INTERNATIONAL TROPICAL TIMBER ORGANIZATION

ITTO

PROJECT DOCUMENT

TITLE:	STRENGTHENING SURVEILLANCE AND MONITORING TO TACKLE THE SURGE IN FOREST LOSS AND LAND DEGRADATION, INDUCED BY INTENSIFYING CONFLICT IN THAILAND'S BORDER AREAS
SERIAL NUMBER:	PP-A/60-369
COMMITTEE:	FOREST INDUSTRY
SUBMITTED BY:	GOVERNMENT OF THAILAND
ORIGINAL LANGUAGE:	ENGLISH

SUMMARY

The aftermath of the Myanmar coup has driven its thousands of people into Thai's border areas, particularly in Tak and Mae Hong Son Provinces. This influx has led to escalated and large-scale deforestation, and hence a surge in illicit trade as well as loss of food security and livelihoods in the region for 25 vulnerable communities. The situation is very severe in Mae Hong Son Province where the refugee camps are located. The flighting along the borders is escalating and more intense in late March and April 2023. Furthermore, climate change and the threat of forest fires worsen the situation in the dry season and flash foods, making it even more precarious.

There is therefore an urgent need to counteract the immediate loss of local livelihoods and to halt the surge in illegal wildlife poaching and collection of non-timber forest products (NTFPs) and the results of political conflicts and natural disasters. The specific objective of the proposed project is to tackle continuing deforestation and forest degradation while sustaining livelihoods in the disturbed Thailand-Myanmar border areas. Two outputs are proposed including 1) robust forest monitoring system installation to assist local authorities and communities in monitoring forest loss and degradation through the application of using satellite and drone data, and 2) fulfilled requisite capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development.

Kasetsart University as the Executing agency in collaboration with the Royal Forest Department will work closely with Thai Army, the Department of National Parks, Wildlife and Plant Conservation, and Mae Hong Son Province to implement the planned activities. The project duration is 12 months (Started in 2024)) with the financial support from the Government of Japan (Japan Emergency Budget) of USD 278,078.48 through ITTO.)

EXECUTING AGENCY	Kasetsart University		
DURATION	12 MONTHS		
APPROXIMATE STARTING DATE	APRIL 2024 (PLANNED)		
BUDGET AND PROPOSED SOURCES OF FINANCE	Source	Contribution in US$	
	ITTO	**278,078.48**	(Gov't of Japan)
	Gov't of Thailand	00,000	(In-kind)
	TOTAL	**278,078.48**	

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List of Abbreviations and Acronyms

AP-BON	Asia-Pacific Biodiversity Observation Network
CA	Collaborating Agency
EA	Executing Agency
FAO	Food and Agriculture of United Nations
GISTDA	Geo-Informatics and Space Technology Development Agency
ITTA	International Tropical Timber Agreement
ITTC	International Tropical Timber Council
ITTO	International Tropical Timber Organization
JICA	Japan Internal Cooperation Agency
KU	Kasetsart University
MONRE	Ministry of Natural Resources and Environment
NGO	Non-governmental organizations
PSC	Project Steering Committee
PMT	Project Management Team
RESTEC	Remote Sensing Technology Center of Japan
RFD	Royal Forest Department
SAP	ITTO Strategic Action Plan
SFM	Sustainable Forest Management
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
USD	US Dollar
WCS	Wildlife Conservation Society
YPA	Year plan action

Map of Project Area

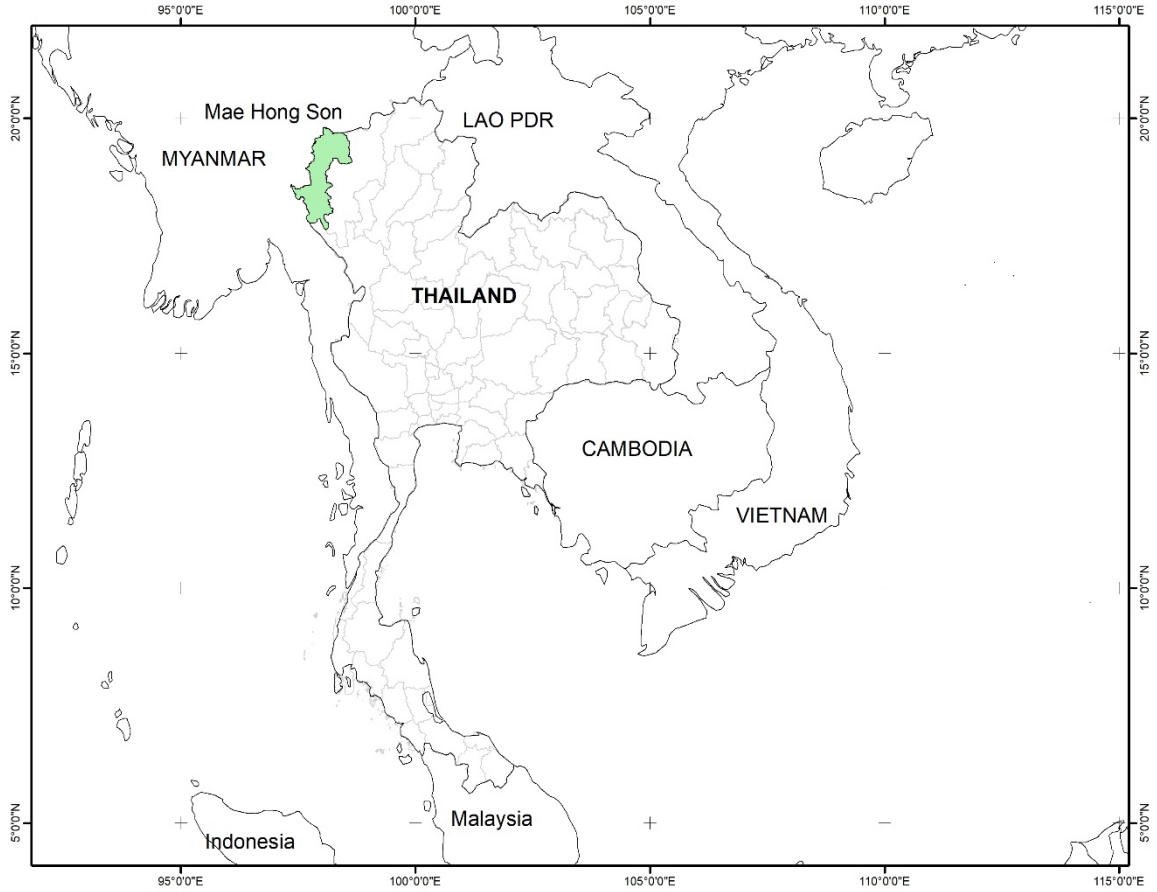

Figure 1 Map of Project Area (Mae Hong Son Province (Green area), Thailand)

PART I: PROJECT RATIONALE

1.1 Background

This project will address an urgent need to implement mitigating measures to the serious disruptions to local forest-based economies caused by intensified armed conflicts in Myanmar and contributing negative effects in Thailand. The specific reason why this proposal requires urgent support is threats emerging from political conflict in Myanmar. Since April 2023 and with the easing of COVID movement restrictions, there has been a remarkable increase in armed conflict and subsequent population displacement within and across borders, between Myanmar and Thailand.

According to the UN, an estimated 1,704,000 internally displaced people (IDPs) were reported across the country as of 6 March 2023. Refugee movements or displacement to neighboring countries are not systematically monitored, but UN estimated that more than 75,000 people already moved since the coup. More displacement is expected due to heavy fighting, shelling and landmine incidents in the northern part of the province and in multiple states and regions in the South-East.

In addition, a recent Cyclone Mocha in May 2023 hit Rakhine State resulting in many dead and displaced people especially the Muslim Rohingya and drought is becoming more frequent and more intense in the dry zone of central Myanmar, leading to a huge influx of refugees and migrants into Thailand, in search for better livelihoods. Needless to say, the current situation of El Niño has accelerated this trend. The rainfall fluctuation and heatwave are significantly affecting food production in the region. If the situation goes unchecked, it could compromise social and economic stability in the region. The changes have already led to many challenges together with the pressing political situation in Myanmar that could lead to security challenges as competition for resources, social unrest escalate and migration. Urgent and effective interventions are required to address the impacts of socio-economic-environmental pressures, induced by conflict and natural disasters and build resilience in the region. The necessitating international cooperation and proactive measures to address this pressing global issue is needed as well as capacitating local actors on tools and knowledge in the development planning.

People displaced due to conflict in Myanmar lack access to food, clean water, health care, education and livelihoods. Based on available information, additional 25,000 displaced Myanmar were sheltered in 4 Temporary Safety Areas (TSA) In Mae Hong Son province as of July 2023. which are placed under the general jurisdiction of the Royal Thai Army. A similar number is estimated in Tak province. Displaced people are not totally sealed in the refugee camps. Often, they look for food, NTFPs, and other biological resources in nearby forest areas and community forests. This situation not only leads to conflicts between local people and refugees and security issues but has a serious threat to biodiversity and over exploitation of biological resources that the communities rely on for their livelihoods.

The Royal Forest Department has established over 11,000 community forests in Thailand, covering approximately 1 million ha (6.2 million rai). Of this figure, 279 and 191 community forests are located in Tak and Mae Hong Son provinces along the Myanmar-Thailand borders that are targeted for this project. Community forests provide food, water, and shelter for the livelihood of rural communities. In addition, they inhabit plants and animals and migratory corridors and refuges in human dominate landscape.

This proposal is consistent with the core objectives of the International Tropical Timber Agreement (2006) and the priorities of the current ITTO Strategic Action Plan (SAP 2022-2026). This proposal has strong national and regional support. It is aligned with key policy priorities and strategic directions for Thailand's sustainable forest management such as the amended Thailand's National Forest Policy B.E. 2562 92019) and the Community Forest Act B.E. 2562 (2019) enabling local residents and communities to benefit from the national reserved forests (outside protected and conserved areas) and their products and/or services as well as recognizing local communities' rights to manage the forests.

The project will also contribute to key global objectives related to forests enshrined in the UN Sustainable Development Goals (SDGs), especially SDG 1 (No Poverty), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on land), and the Global Forest Goals (GFGs) and other forest related global agenda. Furthermore, the proposed project is also consistent with some of the six global goals of the UNSPF 2017-2030, namely: Global Forest Goal 1- Reverse the loss of forest cover worldwide through SFM, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change; Global Forest Goal 2 - Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people; and Global Forest Goal 3 - Increase significantly the area of protected forests worldwide and other areas of sustainably managed forests, as well as the proportion of forest products from sustainably managed forests.

