

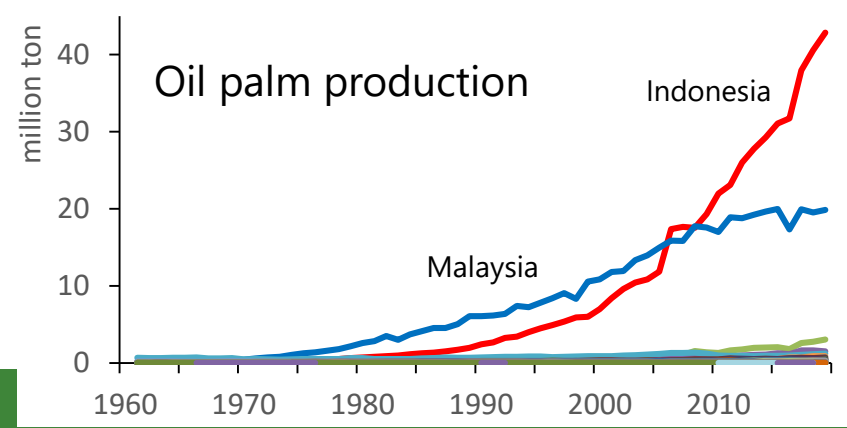
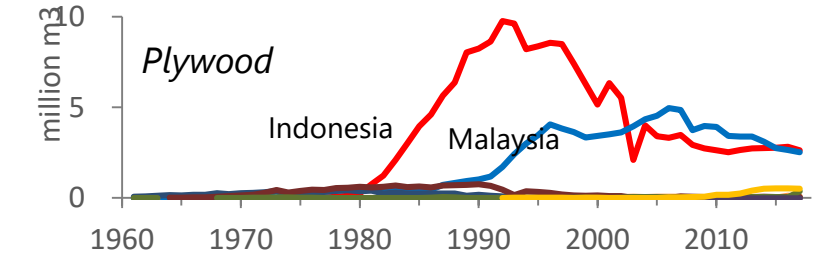
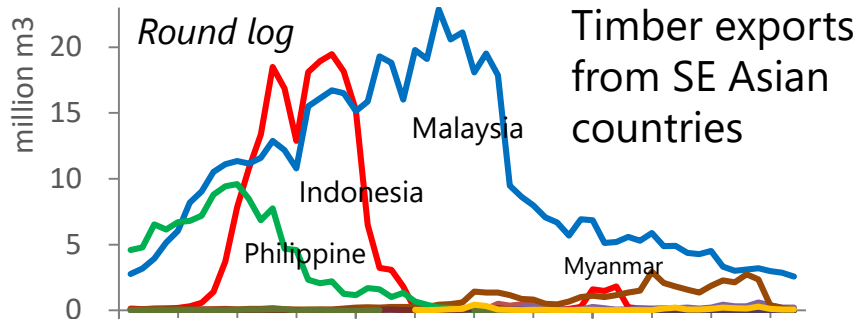
The Development of the Timber and Oil Palm Industry in Southeast Asia and International Policy for Tropical Forest Conservation

