



Unilever

SUSTAINABLE SOURCING | 2021

Forest Footprint Report

Aceh, Indonesia case study

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Introduction

At Unilever, we recognise we are in the midst of a climate and ecological emergency, so we are challenging ourselves to achieve higher standards than ever before. This involves protecting the irreplaceable ecosystems that already exist, such as forests, peatlands and tropical rainforests.

That's why we have set ourselves an ambitious target of having a deforestation-free supply chain in palm oil, paper & board, tea, soy and cocoa by 2023.

We have formed a range of partnerships through which we are applying in-depth technological analyses to protect the forests and natural ecosystems in our supply chain. We are also aiming to encourage legal recognition of customary rights, implement regenerative agricultural land-use practices and find ways of restoring damaged landscapes.

This report looks at the work we are doing to achieve this through a forest footprint analysis, focusing on the Aceh Province of Indonesia to illustrate a blueprint that could be applied to the sourcing of all of our forest-risk commodities globally.

Photo credits: Forum Konservasi Leuser.

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We are aiming to better understand our forest footprint and have developed various partnerships that will help us gather data to support us on our journey towards a deforestation-free supply chain.

By combining this data with the information we are getting from our suppliers, we are building a geospatial information platform to pilot a forest footprint methodology based on input from our stakeholders, including civil society organisations.

To depict this method and illustrate the concept, we are initially focusing on the forest footprint of our palm oil supply chain in Aceh, analysing indicative commodity sourcing areas around the mills declared by our suppliers as part of their supply chain, coupled with the spatial data and analytics of oil palm plantation sourcing boundaries.



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While there is still a lot to be done, we are determined to improve our understanding of our forest footprint and the impact palm oil may have, so we can achieve a deforestation and peat conversion-free supply chain.



Aceh



Partnerships are critical to make this happen. We must continue to advocate for the transformation of global supply chains towards more sustainable models together with our suppliers and wider industry. This forest footprint exercise is an important step, but to truly generate meaningful change we encourage the industry to go even further and join us in building consensus on the data ecosystem and tools we can use to keep forests standing.

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Aceh Pilot Overview

Following a process to identify suppliers of forest-risk commodities and the countries they originate in, we selected the Aceh Province in Indonesia to pilot our forest footprint mapping and analysis.

Aceh has the largest intact tropical rainforest in Sumatra, particularly in the Leuser National Park and Ecosystem, and is home to various wildlife species such as the Sumatran tiger, orangutans, rhinoceroses and sun bears.



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Aceh Pilot Overview

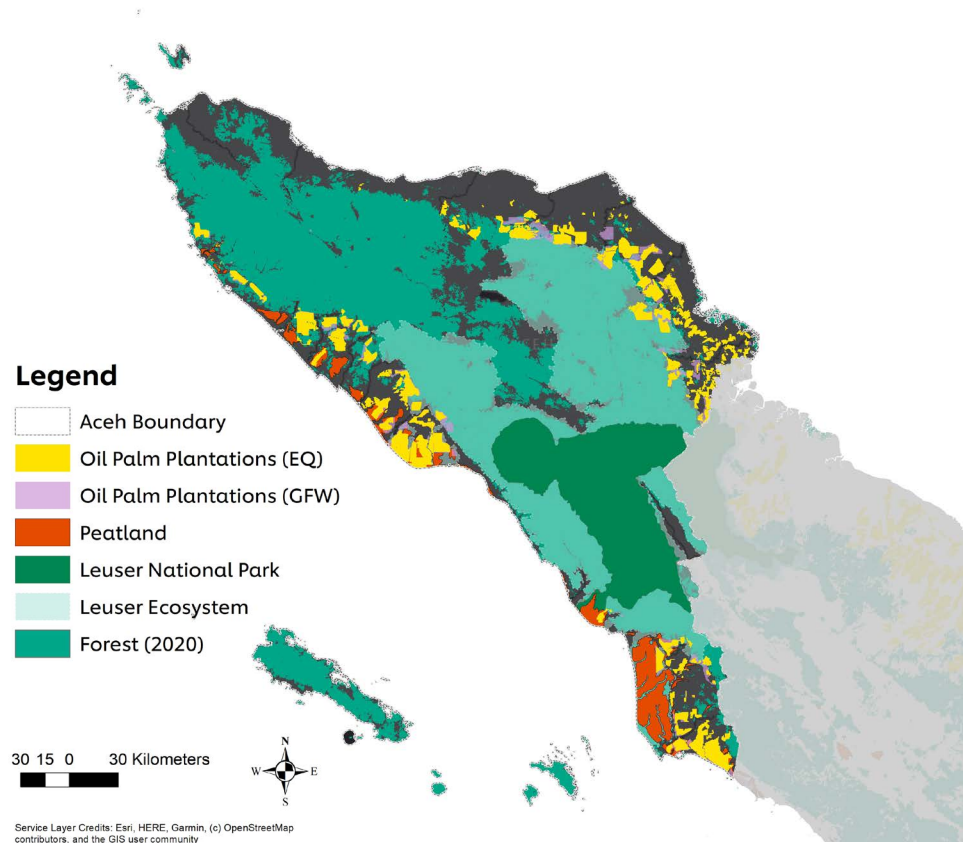


Oil palm cultivation has been expanding in the region, particularly over the last 10 years, with around 481,100 hectares (ha) of planted oil palm and 50 mills located in the province. Our suppliers declared 43 mills from which they sourced in the region in 2019, a number we plan to reduce in future taking into consideration the environmental and social risk criteria outlined in this report.

Our studies investigated several different levels of potential risk to sustainability in what is a very complex palm oil supply chain, from the oil palm concession analytics and village deforestation levels to national parks and the remaining forest surrounding mill catchment areas, to better understand how our commodities might impact the region.

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Aceh Pilot Concessions



Geospatial view of oil palm concessions, peatland and ecosystems in Aceh Province, Indonesia.

Building an accurate picture of the landbanks and the current and future oil palm plantations in Aceh Province involves collating spatial data of the oil palm concession boundaries there.

Through our partnership with **AidEnvironment** and **EarthQualizer**, we have acquired data for over 17 million ha from more than 250 oil palm growers. We also have a database of the region's oil palm concessions that was compiled by the World Resources Institute / Global Forest Watch platform alongside partners we work with on the ground in Aceh, including IDH - The Sustainable Trade Initiative and Forum Konservasi Leuser (FKL).

This gives us access to data for more than 359,700 ha of oil palm concessions in Aceh, which is analysed for deforestation, peat conversion and burning.

▶ **Case study**

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Concessions: case study



As an example of how we use information about concession boundaries for monitoring, let's take a closer look at one of the mills that was declared by our suppliers in 2020 and also part of the Unilever Selective Mill process.

Through the analytics obtained, we have identified that there was zero forest loss and peat conversion in this concession since December 2015.

