ITTO-BMLEH
Teak in the Tropics

Bi-monthly online

ITTO-BMLEH Teak Newsletter

February 2026 - Volume 8(1)

Inside this issue

The *ITTO-BMLEH Teak Newsletter* support and facilitates teak and other tropical species networking and information dissemination in the Asia Pacific and West Africa through ITTO member countries and partners, and support sharing lessons of the project through short news release, occasional papers, project related research and development information. The bi-monthly newsletter is released online through TEAKNET webpage www.teaknet.org and co-hosted by Kasetsart University, Thailand.

For more information,

please contact PK Thulasidas (thulasidas.teak@gmail.com) or Yongyut Trisurat (fforyyt@ku.ac.th)

Rising Threats of Loranthaceae Infestation in Teak Plantations in Togo: Field Monitoring under ITTO–BMLEH Teak Project

Adzo Dzifa KOKUTSE and Kouami KOKOU
Faculté des Sciences, Université de Lomé, Togo
Email : mimidam@hotmail.com

Togo's forestry sector has long acknowledged the pivotal role of rural communities and smallholders in promoting sustainable forest management (SFM) and addressing deforestation and land degradation. Following the decline of natural teak (*Tectona grandis*) stands, plantation teak emerged as a strategic alternative, providing both economic and ecological benefits. Teak plantations, often integrated with food crops through agroforestry systems such as *Taungya*, have become an important source of income for smallholders in Asia-Pacific and West Africa. In 2024, at the global level, teak contributes to a timber trade valued at approximately US$ 626 million annually, or US$ 52 million/month on average (Kollert and Arvydas, 2025).

Despite this considerable potential, the sector continues to face persistent and interrelated challenges, including overexploitation, illegal logging, limited access to financing, insecure land tenure, increasing exposure to climate variability, and growing phytosanitary threats. Among these threats, parasitic plants of the Loranthaceae family ***(Photo 1)*** have emerged as a particularly serious and under-addressed constraint to the sustainability and productivity of teak plantations in Togo.

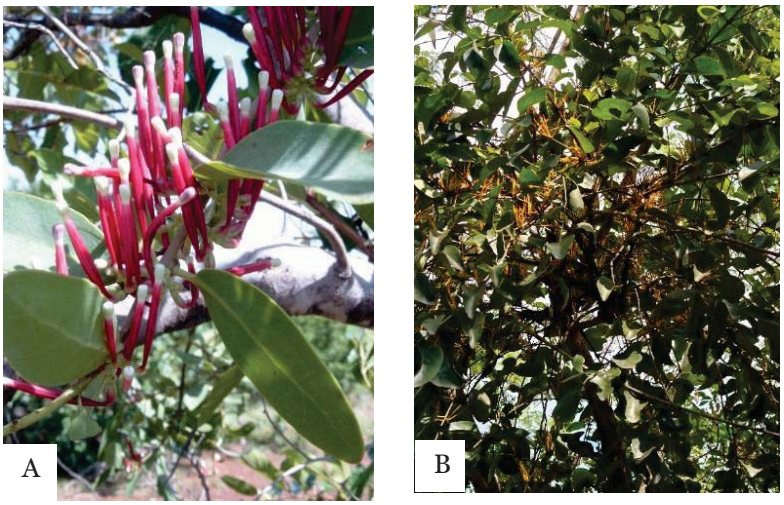


Photo 1: A. *Loranthus sessilifolius* P. Beauv. ; B: *Phragmanthera nigritana* (Hook.f. ex Benth.) Balle

Within this context, the ITTC–BMLEH project "Promoting Quality Timber Production in Smallholders and Community-based Teak and Other Valuable Species Plantations in the Tropics" is being implemented in Togo through a close collaboration between the Forest Research Laboratory (LRF) of the University of Lomé and national partners. Field activities are currently being conducted across several representative ecological zones in the country. As part of the project's first activity "Conservation of teak and valuable species genetic resources (seed orchards, provenance trials, A plus tree identification and monitoring)", a comprehensive assessment of the phytosanitary condition of teak plantations is underway. This work is conducted by Mrs. LAODJASSONDOU Djatoubaï Esso-Solam Honorine, within the framework of her Master's degree in Forests and Climate Change at the University of Lomé **[Box 1].**