At the international arena, the project will provide information and experiences on relevant tangible case studies discussed at international fora to justify the release and expand of similar emergency funding from donors and rapid implementation of interventions.

1.2 Relevance

This proposed project is relevant to the forestry and wood industry development policies of Thailand. Following are the key policies that are in favor of project implementation as follows:

1.2.1 Conformity with ITTO objectives (ITTC, 2006) and priorities *(current SAP*)

Under ITTA 2006, ITTO has two closely related and overarching objectives:

- To promote the expansion and diversification of international trade in tropical timber from sustainability managed and legally harvested forests.
- To promote sustainable management of tropical timber-producing forests.

SAP 2022-2026 aims to:

- Highlight the ITTO's contribution to, among others, the SDGs; Recognize that COVID recovery may preoccupy the tropical forest sector for the SAP's duration;
- Serve as a transitional guideline document between 2022 and the launch of a process to renegotiate ITTO 2006; and
- Coincide with the extension of ITTA, 2006 to 2026.

SAP 2022 – 2026 adopted at the ITTC-57 provides a new mission statement: 'To facilitate discussion, consultation, international cooperation and policy expansion and diversification of international trade in tropical timber from sustainably and legally harvested forests and on the sustainable management of tropical forests.' In addition, SAP 2022-202 identifies strategic priorities and cross-cutting issues follows:

Strategic priories:

- ✓ Strategic Priority 1. Promote good governance and policy frameworks to enhance financing and investment in sustainable tropical forest management, legal and sustainable forest product supply chains and related trade.
- ✓ Strategic Priority 2. Increase the contribution of the tropical forest sector to national and local economies and resilient livelihoods, including through further processing and trade in tropical timber and other forest products and services.;
- ✓ Strategic Priority 3. Reduce tropical deforestation and forest degradation, enhance forest landscape restoration and the resilience of forest ecosystems to climate change, and conserve forest biodiversity and ecosystem services.; and
- ✓ Strategic Priority 4. Improve the quality, availability and timeliness of information on tropical forest product markets, supply chains and international trade, including challenges and opportunities related to market access, expansion and diversification.

1.2.2 Support to the achievement of the Sustainable Development Goals (SDGs) and United Nations Strategic Plan for Forest 2017-2030 (UNSPF)

The Project contributes to the achievement of SDGs, especially SDG 1 (No Poverty), SDG 12 Sustainable consumption and production), SDG 13 (Climate Action), and SDG 15 (Life on land). More specifically, the Project aims to contribute to increasing the economic and social contributions of smallholder teak and other valuable species plantations in the tropics to facilitate the achievement of the Sustainable Development Goals (SDGs) for a sustainable future. The proposed project further supports the pursuance of the countries' strategic objectives and policies on the conservation and sustainable development of forest resources as well widening access to financial institution to support sustainable supply chains of valuable tropical timber and timber products.

Furthermore, the proposed Project is also in consistent with some of the six global goals of the UNSPF 2017-2030, namely:

- Global Forest Goal 1- Reverse the loss of forest cover worldwide through SFM, including protection, restoration, afforestation and reforestation, and increase efforts to prevent forest degradation and contribute to the global effort of addressing climate change.
- Global Forest Goal 2 - Enhance forest-based economic, social and environmental benefits, including by improving the livelihoods of forest dependent people.
- Global Forest Goal 5 - Promote governance frameworks to implement SFM, including through the UN Forest Instrument, and enhance the contribution of forests to the 2030 Agenda.

1.2.3 Relevance to the submitting country's policies

- **The National Strategy (2018-2037)** is the country's first national long-term strategy. The Strategy for Eco-Friendly Development and Growth is one out of six key strategies aim to achieve sustainable development in terms of manifesting a healthy society, economy, and environment; implementing good governance, and integrated partnerships at both national and international levels. Key development guidelines related to the project proposal are to promote green growth and sustainable development by (1) increasing bio-based economy value; (2) conserving and rehabilitating biological diversity; (3) maintaining and expanding eco-friendly green areas (55% of the country land area); and (5) promoting sustainable consumption and production.
- **The National Forest Policy** adopted by the cabinet in 2019 aims to maintain 40% forest cover in which 25% for conservation forests and 15% for the production forests. The policies related to production forests and wood industries include: 1) promote afforestation in private land and the public land permitted for utilization; 2) promote and assist value chain process from wood industries and biodiversity-based economy development; 3) develop licensing

and national and international certification of timber, including for small -and medium-sized enterprises.

- **The Forestry Development Strategy** 2017 – 2036 (B.E. 2560-2579) aims to increase forest cover outside protected areas by 3.52 million ha in order to achieve the 15% for production forest target. Of this number, 1.4 million ha is targeted by 2036.

1.3 Target area

The proposed target area is Mae Hong Son Province in northern Thailand. The project will implement at two levels as follows:

- *Provincial level*: Robust Forest monitoring system to monitor forest loss and and degradation and to detect encroachment through the application of using remotely sensed data cover the entire Mae Hong Son Province, and
- *Pilot site*: Install monitoring standards of practice in management monitor the illegal logging, non-timber products collection in risk areas near the refugee camps in Mae Hong Son Province. The Network-Centric Anti-Poaching System (NCAPS) with the SMART (Spatial Monitoring and Report Tool) PATROL and the innovative information technologies based on camera traps using the mobile telecommunications network, to alert local authorities, community groups and youth in community forest protection as soon as the camera activated. In addition, capacity enhancement of local authorities and community groups for forest protection and sustainable livelihood development are included in these pilot sites.

Mae Hong Son

Geography

Mae Hong Son province covers approximately 12,681 km2, and it is about 924 km north of Bangkok by road. To the north and west it connects three states in Myanmar, namely the southern portion of Shan State, Kayah State, and Kawthoolei State, via the Tenasserim Range, and the Salween and Moei Rivers. These formations serve as natural boundaries between Thailand and Myanmar. Within Thailand territory, it borders Tak province, via the rivers Yuam and Ngao, in the south. To the east it borders several districts of Chiang Mai province, via the Thanon Thongchai mountain ranges. Every district in Mae Hong Son province shares a common border with Myanmar with the total length of 483 km, which consists of approximately 326 km of land boundary (mountain) and 157 km of river boundary.

Most of the areas of Mae Hong Son province are the complex mountain ranges. The Daen Lao Range, in the northernmost portion of the province, marks the northern boundary between Thailand and Myanmar, while the Tenasserim or Dawna Range in the west serves as the national boundary. The Thanon Thongchai Range in the east of the province serves as the boundary between Mae Hong Son and Chiang Mai. The highest point of the province is Doi Mae Ya, in the Pai District in the province's northeast, at 2,005 m above mean sea level.

Climate

Mae Hong Son province has three broad seasons. Rainy monsoon season runs from May through October, with heavy rain and somewhat cooler temperatures during the day, although nights remain warm. Hot season starts from late May until October, while dry and cold season covers from November to January. Its maximum temperature is 44.6 °C (112.3 °F) in April and the lowest temperature is 3.9 °C (39.0 °F) in December. The average relative humidity is 96.99% in September and the minimum relative humidity is 20% in April. Mae Hong Son province is classified as rain shadow of Tenasserim Range with average annual rainfall of 1,064.9 mm, and the number of rainy days was 130 days for a year.

Forest cover and protected areas

Most parts of which are still covered with pristine. In 2000, Mae Hong Son had 90% (11,433 km2) of the provincial area under forest cover and was ranked as the highest forest cover in Thailand. Dominant forest types include mixed deciduous forest (8,308 km2), dry evergreen forest and hill evergreen forest (2,560 km2), the remaining forest types include dry dipterocarp forest (505 km2), pine (15.5), others (44 km2). In 2022, Mae Hong Son had 10,761.70 km2 (84%), which means it lost 67,130 ha in the last two decades or decreased by 5.87% in this time period.

The Department of National Parks, Wildlife and Plant Conservation (previously the Royal Forest Department) has established four national parks and two national parks (preparation), with total area of 3,419 km2 (27% of the provincial area), namely Huai Nam Dang National Park , Salawin National Park, Tham Pla-Namtok Phu Suea National park, Namtok Mae Surin National Park , Mae Ngao National park (preparation), and Mae Sariang Mational Park (preparation). Besides, there are six sanctuaries, with a total area of 3,684 km2 (29% of the provincial area), namely Lum Nam Pai Wildlife Sanctuary, Salawin Wildlife Sanctuary, Mae Lao-Mae Sae Wildlife Sanctuary, Doi Wiang La Wildlife Sanctuary, Mae Yuam Fang Khwa Wildlife Sanctuary, and San Pan Daen Wildlife Sanctuary. These two categories, covering 56%, are recognized as effective protected areas. The RFD has officially established 196 community forests, covering 70,129 ha or 5.5% of the country areas.

Socio-economic

More than 80% of population are involved in agriculture. Dominant crops include upland rice, garlic, soy, maize, cabbage, and chillies. Besides obtaining income from the agricultural products, the local community earns additional revenues from selling handicraft products and eco-tourism services and attraction of hill tribes: at least seven tribes that includes the Shan (Thai Yai), Karen, Lahu, Lisu, Hmong, Lua, and Chinese Yunnan (Haw) whom all specialize in handicraft trade that is quite rare and interesting for travellers.

However, about 39.21% of the population are living under the condition of poverty line which is considered as the lowest compared with the rest of the northern region and the country due to restrictions on arable land and lack of adequate education in the highland. Besides, Mae Hong Son is also classified as low quality of life, in comparison to other provinces in the northern region, is due to an inaccessible state service and lack of public infrastructures as most of the population are hill tribes that reside in areas that are situated in the highland valley. Other social and economic issues include poor public transportation, and road system is vulnerable to landslides or road collapse during the monsoon which compromises safety and convenience for road users to go about their business. In addition, Mae Hong Son also faces insecurity and the illegal immigration of people sneaking from the Myanmar side of the border (in the length of 483 km).

Pilot sites

The project aims to select five pilot sites, comprising 4 community forests and 1 remnant forest (control site) to install NCAP facilities and enhance capacity of local authorities, community groups and youth in community forest protection and sustainable livelihood development, including those in Myanmar.