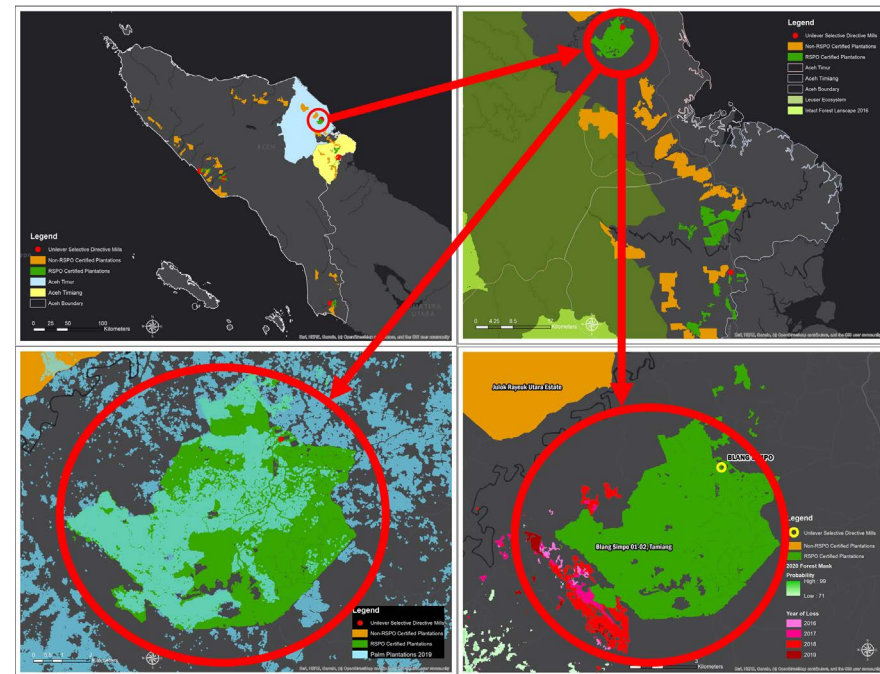
However, forest loss surrounding the concession has been detected since 2016.

Mill information	
Mill name	Blang Simpo
Palm Oil Mill ID	PO1000000706
Parent Company	Perkasa Sumber Sakti
Group Company	Sime Darby Plantation
GPS Coordinate	4.708 (Latitude); 97.838 (Longitude)
Location	Aceh Timur, Indonesia
TTP score %	100%
RSPO certified	Yes (IP)
RSPO certificate	Link
RSPO audit report	Link

Geospatial forest monitoring around concessions in Aceh province, Indonesia.

Example of the information gathered for mill Blang Simpo in Aceh, Indonesia.

We will continue to monitor forest cover in the concession and seek opportunities to engage with local stakeholders through our jurisdictional/landscape approaches and partnerships.



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Aceh Pilot Groups

The more than 250 oil palm grower profiles gathered in 17 million ha we have collated so far has provided us with details of group ownership structures and their assets. These typically include a group's concessions, mills, refineries and other palm oil facilities such as oleochemical plants.

The company ownership structure of many palm oil companies is often complex with different subsidiaries within a group. This often makes it difficult for us to monitor our suppliers' organisations for policy compliance at a group level. We have partnered with organisations including EarthQualizer and AidEnvironment to identify these groups.

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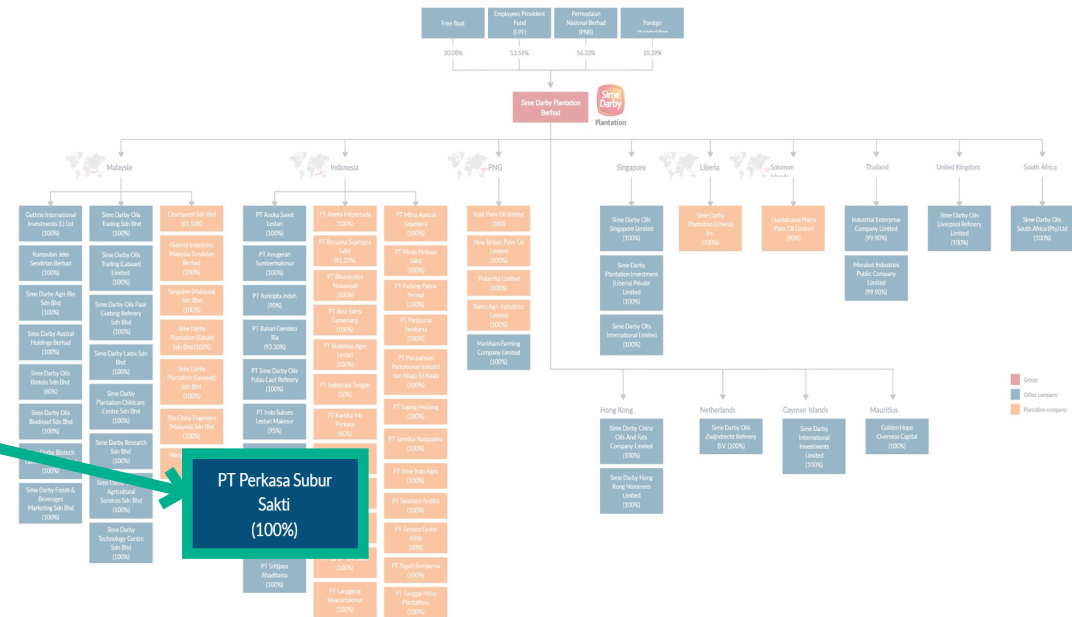
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Groups: case study



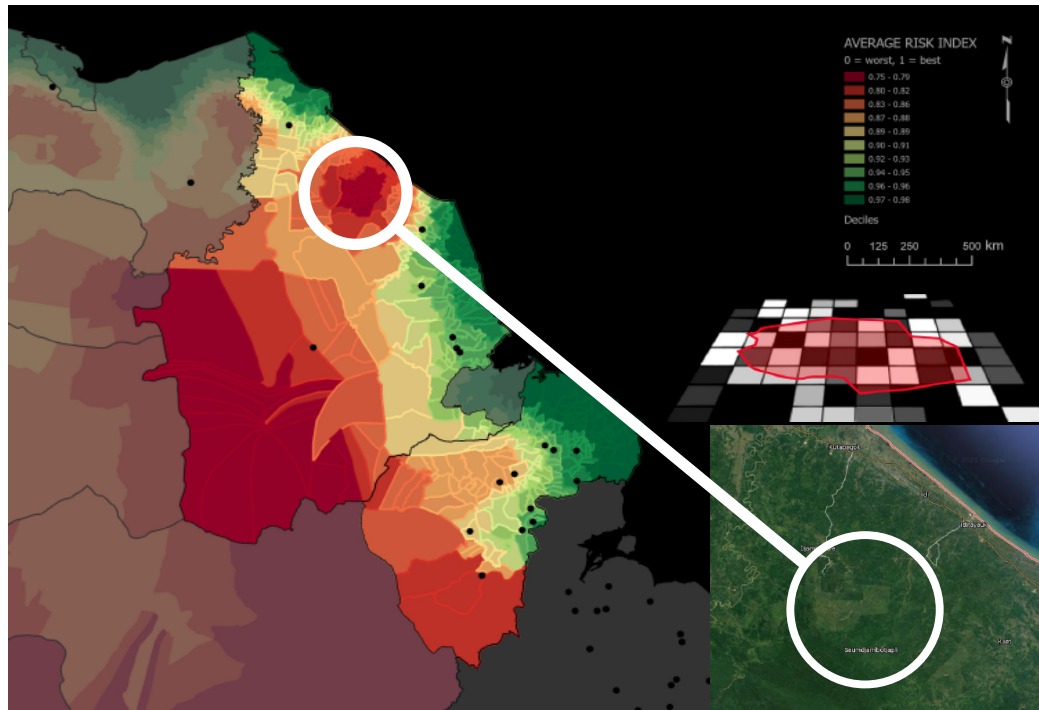
For example, our analysis of Sime Darby Plantation shows us it has more than 700,000 ha of landbanks around the world. Within the Sime Darby Plantation there are various subsidiaries such as the Blang Simpo 1 and 2 estates supplying to the Blang Simpo mill part of the **PT Perkasa Sumber Sakti** subsidiary.