The monitoring results revealed that infestation of teak plantations by parasitic plants of the Loranthaceae family, mainly *Tapinanthus* spp. (*Loranthus* spp.), a semi- stem parasite and (*Fragmenthera* spp.), has become a growing and worrying problem across Togo **(Photo 2 and 3).** Nationwide inventory data show that teak stands of all ages and structural types are affected, although infestation levels vary markedly between ecological zones **(Figure 1).**

Legends

Zone	Geomorphology	Ecogical features	Ecosystem
1	Plains of the North	Sudanian climate	The predominant vegetation are Sudanian savannas dominated
2	Northern part of Togo Mountains	Tropical climate	Hilly dry forest and savannah mosaic zones
3	Plains of the Center	Tropical climate	Guinean savannas are interspersed with islands of semi-deciduous forest
4	Southern part of Togo Mountains	Transitional subequatorial climate.	Dense semi-deciduous forests.
5	Coastal plains	Subequatorial climate	Very degraded plant formations with highly anthropogenic savannas, coastal thickets, halophilic or swampy grasslands, mangroves, fallow land and crops

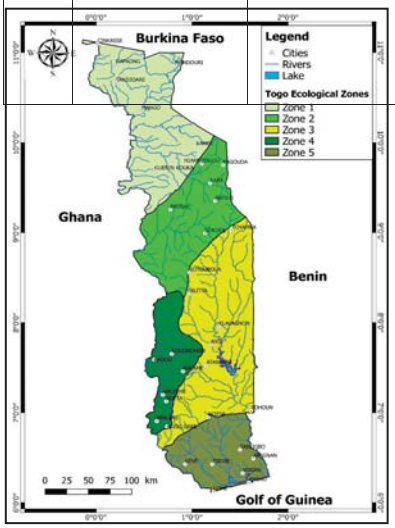


Figure 1: Ecological zones of Togo

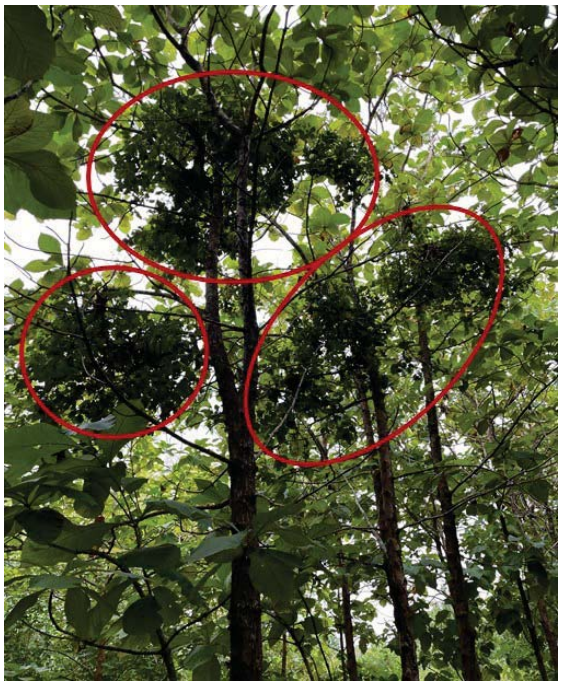


Photo 2 : Teak trees infested by *Tapinanthus (Loranthus)*

Photo 3: Inventory activities of infested tree in different ecological zones of Togo

In ecological zones I and II, infestation rates remain relatively low, ranging between 8% and 12%. In contrast, zones III, IV, and V show alarmingly high infestation levels, between 70% and more than 80% of plantations. In the most affected areas, infestation intensity can exceed 560 parasite clumps per hectare, indicating severe pressure on plantation health and productivity. Although the majority of infested trees currently carry light infections (Level 1, corresponding to 1–5 parasite clumps per tree), heavier infestation levels are increasingly observed in several zones. Statistical analyses (ANOVA) consistently show that larger and taller trees are significantly more affected, with infested individuals exhibiting higher mean diameter at breast height (DBH) and height across almost all ecological zones. This pattern suggests that mature and dominant trees are particularly vulnerable to parasite establishment and spread.

