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# Understand the Supply Chain: Traceability and Risk Analysis

Achieving palm oil traceability and supply chain transparency to manage risks.

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Palm Oil Toolkit  
Briefing Note 02B



Version 1.0



The Palm Oil Toolkit has been developed by Proforest as part of the Good Growth Partnership's Responsible Demand Project, thanks to financial support from the Global Environment Facility (GEF) through World Wildlife Fund (WWF). We also acknowledge co-funding from the Forest Governance, Markets and Climate (FGMC) Programme.



## Introduction to the Palm Oil Toolkit

“Responsible Sourcing: A Palm Oil Toolkit” aims to support companies in the responsible sourcing of palm oil, by-products and derivatives. The toolkit is designed for all companies – refineries, traders and manufacturers in all consuming countries, particularly in Asian markets such as China and India – that are beginning to implement responsible sourcing. This guide provides a clear and accessible overview of the many initiatives that aim to address key environmental and social issues in the palm supply chain, namely deforestation, development on peat and human rights violations.

The Palm Oil Toolkit is structured around five key elements of a company's responsible sourcing process (see Figure 1). Each element is the subject of a separate Briefing Note:

- **Element 1: Assess and plan implementation**
- **Element 2A: Understand the supply chain: main environmental and social risks**
- **Element 2B: Understand the supply chain: traceability and risk analysis**
- **Element 3: Engage within and beyond supply chains**
- **Element 4: Monitor, verify and report**
- **Element 5: Monitor emerging issues and responses**



**Figure 1:**  
The 5-element approach for sourcing palm oil responsibly

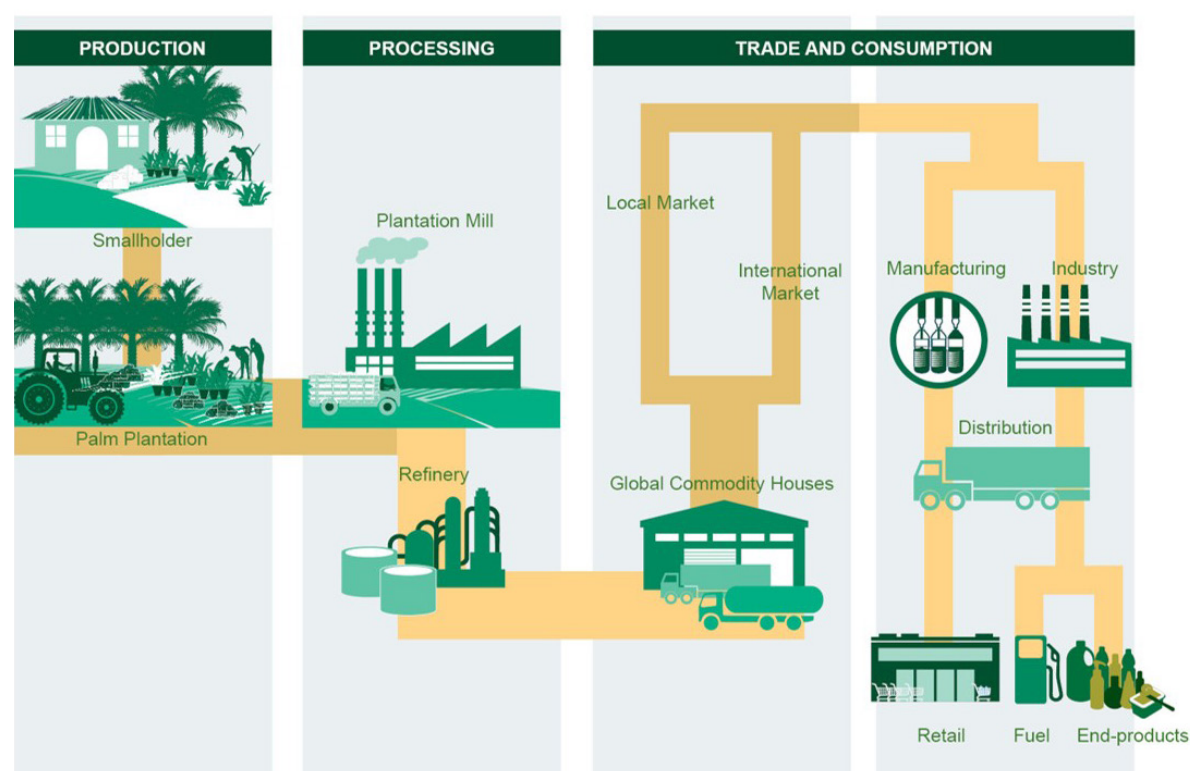
To better understand their own exposure to the main risks, manage them and assess the level of progress towards implementing responsible sourcing policies, companies need to ensure products are traceable throughout the supply chain back to production. This can be challenging for commodities with a complex supply chain.