Through this, we have identified Sime Darby's current oil plantation developments and landbanks so we can monitor deforestation and peat conversion compliance at a group level.



Organisational structure of Sime Darby Plantation.

Aceh Pilot Villages



Geospatial modeling of deforestation and peat land conversion risk at the village level.

As we collect traceability-to-plantation (TTP) information from our suppliers and partners including to concessions and smallholders (at least to a village level), we are developing analytics of deforestation and peat conversion risk at various administrative levels, especially at the village level.

We are working with **Descartes Labs** so we can distinguish the oil palm plantations of large-scale industrial actors from the areas where clearing and oil palm development is performed by smallholders.

The model we are using integrates stakeholder input and captures risk as a continuous spatial process that can be added to any spatial unit and applied to other commodities in the future.

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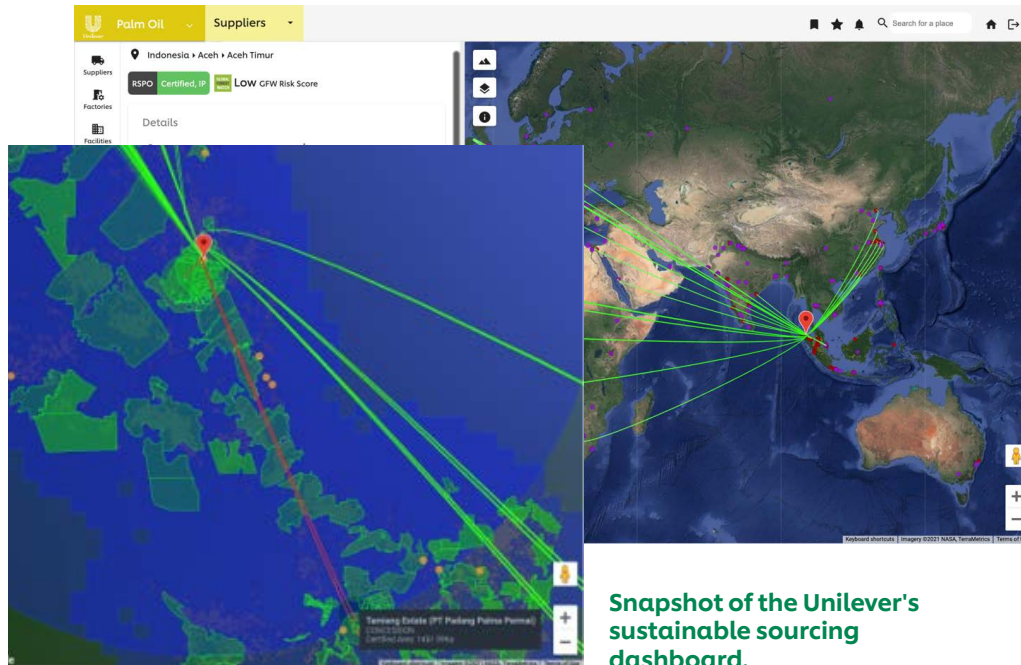
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Aceh Pilot Mills



Snapshot of the Unilever's sustainable sourcing dashboard.

We have been publishing traceability-to-mill (TTM) information since 2017 via supplier sourcing declarations, the palm oil facilities in our supply chain and our direct palm oil suppliers.

However, collecting TTM information is a major task and, while we may already have plantation data, we do not always know how it is connected with mills.

To get a clearer picture of the total land area impacted by our commodities, the platform we are developing on Google Cloud including Google Earth Engine will be capable of showing the links between plantation, mill, palm oil facility and Unilever factory.

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Around mills

The industry typically uses data on deforestation, loss of peat and oil palm planted, drawn from a **50km radius** around a mill to assess its potential impact on the area.

We estimate that, within the 50km radius of the mills declared by our suppliers **in 2020**, **there are 2,020,700 ha of forest and 201,700 ha of peat in Aceh** that need to be monitored for potential future conversion and clearing into oil palm.

Our analysis of the areas within 50km of the 43 mills declared by our suppliers **uncovered a range of data** about deforestation, peat and planted oil palm.

Planted oil palm

Peatland

Forest area

Deforestation alerts

Carbon

Biodiversity

Legend

- Unilever Selected Mills
- Unilever Mill List (2020)
- Universal Mill List
- 5km, 20km, 50km Mill Buffer
- Aceh Boundary
- Oil Palm Plantations (EQ)
- Peatland
- Leuser National Park
- Leuser Ecosystem
- Forest (2020)

30 15 0 30 Kilometers



Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

Geospatial analysis of a 50km radius around mills in Aceh province, Indonesia.