Spatial analyses further highlight clear differences among Loranthaceae species. *Tapinanthus bangwensis* stands out as the most aggressive and widely distributed species, exhibiting a very high colonisation index across multiple ecological zones. *Tapinanthus sessilifolius* shows a moderate establishment capacity, while *Agelanthus dodoneifolius* and *Tapinanthus pentagonia* remain restricted to specific zones and display relatively low colonisation levels.

Environmental factors play a critical role in shaping infestation patterns. Colder, higher-altitude, and more humid zones are significantly more prone to Loranthaceae infestation, whereas hydromorphic lowland areas tend to show limited parasite presence. In addition, several biotic factors contribute to the spread of infestation, including the proximity of fruit trees, fallows, and other already infested woody vegetation, which act as reservoirs and facilitate parasite dispersal.

The consequences of Loranthaceae infestation on teak productivity are substantial. Increased host-parasite relationship progressively weakens host teak trees, leading to crown deformation, branch breakage, and top dieback. In the most severely affected plantations, particularly in ecological zone IV, mortality rates can reach up to 125 dead trees per hectare. Such structural degradation directly reduces timber yield and quality, undermines plantation profitability, and threatens the long-term sustainability of teak-based livelihood systems.

These findings underscore the urgent need to integrate Loranthaceae management into national teak plantation strategies. Continued surveillance, targeted silvicultural interventions, and the development of adaptive management practices are essential to limit further spread and mitigate impacts. Within the framework of the ITTO–BMLEH Teak Project, the results generated through this field-based research provide a critical scientific foundation for future management interventions aimed at safeguarding the productivity, genetic resources, and long-term sustainability of smallholder and community-based teak plantations in Togo.

[BOX-1]

Mrs. LAODJASSONDOU Djatoubaï Esso-Solam Honorine defended her Master's thesis on 30 January 2026 at the University of Lomé (Photo 4). This academic milestone will formally consolidate the scientific findings generated through extensive field monitoring and analysis, while also strengthening national research capacity on plantation health and climate-resilient forest management. The thesis is expected to provide valuable evidence-based insights to inform future decision-making, support adaptive management of teak plantations, and reinforce the contribution of young researchers to sustainable forestry development in Togo.

Photo 4 : Thesis defense by Mrs.LAODJASSONDOU Djatoubaï Esso-Solam Honorine (right) with the jury, including the supervisor Prof. Kokutse and coordinator of ITTO–BMLEH Teak Project

Federal Ministry of Agriculture, Food and Regional Identity

6th Webinar: Timber Transportation Efficiency

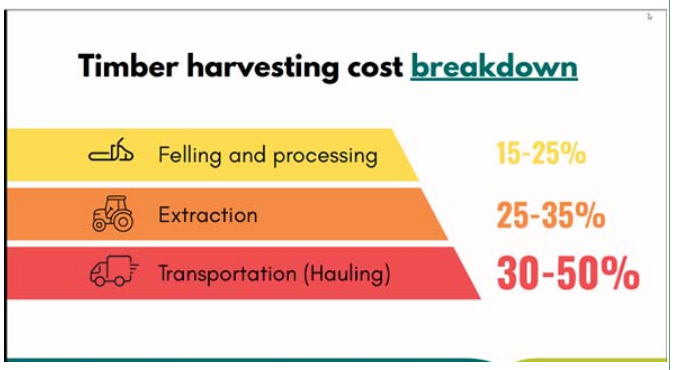
18 December 2025

The sixth webinar on the topic "Timber Transportation Efficiency" was held on Thursday, 18 December 2025 under the ongoing second phase of the ITTO-BMLEH teak project, *"Promoting Quality Timber Production in Smallholders and Community-based Teak and Other Valuable Species Plantations in the Tropics (PP-A /54-331A)."* This project is to promote high-quality smallholder and community-based teak and other valuable timber species production in the Asia-Pacific and West Africa. The webinar was moderated by Prof. Yongyut Trisurat, Faculty of Forestry, Kasetsart University, Bangkok and Dr. Nurudin Iddrissu, Director of Trade and Industry Division of ITTO offered the opening remarks.

At the event, Associate Professor Nopparat Kaakkurivaara of Kasetsart Univeristy, Faculty of Forestry presented an in-depth overview of tropical timber transportation, and explored challenges and solutions for the industry using case studies and best practices followed in Scandinavian countries and other regions.