This briefing note:

- outlines a process to map the supply chain and implement traceability systems for companies at different positions in the supply chain.
- provides guidance on assessing the environmental and social risks in the palm oil supply chain especially those associated with cultivation in producing countries

## 01 The palm oil supply chain

To understand where and how the risks described in **Briefing Note 02A: Understand the supply chain: main environmental and social risks** are present or inherent in oil palm production, it is important to first understand the supply chain and types of producers.



**Figure 2:**

An illustration of a typical palm oil supply chain and the actors involved in the main stages of production, processing, trade and consumption (Image source: Proforest)

Palm oil production begins with the planting of oil palm seeds within nurseries or even farms. The young seedlings from nurseries are then transferred to plantations where they will fully mature after 30 months and are ready to be harvested.<sup>1</sup> Palm oil fruits grow in dense bunches known as Fresh Fruit Bunches (FFB) and can be harvested continuously within a year throughout its lifespan of around 25 years.<sup>2</sup> The harvested FFBs are transported by trucks to mills, where they are processed.

At the mill, the palm fruits are processed into two main products: crude palm oil (CPO), which is extracted from the flesh of the fruit, and palm kernel oil (PKO), which is extracted from the nut and kernel of the fruit.<sup>1</sup> It should be noted that not all mills process PKO, so some therefore ship palm kernels to other facilities. Both oils are further processed (separately) at the refinery, where

CPO is used to make edible and non-edible oil products, such as cooking oil and derivatives that are further processed at manufacturing sites. PKO is used in the manufacturing of products such as cosmetics and pharmaceutical products.<sup>1</sup> Figure 2 depicts an illustration of a typical palm oil chain and the related actors involved.

## 1.1 FFB producers

The different types of FFB producers can be categorised as per the following table:

**Table 1 The different types of FFB producers**

FFB Producers	Details
<b>Mill-owned and managed concessions</b>	<ul style="list-style-type: none"> <li>• Total landholdings above the thresholds defined for smallholders.</li> <li>• Range from a few hundred to several thousands of hectares, in some cases cumulative of scattered smaller plots, to large contiguous blocks of land.</li> <li>• Associated with a mill either through ownership, joint venture or via parent companies.</li> </ul>
<b>Independent concessions</b>	<ul style="list-style-type: none"> <li>• Total landholdings that are above the thresholds defined for smallholders.</li> <li>• Not associated with any mill and operate within their own business.</li> <li>• Range in size may be similar to that of mill-owned concessions.</li> </ul>
<b>Scheme smallholders</b>	<ul style="list-style-type: none"> <li>• Structurally bound by contract, by a credit agreement or by planning to a particular mill.</li> <li>• Typically do not have freedom to choose which crop they develop.</li> <li>• Often organised, supervised or directly managed by the managers of the mill, estate or scheme to which they are structurally linked.<sup>3</sup></li> <li>• Typically receive technical, processing and marketing support, as well as financial assistance from their umbrella organisations.<sup>4</sup></li> </ul>
<b>Independent smallholders</b>	<ul style="list-style-type: none"> <li>• Typically those with cumulative landholdings of less than a certain hectareage typically 50ha or by national legislation.</li> <li>• Make up to 40% of the oil palm supply base<sup>5</sup> and there are more than 3 million making their living from palm oil globally.</li> <li>• Characterised by their freedom to choose how to use their lands, which crops to plant and how to manage them.</li> <li>• Self-organised, self-managed and self-financed; and not contractually bound to any particular mill or any particular association.</li> </ul>

FFB supply can be direct to the mill, as in producers carry out the financial transaction with the mill for selling FFB and can be referred to as **direct FFB suppliers**.