These five sites are located in 4 sub-districts of Mae Hong Son Province, which connect the Myanmar border and three refugee camps in Mae Hong Son Province. These sub-districts include Khun Yuam in Khun Yuam District, Mae Yuam in Mae Sariang District, and Mae Sam Lap and Sop Moei in Sop Moei District. There are all together 47 villages with over 42,000 individuals. In addition, three refugee camps (Mae La Ma Luang, Mae La On, and Mae Surin) established in Mae Hong Son are located within or nearby these four sub-districts. It should be noted that there is no community forest in Khun Yuam sub-district where Mae Surin camp is located. Meanwhile, there are 7, 3 and 16 community forests are situated in Mae Yuam, Mae Sam lap and Mae Moei sub-districts, respectively.

Table 1 Community forests near refugee camps

Name	Village	Sub-district	District	Ha	Date of establishment	Name of reserve forest
Mae Tha Lu Comm. Forest	Mae Tha Lu	Sop Moei	Sop Moei	979	26 Jun 2017	East Mae Yuam
Lo Ko Comm. Forest	Lo Ko	Sop Moei	Sop Moei	271	27 Feb 2018	East Mae Yuam
Mae Sam Lap Comm. Forest	Mae Sam Lap	Mae Sam Lap	Sop Moei	47	3 Jul 2019	Salawin
Thung Paem Comm. Forest	Thung Paem	Mae Yuam	Mae Sariang	416	13 Sep 2017	East Mae Yuam
TBD	Khun Yuam	Khun Yuam	Khun Yuam	TBD		

Table 2 Information of four sub-districts in Mae Hong Son Province

Sub-district	District	Population	HH	Village	Community forest 1/	Refugee camp 2/
Khun Yuam (6+8)	Khun Yuam	12,207	5,300	14	None – control site	Mae Surin
Mae Yuam	Mae Sariang	10,272	4,127	13	7 community forests (2,216 ha) – select 1 site (Ban Thung Paem)	Near Mae Ra Oon, Mae Ra La Luang
Mae Sam Lap	Sop Moei	13,870	3,772	10	3 community forests (11 ha)- select 1 site (Ban Mae Sam Lap)	
Sop Moei	Sop Moei	6,004	2,251	13	16 community forests (6,400 ha) – select 2 sites (Ban Mae Talu and Ban Lo Ko)	Mae Ra Oon, Mae Ra La Luang
Total		42,353	15,450	47	26	

Source: 1/ Final decision will be finalized during consultation workshop; 2 /The Border Consortium (https://www.theborderconsortium.org/where-we-work/camps-in-thailand/)

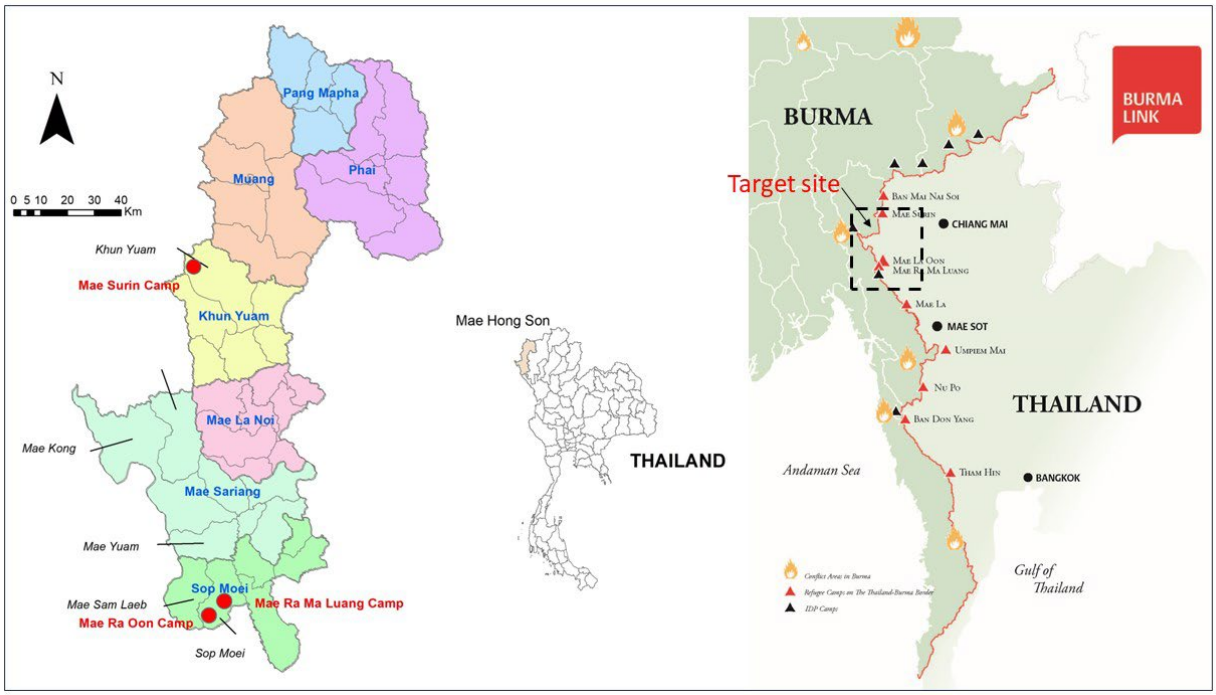

Figure 2 Location of pilot sites

Brief description of refugee camps

Mae Surin Camp, established in 1992, is located at Khun Yuam Sub-district, Khun Yuam District, Mae Hong Son Province. The camp is about 3 km from the border and 8 km down the Mae Surin River.

Mae Surin camps accommodate about 2,300 persons, some 88% of whom are ethnic Karen/Kayin and around 11% are ethnic Karenni/Kayah. The camp is in a remote location that is difficult to access and it maintains strong characteristics of the villages across the border where residents formerly lived.

Refugees were first located at this location along the Mae Surin River in November 1991. The site has been the centre of many smaller refugee camp consolidations since.

In January 1993, most residents of the former Karenni/Kayah Camp 4 moved to Ban Mae Surin. In the following year, some 300 people from another camp located further downstream also moved here. A further almost 500 people moved here in 1998, when many of the smaller camps along the Salween River were consolidated (most people went to what is now Mae La Oon camp).

In March 2013, Mae Surin camp suffered the worst-ever fire in the history of the refugee camps. Tragically, 37 people lost their lives and 200 families were made homeless. The camp has since rebuilt and the community has made outstanding efforts towards recovery. A few years ago, former camp leader Shally Than recalled the huge recovery effort after the very sad occasion for everyone in the camp.

Mae La On camp, established in 2004, is located at Sob Moei District, Mae Hong Son Province. is built on a hilly area, which is 2 km in a straight line to the Myanmar border and 3 km down the Yuam River The population of more than 9,000 people is 99 percent ethnic Karen/Kayin. The camp is a result of a consolidations of smaller camps in the Mae Sariang/Salween River area over a number of years, including former sites such as Mae Yeh Hta and Mae Khong Kha.

More than 80% of camp residents come from Karen/Kayin State, while another 15% are from the Bago Region in Burma/Myanmar. In September 2002, the camp experienced a devastating flash flood. Tragically, 26 refugees lost their lives in the flooding. There was major damage to camp infrastructure. More than 250 houses were destroyed and another 230 were severely damaged. Two high schools, eight primary schools, one nursery, four camp administration offices, five NGO offices, four reception centres and two OPD clinics were also lost.

As of September 2018, a total of 12,282 people have departed from Mae La On. The majority resettled in the USA and Australia

Mae Ra Ma Luang established in 1995, is also known as Mae Ra Moe or Mae Ra Mu in the Karen/Kayin language. It is located at Sob Moei District, Mae Hong Son Province. Distance from Border is 4 km in a straight line, 6 km down the Yuam River.

The initial population of the camp in 1995 was about 4,500 people. Three years later, during the period of the consolidation of camps along the Salween River to the north, there was a further influx of 2-3,000 refugees. As of today, the camp population of some 9,100 people is 99% ethnic Karen/Kayin. Almost half the residents come from Karen/Kayin State, while more than 40% come from the Bago Region in Myanmar. Some 8% come from Mon State. To accommodate more population, the camp was extended southwards to the point where two rivers meet—the Mae Ra Ma Luang River and the larger Yuam River. The new part of the camp reaches the provincial boundary between Mae Hong Son and Tak provinces.

Similar to Mae La On, the camp is off the mains electricity grid. The camp office and health, education and social centres in the camp have access to power from electric generators.

Ban Mai Nai Soi Camp is located in Muang District, Mae Hong Son Province. It is the result of the consolidation of Ban Tractor and Ban Kwai temporary shelters in 1996. This refugee camp is excluded from this project.

1.4 Expected outcomes at project completion

Implementing the proposed activities at provincial and site levels (5 pilot sites in 4 community forests) will produce outputs relating to robust forest and land-monitoring system and capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development. In addition, the practices and institutional set-up will be developed and strengthened as follows:

- At the end of the project (1 year after the project execution), The Government policy or other type of legal/bending document) will provide direction to replicate the practice in the remaining refugee camps. The approved policies will ease and fasten the processes to protect forest degradation and encroachment.
- The capacity of local authorities, community groups and youth in community forest protection will be improved by means of the Network-Centric Anti-Poaching System (NCAPS) with the SMART (Spatial Monitoring and Report Tool) PATROL and the innovative information technologies based on camera traps using the mobile telecommunications network.
- At least, 25 members from 5 community forests and 15 government officials attended intensive training and workshops on forest and land monitoring, NCAPs with SMART PATROL; at least, 50 participants from the remaining community forest and 50 government officials attended communication campaigns on using satellite image and NCAPs with SMART PATROL for enhancing forest protection in their community.
- At least, 25 members from 5 community forests and 25 representatives of Myanmar refugees from different ethnic groups attended livelihood improvement such as bamboo plantation and handicraft products to earn income.

- Raised awareness of the public in community forest protection and sustainable livelihood development to maintain forest ecosystem services. A series of VDO clip /TV interviews, publication and communication of project outputs, display of piloted demonstrations etc. are planned to take place.

By achieving the specific objective of the project to tackle the surge in deforestation, forest/land degradation and food security loss in the disturbed Thailand-Myanmar border areas, the expected outcomes of the project will go beyond its overall goal of this project. It will support Thailand's national forest policy, contribute to biodiversity conservation, and contributes to the achievement of SDGs, especially SDG 1 (No Poverty), SDG 12 (Sustainable consumption and production), SDG 13 (Climate Action), and SDG 15 (Life on land), as well as 3 of the six global goals of the UNSPF 2017-2030.