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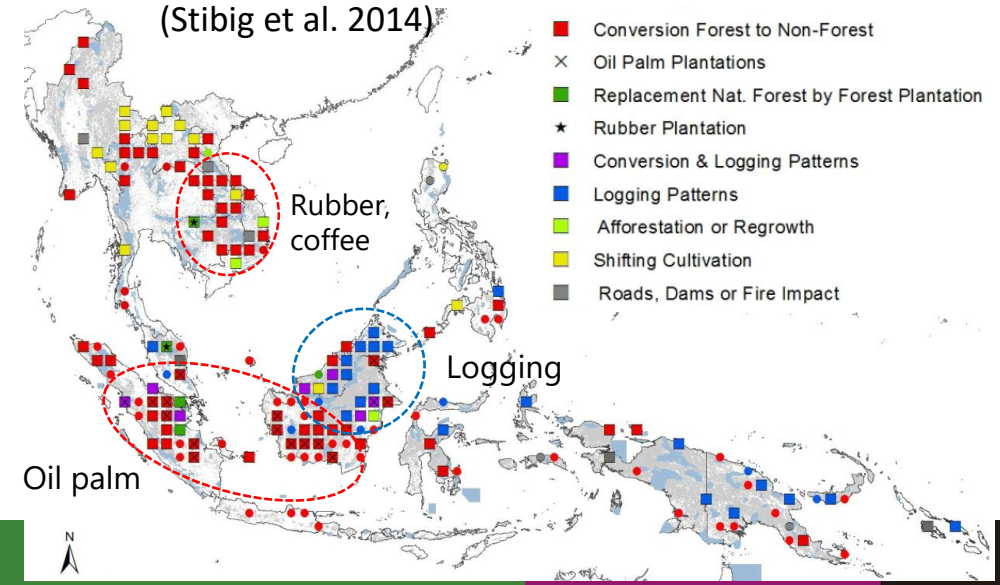
- Southeast Asia is one of the three major regions in the world covered by tropical forests with rich biodiversity
- The forests have provided various ecosystem services to local and global societies



However, the tropical forests have faced degradation and decline mainly due to,

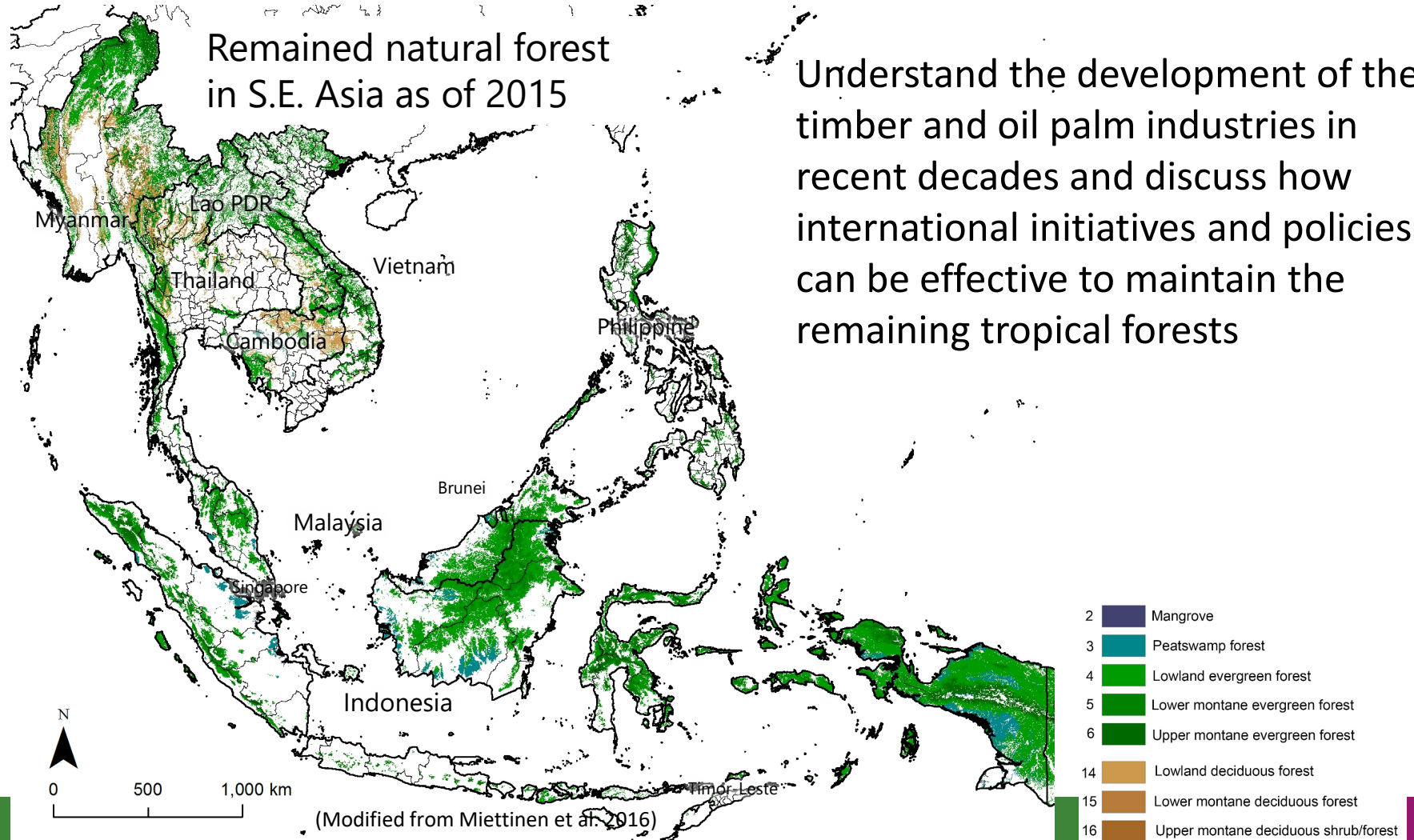
- **Commercial timber production** in the late 20th century → exported to Japan, etc.
- Expansion of **oil palm** cultivation in the 21st century → exported to India, China, EU, etc.

