BMEL-ITTO Project:
"Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region"

Contact more details at:

Dr. Hwan-ok Ma
ITTO, Yokohama, Japan (Email: ma@itto.int)

Professor Dr. Yongyut Trisurat
Kasetsart University, Thailand (Email: fforyyt@ku.ac.th)

Mr. Sapol Boonsermsuk
Royal Forest Department, Thailand (Email: sapolboonsermsuk@gmail.com)

Assist. Prof. Dr. Nikhom Laemsak
Kasetsart University, Thailand (Email: ffornil@ku.ac.th)

Federal Ministry of Food and Agriculture

BMEL-ITTO Project:
"Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region"

New Management System for Natural Teak Forests

Nikhom Laemsak,

Technical Report

Technical Report

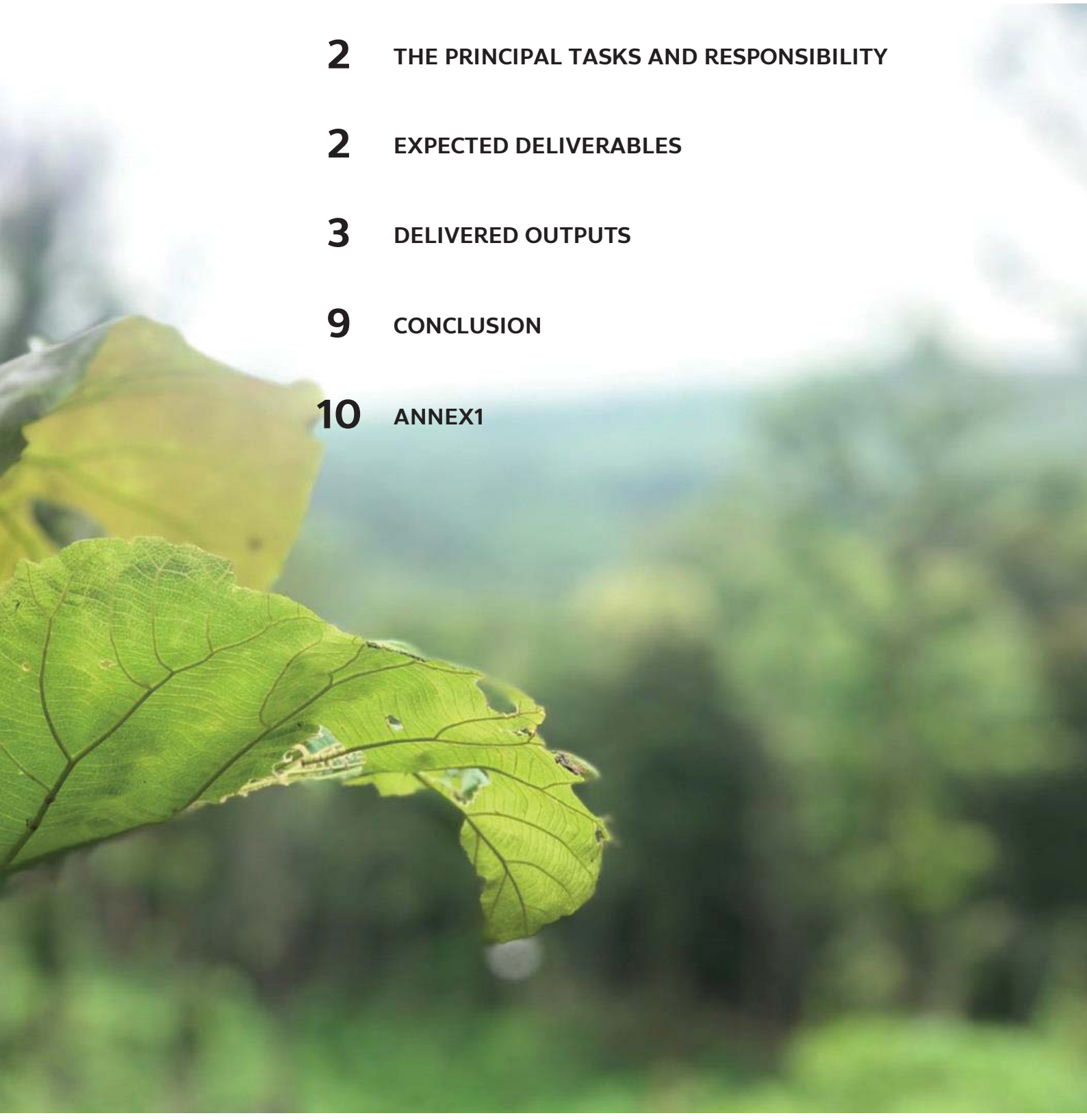
New Management System for Natural Teak Forests

By

Nikhom Laemsak

BMEL-ITTO Project:
"Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub-region" (PP-A/54-331)

CONTENTS



BACKGROUND

The ITTO Teak project in Mekong, **"Enhancing Conservation and Sustainable Management of Teak Forests and Legal and Sustainable Wood Supply Chains in the Greater Mekong Sub- region" (PP-A/54-331),** was approved by the 53rd International Timber Council Meeting in Lima, Peru in November 2017 and the Global Landscapes Forum in Bonn, Germany, in December 2017. At ITTC 53, the Council approved ITTO's 2018-19 Biennial Work Program (BWP) with the ITTO Budget (Government of Germany) of USD 1,236,250. The duration of the project is 3 years from March 1, 2019 to September 30, 2022.

The objective of the Project is to demonstrate legal and sustainable teak supply chains with the engagement of local communities, smallholders and government actors in the Greater Mekong sub-region (GMS). The project expects 3 outputs: 1) The conservation of teak genetic resources, sustainable management and use of natural teak forests and market accesses of teak from legal sources have been shown, 2) Community-based and smallholders teak forest management and agroforestry systems have been strengthened with improved legal and sustainable supply chains, and 3) Regional and international collaboration, information sharing and knowledge management, networking, policy development and outreach on the sustainable management of teak forests, including sustainable use of teak genetic resources have been strengthened.

Natural teak forests covering an area of about 29 million hectares occur in central and southern India, Lao PDR, Myanmar and Thailand. Myanmar has the largest area of natural teak forests (almost 16 million ha) and is the number one producer of teak logs in the world. Thailand has the second largest area of natural teak forests (after Myanmar) at an estimated 8.7 million ha, all of which are located in protected areas. The participating countries in the GMS include Cambodia, Lao PDR, Myanmar, Thailand, and Vietnam are located in the GMS. These five participating countries are home to more than 300 million people. It is a very dynamic and fast-changing region that has made significant socio-economic progress from 1990 resulting in significant impacts on natural and forest resources.

