In 1970-1990 deforestation and land degradation were mainly caused by massive logging activities.

Deforestation and peatland degradation also occur due to the expansion of agricultural areas which have begun on a large scale since 1970 and reached its peak in 1996 which was marked by One Million Hectare Peatland Development project in Central Kalimantan.

Land use changes, both direct and indirect, occur on a large scale due to the expansion of oil palm plantations (currently around 16 million hectares).

Open pit mining primarily coal mining also contributed to deforestation and land degradation.
SUSTAINABILITY OF PALM OIL INDUSTRY IN INDONESIA

ECONOMIC:
• Palm oil is an important and strategic commodity for the Indonesian economy.
• The largest palm oil producer (47 million tons annually).
• 13% of Indonesia's total export value.

SOCIAL:
• 41% of oil palm plantations in Indonesia are smallholders.
• 4.2 million direct employment and 12 million indirect employment.
• Land tenure conflict between villagers and large plantation owners.
• Weak bargaining power of smallholder's plantation.

ENVIRONMENTAL:
• Conversion of high carbon stock forest and peatland.
• Illegal smallholder plantation in conservation area and national park.
• Triggered international tensions.
The Ministry of Environment and Forestry has been implementing a massive land and forest rehabilitation (LFR) program nationwide.

Community empowerment is the mainstream of LFR implementation throughout Indonesia, starting from breeding, planting, and maintenance.

As of March 22, 2021, the second year of the implementation of LFR at Tesso Nilo National Park has maintained an area of 6,038 ha.

The number of people involved in the program is 1,057 people, with 20,409 man working days. The implementation target reaches 15,100 ha.

All seedlings are selected not only as a function of greening, but also have economic value.

The villagers admitted that the LFR program really touched and empowered the community so that it brought economic benefits.

"Since the existence of LFR, people’s attitudes have changed.

This way the community will protect the forest and land area.
Between 2016-2020, PMRA has conducted 3R works (Restoration, Revegetation and Revitalization) around 835,228 hectares of peatland.

The 3R works including drilled wells 13,869 units (fire suppression), canal bulkheads 6,631 units and canal blocking 324 units for rewetting, revegetation of 1,187 hectares and revitalization of 801 units of community livelihood.

In 2021, 774 canal bulkheads and 110 drilled wells were built, revegetation of 325 hectares and revitalization of 279 units of community livelihoods.

By 2022, the Peatland and Mangrove Restoration Agency (PMRA) targets the restoration of 360,000 hectares of peatland and 228,200 hectares of mangrove area.

The 3R works are conducted based on the cooperation between villages in one landscape of the Peat Hydrological Unit.

PMRA also supervises the plantation companies with an area of restoration targets of around 538,239 hectares.
Since 2014, Unilever has been working with smallholders plantation. Supports independent smallholders who have been roundtable sustainable palm oil (RSPO) certified by purchasing independent farmer credit.

2020 was the year when Unilever dominated the purchase of independent farmer loans with the total transaction value of USD 700,000.

The fund is managed directly by cooperatives or independent farmer groups, which number around 19 groups.

In addition to Unilever, there are several other buyers who also buy independent farmer credits, but the volume purchased is not too large. These buyers are Pepsico, Act, Body Shop, Estee Lauder, Fellekjoopet, Bayer AG and Bali Shop.

The presence of other buyers is very helpful for independent smallholders to continue to implement sustainable palm oil standards.

As of 2020, there are approximately 29 cooperatives or independent farmer groups that are RSPO certified.

This corporate initiative is expected to be a trigger for other independent smallholders to participate and be involved in the implementation of sustainable palm oil standards.
PALM OIL EXPORT DUTY POLICY

PALM OIL EXPORT TAX IS COLLECTED AND USED TO FINANCE THE FOLLOWING PROGRAM:

REPLANTING SMALLHOLDERS’ OIL PALM (RSP). RSP is a program to help smallholders replant their oil palm plantations with more sustainable and higher yield of oil palm, and reduce the risk of illegal land clearing (land use, land use change and forestry -LULUCF).

BIOFUEL DEVELOPMENT AND UTILIZATION PROGRAMS. In addition to considerations of reducing oil imports, the development of palm oil-based biofuel is also to provide new renewable fuels that are more environmentally friendly.

RESEARCH AND DEVELOPMENT PROGRAMS. This program aims to provide solutions to various problems faced by the palm oil industry today ranging from plantation to the environmental aspects.

HUMAN RESOURCES DEVELOPMENT PROGRAM. Increasing productivity to produce Indonesia’s CPO production targets requires the role of human resources.

PROMOTION. The palm oil promotion program aims to: (1) improve the image of palm oil value; (2) provide palm oil market information; (3) extend palm oil market; (4) increase investment in oil palm industry; (5) foster a marketing center of oil palm commodities. The scope of activities of the palm oil promotion program includes palm oil advocacy and litigation in the face of negative campaigns against plantations and the Indonesian palm oil industry.