PART II: PROJECT DESCRIPTION

2.1 Institutional set-up and organization

The Executing Agency of the project is Kasetsart University Faculty of Forestry (KUFF). The KUFF is the only academic institution in Thailand offering undergraduate and post-graduate degrees in forestry and natural resources. There are over 1,500 students and over eighty well-educated faculties affiliated with 6 academic departments. KUFF has been collaborating with national and international governmental and non-governmental organizations to provide training, arrange workshops, seminars and conferences to transfer knowledge and exchange innovative ideas on various topics of sustainable forestry management, biodiversity conservation and wood industries. KUFF has experiences in managing ITTO projects, namely: Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region or Teak project Phase I (completed), Promoting Quality Timber Production in Smallholders and Community-based Teak and Other Valuable Species Plantations in the Tropics or Teak Project Phase II (ongoing), and Promotion of sustainable domestic consumption of wood products in Thailand (ongoing).

To execute the proposed project smoothly, KUFF will closely collaborate with the Royal Forest Department (RFD) as policy-making body. The Royal Forest Department (RFD) under the Ministry of Natural Resources and Environment (MONRE) has the responsibility, capacity, manpower and infrastructure to manage production/economic forests. Thus, the RFD places a high strategic emphasis on achieving sustainable forest management, implementing reforestation programs with financially viable tree species to combat deforestation and forest degradation, and supporting the legality of timber harvesting and trade.

Furthermore, at least ten faculty members are very active in conducting research and offer more than fifteen courses for undergraduate and graduate students related to geo-informatics, climate change and landscape management**.** In addition, a lot of short-term training courses have been conducted for Thai and international participants. The Computer Center, photogrammetric Lab and RS/GIS Lab of KUFF are equipped with remote sensing and GIS facilities (hardware and software – ERDAS Imagine, ArcView, ArcGIS, GPS, etc) that are available for classroom teaching and training.

KUFF has worked closely with the Royal Forest Department and Department of National Parks, Wildlife and Plant Conservation for long-term forest monitoring and detection of encroachment. In the last decade, KUFF collaborate with Wildlife Conservation Society-Thailand Program to introduce the SMART (Spatial Monitoring and Report Tool) PATROL to park rangers to monitor illegal logging and poaching. With the success implementation, this practice is incorporated in the regular course to train B.S. and graduate students at KUFF. Currently, KU works with the Arny Research and Development Office on armament (military equipment) licensing. For this project, KU also already notifies the Singhanat Special Task Force of the Department of Infantry 17, which is responsible along the border of Myanmar and Thailand.

Besides, the KUFF as the Executing Agency of the project maintains close collaboration with other potential international collaborating partners are FAO, RECOFTC, JICA and Forestry Institute of Japan. KUFF and the RFD have worked closely with FAO Regional Office for several decades for sustainable forest management. Recently, KU obtained financial support from JICA to implement The Advancing Co-design of Integrated Strategies with Adaptation to Climate Change in Thailand (ADAP-T) during 2018-2021 with the involvement of scientists from University of Tokyo and University of Nagoya. Currently, KU in collaboration with the RFD to execute the project titled Promotion of sustainable domestic consumption of wood products in Thailand ITTO-PD 926/22 Rev.1 (M).

2.2 Partnership and Coordination

While the main beneficiaries of the Project are approximately 42,353 people living in 4 sub-districts of Mae Hong Song Province where the 3 of 4 Temporary Safety Areas (TSA) are located, various stakeholders could also benefit from the project, including urban and local-rural consumers (over 300,00 local people) living in 25 sub-districts, 7 districts of Mae Hong Son and Tak Provinces along the Thailand-Myanmar who have daily livelihoods in the areas; local authorities, community groups and youth in community forest protection and sustainable livelihood development, including those in Myanmar. The RFD and DNP that responsible to manage and protect forest resources along the Myanmar and Thailand. In addition, 191 and 279 community forests are located in Mae Hong Son and Tak provinces would gain knowledge from this project. Related stakeholders and their potential contribution are shown in the Table 3.

Table 3 Stakeholder analysis

Related stakeholder groups	Characteristics	Problems/Needs/Concerns	Potential contribution	Participation in project implementation
PRIMARY STAKEHOLDERS				
Local people	- 42,353 people living in 4 sub-districts of Mae Hong Song Province, where the 3 of 4 Temporary Safety Areas (TSA) are located. - over 300,00 local people) living in 25 sub-districts, 7 districts of Mae Hong Son and Tak Provinces along the Thailand-Myanmar	- Local people have daily livelihoods in the areas. -	- Provide feedbacks on draft policies though interviews/need surveys. - Contribution to better utilization of eco-friendly construction materials planted in the country. - community groups and youth in community can contribute forest protection and sustainable livelihood development.	- Attending trainings and workshops on NCAPs and SMART, as well as ground truthing for image interpretation validation. - -
Myanmar Refugees	- According the Border Consortium, there are more than 30,000 refugee individuals living in the 3 target camps and more people are coming at the current due to intent fighting between the regime government and minority ethnic groups.	Refugees living in the camps require humanitarian assistance such as food, shelters, water and medicines, etc. The recent intense fighting prompts more Myanmar villagers to flee across border to Mae Hing Son and subsequently will create competition and pressure on the necessary survival kits and threats to forest resources, as well as conflicts with local people.	Training on livelihood improvement will help refugees to sell handicraft products to tourists and reduce dependency on forest resources and humanitarian provided by the Thai Government and UNHCR.	- Attending trainings and workshops. - Providing training needs

Related stakeholder groups	Characteristics	Problems/Needs/Concerns	Potential contribution	Participation in project implementation
Community forest	• community forests are located nearby the target 3 campsites that will directedly affected from illegal logging, poaching and encroachment • The reaming 187 and 79 community forests are located in Mae Hong Son and Take provinces.	- Experiences illegal logging, poaching and collection of NTFPs - Require tools to monitor and detect forest degradation and illegal activities in the community to alert prompt protection	Join the planned activities to install equipment and forest protection and sustainable livelihood development.	- Nominate representatives to attending trainings and workshops. - Providing information where are the risk areas to install cameras and other equipment
KUFF	- Public academic institution responsible for education, research and academic services	- Lack of resources to disseminate expertise to multi-stakeholders at national and local scale	- Works as executive agency to implement the project with close collaboration with the RFD	- Work as executing agency
SECONDARY STAKEHOLDERS				
RFD	- Responsible for forest areas outside protected areas -Promote forest plantation, community forest, private sector plantations and wood industry -	- Lack of human resources and tools to support effective forest protection. - Limited access to experience on advanced technology for forest monitoring.	- Assign staff at national and local levels (protection units) to participant in the project - Jointly conduct exhibition and provide experience to the remaining community forests and protection units -	- Closely collaborate and jointly implement project activities with KUFF (PSC and project team members), -
DNP	- Responsible for forest areas inside protected areas - Established four national parks and two national parks (preparation), and four wildlife sanctuaries covering 56% of the provincial areas	- Experience with SMART PATROL for wildlife monitoring, where NCAPs were installed in other protected areas outside Mae Hing Son.	- Share success and failure of SMART PATROL and NCAPs technology and provide suggestions for improvement - Join patrolling team in the overlapped areas along the park boundary -	- Assign staff to join training and consultation meetings -

Related stakeholder groups	Characteristics	Problems/Needs/Concerns	Potential contribution	Participation in project implementation
Thai Army	- Responsible for border security, human tariffing - Establish and manage temporary refugee camps - collaborating with relevant agencies in ensuring security and providing humanitarian assistance to displaced Myanmar civilians based on human rights principles	- Limited responsibility and resources to prevent forest degradation and poaching	- Provide information where are risk areas for implement planned activities - operational guidelines for dealing with the displaced Myanmar civilians in the areas -	- Participate as PSC member
Provincial Natural Resources and Environment Office	• Represent MONRE to enforce various forest laws related to conservation and utilization. • Work closely with local level agencies, wood processing factories, small- and medium forest enterprises • Promote local participation in NRE conservation and restoration	- Lack of staff/experts specialized on advanced technology for forest monitoring -	- Coordinate with relevant agencies at provincial level to conduct livelihood improvement activities - Providing coordination/harmonization amongst projects of the same concern.	- Providing information; - Follow up project progress and disseminate project out puts
NGOs	- Having large spectrum of members - Maintaining good cooperation with local authorities •	- Inadequate capability to connect their members and maintain strong network. - Lacking of resources to hold training on advanced technology for forest monitoring and livelihood improvement	- Bridge links between government and local people. - Develop collaborative links with relevant authorities and related community groups.	- Connecting member community groups with the project. - Participate in training, workshops, technology transfer. -

Related stakeholder groups	Characteristics	Problems/Needs/Concerns	Potential contribution	Participation in project implementation
TERTIARY STAKEHOLDERS				
GISTDA	Geo-Informatics and Space Technology Development Agency (GISTDA) is a public organization which assumes all responsibilities and activities for space technology and geo-informatics applications, in particular to to enhance the utilization in remote sensing and GIS.	- House medium (5-15 m) and high resolution (0.5 – 2.0 m) satellite image but lack of resources to hold training on advanced technology for forest monitoring and livelihood improvement	- Provide satellite image for forest monitoring - Provide expertise and knowledge on image interpretation and forest monitoring	- Sell satellite image to the project (if require)
JICA, Ministry of Foreign Affairs of Japan, Japanese Embassy to Bangkok, Thailand,	Representative of the Government of Japan	- In this project, the Ministry of Foreign Affairs provide financial support of USD 300,000 through Japan Emergency Budget	- oversee project implementation, approve budget planning, monitor and evaluate the project progress	- participate as the PSC member (representative of donor country)
Remote Sensing Technology Center of Japan (RESTEC) and Japanese private companies such as KOKUSAI KOGYO Co., Ltd. (KKC)	RESTEC is a public organization, which has role and responsibility similar to GISTDA.	-	- RESTEC- provide satellite image for forest monitoring and expertise and knowledge on forest monitoring. - KKC provides service on geospatial technology on disaster prevention and disaster risk reduction (forest degradation).	- Sub-contract to implement output 1 (if require)
Asia-Pacific (AP-BON), Ministry of Environment, Japan	APBON (est. 2009) is a network for observations and assessment of biodiversity, and a platform for science-policy engagement to contribute to effective biodiversity conservation, management, and sustainable use of biodiversity at the national, regional and global scales.	- APBON has expertise and network of researchers in which KUFF is a member, but lack of resources to implement collaborative project.	- Provide knowledge and expertise to implement forest monitoring	- Sub-contract to implement output 1 (if require) - Promote regional collaboration and disseminate knowledge after the project termination.