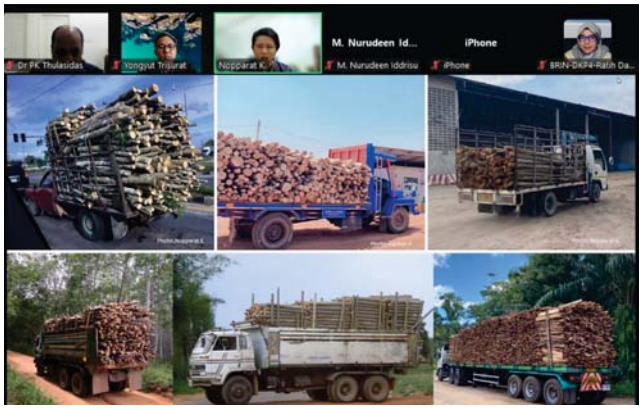
The presentation by Dr. Nopparat is divided into two parts: primary transportation (short distance) and the secondary

transportation (long distance) of logs from the forest to the sawmill industry and the end-users. Timber transportation is an important intermediate supply chain process which can take up 30-50% of the overall transportation cost as shown in the below slide.



Inefficiencies and challenges arising from operational, infrastructural, regulatory, economic, and environmental factors lead to higher market prices, affecting overall supply and demand is the core of her talk. If we can save at least a small part of the transportation costs, it will improve the efficiency and save money, said Dr. Nopparat. In Thailand, 90% of the timber transport is carried out by road and loading and unloading is often done manually and is unproductive.

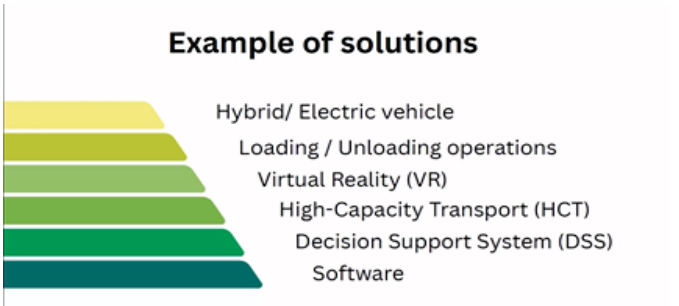
Unlike in other countries, rail transport is seldom used in Thai timber market, and waterways are only used for transporting wood products to export destinations.



Different types of trucks and machineries are being used to load the logs, branches and chips in the forest plantations that are carried to the sawmills. While in Scandinavian countries such as Sweden and Finland, as well as other EU nations, automated mechanised trucks with minimum human labour is employed in the forestry logging sector, this practice is not being commonly adopted in Thailand and Asian countries. The loading and unloading are done manually and are sometimes time consuming and unskilled labour intensive process; the trucks carrying the loads often faces accidents on forest roads due to uneven loading weights. Dr. Nopparat outlined the key challenges and operational difficulties in smallholder plantations due to irregular log sizes except FIO's, and the regulatory economic (e.g., limitations on truck size and transport permits) and environmental challenges. She also suggested possible solutions towards reducing transportation costs and economic benefits.

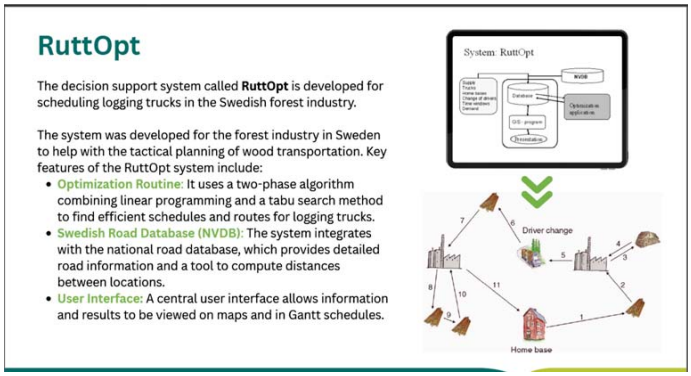
Innovation is essential in the timber transport sector, even small gains in transportation efficiency can generate significant cost savings for plantations and producers.

