidize the rural poor's subsistence. So far the solution to these growing number of indebted and land-poor households is to send their children to Thailand for on- and off-farm work, but this is not a sustainable solution and has its own problems both for these households and for Thailand.

Select Village Case Studies

1. Maw Poe Klo village, Kawkareik Township, Dooplaya District

Maw Poe Klo village in Kawkareik Township, Dooplaya District is surrounded on three sides by the Thailand border, as can be seen in Figure 9 above. The village is populated by only Karen people, both Christian and Buddhist. Up until the 1990s, only a handful of households lived and farmed here. By the 2000s, the village quickly grew to approximately 70 households, double the number the decade before. Currently there are over 100 households, approximately 30 of which are headed by women.

KNU mostly has authority in this village and the surrounding area, with some limited power shared with DKBA. The Myanmar government has no authority here, although they have been involved in infrastructure upgrades in this area (see below). Only the KNU provides administrative services and governance provision, but both the KNU and DKBA collect taxes.

The surrounding area is part of KNU's Wor Lay Reserve Forest, which encompasses the western side of the village as it flows into the valley. Despite being a RF, there is almost no tree cover found here anymore due to forests mostly logged by armed groups during previous years. Since the 2000s the landscape is mostly covered by CP corn cultivation. Despite this, authorities still recognize this area as a RF, and thus is under KFD management. Just east of the village is a customary community forest known in Karen as Ka Nae Lay, and which still has existing forest that villagers are very proud of for their decades of protection against encroachment and logging. However, new pressures on land and forests are growing from the JICA-sponsored road upgrade that passes through this village (see section on "Infrastructure Development").

In the late 1990s, the DKBA clear-cut a lot of the forest in this area, much like done around other village settlements along this border at that time. Some selective logging of high quality teak and other hardwoods had also been done by KNU leaders over the years too, although reportedly not like the clearcutting done by the DKBA. It is in these cleared forests in the wake of DKBA logging that villagers began planting cash crops, first with CP corn. Since 2015, however, some villagers and outside investors began to encroach further up into the hills immediately east of the village to plant more CP corn. Corn expansion cleared forest further up the mountain, as shown in **Figures 10 and 11** to depict land-use and land-cover change

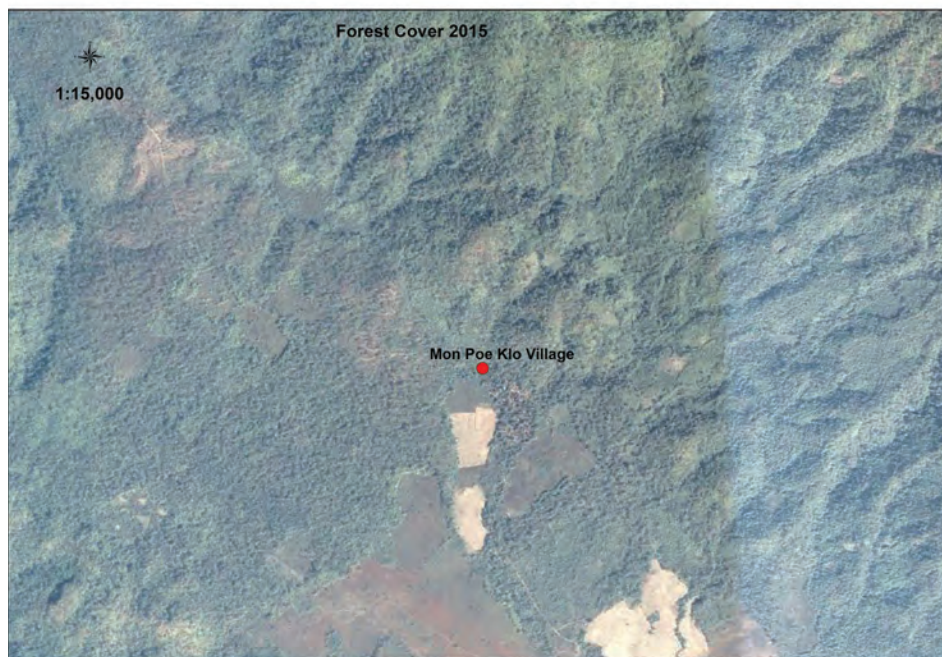


Figure 10. Land Transition to Corn Cash Cropping Around Mon Poe Klo Village, Kawkareik Township, Doooplaya District, 2015.

over time. It is thought that the more recent CP corn expansion up the mountain slope is related to the JICA sponsored road upgrade that started at the same time as the CP corn expansion.