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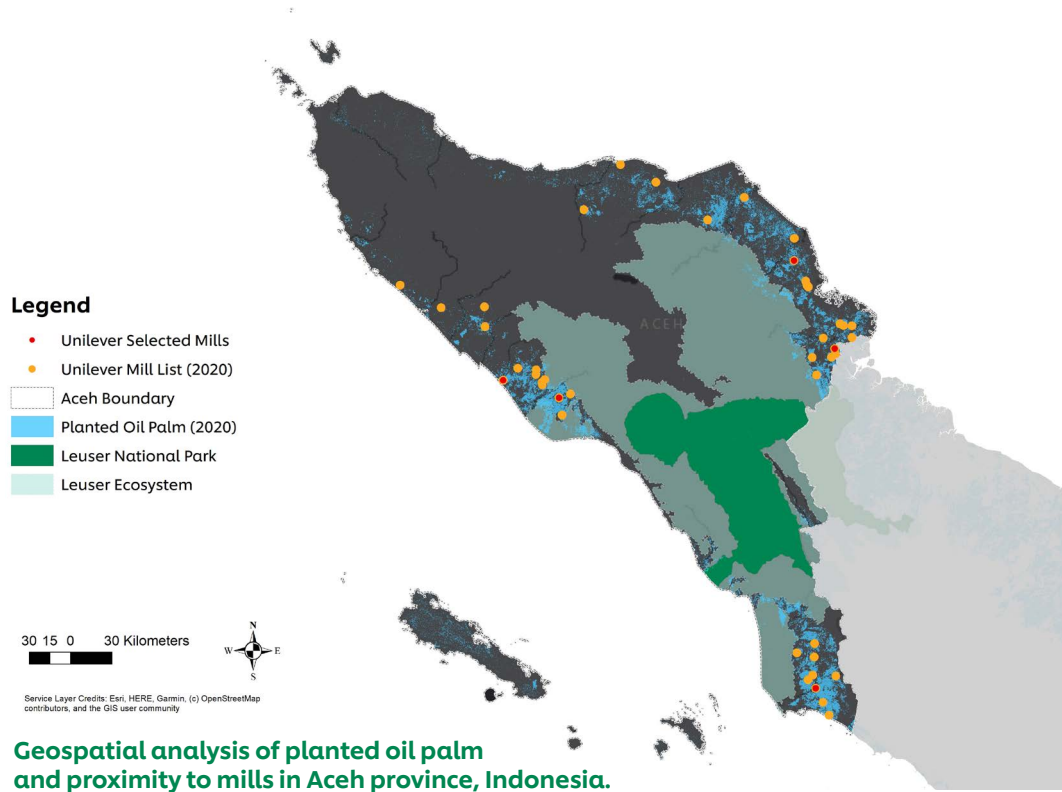
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Planted oil palm



The total amount of oil palm planted in 2016 was 183,500 ha, since then it has increased in the area by 297,600 ha over four years to 481,100 ha.

There was an increase in oil palm planted, especially in Aceh Timur district, with 70,400 ha planted in that district.

We estimate 37% of oil palm in Aceh comes from large-scale industrial plantations, while 63% comes from independent smallholder farmers.

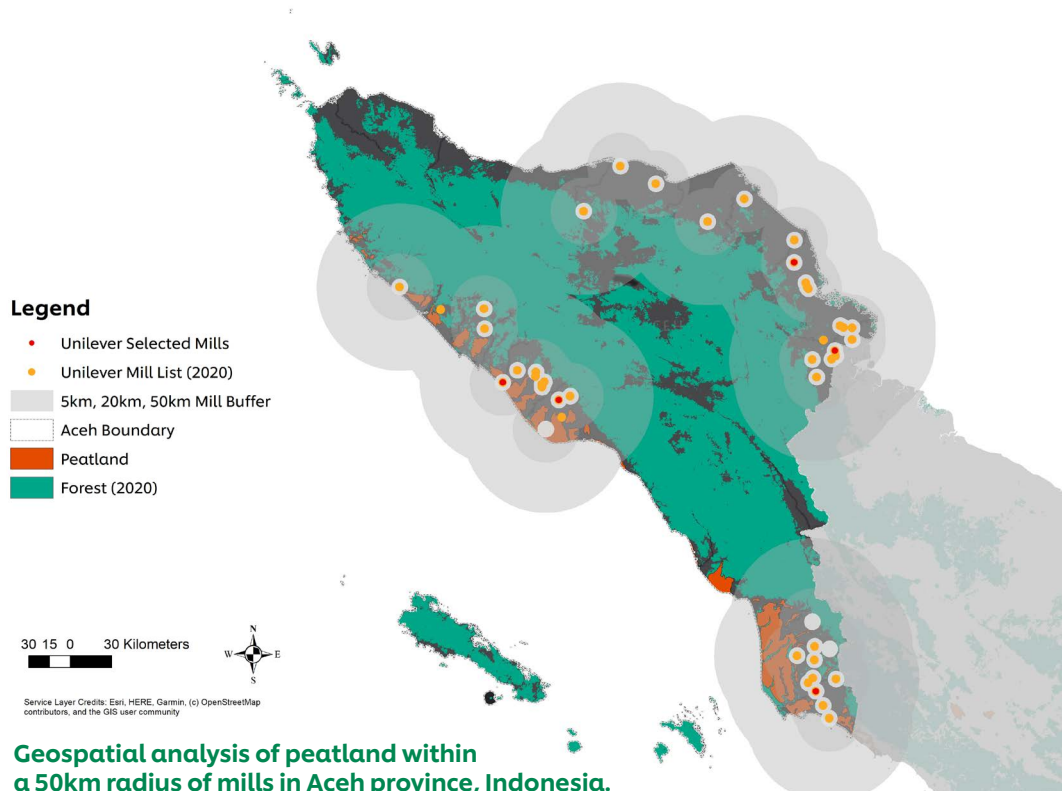
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Around mills



Peatland



The size of peatland in Aceh is about **212,900 ha.**

There is peat within a **50km radius of all 43 mills.**

Total forest loss of peat between 2016 and 2020 is estimated to be **2,900 ha.**

Analysis of peat conversion within oil palm sourcing boundaries linked to our supply chain will be conducted once the TTP data gathering process is complete. Conversion of peat areas is also currently being monitored, particularly in Malaysia and Indonesia, within and outside concessions.

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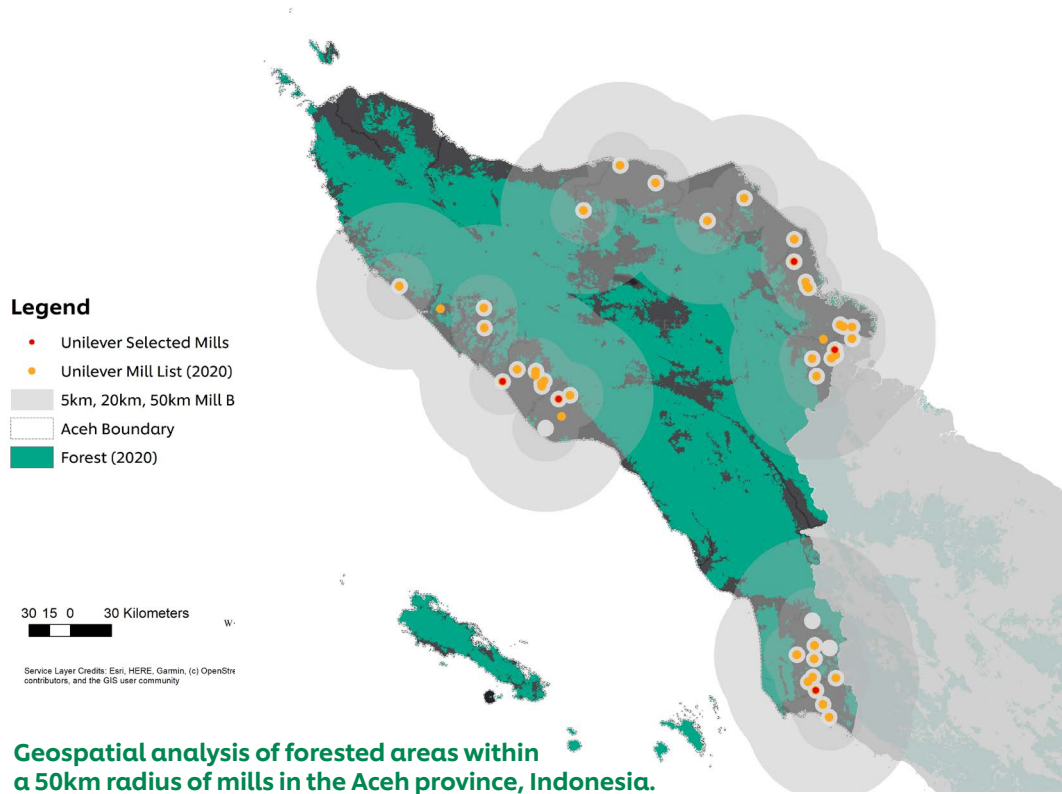
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Forest area