2.3 Logical Framework Matrix

Strategy of intervention	Measurable indicators	Means of verification	Key assumptions
Development objective To contribute to sustainable forest management, biodiversity conservation, and the achievement of SDGs (1, 12, 13 and 15) in Thailand	*By 2030 (3 year after project completion)*: Deforestation rate in Mae Hong Son will be less than 2% during 2020-2030. - The RFD adopt Robust forest monitoring system (satellite tech, SMART patrol, NCAPs) to detect forest degradation and illegal activities.	- Annual statistics report by the RFD - Surveys/interviews of the community forests - RFD notification or policy guidelines	- The Government in particular the RFD and DNP obtain adequate budget.
Specific Objective: To tackle the surge in deforestation, forest/land degradation and food security loss in the disturbed Thailand-Myanmar border areas	By the end of the project - Robust forest degradation and land-monitoring in place and operate	- progress report and final report of the project; - Number of trainees and participants attending project events - SMART facilities (hardware and software)	- RFD and community forests support the installation of advanced technology - Available WIFI and internet signals - Taskforce group established and motivated to work
Output 1 Robust forest monitoring system installation to assist local authorities and communities in monitoring forest loss and degradation through the application of using satellite and drone data	- Forest cover maps in 1990 and present, and changes interpreted from high resolution images covering the entire Mae Hong Son and 20-km along Myanmar borders - Vulnerable deforestation map derived from GIS analysis - SMART Collect, a version of SMART Mobile, for citizen science and community reporting illegal activities (logging, poaching and encroachment) in place and operate in and around the 5 target community forests	-Procurement of satellite images and cameras and other equipment - Agreement or contract between the project and service provider (s) signed	- The Thai Government and RFD adopt forest monitoring system to detect forest degradation and illegal activities.

Strategy of intervention	Measurable indicators	Means of verification	Key assumptions
Output 2 Fulfilled requisite capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development	- At least, 25 community members and RFD officials attended raining and workshops on forest and land monitoring, NCAPs with SMART PATROL; - At least, 50 participants from the remaining community forests and government officials in Mae Hong Son and Tak attended communication campaigns. - At least, 25 members from 5 community forests and 25 representatives of Myanmar refugees from different ethnic groups attended livelihood improvement such as bamboo plantation and handicraft products to earn income	- Training reports - Commination medias (online newsletters, project Facebook, Website)	- Local authorities, community groups and youth are interested to attend the training

2.4 Objectives and Outputs

2.4.1 Development objective and indicators

The development objective of the proposed project is to contribute to sustainable forest management, biodiversity conservation, and the achievement of SDGs (1, 12, 13 and 15).

Indicators

- *By 2030 (3 year after project completion)*, deforestation rate in Mae Hong Son will be less than 2% during 2020-2030.
- The RFD adopt robust forest monitoring system (satellite tech, SMART patrol, NCAPs) to detect forest degradation and illegal activities.

2.4.2. Specific objective and output indicators

The specific objective of the proposed emergency project is to tackle the surge in deforestation, forest/land degradation and food security loss in the disturbed Thailand-Myanmar border areas.

Indicators

- By the end of the project (2025), robust forest degradation and land-monitoring in place and operate

Outputs

Output 1: Robust forest monitoring system installation to assist local authorities and communities in monitoring forest loss and degradation through the application of using satellite and drone data

Indicators

- Forest cover maps in 1990 and present, and changes interpreted from high resolution images covering the entire Mae Hong Son and 20-km along Myanmar borders

- Vulnerable deforestation map derived from GIS analysis

SMART Collect, a version of SMART Mobile, for citizen science and community reporting illegal activities (logging, poaching and encroachment) in place and operate in and around the 5 target community forests

Output 2: Fulfilled requisite capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development.

Indicators

- At least, 25 community members and RFD officials attended raining and workshops on forest and land monitoring, NCAPs with SMART PATROL;
- At least, 50 participants from the remaining community forests and government officials in Mae Hong Son and Tak attended communication campaigns.
- At least, 25 members from 5 community forests and 25 representatives of Myanmar refugees from different ethnic groups attended livelihood improvement such as bamboo plantation and handicraft products to earn income

PART III: PROJECT INTERVENTIONS

3.1 Outputs and Activity

Output 1: Robust forest monitoring system installation to assist local authorities and communities in monitoring forest loss and degradation through the application of using satellite and drone data

Activity 1.1 Prepare hard copy and digital copy of land use/forest cover maps in 1990 and present, and assess changes

1.1.1 Gather appropriate satellite images (cloud free) such as Japanese satellite data ALOS-2 and GOSAT developed by JAXA (Japan Aerospace Exploration Agency) or Thailand's satellite data (THAICHOTE, THEOS-2), covering Mae Hong Son and 20-km buffer in Myanmar in year 1990 and present yeas

1.1.2 Interpret satellite data and ground truthing

1.1.3 Disseminate interpreted from high resolution images covering the entire Mae Hong Son and 20-km along Myanmar borders

Activity 1.2 Prepare the vulnerable deforestation areas map using GIS analysis and monitor the risk areas using drone technology

1.2.1 Use GIS technology and land use change modeling to prepare the vulnerable deforestation areas map

1.2.2 use drone technology to fly and monitor risk areas for deforestation

Activity 1.3 Develop and install SMART PATROL smart technologies for citizen science and community reporting illegal activities (logging, poaching and encroachment) in and around the 5 target community forests

1.3.1 Review past and current SMART PATROL technologies used in Thailand (advantages, limitations, and recommendation for improvement)

1.3.2 Install or develop SMART PATROL to suit specific needs and contexts and connect to personal devices – mobile phone application (e.g., via the App or Play Stores) to assist local authorities, community groups and youth in community forest loss and degradation

Activity 1.4 Install cameras and NCAPS technologies for real time monitoring and reporting illegal activities (logging, poaching and encroachment) in and around the 5 target community forests

1.4.1 Work with forest rangers. Thai army and Head of target community forests to identify suitable sites (3 sites per each target area) to install NCAP cameras

1.4.2 Purchase and install NCAP cameras and regularly check their operation

1.4.3 Set up the NCAP cameras to connect mobile phones of selected stakeholders to alert evidences of illegal activities and maintain its operation

Output 2: Fulfilled requisite capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development.

Activity 2.1 Conduct trainings and workshops on forest and land monitoring, and user-friendly digital forest monitoring platform that integrates cutting-edge technologies to stakeholders (e.g., local authorities, community groups and youth) on the following subjects: 1) drone monitoring, 2) NCAPs and 3) SMART PATROL)

Activity 2.2 Conduct training on sustainable livelihood development activities and income generation to local people and Myanmar refuges on the following subjects: 1) cultivation, harvesting, processing and commercialize bamboo and NTFPs, 2) improvement handicraft products

Activity 2.3 Produce, share and disseminate information, knowledge management, and outreach to other community forests

2.3.1 Organize the Launching Meeting in Bangkok to inform policy makers, authorities and the public about the project objectives. Target audiences include the RFD, representative of Japan Government, ITTO, KU, UNHCR, NGOs, medias

2.3.2 Conduct tailored trainings and workshops and communication on community forest protection and sustainable forest management practices for local authorities and community members in Mae Hong Son and Tak provinces

2.3.3 Support sharing lessons in robust forest monitoring system at the Annual Forestry Conference 2024 (Thailand) and the XVI FAO World Forestry Congress 2025 (South Africa)

2.3.4 Widely publicize the results and lessons learned from the implementation of Activities on the website, ITTO, RFD and Kasetsart University, project social medias and Newsletters

3.2. Implementation Approaches and Methods

To effectively implement advanced-technology oriented surveillance and monitoring to tackle forest loss and land degradation along the intense conflicts in Thailand's Border Areas, the project will deal with the following stakeholder groups:

- Authorities/administrative bodies at national and provincial levels;
- Thai local people living in and around the target areas and Myanmar refugees;
- Technology and satellite data providers (international and local markets);
- Community groups and youth in community forest protection.

While dealing with these groups, race and gender inclusion will be practiced by giving priority to local local authorities, community groups and youth and all genders as the most targeted beneficiaries.

To facilitate stakeholder groups to work toward achieving the project objective, the following approaches/strategies will be applied:

- *Participatory approach with intensive consultations to engage relevant authorities and communities*: In particular, consultations and in-depth interviews, either offline or online, will be held to review the current situation on border security, human tariffing, humanitarian assistant and forest degradation in and around the temporary refugee camps, and the policies currently applied so that the policy/institution, as well as capacity gaps could be properly investigated

and discovered. In this way, the results of reviewing the situations will be used as reference and feedback. Participatory approach is also very important for action on forest protection and sustainable livelihood development. Besides, potential involvement of relating associations and NGOs, including Wildlife Conservation Society-Thailand Program, Sueb Nakhasathien Foundation, Provincial Community Development Office.

Furthermore, the team will actively engage key stakeholders to share research findings on collaborative forest monitoring and smart technology. Launching Meeting in Bangkok and field visit will be organized to inform policy makers, authorities and the public about the project objectives. Target audiences include the RFD, representative of Japan Government, ITTO, KU, UNHCR, provincial stakeholders, NGOs, medias. The objective of this meeting is to communicate project objectives, establish a mutual understanding among stakeholders, and receive inputs for establishing a collaborative forest monitoring system. At the project ending stage, a national dissemination workshop and community-led reflection workshops will be conducted to share relevant findings and set ways forwards for future implementation of collaborative forest monitoring.

- *Integration of ongoing initiatives/processes toward forest protection and sustainable livelihood development in and around the project areas*: The project will review past and present activities and engagement implemented by governments (e.g., RFD, DNP, Thai Army, Mae Hong Son Province), NGOs both in Mae Hong Son and other provinces. The project will engage and proactive to incorporate all practices implemented by local, national and international supported projects/programs. At the same time, the project will be aware the failure from the previous projects.
- *With the capacity building component,* the project will enhance community skills and participation in forest monitoring activities as well as equipping participants with technological knowledge. In addition, it will play the role of a facilitator using local community, and existing platforms and networks of RFD, DNP, Mae Hong Son Province, and UNHRC: In particular, the project will facilitate cross visits of community-based livelihood development in other areas such as the Emerald Triangle Transboundary Biodiversity Conservation Project in Ubon Ratchathani province where local people living in the buffer zone domesticated wild orchids. The activity outcome substantially reduced illegal wild orchid collection in protected areas and generate income to local people. In addition, the participants will take this opportunity to visit the NCAPs installation at Pha Taem National Park and discuss with local authorities and representatives of community forests.