Major deforestation drivers 1990-2010
(Stibig et al. 2014)



Remained natural forest in S.E. Asia as of 2015

Understand the development of the timber and oil palm industries in recent decades and discuss how international initiatives and policies can be effective to maintain the remaining tropical forests



(Modified from Miettinen et al. 2016)

Commercial logging

- Vast areas of the natural forests in the region are state-owned and managed by licensed concession holders
- Selective logging methods (harvested only with a diameter >60 -45cm) were adopted, but often caused irreparable damage to forest ecosystems and local communities.
- During the political and economic crisis era in Indonesia around 2000, forest degradation was further accelerated by widespread illegal logging.

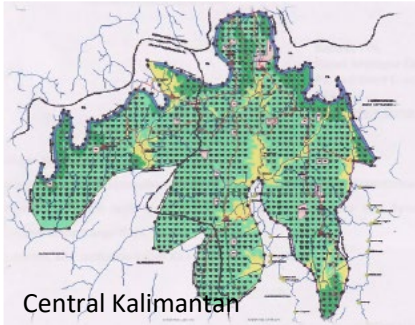


Development of sustainable forest management practices for logging concessions and the promotion with third-party verification (Forest Certification) since 1990s

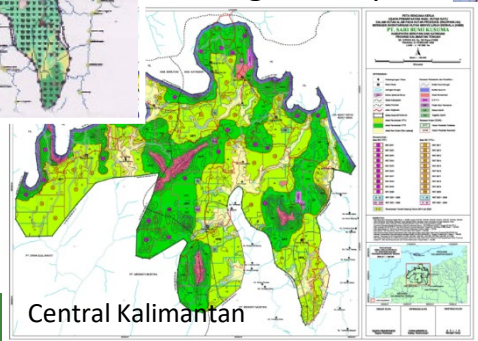
International interest
in tropical forest
destruction (Sarawak,
Amazon etc.) during
1980-90s

- 1993 FSC established
 - 1999 PEFC established
 - 2002 PHPL introduced -> 2009 mandatory (Indonesia)
 - 2017 Obligation to obtain forest certification in Sarawak (by 2024)
- } Voluntary initiatives

Whole area resource survey

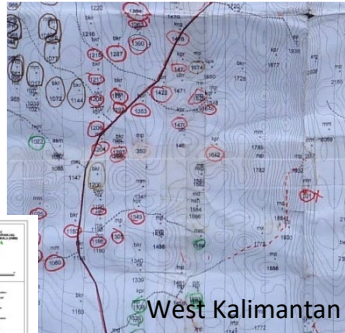


Calculation of
Annual Allowable
Cut



Long-term
management plan

Annual harvesting plan



All trees to be harvested are
mapped before harvesting

Reduced Impact Logging (RIL)