The Project Activity is aimed at assisting governments, local communities and smallholders to enhance natural teak forest management, production and marketing to facilitate the establishment of legal and sustainable wood supply chains while improving national economy and local communities 'livelihood in the Greater Mekong Sub-region. The Activity provides an opportunity for the recipient countries to build-up sustainable forest management capacities and to further pursue their strategic objectives and policies on the sustainable development of teak forest resources, which are of particular livelihood improvement and ecological significance in all countries of the Greater Mekong Sub-region.

In order to implement the ITTO Teak Project in Mekong effective, the **Consultant#3: New Management System for Natural Teak Forests** was recruited to take overall responsibility of analyzing, assessing and evaluating opportunities and constraints to modify the current management system of teak both in natural forests and private plantation, especially in Thailand and Myanmar.

THE PRINCIPAL TASKS AND RESPONSIBILITIES

The principal tasks of the **Consultant#3: New Management System for Natural Teak Forests** is to increase capacity of the five participating countries and private sectors in a new management system for natural teak forests and teak plantations in the Mekong region that meet modern environmental standards (e.g., FSC) and improve livelihoods of local communities and smallholders (Myanmar, Thailand) (Activity A 1.1).

The specific functions and responsibilities include:

- Undertake a review of literature, reports and guidelines related to the Myanmar Selection System (MSS) and Modified Myanmar Selection System (MMSS).
- Undertake a review of literature, reports and guidelines related to the private teak plantations, Forestry Industry Organization and agro-forestry (with teak) practices in Thailand.
- Analyze, assess and evaluate opportunities and constraints to modify the current management system.
- Cooperate with scientists and practitioners from Myanmar and Thailand to formulate a new management system for natural teak forests in the Mekong region that meet modem silvicultural and environmental standards.
- Participate in the Project Steering Committee (PSC) meetings and present activity outcomes, results and findings to the Project Technical Committee (PTC).
- Incorporate comments provided by the Project Technical Committee (PTC) members and stakeholders in the final report.
- Compile all results and findings, incl. recommendations for follow-up actions, in a technical activity report in the English language to be submitted to the Regional Activity Manager.
- Available to provide recommendations and advises to National Coordinators, PTC members (if any).
- Undertake national and international travel, as and when required

EXPECTED DELIVERABLES

The consultant should submit the following outputs to the Regional Activity Manager:

- Submission of three New Management System for Natural Teak Forests briefs (around 4 pages-beginning, middle and end of the consultancy work).
- Report of assigned training/workshop
- A brief travel report (if any)
- Technical report Enabling community and responsible agencies (e.g., RFD, FlO, Myanmar Forestry Dept.) to implement a new management system for natural teak forests in the Mekong region.

DELIVERED OUTPUTS

Summary of delivered outputs of consultant#3 during the reporting time (April 2019 – June 2022) include:

Year	Tasks
2019	1. Surveyed and identified potential sites in Lampang and Phayao provinces to establish the demonstration plots. 2. Attended Regional Workshop on Sustaining Teak Forests in Mekong Basin, 24-27 September 2019, Yangon, Myanmar. And presented the presentation entitled **"Sustainable Wood Industry and Certification in Thailand"**
2020	1. Prepared and **conducted "Joint Training Workshop on New Management System and Minimize Harvesting Loss"**, 5-7 February 2020, Phrae Province 2. Attended **The 2nd Project Steering Committee Meeting and the National Teak Forum in Lao PDR**, 18-20 February 2020, Vientiance and Luang Prabang, Lao PDR 3. Prepared and conducted **"Training workshop on Certified Teak Wood from Smallholder Plantations using C&I Approach"**, 26-28 August 2020, Nan Province 4. Provided recommendations and advises for smallholders in order to implementing the sustainable forest management according to National Criteria & Indicator 5. Attended **"The Virtual 3rd Meeting of the Project Steering Committee"** 9 December 2020, at the Faculty of Forestry, Kasetsart University 6. Upscale the Certification of Teak Smallholder Enterprise in Nan Province for nationwide implementation. 7. Published Policy Brief on **"Sustainable Forest Industry Promotion and Certification in Thailand"** in Teak Mekong Newsletter June 2020 - Volume 2(3)
2021	1. Attended the1st Monthly Webinar Meeting and gave presentation entitled "**Teak Harvesting and Minimize Loss from Forest Plantations"** on 28 January 2021 2. Monitored the progress of the establishment of clonal test plots at Kroeng Krawia FIO Plantation, Kanchanaburi Province (one of 3 different sites of clonal test in Thailand)

The delivered outputs can be categorized to 3 groups:

1) Training Workshops 2) Presentations and 3) Publications.

1) Training Workshops

1.1) Joint Training Workshop on New Management System and Minimize Harvesting Loss

A joint training workshop on New Management System and Minimize Harvesting Loss during 5-7 February 2020 in Phrae Province. The objectives of joint workshop were 1) to introduce participants to basic new management system, 2) to introduce sustainable forest management standards that will be applied to the new system management, 3) to introduce participants basic principle of harvesting loss and reduction of harvesting loss, 4) to introduce the bucking optimization that maximize profit and minimize waste, and 5) to demonstrate the given techniques on the ground. Joint training workshop approaches included lecture, brainstorm, exercise, discussion, and field demonstration. Thirty participants attended the workshop. They were dominated by field staffs of Forest Industry Organization (15 persons), followed by private and smallholder teak plantations (10 persons), and relevant staffs from RFD (5 persons).

Lectures included the current situation of wood and wood-based products around the world, Promoting and supporting the cultivation of trees for both use and occupation, encouraging logging that is academic, legal and does not affect the community, society, environment, Forest Certification for FSC (Forest Stewardship Council) and PEFC (Program for the Endorsement Forest Certification) and Thailand's Criteria & Indicator for sustainable forest management.

Photo 1. Joint Training Workshop on New Management System and Minimize Harvesting Loss 5-7 February 2020, Phrae province, Thailand.

1.2) Training workshop on Certified Teak Wood from Smallholder Plantations Using C&I Approach

A training workshop on "Certified Teak Wood from Smallholder Plantations Using C&I Approach" during 26-28 August 2020 in Nan province, northern Thailand aim to adopt the guidelines into implementation. Thirty participants attended the workshop. They were dominated by smallholder teak farmers (20 persons), followed by field staffs of Forest Industry Organization (5 persons) and the relevant staffs from RFD (5 persons). Besides, Teak Smallholder Enterprise in Nan Province was selected as a pilot site.

Lectures included overview sustainable forest management, national wood demand and supply, the trend of forest certification and Thailand's Criteria & Indicator for sustainable forest management. Certificate of Teak Smallholder Enterprise in Nan Province jointly adopting the certificate by the RFD and Kasetsart University was awarded to the community.