  Maximum use of mass media means and online platforms (website, Facebook, newsletter) to raise awareness on forest protection and livelihood development. Various activities listed in the Activity 2.3 will be conducted to produce, share and disseminate information, knowledge management, and outreach to target audiences at international, national, provincial and local levels are planned. In addition, the results and lessons learned from the implementation of activities will be widely published and shared at national and international formal events such as the Annual Forestry Conference 2024 (Thailand) and the XVI FAO World Forestry Congress 2025 (South Africa).

3.3. Outputs and Work plan

Table 4 Outputs and Work plan

Outputs/Activities	Responsible agencies	2024										2025	
		3	4	5	6	7	8	9	10	11	12	1	2
Output 1: Robust forest monitoring system installation to assist local authorities and communities in monitoring forest loss and degradation through the application of using satellite and drone data													
Activity 1.1: Prepare hard copy and digital copy of land use/forest cover maps in 1990 and present, and assess changes	KU, RFD, sub-contract)			x	x	x	x	x					
Activity 1.2 Prepare the vulnerable deforestation areas map using GIS analysis and monitor the risk areas using drone technology							x	x	x	x	x	x	x
Activity 1.3: Develop and install SMART PATROL smart technologies for citizen science and community reporting illegal activities (logging, poaching and encroachment) in and around the 5 target community forests.	KU, RFD, Consult#1				x	x	x	x	x	x	x	x	x
Activity 1.4: Install cameras and NCAPS technologies for real time monitoring and reporting illegal activities (logging, poaching and encroachment) in and around the 5 target community forests	KU, RFD, Consult#1				x	x	x	x	x	x	x	x	x
Output 2: Fulfilled requisite capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development, including those in Myanmar													
Activity 2.1: Conduct trainings and workshops on forest and land monitoring, and user-friendly digital forest monitoring platform that integrates cutting-edge technologies to stakeholders (e.g., local authorities, community groups and youth) on the following subjects: 1) drone monitoring, 2) NCAPs and 3) SMART PATROL)	KU, RFD, Consult#1					X	x	x					
Activity 2.2: Conduct training on sustainable livelihood development activities and income generation to local people and Myanmar refuges on the following subjects: 1) cultivation, harvesting, processing and commercialize bamboo and NTFPs, 2) improvement handicraft products, 3) conduct study visit to Pha Taem National Park on domesticated wild orchid in the buffer zone to reduce illegal collection in the park	KU, RFD, Consult#2					x			x	x			
Activity 2.3: Produce, share and disseminate information, knowledge management, and outreach to other community forests	KU, RFD, ITTO			x			x			x			x

Outputs/Activities	Responsible agencies	2024										2025	
		3	4	5	6	7	8	9	10	11	12	1	2
Reporting and monitoring													
Submission of inception report (before start of Project)	KU, RFD, ITTO		x										
Submission of Yearly Plan of Operation for the first year (before start of Project)	KU, RFD, ITTO		x										
Submission of progress report (each 6 months) with training, workshop, technical report	KU, RFD, ITTO						x						
Submission of financial report (6the month) and audited financial report (12th month)	KU, RFD, ITTO, auditor						x						
Technical and Steering Committee Meetings (back-to back) and monitoring	KU, RFD, ITTO		x										x
Submission of Project Completion Report (3 months after the project end)	KU, RFD, ITTO												

3.4. Budget

3.4.1. Master Budget

Outputs/ Activities	Description	Budget Component	Quantity	Units	Unit cost in USD	Total cost in USD	ITTO	Thailand
							USD	USD
	Common Expenses of Project							
	Project manager	11.1	12	Month	2500	30000		
	Project Secretary	11.2	12	Month	750	9000		
	Project Finance	11.3	12	Month	650	7800		
	Field Coordinator	11.4	12	Month	600	7200		
	ITTO Project Monitoring & Evaluation	81	1	Times	12,000	12000		
	Annual/Final Audit	62	1	Times	8,000	8000		
	ITTO Programme Support (lump sum)	83	1	Times	23,221.48	23,221.48		
	Computer equipment (KU, protection Unit, Community Forest)	44.1	3	Computer	1,000	3000		
	PSC meeting	62	2	Report	6,000	12000		
	Operation cost	53	12	Months	500	6000		
	Equipment (Printer and camera)	44.3	1	set	1,507	1507		
Output 1	**Robust forest monitoring system installation to assist local authorities and communities in monitoring forest loss and degradation through the earth observation applications and ground monitoring**							
A1.1	Prepare hard copy and digital copy of land use/forest cover maps in 1990 and present, and assess changes							
	Sub-contract for image mapping)	21	1	person	8000	8000		
	DSA National experts/ consultants (5 persons)	31.1	40	person day	100	4,000		
	Local transport costs (2 trip @ car rental @ 4,500THB/day, round-trip are ticket @5,000 THB/person; 5days/trip)	33.1	2	Time	1500	3000		
	Information, media, satellite data, etc	64	1	Unit	3000	3000		

Activity 1.2 Prepare vulnerable deforestation areas map using GIS analysis and monitor the risk areas using drone technology								
	DSA National experts/ consultants (5 persons)	31.1	40	person Day	100	.000		
	Local transport costs	33.1	2	Time	1500	3000		
	GIS Data preparation	51	1	GIS dataset	2000	2000		
	Information, media, publications and other contingencies	64	1	report	1,000	1000		
A1.3	Develop and install SMART PATROL smart technologies for citizen science and community reporting illegal activities (logging, poaching and encroachment) in and around the 5 target community forests							
	Sub-contract (SMART Patrol &NCAPs)	22	1	person	5000	5000		
	Consultations with local authorities, communities and youth groups	61	25	Participation day	1000	1000		
	SMART mobile system	44.2	1	unit	20000	20000		
	Provision of incentive to local communities (5 communities; 5 persons/comm; 200 THB/ind)	31.3	40	Time (week)	300	12000		
	DSA National experts/ consultants (monitoring)	31.1	40	Day	100	4,000		
	Local transport costs (2 trip @ car rental @ 4,500THB/day, round-trip are ticket @5,000 THB/person; 5days/trip)	33.1	5	Time	1500	7500		
	Training (40 person@600THB/ind)	61	1	Workshop	1,500	1,500		
	Materials	51	1	Unit	1000	1000		

A1.4	Install cameras and NCAPS technologies for real time monitoring and reporting illegal activities (logging, poaching and encroachment) in and around the 5 target community forests							
	DSA National experts/ consultants (combined with SMART)	31.1	40	Day	100	4,000		
	Local transport costs (2 trip @ car rental @ 4,500THB/day, round-trip are ticket @5,000 THB/person; 5days/trip)	33.1	5	Time	1500	7500		
	NCAP cameras	44.4	15	unit	920	13800		
	Battery (800 THB/camera/month @ 10 month)	51	15	unit	230	3450		
Output 2	**Fulfilled requisite capacity enhancement of local authorities, community groups and youth in community forest protection and sustainable livelihood development, including those in Myanmar**							
A2.1	Conduct trainings and workshops on forest and land monitoring, and user-friendly digital forest monitoring platform that integrates cutting-edge technologies to stakeholders (e.g., local authorities, community groups and youth) on the following subjects: 1) drone monitoring, 2) NCAPs and 3) SMART PATROL							
	Consultation workshop on deforestation modeling (40 person@600THB/ind)	61	1	Workshop	1,200	1,200		
	Consultation workshop on drone monitoring (40 person@600THB/ind)	61	1	Workshop	1000	1000		
	Consultation workshop on SMART and NCAPs (40 person@600THB/ind)	61	1	Workshop	1000	1000		
	DSA National experts/ consultants (4 staff * 5 days)	33.1	30	Day	100	3,000		
	Local transport costs (4,500 THB*5 days/trip)	33.1	3	Time	1500	4500		
	Materials	51	3	Unit	800	2400		
A2.2	Conduct training on sustainable livelihood development activities and income generation to local people and Myanmar refuges on the following subjects: 1) cultivation, harvesting, processing and commercialize crop and NTFPs, 2) improvement handicraft products, 3) conduct study visit to Pha Taem National Park on domesticated wild orchid in the buffer zone to reduce illegal collection in the park							
	Sub-contract (resources persons <1. 2>, training * R&D)	23	3	person	1.500	4.500		
	Training 1: crop and NTFPs cultivation	61	1	Workshop	3000	3000		
	Training 2: Handicraft products	61	1	Workshop	3000	3000		
	Training 3: Study visit	61	1	Workshop	4000	4000		
	Materials	51	3	Unit	1000	3000		
	Supplies for trainings (1&3) and livelihood development	53	2	lump sum	2,500	5,000		

A 2.3	Produce, share and disseminate information, knowledge management, and outreach to other community forests							
	Materials	51	1	Unit	1000	1,000		
	Exhibition (Annual Forest conference)	54	1	Workshop	1500	1500		
	Reports (technical reports) - forest monitoring, SMART patrol, livelihood improvement, progress report, completion report	64	4	Unit	1000	4,000		
	website and literature	64	1	unit	3,000	3,000		
	International travel costs	32.1	1	Time	4,000	4000		

3.4.2 Consolidated budget

Table 6 Consolidated budget

Category		Description		Total
10.	**Project Personal**			
	11.	11.1	Project Manager	30,000
		11.2	Project Secretary	9,000
		11.3	Project Finance	7,800
		11.4	Field Coordinator	7,200
	19.	**Sub total**		**54,000**
20.	**Sub contracts**			
	21.		Sub-contract for image mapping)	8,000
	22		Sub-contract (SMART Patrol &NCAPs)	5,000
	23		Sub-contract (resource persons)	4,500
	29.	**Sub total**		**17,500**
30.	**Duty travel**			
	31.		Daily subsistence allowance	
		31.1	DSA National experts/ consultants	19,000
		31.3	Provision of incentive to local communities	12,000
	32		International travel	
		32.1	International travel for national expert	4,000
	33		Local transportation	
		33.1	Local transport costs	25,000
	39.	**Sub total**		**60,000**
40.	**Capital items**			
	44.		Computer equipment	
		44.1	Computer	3,000
		44.2	SMART mobile system	20,000
		44.3	Printer and camera	1,507
		44.4	NCAP cameras and accessories	13,800
	49.	**Sub total**		**38,307**
50.	**Consumable items**			
	51.		Materials	13,850
	53.		Utilities (supplies for livelihood development after training) and office supplies	11,000
	54		Exhibition (Annual Forest conference)	1,500
	59.	**Sub total**		**26,350**
60.	**Miscellaneous**			
	61.		Training/workshop/meeting	15,700
	62.		PSC meeting and audit	20,000
	64.		Information, media, publications and other contingencies	11,000
	69.	**Sub total**		**46,700**
70.		**Total Project**		**242,857**
80.	**Project monitoring and administration**			
	81.		ITTO monitoring & evaluation	12,000
	83.		ITTO program support costs (lump sum)	23,221.48
	89.	**Subtotal**		**35,221.48**
100.	**GRAND TOTAL**			**278,078.48**

3.5 Assumptions, risks, sustainability

3.5.1 Assumptions and risks

The success of the Activity depends on the continued commitment and political will of responsible agencies, especially RFD to support national cooperation and promote earth and ground advanced technologies through participatory approach to tackle continuing deforestation and forest degradation with sustaining livelihoods in the disturbed Thailand-Myanmar border areas.