Minimize collateral
damage to non-target
trees during harvesting

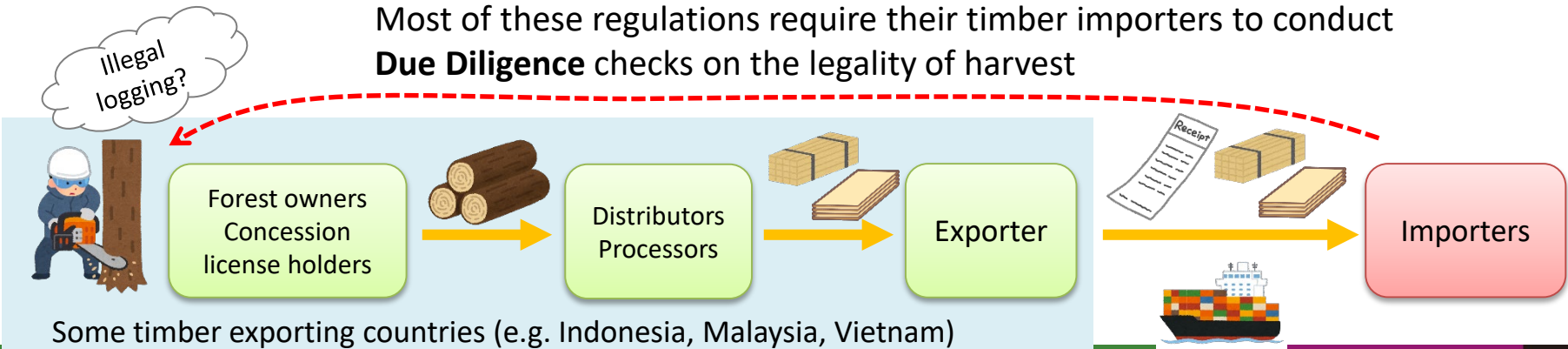


Timber importing countries have introduced regulations to control illegally harvested timber since 2000s

Illegal logging after the Asian Financial Crisis 1997 (Indonesia), etc

- EU Timber Regulation (2010)
Deforestation Regulation (2023)
- USA Revision of Lacey Act (2008)
- Australia Illegal Logging Prohibition Act (2012)
- Japan Revision of Act on Promoting Green Procurement (2006)
Clean Wood Act (2016, revised in 2023)
- S. Korea Act on the Sustainable Use of Timbers (2017)
- China Revision of Forest Act (2019)

Most of these regulations require their timber importers to conduct **Due Diligence** checks on the legality of harvest

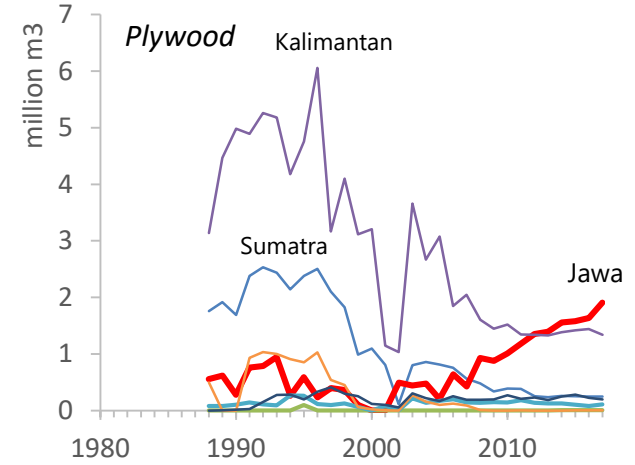
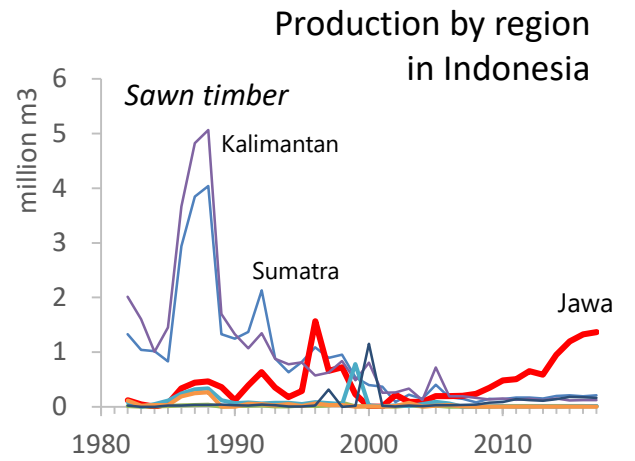