Photo 2. Certified Teak Wood from Smallholder Plantations Using C&I Approach 26-28 August 2020, Nan province, Thailand

2) Presentations

2.1) Sustainable Wood Industry and Certification in Thailand

Presentation entitled “Sustainable Wood Industry and Certification in Thailand” was given at the regional workshop on sustaining Teak forests in Mekong Basin, during 24-27 September 2019, Yangon, Myanmar. There were 40 researchers and experts from 14 countries representing universities, policy makers, teak plantation managers, wood industry, international organizations, and NGOs. The regional workshop was designed with six thematic technical sessions in focus. This presentation was in session 5: Legality and Sustainability in teak supply chains in Mekong. The summary of presentation is presented as following.

The future trends in raw wood demands, sawn wood production, global paper and paperboard production (with high rates in Asia and the Pacific), and global production of round wood. All materials have been in steady increased from 2000 to 2030 FAO reported that. In addition, the adopted bio-economy policies at national and global levels stimulate wood consumption and provide an opportunity for the reforestation business sector. The Thai wood industry in eight sectors, which forecasts that the total demand of round wood will increase from ca. 60 million tonnes in 2016 to ca. 108 million tonnes by 2026 and to ca. 158 million tonnes by 2036. A rapid increase in energy and wood composite sector is expected. The thinned wood particles from plantations are used for various products such as the preserved and dried wood, charcoal, wood vinegar, tar and sawn wood. In addition, the value of the export of (value-added) forest products have increased rapidly, especially from 1996 to 2017 (last data available). Point out that only 86,684 ha of forest cover and rubber plantations or less than 0.2% of the total remaining forest cover is managed under FSC standards largely due to various obstacles. ITTO project (Criteria and Indicators and CoC for sustainable management of planted and community forests). He concluded his presentation advising that the National Forest Policy and Forestry sectors need to follow a clear direction in order to achieve sustainable development goals. It is also important that the forest certification guidelines (codes of practice) should be modified to match the national and local circumstances that are appropriate and affordable for smallholders.

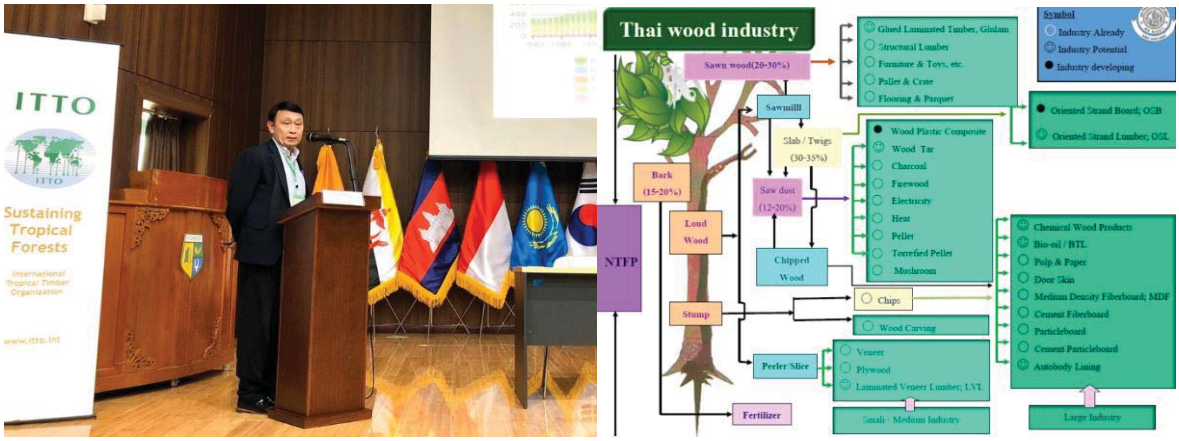


Photo 3. Presentation at the Regional Workshop on Sustaining Teak Forests in Mekong Basin on 24-27 September 2019, Yangon, Myanmar.

2.2) Sustainable Supply and Value Chains of Quality Teak Timber in Lower Mekong

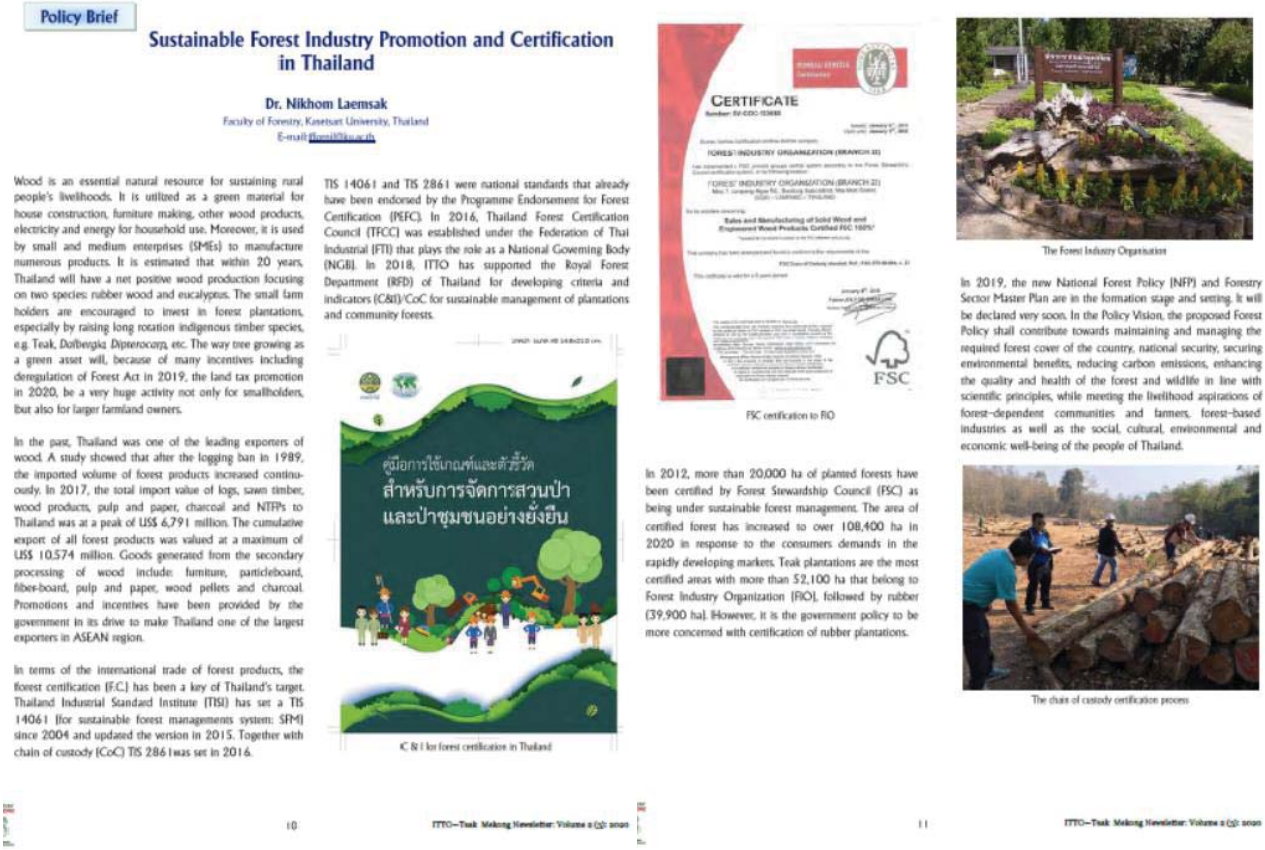
The organization of **National Teak Forum – Sustainable Value Chains** on 19-20 February 2020, Vientiane and Luang Prabang, Lao PDR provided an opportunity to discuss the issues of sustainable teak value chains in Lao PDR by reviewing lessons from promotion of teak-based sustainable forest management (SFM) by the private sector and community forest enterprises in terms of technical aspects (seedling, silvicultural, management, value-adding processing, etc.) and economic aspects (investments, incentive mechanisms, credits, etc.). It also contributed to enhancing teak value chain research and sustainable teak forestry in Lower Mekong Region.