OIL PALM PLANTATION FACILITIES AND INFRASTRUCTURE DEVELOPMENT PROGRAM. The provision of facilities and infrastructure for smallholders can be carried out through farmer groups, farmer groups associations (GAPOKTAN).
INDIRECT LAND USE CHANGE (iLUC)
PRODUCTION
EXPANSION
OF FOOD &
FEED CROPS

<table>
<thead>
<tr>
<th>Feedstock</th>
<th>Increase of gross planted area (kha)</th>
<th>Deforestation in planted area increase (ha)</th>
<th>Share of deforestation in additional planted area</th>
<th>Share of deforestation in peat forest</th>
</tr>
</thead>
<tbody>
<tr>
<td>maize</td>
<td>37,135</td>
<td>1,548,906</td>
<td>4%</td>
<td>N/A</td>
</tr>
<tr>
<td>oil palm</td>
<td>7,834</td>
<td>5,517,769</td>
<td>70%</td>
<td>18%</td>
</tr>
<tr>
<td>rapeseed</td>
<td>3,739</td>
<td>21,045</td>
<td>1%</td>
<td>N/A</td>
</tr>
<tr>
<td>soybean</td>
<td>27,898</td>
<td>1,212,805</td>
<td>4%</td>
<td>N/A</td>
</tr>
<tr>
<td>sugar beet</td>
<td>678</td>
<td>637</td>
<td>0.1%</td>
<td>N/A</td>
</tr>
<tr>
<td>sugar cane</td>
<td>3,725</td>
<td>198,176</td>
<td>5%</td>
<td>N/A</td>
</tr>
<tr>
<td>sunflower</td>
<td>5,244</td>
<td>73,069</td>
<td>1%</td>
<td>N/A</td>
</tr>
<tr>
<td>wheat</td>
<td>11,646</td>
<td>134,252</td>
<td>1%</td>
<td>N/A</td>
</tr>
</tbody>
</table>


• During the period 2008-2015 there has been an expansion of feedstock crops resulting in deforestation including deforestation of peatlands.

• The year 2008 was chosen to ensure policy coherence with a time limit for the protection of lands with high biodiversity and lands with high carbon stocks as stated in the provisions of article 29 of RED II.

• 2008 was the first year of the 2008-2012 land use land use change and forestry (LULUCF) commitment to be part of the Kyoto Protocol established at cop 7 in Marrakech in 2001.
There are huge differences in the emission calculation results of each model.

The weighted averages of each model shows palm oil as high iLUC risk followed by soy oil.
RECOMMENDATIONS

• THE CURRENT UNDERTAKINGS ON INCLUSIVE COMMUNITY EMPOWERMENT SHOULD BE CONTINUED AND STRENGTHENED. The community-based land and forest rehabilitation program and the 3R works should be strengthened, farmer empowerment program should be extended to cover all smallholders’ plantations, and the fund collected from palm oil export duty should be used to support R&D and to improve productivity of smallholder plantation, and to restore peatland and mangrove as well.

• IF NECESSARY, THE POLICY OF MORATORIUM LAND AND FOREST CONVERSION FOR OIL PALM PLANTATION COULD BE RE-ENACTED. The governance of the moratorium on the conversion of forests and peatlands for oil palm plantations needs to be improved so that the moratorium policy can be properly implemented in the field. The success of this policy can protect existing carbon sink to help mitigate climate change, i.e., to reduce the release of GHGs from agriculture and forest land.

• THERE IS A NEED TO ESTABLISH COOPERATION AMONG GOVERNMENTS, SCIENTISTS AND RESEARCHERS GLOBALLY to explore the benefit, limitation and effectiveness of NbS concept particularly in Indonesia’s context as a tropical country.

RECOMMENDATION FOR iLUC:

• GERNOT KLEPPER (2018): Rather than continuing to discuss deforestation due to ILUC, discussions should be directed at how the real causes of iLUC can be reduced or suppressed, for example through climate- and biodiversity-friendly land use arrangements and through improving agricultural efficiency. In this way, producers and regulators can jointly reduce the risk of iLUC in producing biofuels.

• GOLDEN AGRI RESOURCES (2018): The iLUC policy is to be based on the certification system that has been carried out so far, namely international sustainability and carbon certification (ISCC), roundtable of sustainable palm oil (RSPO), Indonesian sustainable palm oil (ISPO) certification. Strengthen the use of this certification standard into the ILUC calculation methodology. Incorporate the un SDGs (goals 7 and 13) into the iLUC methodology.
THANK YOU
TESSO NILO NATIONAL PARK (TNNP)

- TNMP 83,000 Ha
- Wildlife at TNNP
- Deforestation at TNNP
- Forest Fire at TNNP
- Illegal Land Clearing at TNNP
- Illegal Oil Palm at TNNP
- Plant Nursery at TNNP
- Forest Rehabilitation at TNNP
PEATLAND AND MANGROVE RESTORATION

Canal bulkhead in Peatland

Canal blocking in Peatland

Revegetation of Peatland

Mangrove Rehabilitation

Livelihood Revitalization: Paludiculture

Mangrove Rehabilitation Conducted by Plantation Company