The solutions she presented fell under one common theme: applying innovation and best practices to leverage efficiencies and ultimately reduce prices. She showcased the digital technologies for operational improvement for weighing, planning, and monitoring and showed how forestry companies in Sweden and other countries have employed "smart" technology to increase payloads, simplify loading, and minimize the environmental footprint of timber transportation.



Calibrated Route Finder systems were shown to identify the most efficient transportation routes, reducing distances, driving time, fuel consumption, and maintenance needs.

Dr. Nopparat shared that other software solutions provided by organisations such as European Module System (EMS), Sweden's Calibrated Route Finder (CRF) System to optimise the best routes, the RuttOpt system developed for scheduling logging trucks to increase overall sustainability of timber transport.



According to Dr. Nopparat, solutions are context dependant and her presentation underscored that timber transportation efficiency is not only a technical issue, but a key aspect of the supply chain which impacts costs, competitiveness, and sustainability.

She concluded her talk with a message of hope: "The future of transport is smart, sustainable, and built to create less waste, cost, and harm."

Post 5th World Teak Conference 2025 and ITTO Side Event

The second speaker was Prof. Yongyut Trisurat, Regional Project Manager of the ITTO-BMLEH project, debriefed the outcome of 5th World Teak Conference (WTC) held on 17-20 September 2025, Kerala, India in which ITTO organised a special Side Event on 17th September wherein he led a team of 29 delegates from participating countries including the ITTO Executive Director, Ms. Sheam Satkuru.

THEMATIC SESSIONS

Session I & II (combined):
- Financial Analysis, Value Addition, Markets And Legal Supply Chains

Session III:
- Recent advances in teak genetics and stand management of natural and planted teak forests

Session IV:
- Management models for smallholder teak plantations and agroforestry systems in Asia, Africa and Latin America

Session V:
- Environmental protection, biodiversity conservation and Forest Landscape Restoration

Special Session:
- Forest Stewardship Council (FSC) Session on Responsible Sourcing of Teak: EUDR and Beyond

Two panel discussions
- Global teak resources, market assessment and trade
- The role of planted teak forests in building resilient landscapes

Prof. Yongyut noted that the WTC highlighted the global significance of teak, a species grown in approximately 80 countries. He provided an overview of the main topics discussed during the conference sessions.

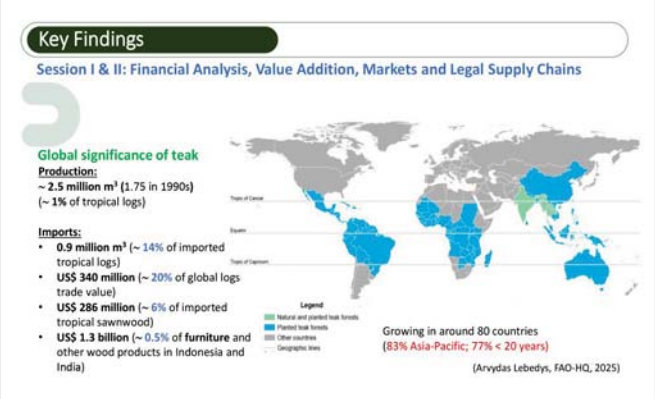
ITTO's teak project, supported by the Government of Germany, and implemented in Cambodia, India, Indonesia, Thailand, Togo, and Viet Nam, had a prominent role in the ITTO Side Event session on the first day of the conference. ITTO Executive Director, Ms. Sheam Satkuru delivered opening remarks in the Side Event.