Some timber exporting countries (e.g. Indonesia, Malaysia, Vietnam) established **Timber Legality Assurance Systems** to link legality information

Growth of small-holders tree farming



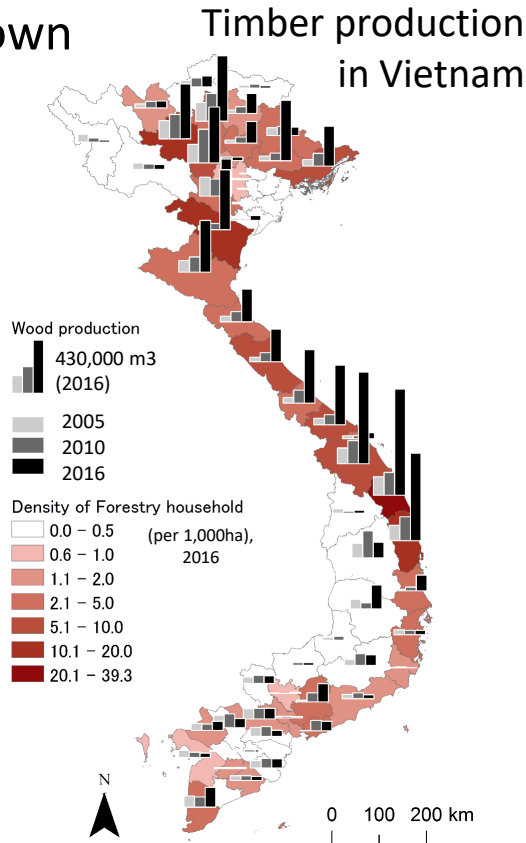
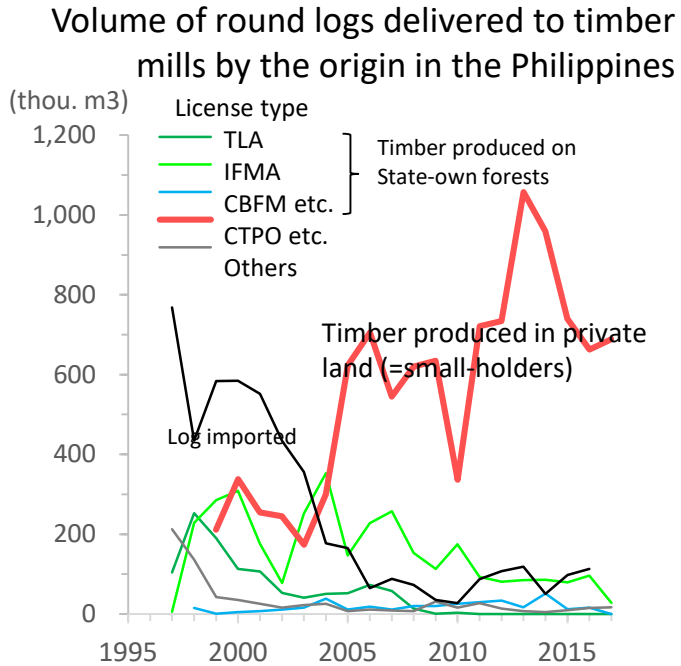
Expanding cultivation of fast-growing trees for building materials (e.g. *falcata*) in Java has changed major production areas of timber products in Indonesia