Photo 4. Presentation in National Teak Forum – Sustainable Value Chains, 19-20 February 2020, Vientiane and Luang Prabang, Lao PDR

3) Publications

3.1) Policy Brief **"Sustainable Forest Industry Promotion and Certification in Thailand"**

This policy brief was published on Teak Mekong Newsletter June 2020 - Volume 2(3).



Policy Brief

Sustainable Forest Industry Promotion and Certification in Thailand

Dr. Nikhom Laemsak

Faculty of Forestry, Kasetsart University, Thailand

E-mail: ffornil@ku.ac.th

Wood is an essential natural resource for sustaining rural people's livelihoods. It is utilized as a green material for house construction, furniture making, other wood products, electricity and energy for household use. Moreover, it is used by small and medium enterprises (SMEs) to manufacture numerous products. It is estimated that within 20 years, Thailand will have a net positive wood production focusing on two species: rubber wood and eucalyptus. The small farm holders are encouraged to invest in forest plantations, especially by raising long rotation indigenous timber species, e.g. Teak, *Dalbergia*, *Dipterocarp*, etc. The way tree growing as a green asset will, because of many incentives including deregulation of Forest Act in 2019, the land tax promotion in 2020, be a very huge activity not only for smallholders, but also for larger farmland owners.

In the past, Thailand was one of the leading exporters of wood. A study showed that after the logging ban in 1989, the imported volume of forest products increased continuously. In 2017, the total import value of logs, sawn timber, wood products, pulp and paper, charcoal and NTFPs to Thailand was at a peak of US$ 6,791 million. The cumulative export of all forest products was valued at a maximum of US$ 10,574 million. Goods generated from the secondary processing of wood include: furniture, particleboard, fiber-board, pulp and paper, wood pellets and charcoal. Promotions and incentives have been provided by the government in its drive to make Thailand one of the largest exporters in ASEAN region.

In terms of the international trade of forest products, the forest certification (F.C.) has been a key of Thailand's target. Thailand Industrial Standard Institute (TISI) has set a TIS 14061 (for sustainable forest managements system: SFM) since 2004 and updated the version in 2015. Together with chain of custody (CoC) TIS 2861was set in 2016.

TIS 14061 and TIS 2861 were national standards that already have been endorsed by the Programme Endorsement for Forest Certification (PEFC). In 2016, Thailand Forest Certification Council (TFCC) was established under the Federation of Thai Industrial (FTI) that plays the role as a National Governing Body (NGB). In 2018, ITTO has supported the Royal Forest Department (RFD) of Thailand for developing criteria and indicators (C&I)/CoC for sustainable management of plantations and community forests.

C & I for forest certification in Thailand

FSC certification to RIO

In 2012, more than 20,000 ha of planted forests have been certified by Forest Stewardship Council (FSC) as being under sustainable forest management. The area of certified forest has increased to over 108,400 ha in 2020 in response to the consumers demands in the rapidly developing markets. Teak plantations are the most certified areas with more than 52,100 ha that belong to Forest Industry Organization (FIO), followed by rubber (39,900 ha). However, it is the government policy to be more concerned with certification of rubber plantations.

The Forest Industry Organization

In 2019, the new National Forest Policy (NFP) and Forestry Sector Master Plan are in the formation stage and setting. It will be declared very soon. In the Policy Vision, the proposed Forest Policy shall contribute towards maintaining and managing the required forest cover of the country, national security, securing environmental benefits, reducing carbon emissions, enhancing the quality and health of the forest and wildlife in line with scientific principles, while meeting the livelihood aspirations of forest-dependent communities and farmers, forest-based industries as well as the social, cultural, environmental and economic well-being of the people of Thailand.

The chain of custody certification process

Photo 5. Policy briefs on entitled Sustainable Forest Industry Promotion and Certification in Thailand

CONCLUSION

The **Consultant#3: New Management System for Natural Teak Forests** jointly conducted 2 training 1) Training Workshop on "New Management System and Minimize Harvesting Loss" during 5-7 February 2020 in Phrae Province. and 2) Training Workshop on "Certified Teak Wood from Smallholder Plantations Using C&I Approach" during 26-28 August 2020 in Nan province, Thailand.

Meanwhile, The Consultant#3 also contributed in 2 events 1) Presentation entitled "Sustainable Wood Industry and Certification in Thailand" was given at the regional workshop on sustaining Teak forests in Mekong Basin, during 24-27 September 2019, Yangon, Myanmar. and 2) The organization of National Teak Forum – Sustainable Value Chains on 19-20 February 2020, Vientiane and Luang Prabang, Lao PDR. And 1 published policy brief on "Sustainable Forest Industry Promotion and Certification in Thailand" this policy brief was published on Teak Mekong Newsletter June 2020 - Volume 2(3).

Background information on New Management System for Natural Teak Forest is presented in Annex1.