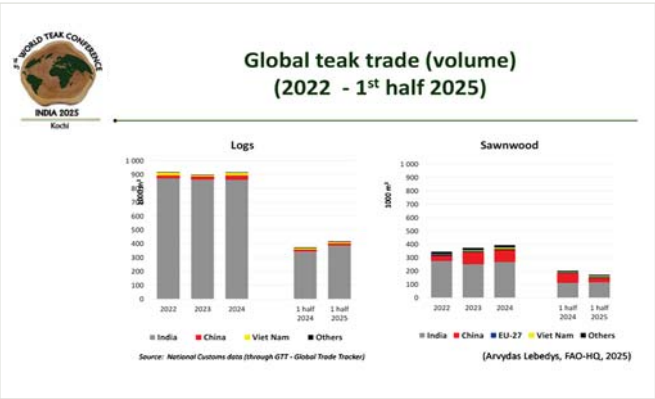
Prof. Yongyut gave a glimpse of outcomes from this session, including presentations by delegates from participating countries on their achievements and further emphasis on the importance of teak for community empowerment and sustainable development. A detailed report of the Side Event had been published in the October 2025 edition of the Newsletter Vol 7 (5). He provided webinar attendees with an overview of other key topics discussed at the WTC, including the 2024 teak trade data presented by Arvydas of FAO Rome; integration of artificial intelligence (AI), innovative management models for smallholders, challenges such as limited silviculture knowledge, and teak's contributions to environmental protection, biodiversity conservation, and forest landscape restoration.

Side Event

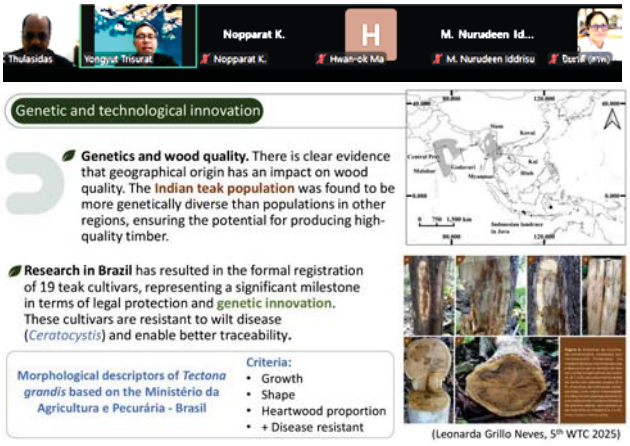
ITTO/BMLEH project, 'Promoting Quality Timber Production in Smallholder and Community-Based Teak and Other Valuable Species Plantations in the Tropics'

ITTO Executive Director **Sheam Satkuru** delivered Opening Remarks during the side event





In the subsequent thematic session of III, IV and V, innovation remained central to the proceedings at the WTC, with in-depth discussions on producing high quality planting material through tissue culture and deployment of superior quality clonal material worldwide, diversifying monoculture plantations, the genetics of wood quality, using AI in forest surveys and inventories for fast timber volume calculations of standing trees, and overall capacity building for local communities.



Using artificial intelligence (AI) to determine stand data is a promising approach to making forest surveys and inventories more efficient and reducing costs.

Advantages of AI

- A mobile application that can be used in the plantations
- Rapid, scalable, consistent, and repeatable tree volume assessment across large areas
- Reduces reliance on intensive ground surveys
- Saves several hours per plantation block, allowing faster coverage and more frequent monitoring

(Ani A. Elias, 5th WTC 2025)

Conference recommendations

On the closing day of the conference on 19th September, Dr. Walter Kollert, SC member of TEAKNET read out and released the conference communique for policy makers for action in their respective country contexts. More than 300 participants from 43 countries in 6 continents attended the conference. Please read the WTC recommendations here.

In this webinar, both the speakers highlighted the important contributions teak production systems in supporting smallholder teak communities well-being, creating employment opportunities, biodiversity conservation, and contributing to climate change mitigation and adaptation.

Watch the full webinar in the project website and download the presentations.

Report by
PK Thulasidas, Yongyut Trisurat and Tetra Yanuariadi
ITTO Teak project team

Upcoming 7th Webinar

Join us for the 7th ITTO-BMLEH Webinar **"Legality of Timber Supply Chains: Experiences and Practices in the Tropics"**