Forest cover was estimated to be 2,149,400 ha in 2015 around the 50km radius of mills or 38% of the province's total land mass.

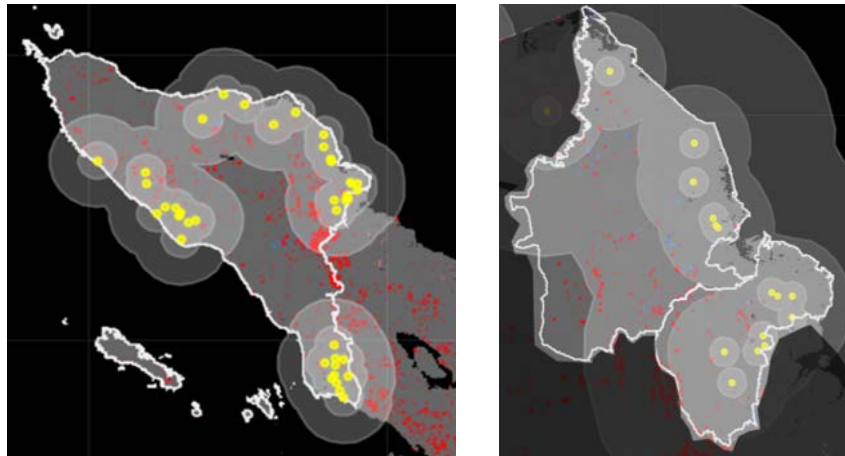
In 2020, we estimated it to be 2,020,700 ha, equivalent to a **cumulative total forest loss of around 128,700 ha between 2016 and 2020** around these facilities.

Forest loss per year has overall decreased since 2016.

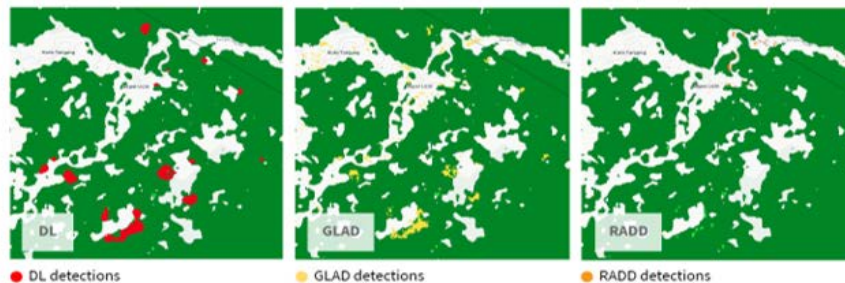
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Deforestation alerts



Deforestation alerts and mill information provided by Descartes Labs



Causes of forest loss differ, though we are conducting further analysis to understand how much was converted to oil palm and how much was potentially linked to our supply chain.

We are also obtaining various deforestation alerts (historical and ongoing) and embedding them into our monitoring platform through:

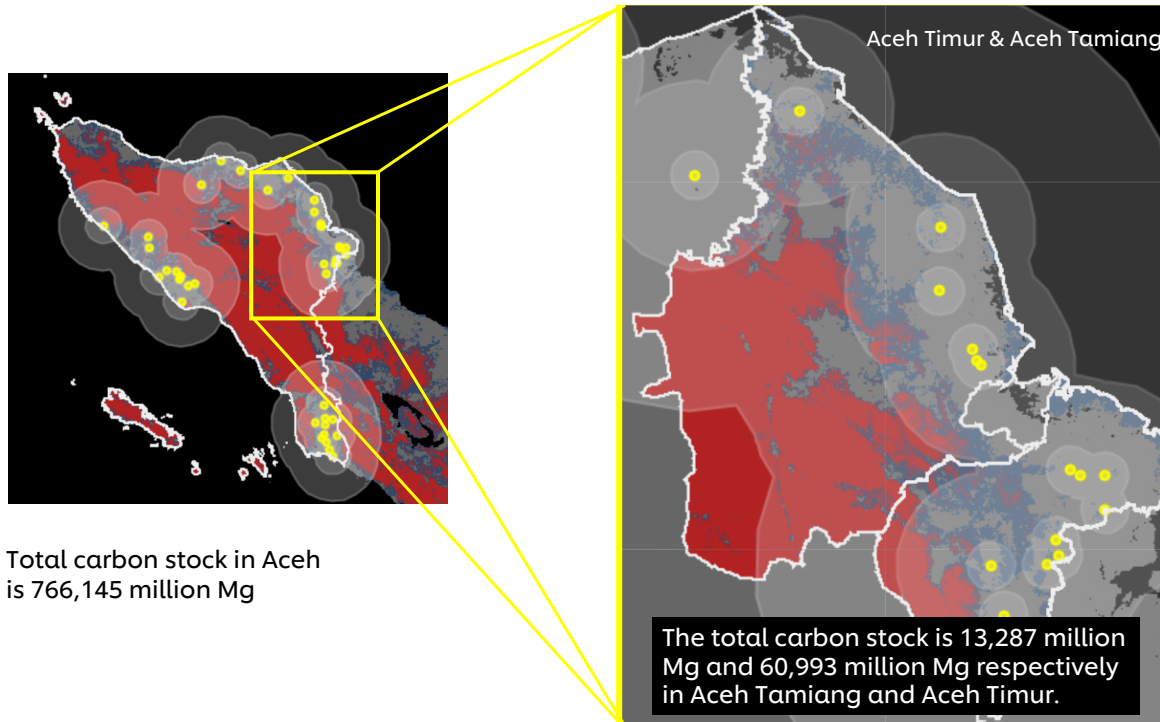
- **GLAD** (Global Analysis and Discovery) alerts to detect deforestation since 2015, refined with forest and oil palm masks.
- **RADD** (Radar Alerts for Detecting Deforestation) alerts provided from January 2018.
- **Descartes Labs**' InSAR-powered deforestation alerts provided from January 2020, using custom-built forest and oil palm masks.