ANNEX 1

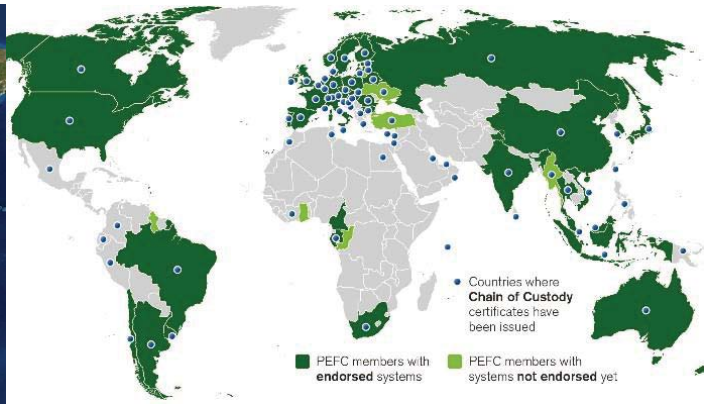
New Management System for Natural Teak Forest

Nikhom Laemsak
Faculty of Forestry, Kasetsart Univesity

Background

When the world is being accelerated to change faster. Human living activities affect the quality of life, social and environmental balance. The global warming crisis tends to have widespread impacts across all regions of the world, crises of fires, floods, droughts and cold weather. It creates a stir and affects the citizens of different countries. Climate change may also be linked to emerging diseases that are a global crisis at the moment. Scientists around the world are so important among the important issues are (1) Biological Diversity, (2) Climate Change, and (3) Combat Desertification. The approach to managing these three issues is to protect the world's forests. The current situation of wood and wood-based products around the world has given importance to the conservation of natural resources and the environment. Promoting and supporting the cultivation of trees for both use and occupation is the only way to ensure the stability of the conservation of forest resources to be sustained and sustainable. Encouraging logging that is academic, legal and does not affect the community, society, environment is an international requirement that must be followed. Non-tariff barriers to trade or the rejection of timber and timber products of unknown origin are required measures. Timber or wood-containing products must be certified by an internationally recognized standard. Currently, the internationally recognized and implemented standards in Thailand are FSC (Forest Stewardship Council) and PEFC (Program for the Endorsement Forest Certification).

A: https://fsc-int.maps.arcgis.com
Date: November 15, 2021



B: https://pefc.org
Date: November 15, 2021

Figure 1 Global Forest Certification Map: A) Area certified by FSC, B) PEFC Members

Forest Certification is the development of a system to provide necessary qualification checks, for example to assess compliance with technical, safety, and product quality requirements. Forest standards are one way to effectively manage forests and are widely applied in the timber industry. Buyer and consumer markets are becoming more and more aware of the environmental and social impacts of using forest products as well as the good ethics of forest industry operators. They will buy products with certificates of raw materials from well-managed forests. They will verify the source of raw materials. production process Until the final product that wood should not be taken from sources that cause deforestation. Therefore, both plantation growers and entrepreneurs must consider the destination of the goods and products they wish to sell or export in choosing the form and type of certification.

For Thailand, there are currently two types of certifications that are known (standards) are FSC and PEFC. In addition, national standards, including Thai Industrial Standards Institute (TISI) TIS14061 for Sustainable Forest Management (SFM) forest certification, and TIS2861 for mobile timber supply chain certification, or Chain of Custody (CoC), have been developed to compare with PEFC standards. Such a system would generate huge amounts of income for the country and promote the legalization of logging in the area. It also helps to stop the encroachment of forest land, take measures to conserve soil and water properly and appropriately, the implementation of international human rights principles leads to economic, social and environmental sustainability. However, it is necessary to upgrade the audit to a more intensive feature of the internal audit system according to international principles and the need to develop a new organization for quality assurance. It is also required to be accredited in accordance with ISO/ICE 17021 (SFM) and ISO/ICE 17065 (CoC), or a certification body (CB), as well as personnel development in accordance with ISO 9001 guidelines.

Sustainable Management System Concept

Forest certification was developed as a mechanism for verifying essential characteristics, for example to assess compliance with technical, safety and product quality constraints. It was found that forest standards are one of the ways that forests can be managed effectively. It has been found that forest standards are one way to effectively manage forests and have a good code of conduct for timber industry operators to take into account raw materials from legally planted forests. All standards use the same practice principles. It focuses on the economic, social and environmental balance. The owner of the forest plantation needs to be designed, planned and implemented according to the plan. It also needs to be kept and recorded for later follow-up and review.

Forest certification is the process of forest plantation management from plantation to its transformation into products which can be classified into two types:
Forest Certification (FC) is voluntary partnership agreements (VPA), which the manufacturer may enter or not, depending on the conditions of the buyer. If a manufacturer that does not enter the system wants to sell those wood products, they can find a market for buyers who are not interested in the certificate, and the manufacturer did not have a fault or any illegal. As long as the manufacturer does not against the local laws such as cutting wood from restricted areas, illegal wood processing, unfair labor practice, etc., Which these faults, If going into the certification

system, the manufacturer will not be able to pass the certification.

Chain of Custody (CoC): is a certification that has been started since being ordered to cut the wood, and the wood must be selected by marking already. The wood cutting process is the first step of document preparation. There must have the information of the cut wood that has the size, height, volume, wood cutting tools, including where does the wood cut from, who cut the wood. And this document was related with FM document, so it is called FM/CoC. The documents will be linked together until the transportation, importing, storing and processing, sales management, delivery including product claims, which is the mechanism of inspection and certification of CoC.

This standard is based on ISO 9001, which focuses on documenting, quantity and quality control and traceability. The certification will be randomly according to the list of requirements. It is also including the knowledge and experience of the auditor.

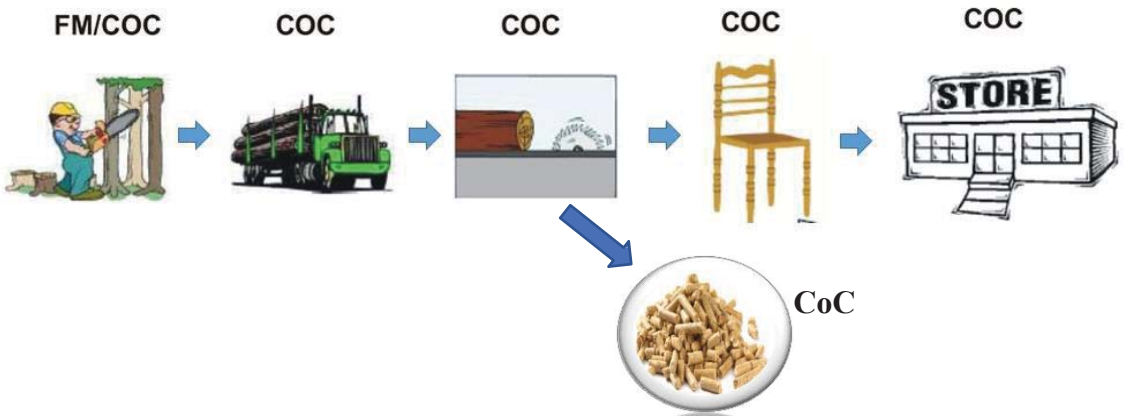


Figure 2 The mechanism of Chain of Custody: CoC

Forest certification is therefore a system or tool of contact that supports standards of good and sustainable forest management and the maintenance of social, environmental and economic benefits. Forest certification is therefore designed to enable consumers to choose sustainable timber and timber products from forests where sustainable management standards are established to certify timber from origin to end users. It is designed to ensure that consumers use products that are legally sourced and well managed. It uses market mechanisms leading to sustainable management, campaigns for trade in certified timber and timber products from sustainably managed forests, certification of logging routes from rootstock to timber products Certification (Chain of Custody) and Environmental labeling. This forest certification focuses on a form of certification from independent organizations. Forest certification is voluntary, neither the producer nor the consumer is legally obligated.