Since villagers' agricultural lands are located within a KFD RF, smallholders are not able to obtain land ownership documents from the KNU, although some have received a type of informal land use certificate that KNU sometimes issues if cultivating inside RFs, and which farmers feel confers them some limited tenure security. Villagers must pay various taxes, with or without land use or ownership documents. There is a "land tax", plus a tax paid by villagers for growing corn, which is paid to the DKBA and to the KFD (not the KAD since they are located inside a RF). Taxes on the transport and trade of corn is paid to KAD, however. Before KNLA's ceasefire, the Tatmadaw built a base in the hills that lies to the west of here, with some connecting access roads – although no villagers mentioned being taxed by the Tatmadaw.



Figure 11. Land Transition to Corn Cash Cropping Around Mon Poe Klo Village, Kawkareik Township, Dooplaya District, 2020.

Now there is very little rotational taungya being practiced in the area, as can be seen by the two figures above. The loss of traditional upland farming is due to villagers transitioning to growing CP corn in permanently-fixed “private” household farming plots. About 75% of households in the village are thought to be exclusively growing CP corn at the time of research. This transition to cash cropping and its associated problems with debt is leading to growing land distribution inequity within the village. An estimated 20 households, or 20 percent of the village, is now landless, four times more than the percentage reported for the 1990s, according to villagers.

There is also reportedly no more commercial logging being done in the area, presenting a change from the previous time when logging was rampant. This is in part due to DKBA’s loss of power here, but also because the KNU is more strict now with enforcement. Currently, there is relatively small volumes of firewood removed for household cooking and some sparse smaller-scale illegal logging operations. There is considerable concern, however, that further agricultural expansion from future

cash crop booms could cause more agricultural encroachment up mountain forest slopes, as it had done recently from the CP corn boom. According to interviews, the KFD in this district has plans to further protect the remaining forest within the RF along the mountain slopes from any future logging or agricultural expansion.

2. Sa Ta Raw Village, Doo The Htoo District

Sa Ta Raw village is located in Doo The Htoo District in Mon State, just east of Shwe Yaung Pya Mountain, as shown in **Figure 12** below. In 1983, Tatmadaw soldiers forced Karen villagers living here to be consolidated into what is now the current village center, rather than be spread thinly out around the wider area as before. From 30 households in the 1980s to 140 households and just over 700 people today, villagers in this “counterinsurgency village” also had to set up a village defense army in order to fend off the KNLA from recruiting, taxing or obtaining food from villagers, per

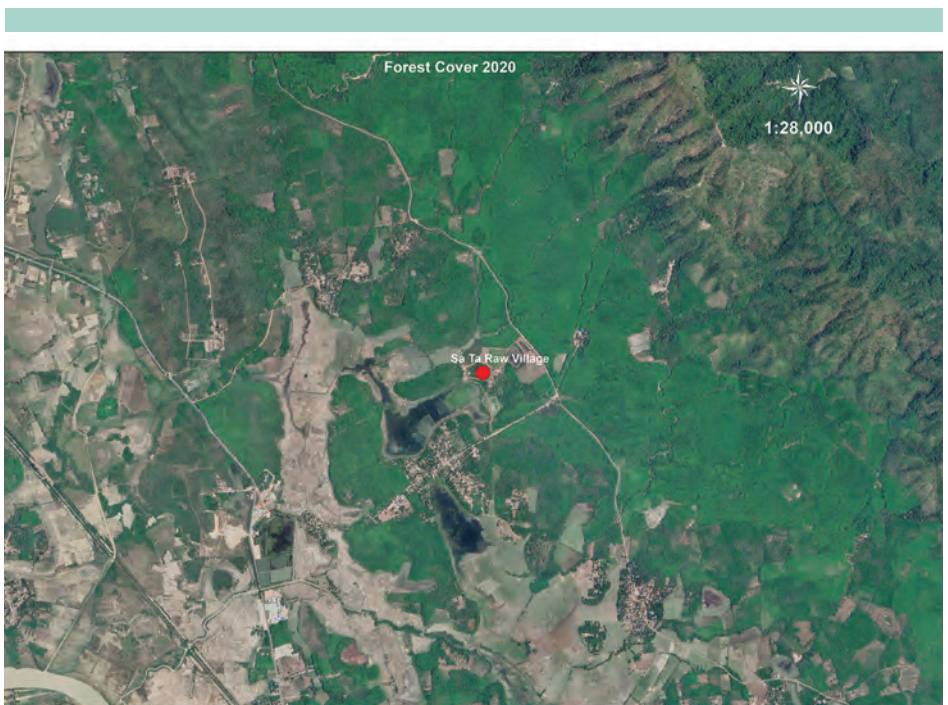


Figure 12. Land Transition Around Sa Ta Raw Village, Doo The Htoo District, 2020.