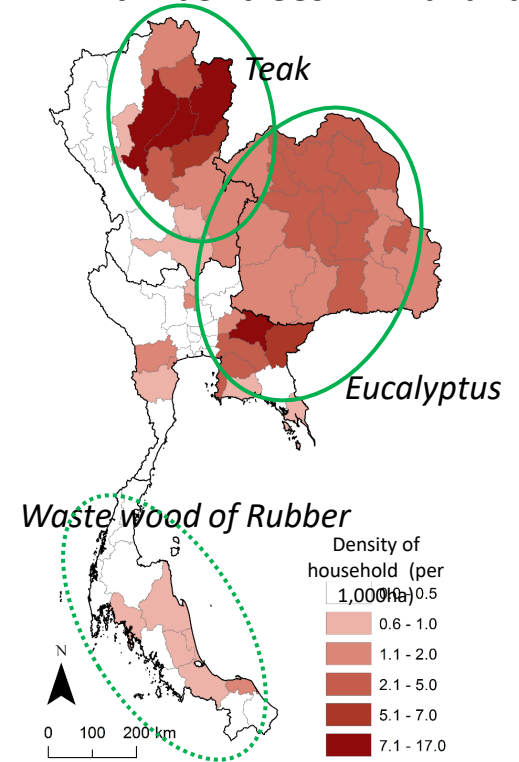
Sawmill and veneer factories in villages



Small-holder tree farming has grown in several regions of SE Asia



Households cultivating timber trees in Thailand



Small-holder tree farming is suitable for protecting the remaining natural forests and for social welfare. However, supporting it by forest certification and Due Diligence of timber legality is not easy.

Oil palm

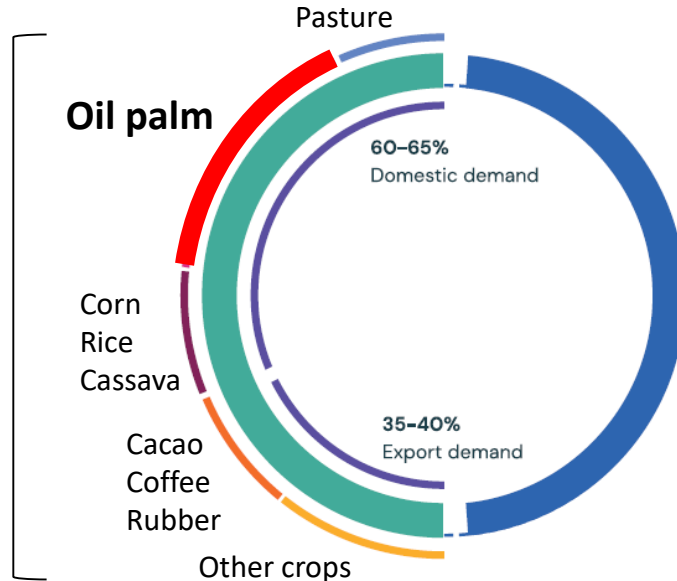
- Palm oil is the most consumed vegetable oil in the world (35% in 2022).
- The high productivity and low cost contribute to global food security
- However, the development of oil palm plantations has caused severe deforestation and land grabbing from local communities in Indonesia and Malaysia



- **Oil palm is the largest deforestation driver in South & SE Asia.**
- **However, there are also vast areas of land deforested for agricultural development but not yet in production.**

Deforestation area in South & SE Asia during 2011-2015

>1.1 M ha/year
Deforestation
Resulted in
agriculture
production

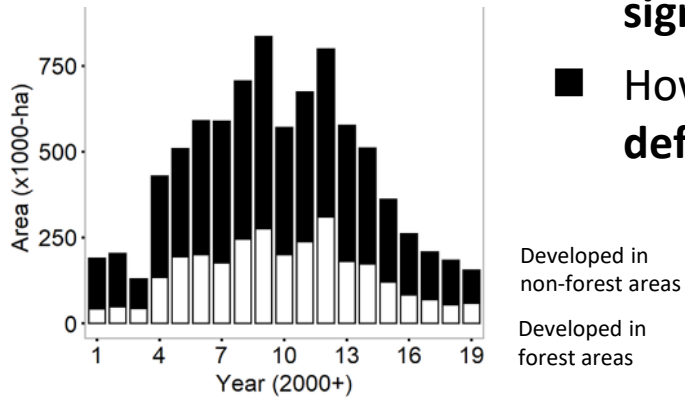


(Pendril et al. 2022)