Forest Certification

The United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil from 3-14 June 1992 raised the issue of global warming and forest reduction. Which is the source of finding measures to prevent illegal timber. This is therefore the idea of establishing a

sustainable forest management certification system that emphasizes responsibility for the balance of the economy, society and the environment. The meeting highlighted the use of timber or the optimization of forests. The sustainability certification standards were later established by a non-profit organization known as Forest Stewardship Council ^{TM} (FSC^{TM}). Subsequently, there were many other standards at the local, regional, and international levels, such as:

- PEFC (Programme for the Endorsement of Forest Certification) is a standard that certifies the national standard to be equivalent to international standards.
- SFI (Standards promote sustainable forest management) is the certification standard for importing wood into United States of America (USA).
- JIA (The Japan Gas Appliances Inspection Association) is the certification standard for importing fuel into Japan.
- SGEC (Sustainable Green Ecosystem Council) is the Japan's sustainable forest management certification standards that endorsed with PEFC standards.
- MTCC (Malaysian Timber Certification Council) is the Malaysian's sustainable forest management certification standards that endorsed with PEFC standards.

Certification Process

All forest certification is created by civil society or independent organizations because it is a voluntary standard. The international principles in the certification mechanism have given importance to independence, transparency, and actions that comply with the requirements. The certification uses a 3rd party mechanism consisting of:

1. Standardization Body (SB) is an organization that set the standard principles and criteria including update the standard to create confidence for the sustainability of the planted forest and community forest. It also has a duty to negotiate with partners or making arrangements. In addition, there is a duty to receive complaints and examine the confliction both domestically and internationally.
2. An accreditation body (AB) may be a ISO17011 accredited organization or government, most of which are members or global partner networks. The AB is responsible for issuing licenses to the Certification Body (CB) so that the CB can go to the CB to inspect and issue certificates according to the standards required by farmers or plantations. AB is also regulated and monitored by SB to meet the required quality standards and it may also be suspended or withdrawn.
3. Certification Body (CB) is a juristic that has received ISO 17021 for forest management (FM) certification and ISO 17025 for Chain of Custody (CoC). In addition, the SB or AB may determine qualifications for the CB organization, including the qualifications of the lead auditor and/or auditor team.

The aforementioned three-part organization, known as the "Third Party", must be independent and must not conflict of interests. In addition, there must balance the power and investigate each other which all parts may be able to be appealed from the general public and the owner of the forest, including the business sector that is trading. In addition, the certification standards in this world have many standards which can be checked each other to ensure that all standards are still responsible for the economic, social and environment.

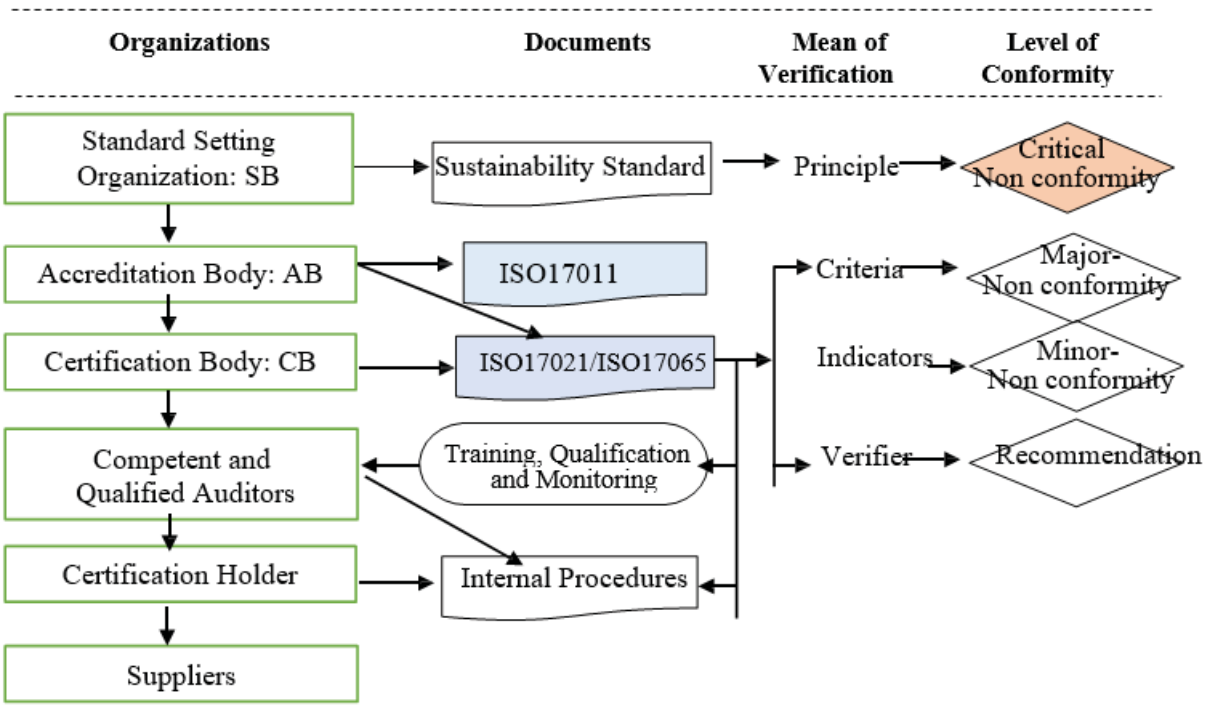


Figure 3 Mechanisms of forest certification systems according to international standards
Adapted from: FSC FM/CoC Lead auditor training course, 2016 (China)

New Management System

The idea of creating a new forest plantation is to create a forest in accordance with the principles of sustainable forest planting management in every process. It starts from planning, site preparation, planting, maintenance, logging, lumber transport, lumber processing to selling timber.

Sustainable teak plantation is essential in building a new forest plantation in order to add value to products and also to increase marketing channels, especially in the international market. In Thailand, the Royal Forest Department (RFD), in collaboration with The International Tropical Timber Organization (ITTO), has developed criteria and indicators for plantation and community forest management, which can be applied to new forest planting practices in line with the principles of sustainable management.