Tatmadaw's demands. Today the Myanmar government exerts some authority over land governance here (such as offering land use certificates and allocating a private concession), but the village is administered by the KNU.

Before the 1990s, villagers engaged in shifting cultivation and harvested wood for firewood and for making charcoal to meet their subsistence needs. However, in the early 2000s, some of the villagers started to establish private household rubber plantations, following their Mon neighbors in the surrounding area who have a long history of rubber cultivation. Just a year or two later, the military government allocated a 5,000-acre rubber concession to the well-known Max Myanmar company. Allegedly negotiations with KNLA leaders allowed it to proceed. The concession was placed in a mix of good forest and actively cultivated swidden and paddy land. Max Myanmar had auxiliary roads built to access the concession from the village center, with remaining forests cut and timber transported away. Many believe that the military leaders allocated the agribusiness concession here because it remained an active and strategic KNLA outpost in this hilly forested area, surrounded by deforested agricultural lowlands. In this way, the concession furthered the Tatmadaw's counterinsurgency operations here since the 1980s. Although Max Myanmar cleared the remaining forest in their concession (and perhaps also beyond their concession boundary as villagers believe), the planting of rubber trees has been more gradual, with currently less than 70% of the concession planted in rubber, according to villagers.

Those who had their cultivation plots confiscated for the private rubber concession received some financial compensation over time, and although they have accepted the money, they complain that they are unhappy they lost their land. There is therefore still outstanding conflict over the "land grab." Those who lost their land work now as wage laborers, either for Max Myanmar's rubber plantation, for another household's rubber plantation in the village, or they migrated out looking for on- and off-farm wage labor work opportunities. Due to this land grab, as well as problems with debt and lack of remaining forest land to convert to agricultural plots, many households are landless (as high as 45 out of 140 in the village). Landless household members have to therefore rely on daily wage labor work, most of whom work outside the village, and most in the rubber economy. These are poor households, as the average daily wage is around 5,000 MMK.

The village households who have land manage their own rubber plantations with their own household labor, with the largest plots owned by the original village inhabitants who are the most wealthy in the village. Although the rubber price has been very low, the wealthier households also engage in small-time trade, and some own paddy fields, to help supplement their finances. Remittances from household members working in Thailand is common, which offers an important financial contribution to village members. However, reliance on remittances has been impacted by Covid-19.

The high mountain top that is within the concession boundaries no longer has forest cover. Informants reported that some logging had been done by Max Myanmar to plant rubber, although no rubber has yet been planted. Others complained of KNLA leaders logging parts of the mountain top too. The forest frontier here is now closed: first by firewood collection and charcoal making by villagers, and limestone mining and logging by KNLA leaders, and then rubber expansion by smallholders and Max Myanmar. However, villagers and KNU officials in the next township over on the eastern mountain slope opposite this village have so far successfully protected the forest in their vicinity, which is the only remaining good forest cover that is now surrounded in all directions by rubber plantations.

Recommendations

1. The KFD, KAD, and CLC must provide more comprehensive awareness raising to the armed groups and communities and promote more comprehensive and collaborative forest management and governance in Kawthoolei.
2. The KFD and CLC must work with armed groups, local communities, and CSOs to meaningfully address the key drivers of deforestation, especially commercial logging and illegal agricultural expansion into existing forests.
3. The KFD must uphold KNU's Land Policy by recognizing and protecting local Karen smallholders' land tenure rights, including in existing agricultural areas designated as KFD protected forests or wildlife sanctuaries. As such, land use rights should be distributed where and when possible.
4. The KFD must recognize and uphold locally-protected and customarily-managed village forests, such as by providing official community forest titles.
5. The KFD and CLC must work with armed groups, communities, and CSOs to facilitate better and more comprehensive land use planning that protects forests while upholding customary forest rights.