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Around mills



Carbon



Example of a Descartes Labs carbon layer applied to the Aceh Tamiang and Aceh Timur districts, Indonesia.

We are working with Descartes Labs to create carbon layers that allowed us to estimate the carbon stock of specific regions and therefore prioritise our efforts in terms of protection and restoration of nature.

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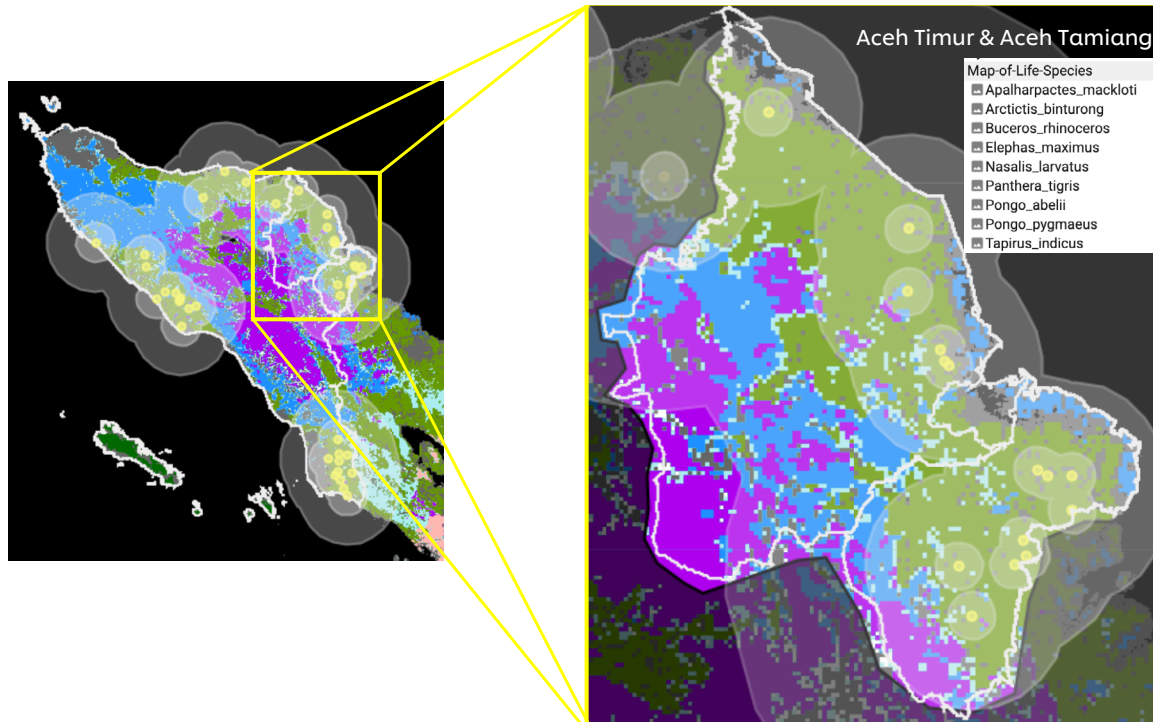
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Around mills



Biodiversity



Example of a 'Map of Life' biodiversity layer applied to the Aceh Tamiang and Aceh Timur districts, Indonesia.

We are starting to integrate biodiversity data on top of forest information, which helps us leverage the ecosystem and the community. Moving forward we will continue to work with the research community, including the 'Map of Life' initiative from Google Earth Engine and Yale University, so we can better prioritise the different landscapes and amplify the access to this data.

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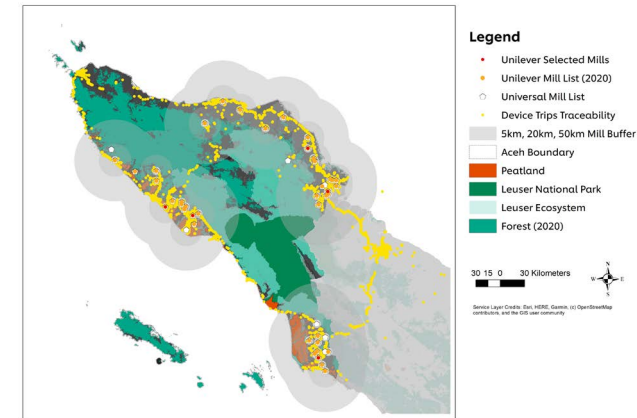
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Enhanced indicative sourcing areas

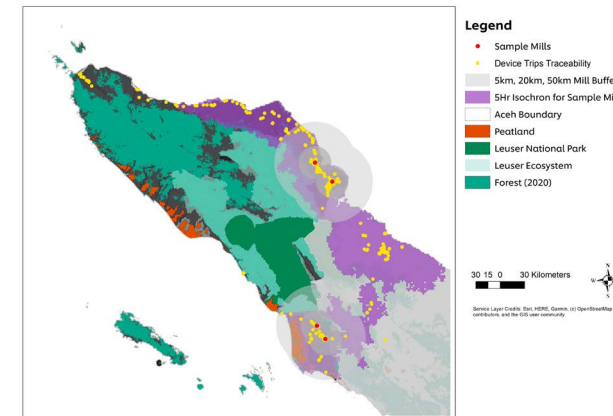
To get an even more accurate impact assessment, we are exploring other possible methods and technologies with our partners that will provide a better understanding of indicative sourcing areas.

For example, with **Orbital Insight** we have analysed device trip information and movement patterns going in and out of areas of interest (AOI), such as palm oil mills and other palm oil-related facilities to get a better idea of truck movements.

And with **Google Cloud's** geospatial platform including Earth Engine, and **NGIS**, we are aggregating and analysing real-time satellite data and partner insights for actionable insights. We are looking at actual transport networks and cost distance analysis rather than radii to better predict a mill's sourcing areas. Initial results of these "isochrons" show possible sourcing areas can reach longer distances than the 50km radius and that radius analysis can be flawed because it does not take into account factors such as the lack of roads where sourcing is unlikely.



Geospatial analysis of Device Trip Traceability and other sourcing data in Aceh province, Indonesia.



Example of a geospatial 'isochron' analysis.