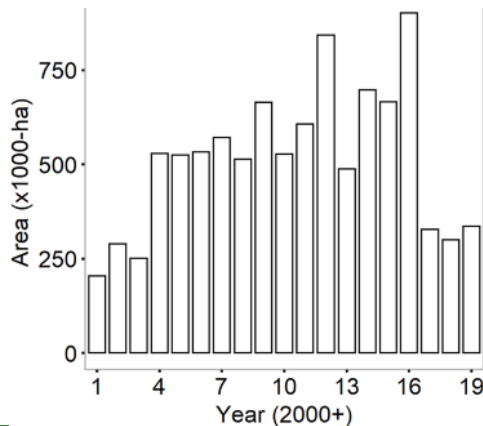
1.1-1.2 M ha/year
**Deforestation without expansion of
agricultural production**

- Unrecorded agriculture area and production
- Crop booms and bursts
- Land speculation
- Low suitability land or inadequate management
- Unclear or contested land tenure
- Fire spreading from forest clearing and land management

(a) Annual oil palm expansion in Indonesia



(d) Forest loss in Indonesia



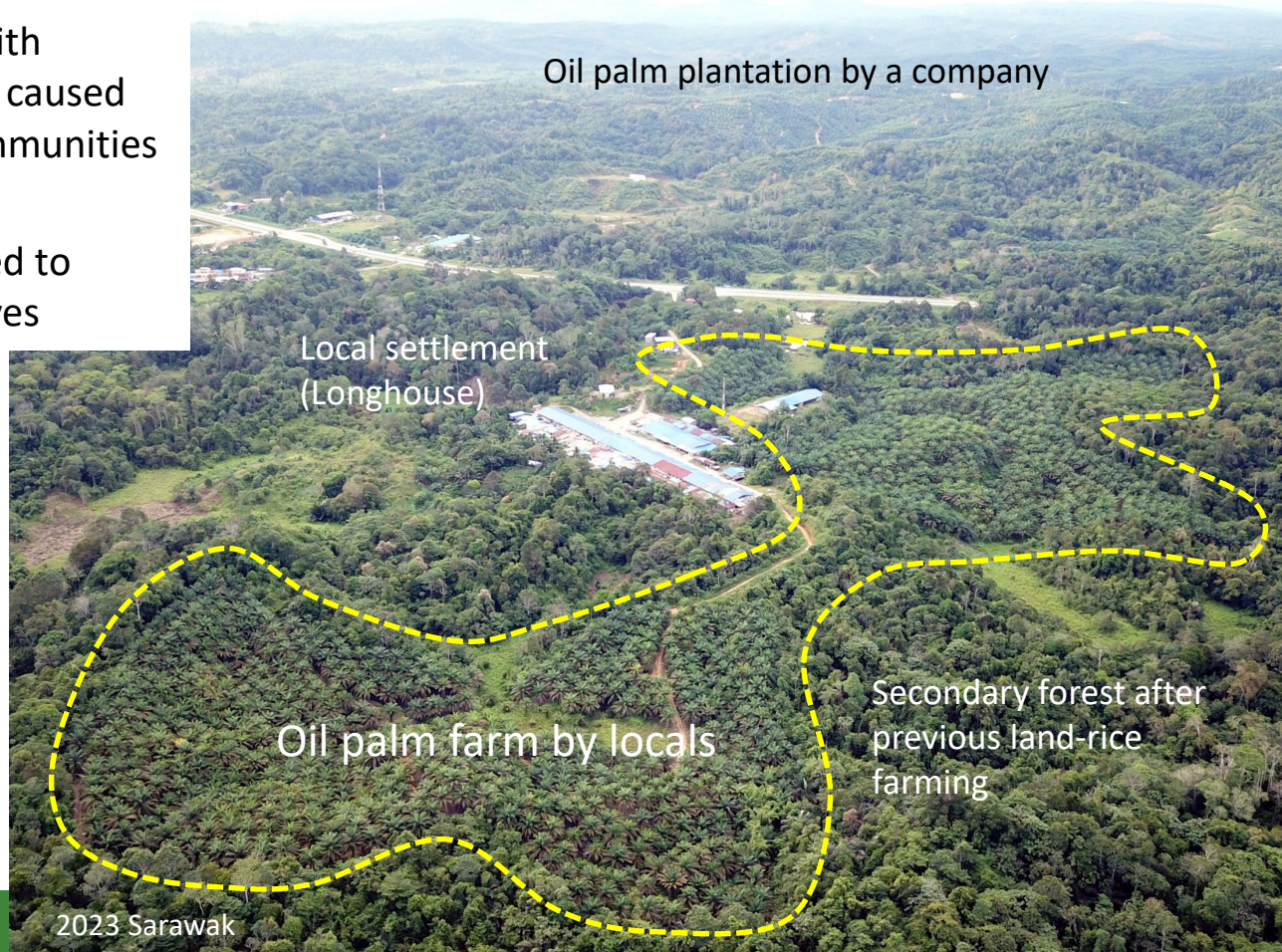
- The expansion of oil palm has been Indonesia's **most significant deforestation driver** in the past 20+ years.
- However, the **plantations were not always developed with deforestation**.
 - One-third of the deforested area was converted into oil palm plantations (industrial plantations + small-holders)
 - The expansion and deforestation peaked in the late 2000s and early 2010s (more than 500,000 ha per year)
 - However, **the area of new plantations developed from non-forests was larger than the area from forests through the time**