Other assumptions to assure the project success are the commitments and motivations of national and local authorities, community and youth groups, as well as relevant stakeholder groups to participate in the project implementation.

Table 7 Risk/uncertainty and planned mitigating measures

No.	Risk	Probability of occurrence	Mitigating measure
1.	Reluctant of forest communities to adopt advanced surveillance and monitoring to tackle the surge in forest loss and land Degradation, Induced by Intensifying Conflict in Thailand's Border Areas	Medium	Active engagement of RFD and partners at local level. Project design phase has included close consultations with communities and includes elements that are considered realistic within given timescales. The project has engaged closely with government stakeholders during development, and builds upon extensive relationships between local communities and partners and the respective governments.
2	Spread of COVID-19 and other diseases such as malaria, cholera interrupt and delay project activities	Medium	Collaborate with responsible agency (public health and local authority) to monitor the situation; COVID test and health screening for all participants. If detected, immediate treatment and online meeting/training will be used to proceed the planned activities.
3	Lack of sufficient incentives/resources to engage local communities and youth to get involved in ground monitoring and surveillance.	Medium	RFD, the project team, and field coordinator will frequently take questions and communicate consistently with the communities and local authorities about the importance of participatory approach to forest monitoring. In addition, the project will provide facilitation support, food and necessary monitoring gears to local communities and youth groups.
4	Lack of adequate knowledge to use the advanced tools for monitoring	Medium	The project will provide a series of on-hand trainings and knowledge dissemination workshops as appropriate, aiming to raise awareness and attentions of local communities to effectively use the system with the support from the project team and local coordinator.
5.	Lack of strong commitments and political will from responsible agencies (RFD)	Low	The DG of the RFD will be Chair of the PSC; and senior RFD officials are the members. This strategy to ensure that the decisionmakers truly understand and will support the project implementation and sustain all activities after the project termination.

No.	Risk	Probability of occurrence	Mitigating measure
6	Local communities s may be unwilling to change existing livelihoods and cultural practices in relation to occupation.	Medium	Review uptake of awareness raising and capacity building activities and undertake course correction where necessary. The project will be introducing incentives for sustainable livelihoods and forest management practices in the targeted communities. Case studies and study visit to best practices (Ubon Ratchathani Province) will be conducted.
7	Earth monitoring (remotely sensed data and drone) failing to deliver the results and interrupt activity progress crash.	Low	The Project will catalyze/facilitate meetings between wood industry firm and smallholder plantation owners to discuss and initiate cooperation. The source of funding will be explored. KU and the project team will ensure early engagement of experts and partners to seek satellite images from various sources (Japan and Thailand). Drone monitoring will focus in vulnerable areas for deforestation far from the border to avoid security restriction.

3.5.2 Sustainability

The sustainability of this project is much dependent on the acceptance of relevant Government agencies (e.g., RFD) to improve and transform experiences and knowledge to the existing national forest policy and long-term RFD strategy to protect the remaining forest cover and to promote sustainable local development.

With regards to long-term sustainability of knowledge and good practices transfer and uptake, the project will envisage the development and dissemination of learning capacity and materials on robust earth-and ground forest monitoring system and sustainable livelihood development for the use of local communities and the relevant agencies as well as other partner institutions for further dissemination and/or update. All lessons learned from the community level interventions will be used as input to consultative workshops and meetings with project stakeholders and disseminated to other donors and relevant agencies.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. In addition, all lessons learnt and knowledge gained by the project will be embedded into the curriculum for undergraduate, post-graduate studies at the Faculty of Forestry, Kasetsart University. The project will be implemented through a series of interrelated activities described above, which have been designed to ensure sustainable outcomes in various ways, with a high degree of community and local authority participation and ownership to maximize the likelihood of long-term success.

PART IV: IMPLEMENTATION ARRANGEMENTS

4.1. Executing Agency and Organizational Structure

4.1.1 Executing agency and partners

The Executing Agency (EA) of the project is Kasetsart University Faculty of Forestry (KUFF). The KUFF is the only academic institution in Thailand offering undergraduate and graduate degrees in forestry and natural resources. There are over 1,500 students and over eighty well-educated faculties affiliated with 6 academic departments (Annex 1) [1]. KUFF has been collaborating with national and international governmental and non-governmental organizations to provide training, arrange workshops, seminars and conferences to transfer knowledge and exchange innovative ideas on various topics of sustainable forestry management, biodiversity conservation and wood industries. KUFF has experiences working on several ITTO funded projects.

The Collaborating Agency is RFD, DNP, Thai Army and ITTO. RFD is the main responsible for the production forest in Thailand. The RFD aims to promote forest plantation, community forests, private sector plantations and wood industry, and facilitate national forest policies towards the SDGs. DENP is responsible to protect and manage protected areas such as national parks and wildlife sanctuaries. In addition, DNP has experience in using NCAPs and SMART PATROL. The Director-General of the RFD will be assigned to chair the Project Steering Committee Besides ordinary roles in providing supervising, monitoring and supporting for the project implementation. Thai Army is responsible for border security, human tariffing and managing temporary refugee camps. ITTO in collaboration with other international organizations will lead communication outreach with the key stakeholders in the target countries

Table 8 Roles of KUFF, RFD, ITTO, Japan and associations

Organization	Roles
Kasetsart University	▪ Act as the executing agency of the project ▪ Form the project management team ▪ Implement the project activities and deliver the outputs ▪ Act as Chairperson of PS committee
RFD	▪ Responsible for forest areas outside protected areas ▪ Assign staff at national and local levels (protection units) to participant in the project ▪ Jointly conduct exhibition and provide experience to the remaining community forests and protection units
DNP	▪ Share success and failure of SMART PATROL and NCAPs technology and provide suggestions for improvement ▪ Join patrolling team in the overlapped areas along the park boundary
ITTO	▪ Provide inputs to the implementation of the project ▪ Supervise, monitor and support the project implementation ▪ Facilitate the communication with the key stakeholders in the target countries
Thai Army	▪ Provide information where are risk areas for implement planned activities ▪ operational guidelines for dealing with the displaced Myanmar civilians in the areas

[1] http://www.forest.ku.ac.th/forestry/en/index_en.php

Organization	Roles
JICA, Ministry of Foreign Affairs of Japan, Japanese Embassy to Bangkok, Thailand,	▪ Supervise and guide project implementation ▪ Nominate a representative to work as a Project Steering Committee and attend important events of the project ▪ Provide support to compile and analyze the experience of selected countries ▪ Introduce Japanese institution, scientists and Japanese private companies having experiences in forest monitoring ▪ Oversee project implementation, approve budget planning, monitor and evaluate the project progress

4.1.2 Project management team

The project management team will be appointed, which consists of a Project Manager (PM), project secretary & finance (PS) and sub-contractors. Project planned activities will be executed with the assistance of partners as indicated in the previous section.

The qualification of the project team members and their terms of reference are outlined in Annex 2. The project organizational structure is as depicted below.

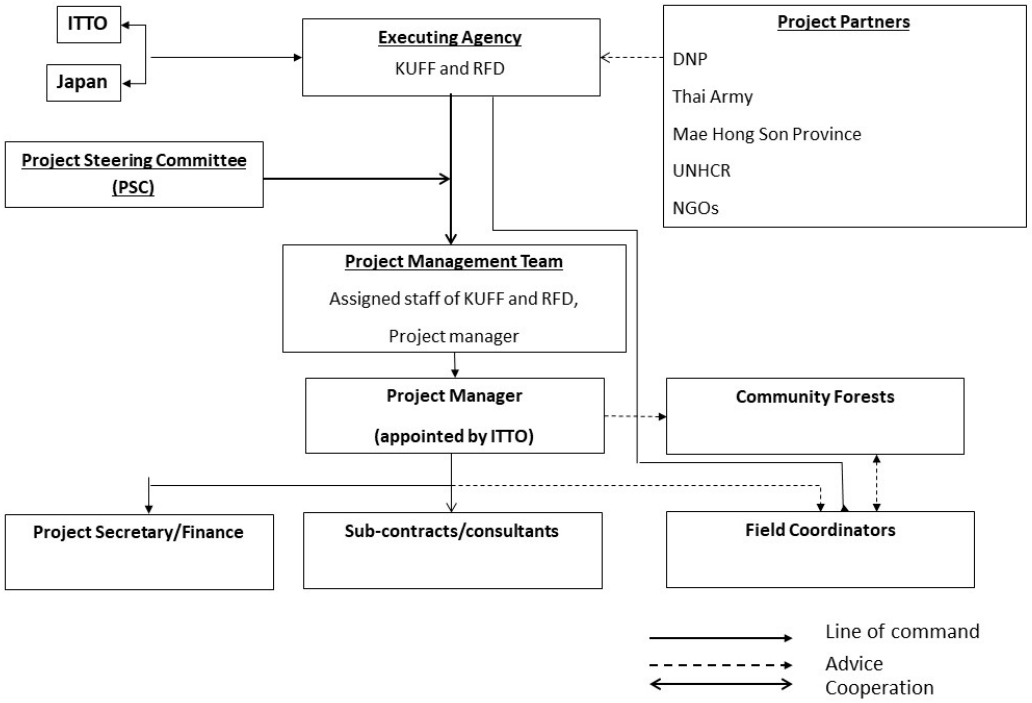

Figure 3 Organizational Structure

4.1.3 Project Steering Committee (PSC)

PSC will be established to oversee project implementation, approve budget planning, monitor and evaluate the project progress against project logical matrix and give immediate instructions on necessary revisions and adjustments. Membership of PSC is:

- Chairperson:Director-General of RFD
- Deputy Chairperson: Dean of KUFF
- Representative of ITTO;
- Representative of donor country;
- Representatives of Thai Army;
- Representative of UNHRC, Asia-Pacific Office
- Director of Forestry Foreign Affairs Office
- Director of Community Forest Management Office
- Representative of Mae Hong Son Province
- Forest Alumni Society (NGOs)
- Forestry Expert
- Sustainable Livelihood Development Expert
- Project Manager as the secretary of the PSC;
- Director of International Cooperation and Organization Division as Assistant Secretary

4.1.4 Stakeholder involvement mechanisms

A stakeholder forum with regular online/offline consultations and dialogues will be established under the project to facilitate participants from local communities, youth groups, R&D institutions, NGOs, and other groups interested in forest protection and monitoring through participatory approach and citizen science equipped with advanced technologies to exchange views and ideas, develop propositions and make recommendations to the executing agency in view of improving the efficiency of project implementation. While the forum has no formal responsibility for the project execution, its advice and recommendations are invaluable inputs to the project and will be as much as possible incorporated in recommendations to policymakers.