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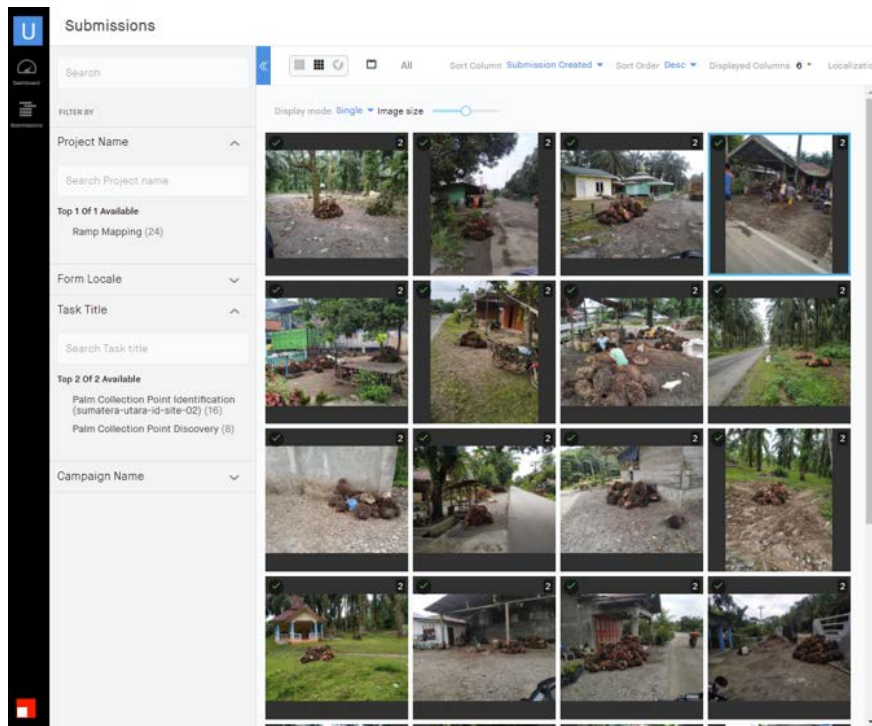
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Crowdsourcing technology



Example of Premise's crowdsourcing results.

To further improve TTP, we need to analyse the connections between mills, ramps/collection points and oil palm farms.

Many trucks going in and out of mills collect from ramps and collection points nearby, meaning we cannot get to the 'first mile' of the oil palm source.

Working with **Premise**, we are mapping out collection points and ramps through a crowdsourcing application, in which we incentivise Premise's network to provide photos and information about these areas of interest via a digital platform for us to get closer in identifying the location of oil palm smallholder farms.

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Reimagining traceability



At Unilever, our ambition is to make sustainable living commonplace.

Watch this video to better understand our work

These various technology partners support us in reimagining our approach to traceability and transparency. This new ecosystem of partners builds a new digital overview that hopes to transform supply chain transparency and end deforestation.

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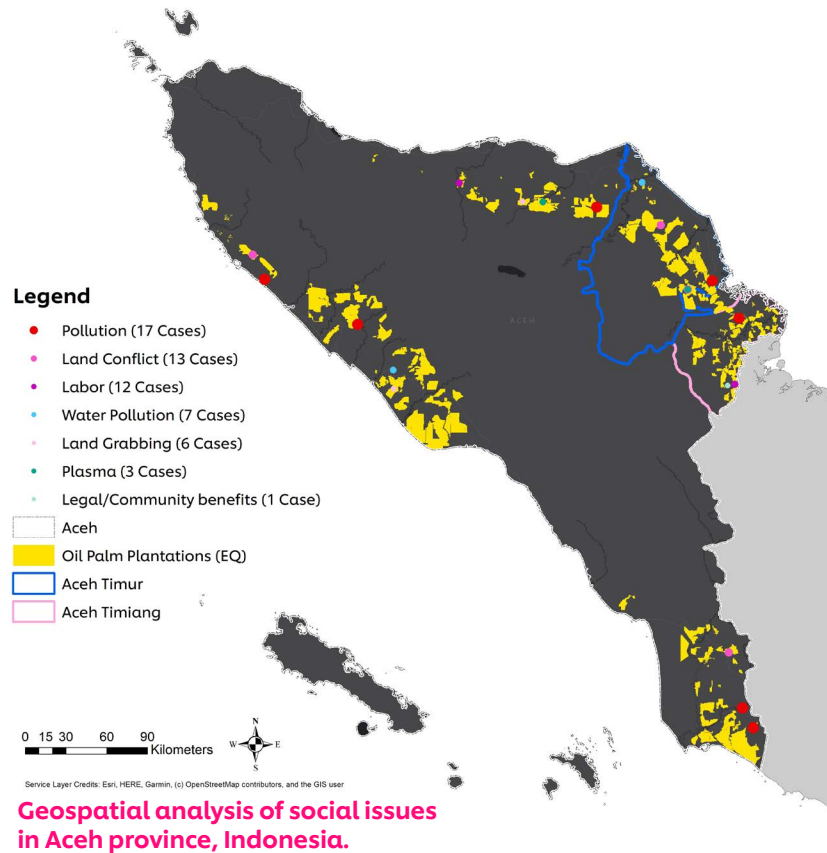
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Social Database



As well as environmental data gathering and mapping, we are conducting analysis of social issues in the areas where we source palm oil to gain more understanding of our products' wider potential impact.

We have been working with AidEnvironment and EarthQualizer since 2018 to identify and collate these issues in palm oil grower companies, which we have gathered from:

- local and international environmental and social organisations
- court decisions
- information from complaints panels such as from the Roundtable on Sustainable Palm Oil (RSPO)
- complaints based on buyer information
- online media coverage.

There are **12 concessions located in Aceh with cases of social issues** such as pollution, land conflict, labour and plasma development disputes reported in this database.

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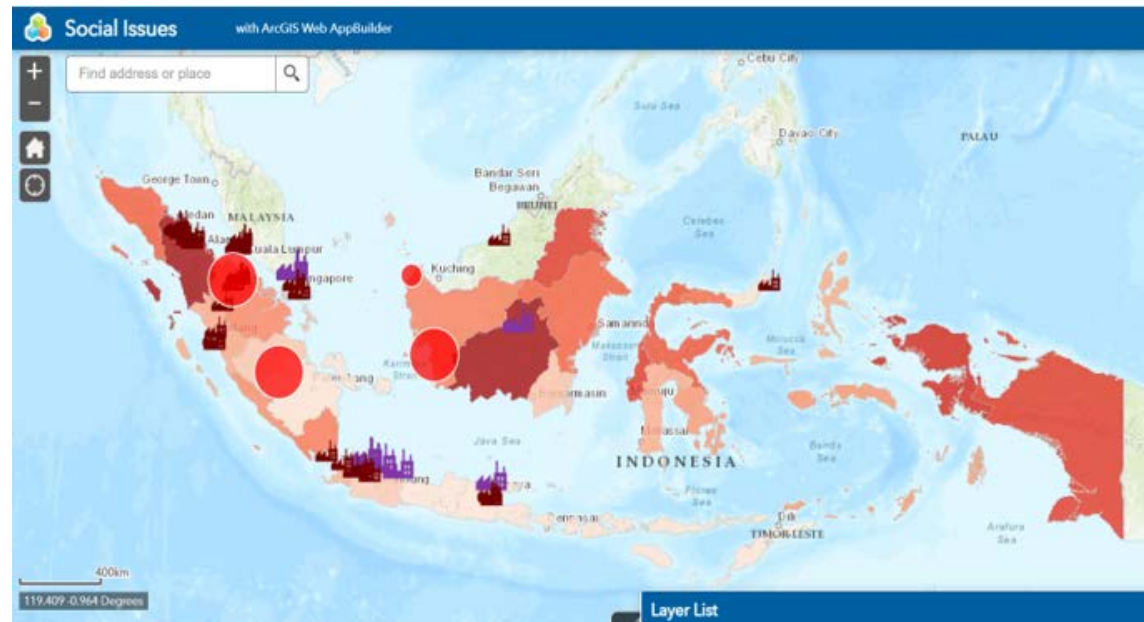
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Social Mapping risks

We have also been working with Proforest to identify potential risk and likelihood of such issues arising in a sourcing region, which will be mapped in our geospatial platform.