The standard has the following guidelines:

Sustainable Forest management (SFM)

Sustainable Forest management (SFM) is the practice of forest plantations or plantations to achieve sustainability. Plant owners need to understand and comply with the requirements before starting to prepare the planting area. They needed to design a table for recording survey data as well as keeping photographs as evidence. Determining the workflow and verifying that the steps have been performed are also important. The requirements and indicators for forest plantation are as follows:

Criterion 1: Compliance with applicable laws, policies and measures

Description:
Sustainable forest management must comply with the current national and international laws and agreements signed by Thailand. It is necessary to comply with local regulations and measures. It also requires an organization, management mechanisms, financial system, and monitoring that are transparent and accountable and encourage stakeholder participation.

Indicators:

1.1 There is clear evidence of land ownership rights and utilization of resources.
1.2 There is a forest management plan that responds to the principles of sustainable forest management and is consistent with forest law.
1.3 There are activities to monitor and evaluate the management of community forests and forest plantations periodically and continuously.
1.4 There is a management of income-expense accounts, finances supported, and assets that are transparent and verifiable.
1.5 There are guidelines for preventing and resolving disputes, negative impacts, and injustices in claiming ownership and utilization of resources from community forests and plantations such as stakeholder meetings, channel way of receiving complaints, etc.
1.6 Awareness and commitment to forest managers' actions in accordance with relevant legal frameworks and/or international agreements.

Criteria 2: The proportion and condition of the forest area

Description:
Sustainable forest management must meet both the economic and social aspects. culture, and environment. The appropriate size and proportion of forest areas is therefore the heart of sustainable forest management. It has the goal of sustainable development of biodiversity conservation, soil and water conservation, utilization, education and recreation. Forest management requires the establishment of management areas that are proportionately considered to the potential and condition of the resources so that forests can sustainably perform both production and service functions. Determining the appropriate size and proportion of forest areas will make forest management more sustainable and can also reduce the impacts of climate change.

Indicators:
2.1 There is information about the condition and the original ecosystem of the area.
2.2 Determination of the size and proportion of the forest area is appropriate.
    2.2.1 Conservation area and/or.
    2.2.2 Areas for utilization, including living and subsistence, culture, traditions, and beliefs of the community tourism and recreational activities.
2.3 There is a map, a brief map, a forest plan and a sign clearly indicating the boundaries of the managed area.

Criterion 3: Health and adaptation of forest ecosystems

Description:
Ecological role and adaptation of forest ecosystems, threats affecting community forests and plantations include both natural disasters (such as forest fires, mining) and may arise from human activities (such as deforestation, encroachment). Sustainable forest management requires the implementation of activities that focus on the health of trees and ecosystems to enhance ecosystem adaptability.

Indicators:

3.1 The managed area has favorable changes in terms of both the quantity (e.g. increase in area) and the overall quality of the forest area (e.g. biodiversity, environmental quality, etc.)
3.2 A variety of products and services are available to meet the needs of households, user groups and communities.
3.2 A vailability of information on risks and threats to resources and/or ecosystems of community forests and plantations.
3.3 There are guidelines, measures and methods for managing, preventing risks, threats, and having a long-term monitoring system.
3.4 A dequate forest management resources are available to support the implementation of both monetary and non-monetary resources (e.g. household labor, community participation, etc.).

Criterion 4: Productivity and Ecosystem Services of Forest Areas

Description:
Forest plantations must enable forest areas to function both for production and services in a continuous and sustainable manner. To make a forest more viable and multi-functional in the same area and time period requires sustainable management that takes into account the economic, financial and farmer acceptance dimensions.

Indicators:

4.1 Availability of information on capacity (stock) of managed forest areas.
4.2 Collection of statistical data and income from utilization of products and services from managed forest areas.
4.3 Availability of information on risks and threats resulting in reduced productivity and services
4.4 There are guidelines and methods for the sustainable management and utilization of produce and ecosystem services from community forests and plantations, as well as guidelines for the appropriate adoption of evolving methods.
4.5 There are activities to monitor and assess the effects of forest utilization activities and to present the assessment results to stakeholders and related parties.

Criterion 5: Forest Biodiversity

Description:

Forest parks must focus on the conservation and preservation of biodiversity, which includes the diversity of ecosystems, species, and genetics.

Indicators:

5.1 There is information showing biodiversity of plants, animals, mushrooms.
- 5.1.1 Information on the diversity of forest ecosystems (only community forest)
- 5.1.2 Plant diversity data found in managed forest areas
- 5.1.3 Information on the diversity of species of animals, birds and insects found in managed forest areas
- 5.1.4 Information on the diversity of mushrooms found in managed forest areas

5.2 Availability of information on risks, threats, and impacts on biodiversity.

5.3 There are guidelines and management measures for conservation, protection of biodiversity, especially rare and/or endangered endemic species.

5.4 Monitoring and assessment of the impacts of forest utilization activities are carried out and the assessment results are presented to stakeholders and relevant parties.

5.5 Communicating and disseminating conservation, biodiversity protection activities to local stakeholders

Criterion 6: Soil and Water Conservation

Description:

Soil and water conservation are important as they play a direct role in forest and tree ecosystems in reducing soil erosion. It fertilizes the soil and increases the quantity and quality of water that requires sustainable management to enable forests to do so.

Indicators:

6.1 Basic information on the types and status of soil and water resources in the managed forest area shall be provided.

6.2 There must be soil and water conservation activities in line with the role of the area and forest ecosystems. It will require participation of community members and stakeholders.

6.3 There must be a mechanism to promote exchanges and knowledge of soil and water conservation patterns in the area.

6.4 There must be an assessment of the impacts of forest resource utilization activities and an appropriate approach to reduce the impacts on soil and water resources should be established and consistent with the nature of the area.

Figure 4 Participation in forest plantation.

Criterion 7: Economy, Society, and Culture of the Local Community

Description:

Forests and trees play an important role in preserving local traditions and culture as well as improving the quality of life of the local people. Sustainable forest management must enable forests to serve as a source of food, income, as well as a source of local employment and investment.

Indicators:

7.1 Respecting and accepting local cultural beliefs and applying local knowledge to rehabilitate and conserve managed forest areas.
7.2 There is development of linkages to activities and operations in order to strengthen networks with communities and/or relevant agencies.
7.3 Supporting the participation of women and youth groups, including stakeholders in community forest and plantation management
7.4 Community-based grouping to develop methods for utilizing and value-adding resources in accordance with the local context (vision, mission, policy, and objectives).
7.5 Initiative to develop community finance mechanisms for self- sufficiency based on bio-resources
7.6 There are mechanisms in place to manage the benefits arising from community forest management that are consistent with the local context and fairly (production and service ecosystems, access to forest areas).

Chain of Custody (CoC)

CoC is a tool used to trace the products that appear to contain raw materials from SFM-certified plantation forests. It therefore consists of documented evidence of control and symbolic markings that appear on logs or products. The CoC therefore always needs to be saved as a document or database that must be kept at the source and destination. It can always check one step forward and one step back. It is the responsibility of the forest plantation owner and business owner to design a recording form or design a database system to record this information.