➔ Improving land use efficiency is important to increase oil palm production without deforestation

Expansion of oil palm farming by smallholders

- Oil palm cultivation started with industrial plantations and has caused negative impacts on local communities in various places in SE Asia
- However, small-holders started to cultivate oil palm by themselves

Drastic transition of major livelihood from land-rice farming (+ rubber and pepper) to oil palm farming in rural areas of Borneo



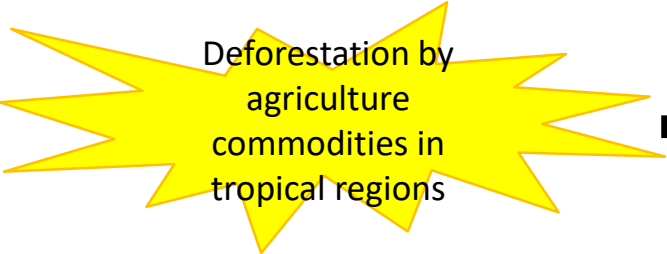


Collectors of the fruits



- Oil palm farming by small-holders has grown (about 25% of the total planted area in SE Asia in 2019*) with flexible networks of fruit collectors and **contributed to the well-being of communities**
- However, the expansion sometimes causes deforestation.

*: Calculated from Descals et al. 2021



Deforestation by
agriculture
commodities in
tropical regions

- Voluntary initiative by private companies in importing countries (e.g. using RSPO)
- Governments pledged to end deforestation by 2030
 - 2014 New York Declaration on Forests
 - 2021 Glasgow Leaders' Declaration on Forests and Land Use

2023 EU Deforestation Regulation (EUDR)

- Prohibit to place six forest-risk commodities (cattle, cocoa, coffee, oil palm, soya, and wood) derived from **illegal production** and/or **deforestation from 2021** onward from being placed on the EU market.
- Obligate all the importers to submit a Due Diligence Statement, including **geolocation coordination** of the production sites

Nevertheless, the DD requirements have been criticized that they could negatively impact the small-holders with complex supply chains

Conclusion

- Timber and oil palm have been major deforestation drivers in SE Asia in these decades
- Timber
 - Sustainable forest management has been promoted to reduce the negative impacts of logging
 - Timber production by small-holders is partially replacing timber production from large companies concessions
- Oil palm
 - Land use efficiency is important to enable palm oil production without deforestation.
 - Small-holder farming of oil palm can contribute to the well-being of the local communities
- Initiatives in consuming countries for forest conservation in the producing countries can only be effective by considering the sustainable development of the local communities.