Such risk factors include child labour, forced labour, inadequate health and safety and land rights abuses and disputes. Scoring is based on various sources, including literature review, field mill verification, grievances registered, indigenous community rights and future expansion.

According to our research, Aceh is among the **top eight provinces in Indonesia with the highest overall social risk score.**



Example of a social risks analysis in Indonesia.

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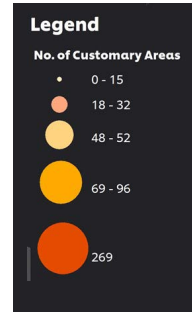
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Social Customary land areas



Customary areas within Indonesia.

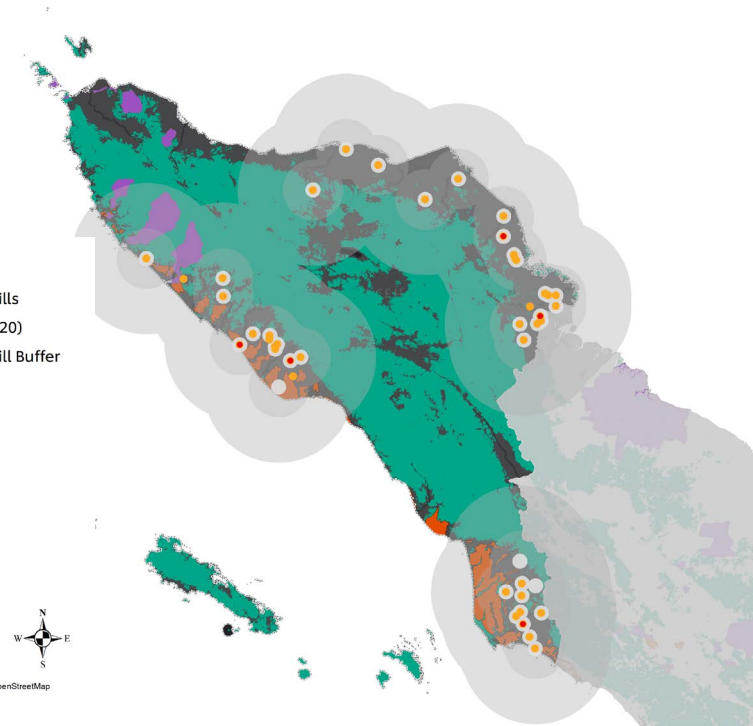
To understand how these issues are associated with palm oil concessions in our supply chain, we are also looking at customary land areas identified by the Ancestral Domain Registration Agency (BRWA). We have developed a range of intervention strategies to engage with local stakeholders so we can protect forest and peat lands as well as respecting the rights of indigenous people and local communities.



30 15 0 30 Kilometers



Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community



Combined geospatial analysis of customary areas, mills, forest and peatland in Aceh province, Indonesia.

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Strategic sourcing

As we move to a zero-deforestation supply chain, we are being more selective about who we work with and the areas we source from to improve our forest footprint.

We are continuously looking at how we **select mills** and by the end of 2020, 98% of our palm oil (crude palm oil and its derivatives) and 54% of our palm kernel oil (PKO and its derivatives) was sourced from lower-risk mills. At the same time, we're working on systems and processes so we can translate this assessment into independently verified deforestation-free origins.

We have invested in **Unilever Oleochemical Indonesia (UOI)**, a palm oil processing facility in North Sumatra, Indonesia, which allows us to shorten our supply chain, buy directly, have more control of the mills that come into our supply chain and work closer with independent smallholder farmers.



Unilever Oleochemical Indonesia (UOI), a palm oil processing facility in North Sumatra, Indonesia.

UOI means we can source more directly from **independent mills**. We're increasing the amount we source from independent mills because they are critical in transforming the supply chain and creating greater positive impact, particularly for the independent smallholder farmers from whom they usually procure most of their Fresh Fruit Bunches (FFB.)

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Further local engagement



Production, Protection, Inclusion Compact of Aceh, Tamiang signing with partners (Credit: IDH)



Unilever visiting pilot restoration site in Aceh, Tamiang with partners

In order to end deforestation and enhance the livelihoods of local communities in our supply chain, we understand we cannot do this alone. We need to partner with local stakeholders including the district government, civil society organisations, and other private sector actors.

Working with **IDH - The Sustainable Trade Initiative**, Forum Konservasi Leuser (FKL), the World Resources Institute (WRI), and other parties, we are focusing local engagement strategies in the Aceh Tamiang and Aceh Timur districts of Aceh through jurisdictional approaches.

These activities include supporting local government to build a Centre of Excellence for sustainable agriculture development, collaboration on a local government-led deforestation monitoring and response framework with the WRI, smallholder training and certification programmes, and pilot forest restoration programmes on the buffer areas of the Leuser National Park and ecosystem with FKL.

Find out more about what we are doing in Aceh, Tamiang [here](#).

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Greater partnership

If we only achieve a deforestation-free supply chain ourselves but fail to tackle the wider systemic issues driving forest loss, this will leave the world poorer for future generations.

We must continue to advocate for the transformation of global supply chains towards more sustainable models. This requires that businesses, governments, civil society, and the people who live and work in forested landscapes, work in partnership to achieve sustainable development while protecting and regenerating the natural ecosystems humanity depends.

Forest Data Partnership

That's why we are joining a coalition that consists of the Food and Agriculture Organisation (FAO) of the United Nations, the World Resources Institute (WRI), NASA SERVIR, Google, and USAID dedicated to transforming the data ecosystem, able to harness game-changing technologies that can better monitor commodity-driven deforestation and identify areas that have high restoration potential.

The **Forest Data Partnership** is an open initiative that is actively seeking leading and committed companies involved in buying and financing commodities, national and sub-national governments, NGOs and technical/research partners, and most importantly communities in tropical landscapes.

We want to create the conditions that will enable all actors to access consistent, open-source and validated geospatial data so they can monitor, verify and disclose their progress in reducing deforestation and/or restoring degraded land. This geospatial data ecosystem will help accelerate collective action, unlocking huge potential for emissions reductions and co-benefits to people and nature.

Our work is far from done, but we are committed to ensuring healthy, thriving forests which will contribute to achieving UN Sustainable Development Goal 15. We promise to make every tree and every action count. We promise to be people and forests first.

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