The CoC is divided into groups of places where activities are performed.

1) In the forest plantation will consist of pre-cutting measurements, marking of stumps and logs, cutting(felling), hauling, log yard.
2) The carriage shall consist of the means of transport for which origin and destination documents are required.
3) Warehousing and storage where the importance of separating certified and non-certified goods and raw materials.
4) production processes or processes in factories, which are different in the production process. In this factory, logs are transformed into products, where the manufacturer must focus on the counting, volumetric, or weighing of the raw material before entering and after coming out. This is done to prevent mixing in the process of certified and uncertified wood.

The CoC standard for forest plantation and community forest management, which was developed by the Royal Forest Department and ITTO, is summarized as follows:

Criterion 1: Within the forest

CoC starts with the tree before cutting, by checking movement to the point where the logs are cut and removed from the forest using documents and records within the forest area. In accordance with sustainability principles, wood cannot be processed from forests that are converted to other lands.

The Forest Management Enterprise (FME) must have a certificate stating that the FME complies with the agreed SFM certification standards and certifying that the origin of all wood has been clearly identified and documented before moving.

Figure 5 Marking the stump at the log above the cut and recording it as a traceability confirmation.

Criterion 2: Transportation

Information on the quantity, origin, and terminal point of materials should be sufficiently detailed and consistent with previous steps and the next step in the CoC system. The classification of documentation and other information for certified material should be maintained whenever it is transported

Figure 6 Log measurements and marking are essential to prevent accidental mixing.

Criterion: 3 Storage

Information on the quantity, origin, transportation, and storage should be sufficiently detailed and consistent with previous steps and the next step in the CoC system. The classification of documentation and other information for certified material should be maintained whenever products are collected together in storage for forwarding or waiting for sales.

Criterion 4: Inside processing facilities

An individual organization that controls the wood, non-wood, and products must control the materials as they enter the organization (purchasing and goods inwards), while they are managed within the organization (storage, movement, and processing), and when they leave the organization (sales and dispatch). Important issues within the organization must be subjected to classification and management to ensure that there will not be a mix between certified materials and uncertified materials. In addition, the organization should exclude material from unverified sources.

Criterion 4.1 Approval of purchases

In this requirement it must have a clear and complete document. It will indicate that the manufacturer has an order from the actual customer, which will specify the product and quantity. Documents and evidence should be as follows:

- Documentation of the purchase of certified wood, non-wood, and products.
- Documentation of the origin of wood, non-wood, and products.
- Documentation of legal transportation.
- Documentation of audit by independent auditor that the origin forest area is under sustainable management.
- Documents for inspecting the owner of the wood, non-wood, and products that the tracking and inside processing facilities are being used.
- Evidence showing that the wood, non-

wood, and products are correctly matched with the manufacturer's order.
- Evidence of purchase order must clearly specify the terms that wood, non-wood, and products must be certified.

Criterion 4.2 Verification of Delivered Wood Non-wood and Product

At the processing organization's gate, there must be adequate controls to ensure that all wood, non-wood, and products accepted into the facility are from certified or verified legal sources. Wood, non-wood, and products that are received should be checked against an approved purchase order. Wood, non-wood, and products that are received should be checked against the origin of the forest that has been certified as sustainable. If forest-based products are procured after processing for further processing and if the supplier uses a percentage-based method, the percentage of certified raw material in the goods must be known.

Criterion 4.3 Storage

Certified materials should be clearly labeled and/or segregated from other materials. A system to maintain a record or identification code of the origin of all certified materials held in stock should be established. There is a clear separation of certified and uncertified materials in the system.

Criterion 4.4 Processing

There are two optional approaches for chain of custody: 1) physical separation method and 2) percentage-based method. The supplier may choose only one approach.

1) Physical separation method: The most straightforward way to comply with chain of custody requirements is to purchase certified material, keep it separate throughout all stages of processing, and create a finished product that is 100% certified.

The status of the material should remain identifiable throughout the process and this can be achieved by using identification tags, color coding and/or unique identification numbers/marks. If marking is not possible, another method must be developed to distinguish certified and uncertified products. Batches of certified materials should be processed separately in time or space from other materials, or, should be clearly marked at each stage of the processing to ensure they are not confused with or substituted by other materials. Production runs for certified products should be undertaken on separate production lines (physical separation) or carried out at specific times from other production runs using the same production line (separation in time). Because some of the wood materials may become waste during the production process, reliable conversion ratios must be established to estimate how much product could be expected from the volume of material entering the facility. There should be regular reconciliation to ensure that the quantity of product produced that carries the sustainability claim does not exceed the amount which can be reasonably expected to be produced from the quantity of raw material used.

2) Percentage-based method: Is an optional approach for where the different products cannot be physically separated to know the proportion of certified and uncertified materials. Can use both 100% certification and percentage-based method.

Criterion 4.5 Claims and labeling

Labels are accurate and not confusing and follow the guidelines of ISO/IEC 14020 Environmental labels and declarations: General principles. For percentage- based production, labels and claims must reflect the fact that only a percentage of the wood material in the product is certified. Must have a label description.

Criterion 4.6 Sale

The terms of sale will consist of

- Must have traceability (i.e. that the product can be traced back to certified production)
- Must have identification (i.e. the product must be clearly labeled as certified)
- Must have documentation (i.e. the accompanying documentation must specify the certification status)

Criterion 4.7 Management System

The commitment of management to implement the chain of custody should be defined and documented. A member of the senior management should be appointed as the management representative to have overall responsibility and authority for the chain of custody. There is a senior manager team that is responsible for monitoring and following up on chain of custody or internal auditing at least once a year. Staff whose work affects the chain of custody should be identified and their responsibilities for implementing and maintaining the chain of custody should be established and documented. The processing organization should have a documented system that shows how certified timber is purchased, processed, and sold without mixing with uncertified timber, or with controlled mixing. This document should identify the management representative who will be responsible for overseeing the system, identifying the critical control points, and outlining the procedures for ensuring uncontrolled mixing does not occur at each point.

Internal audits covering all aspects of the chain of custody system should be conducted at least once a year, and corrective and preventive measures should be established, if required. The results of the internal audits should be documented, and the audit reports should be reviewed by the senior management annually. All staff involved in implementing the chain of custody system should be made aware of their responsibilities and be provided with the necessary training to implement the system. Records of the training provided should be properly documented and kept.

Reference

https://fsc-int.maps.arcgis.com (Date: November 15, 2021)

https://pefc.org (Date: November 15, 2021)

Royal Forest Department, 2019. Guide to Criteria and Indicators for Sustainable Management of Plantations and Community

Forests. Royal Forest Department in cooperation with the

International Tropical Forest Organization (ITTO). (Thai Version)