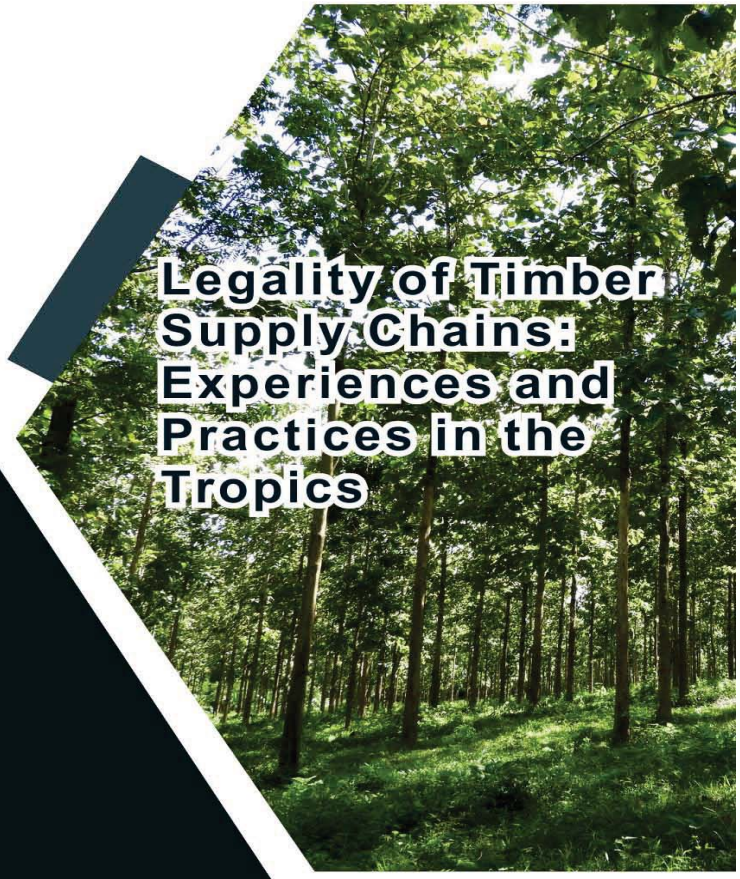
Federal Ministry of Agriculture, Food and Regional Identity

ITTO

KASETSART UNIVERSITY SINCE 1943

ITTO-BMLEH Teak and Other Valuable Species Plantations Project

Invitation to 7th Webinar:



zoom

Meeting ID:
620 285 4622
Passcode:
5uch@494

join meeting

Date: Friday, 20 February 2026

Time: 2:00 PM for Thailand, Cambodia, Lao PDR, Viet Nam and Indonesia, Myanmar: 1:30 PM, India: 12:30 AM, Japan: 4:00 PM, Ghana & Togo: 8.00 AM (GMT) and 4:00 AM for Brazil

Opening: Jennifer Conje
Director of Forest Management Division, ITTO
Moderator: Prof. Yongyut Trisurat
Kasetsart University, Thailand

This webinar is part of the Bimonthly Webinar Series (Jan 2025 – Oct 2026) under the ITTO-BMLEH project, "Promoting Quality Timber Production in Smallholder and Community-based Teak and Other Valuable Species Plantations in the Tropics" (PP-A/54-331A).

Presentations:

Timber supply chain legality in Indonesia
Mr. Ade Mukadi, Director of Forest Product Processing and Marketing, Republic of Indonesia

Ensuring Timber Legality for Sustainable Forestry Development in Vietnam
Dr. Ngo Sy Hoai, Vice President & Secretary General, VIFOREST

Q&A

THÜNEN TEAKNET

ITTO-BMLEH Teak in the Tropics

More Details of the Webinar

Date Friday, 20 February 2026

Time *2:00 PM for Thailand, Cambodia, Lao PDR, Viet Nam and Indonesia, Myanmar: 1:30 PM, India: 12:30 AM, Japan: 4:00 PM and Ghana & Togo: 8.00 AM (GMT)*

Zoom Meeting *Meeting link*

Meeting ID: 620 285 4622

Passcode: 5uch@494

Expert speakers from Indonesia and Viet Nam Followed by an interactive Q&A session

Join us to learn and exchange experiences on timber legality and sustainable supply chains.

Editorial Committee

ITTO –BMLEH Teak Newsletter is a bi-monthly electronic newsletter of the Project Team which is intended for circulation among the stakeholders of global teak sector. The views expressed in the newsletter are those of the authors and do not necessarily reflect the views of the organization. The readers are welcome to express their opinions or pass on information concerned with teak. However, we reserves the information on the project and publishing through this newsletter for our esteemed readers.

Address all communications to:
TEAKNET Secretariat
International Teak Information Network
Peechi-680 653, Thrissur, Kerala, India
Tel: +91 487 2690396; Fax: +91 487 2690111
Email: secretariat@teaknet.org