4.2 Reporting, Review, Monitoring and Evaluation

4.2.1 Reporting

In accordance with ITTO Manual on standard operating procedures for the ITTO project cycle, the following reports will be prepared and submitted to ITTO:

- **Inception Report**

  To be submitted after signing of Agreement between ITTO and Executing Agency (KU). The Inception report contains the confirmation of the availability of office space and facilities, registered banking account, key project personnel and any changes if any and first Yearly Plan of Operation.

- **Yearly Plan of Operation**

  To be submitted a year before the commencement of project activities for endorsement by PSC, as appropriate and by ITTO. The YPO will be attached to the Inception Report. The subsequent YPOs will be submitted at least ten weeks before the beginning of the planned year. ITTO approves the YPO based on endorsement of PSC.

- **Project Progress Reports**

  To be submitted bi-annually or as requested by ITTO. This report contains information on the execution and the progress of activities during the period covered for the report, achieved output and inputs applied.

- **Project Technical Reports**

  To be submitted in accordance with the schedule and at the end of project period. The Technical Report contains technical and scientific data and information, analyses and other project results. A technical report may be produced from one or a set of activities in one Output. The report may also contain present procedure and methodologies adopted, the data generated and the results achieved.

- **Financial Report**

  An audited financial report will be submitted to ITTO within three months after the end of the project. A final audited report will be submitted within four months after the date of project completion. The project will appoint a public accountant to be submitted to ITTO for approval period to carry out project financial auditing. Alternatively, ITTO may recommend the Japanese financial auditing.

- **Project Completion Report**

  A Project Completion Report will be submitted to ITTO within three months after project completion. The report contains summary of the activities executed, unexecuted (if any), inputs and expenditures, outputs achieved and objectives during the project implementation period. The report also highlights the most critical differences between planned and realized project elements using original project documents as primary reference, lessons learned from the implementation of the project.

4.2.2 Monitoring

Internal monitoring system will be led by the PSC within the Project Management Team to ensure timely and appropriate project implementation and reporting, as well as adaptive management. Internal monitoring is applied monthly basis or where appropriate, including the following aspects:

- Follow-up commitments resulting from the Agreement between ITTO and the Executive Agency (KU);_
- Progress and proper execution of work, using as indicators planned input items from input tables and budget tables and the Activities in the Work plan and the Yearly Plan of Operation;
- On-time delivery and quality of the Outputs, using indicators as presented in the Logical Framework Matrix in the Project document;
- Report on extent to which the Specific Objective has been achieved, using indicators as presented in the Logical Framework Matrix in the Project document:

External monitoring will be undertaken by ITTO, in cooperation with the Ministry of Foreign Affairs, the Government of Japan, where desirable, to supervise the project implementation. The timing for external monitoring will determine between ITTO and the Executing Agency. The scope of the external monitoring includes:

- To assess whether these Projects are proceeding according to the agreed work schedules, so that the necessary ITTO actions (e.g. payments to the Executing Agency) may be taken;
- To propose and participate in any necessary reviews of the Projects as a result of these assessments; and
- To report to the Committees and the ITTO Council on the situation and completion prospects for the Project.

4.3 Dissemination and Mainstreaming of Project Learning

4.3.1. Dissemination of preject results

Project learning and results will be disseminated through various means and channels during the implementation stage and after project completion, as outlined below:

- **Technical documents/ brochures**

  The results and lessons learned from the implementation of Activities will be widely published on the website, ITTO, RFD and Kasetsart University, project social medias and Newsletters. These documents will be freely downloaded.

- **International and National Workshops**

  The project outputs will be presented at the Annual Forestry Conference 2024 (Thailand) and the XVI FAO World Forestry Congress 2025 (South Africa).

- **Completion Report**

  Will be distributed to interested nation-wide and ITTO member countries and other relevant institutions.

- **Newsletter and website and TV**

  Project effects will be posted by means of articles in magazines/newspapers and websites and integrated into TV talk shows and interviews and **short video and use of Instagram, Facebook, Webinars and Youtube channel**.

4.3.2. Mainstreaming of the project learning

Thailand, especially the RFD of the Ministry of Natural Resources and Environment is determined to manage forest outside protected areas under sustainable manner. The proposed project will not only facilitate the RFD to achieve this long-term goal but also provide opportunities for local authorities and community forests, interested groups and individuals to earn advance technologies such as satellite data, NCAP cameras and SMART PATROL with mobile applications to strengthen forest monitoring and protection in risk areas. With the involvement of ITTO with the financial support from the Government of Japan in communication outreach, there are a lot of opportunities for that Project to share lessons learnt at international, national and local levels. In particular, the project will analyse the recent and current situation of forest loss and degradation along the Myanmar and Thailand border, provide recommendations on how to overcome constraints and step up toward effective protection measures with participation of relevant authorities and local communities as mentioned in the National Forest Policy adopted by the cabinet in 2019 and the Forestry Development Strategy 2017 – 2036.

The RFD of the Ministry of Natural Resources and Environment is responsible to manage forest outside protected areas under sustainable manner.

The experience and lessons learnt will be shared not only community forests in Mae Hong Son but also to over 11,000 community forests have been established across the country. In addition, 16 Regional Forest Management Offices and a few hundreds of forest protection stations are established to protect the remaining forest cover and promote sustainable forest management. The results and lessons learned from the implementation of Activities gained from the project will be automatically embedded in the teaching and training curriculums of KUFF to educate students in Thailand and neighbouring countries. KU, RFD and ITTO will jointly publish the results and lessons learned in the ITTO Update Bulletin.

ANNEX

ANNEX 1: Information on Implementing Agency

1.1 Kasetsart University Faculty of Forestry (KUFF)

Address:
50 Ngamwongwan Road, Chatuchak, Bangkok 10900, Thailand
Tel: 66-2579-0176; Fax: 662-2561-4246
Email: infor,kuff@ku.ac.th (corresponding: fforyyt@ku.ac.th)
Website of KUFF: www.forest.ku.ac.th

Year of establishment:
Kasetsart University (KU) was established in 1943. However, the Faculty of Forestry as one of four founders was established 6 years (1937) before the official establishment of Kasetsat University. It is now 85 years-old.

Legal status:

Kastsart University is an autonomous academic institution under the Ministry of Higher Education, Science, Research and Innovation.

Functions and duties:
According to Kasetsart University Decree approved by the Thai Cabinet, KUFF has three main functions as follows:

- ✓ **Teaching**: KU (including KUFF) is a non-profit organization. It is only one academic institution in Thailand that offers education degrees from bachelor's, master and PhD degrees in various fields of forestry. Currently, there are approximately 400 new enrolments annually. The total students are about 1,400 individual.
- ✓ **Research**: There are over 85 faculty members specializing in forest management, conservation, afforestation, logging, and wood and forest product processing and trading. These well-educated faculty staff are affiliated with 6 academic departments, namely Department of Forest Management, Department of Forest Biology, Department of Conservation, Department of Silviculture, Department of Forest Engineering and Department of Wood Products and Technology. Based on continuing academic excellence, KU has been ranked as the top 5 in Asia and the top 50 in the world by the QS World University Ranking in the fields of Agriculture and Forestry for over 10 consecutive years.
- ✓ **Academic Services and Social Engagement**:

  KU has over 30 research stations, while KUFF has 6 research stations scattered across the country to provide ample opportunities for faculty members and students to learn, explore and conduct research in various geographical and environmental settings. The mechanisms for Inter-faculty and research unit coordination have been effectively designed to facilitate fast and efficient administration and cooperation in database and information exchange. Research projects granted to faculty members are administered by the KU Research and Development

Institute (KURDI). The Office of Academic Services works on intellectual property, patents, technology transfer, and university and private sector research investment. The Extension and Training Office is dedicated to extending university research knowledge, outputs, technologies, innovation that have been developed by faculty members and researchers to the public, farmers, and interested people.

The Faculty of Forestry currently KU recently serves as the Regional Project Manager to coordinate and implement the project entitled "Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region" which was financed by the Government of the Federal Republic of Germany, represented by the Federal Ministry of Food and Agriculture (BMEL). Collaborating agencies include the International Tropical Timber Organization (Japan), Cambodia's Forestry Administration, Laos' National Agriculture and Forestry Research Institute, Myanmar's Forestry Department, Thailand's Royal Forestry Department, and Vietnamese Academy of Forest Sciences.

- ✓ **Access to relevant stakeholders**

At local and national levels, KU has been reputed and has strong programs in agriculture and forestry. Research outputs, models and practices can be effectively disseminated to multi-stakeholders at all levels through various campuses and field practices and research stations at the local level.

At the national level, The KU has worked with government institutions responsible for natural resources and climate changes issues. These institutions include the Dept. of Agriculture, Dept. of Agricultural Extension, Dept. of Forestry (RFD), Dept. of National Parks, Wildlife and Plant Conservation (DNP), Forest Industry Organization (FIO). Dept. of Land Development, Bank for Agriculture and Agricultural Cooperatives (BAAC), Office of Natural Resources and Environmental Policy and Planning (ONEP), and most of their staff are KU alumni.

In addition, KU has hosted a number of international non-profit organizations including RECOFTC, FAO, KITTO, JICA, GIZ. Etc. This means that KU and RECOFT (primary partner) have comprehensive networks in place to further develop and achieve the ultimate or specific goals. As a member of the Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources (UC SEARCA), ASEAN Forestry Colleges, APBON, the outputs of the project could be extended to other members.

1.2 Organization structure

1.3 Budget

The Faculty of Forestry obtained an annual income (government budget and revenue) of USD 4.0, 4.1 and 4.3 million in 2018, 2019 and 2020, respectively. In addition, the annual expenditures due the same period were USD 3.4, 4.1 and 4.3 million, respectively. These amounts exclude staff salary, which KUFF obtained from the government.