FFB supply can be indirect to the mill where actors such as dealers, collection centres and transporters facilitate the aggregation of FFB from producers to supply to the mill. The producers who use the services of these aggregators are mostly independent smallholders who have limited resources in terms of harvesting and transporting FFB straight to mills. As such the producers who supply to mills via aggregators can be referred to as **indirect FFB suppliers**.



## 02 Key steps, tools and approaches for traceability and supply chain transparency

### 2.1 Supply chain mapping

The first step to achieving transparency to the upstream source is supply chain mapping. This is a process where companies identify each actor from their direct supplier onwards and understand the relationship between each actor. This is part of building the trust in the supply chain to eventually provide the disclosures and information sharing on traceability.

### 2.2 Why is traceability important?

Traceability is fundamental to implementing responsible sourcing commitments, as it allows companies to have a better understanding of the complexity and nature of the supply chain as well as the relationship between the supply chain actors and the wider supply base. Companies are able to comprehend potential sustainability risks and entry points for interventions across the supply chain, ultimately contributing to meeting the responsible sourcing commitments.

The Accountability Framework (AFi) Core Principle 5<sup>6</sup>: Supply Chain Assessment and Traceability, states that the origins of materials in supply chains are to be known or controlled to a sufficient extent to determine that the production and processing units of origin comply with commitments.

#### Expectations on traceability from companies

- To adopt a robust traceability definition which is accepted industry-wide
- To formalise a process to collect, analyse, verify and report on traceability
- To report on a regular (minimum annual) basis:
  - o Mill lists
  - o % Traceability to Mill
  - o % Traceability to Plantation
- How reported traceability assesses and measures risks to NDPE commitments in the supply chain

### 2.3 Defining traceability

The table below provides the industry-accepted definitions for traceability:

**Table 2 Industry-accepted definitions for traceability**

<b>Accountability Framework (AFi)<sup>7</sup></b>	Traceability is the ability to follow a product or its components through stages of the supply chain (e.g., production, processing, manufacturing, distribution, etc.). Traceability allows companies to link product volumes to specific attributes of suppliers and/or production sites.
<b>Traceability Working Group (TWG)<sup>8</sup></b>	Knowing all palm sources within one's supply chain all the way to plantation level (including smallholders), and traceability to mill as an intermediary step in achieving full traceability.

This section describes methods and processes that are aligned with each of these approaches for companies to be able to adequately demonstrate traceability in their supply chains.

#### Traceable to mill

The mill buys fresh fruit bunches (FFB) from producers to process them into crude palm oil, with palm kernels as a by-product. FFB have a 24 hour<sup>9</sup> window from harvest to be processed at the mill due to their optimal ripeness reducing after this period, which impacts the quality of

oil produced. The mill therefore provides a good indication of the range of the FFB production region. Achieving traceability to mill (TTM) is the gateway to achieving further traceability to production and producers. The mills will have most of the information on producers and production areas as they will have a direct commercial relationship with most of them.

### Traceable to plantation – traceability to direct FFB suppliers

Traceability to plantation (TTP) means tracing palm oil beyond the mill level back to the point of primary production which are the plantations or farms where the Fresh Fruit Bunches (FFB) are grown. This would mean traceability to all production from large concessions down to the smallest independent smallholder.

Traceability to concessions is generally more achievable than smallholders' farms due to several factors such as the business relationships larger growers have with mills and the likelihood of smallholders trading FFB via intermediaries. Engagement with mills can easily support the TTP process for mill-associated and independent plantations. Mills have easy access to the traceability information for the concessions they directly buy from and which are in many cases located within or near the mills. Independent concessions usually sell FFB directly to the mill without the use of intermediaries; as such the relationships between the mill and these plantations can be leveraged to collect traceability information from the latter.

Smallholders may also sell directly to the mill and therefore TTP can be considered achievable for these smallholders by leveraging their commercial relationship with the mill(s). The types of smallholders most likely to sell directly to mills are scheme smallholders typically associated with the mill, and there are regions where a limited number of independent smallholders also do the same. This is usually due to local infrastructure and/or local regulations.

### Traceable to production region – traceability to indirect FFB suppliers

The majority of independent smallholders prefer to sell FFB via intermediary aggregators such as dealers, agents or collection centres. The reasons include limited access to mills, lack of transport logistics and services offered by dealers.

Smallholder farms are usually located in landscapes with several farms adjacent to each other in villages or townships. Tracing back to individual farms and smallholders requires a lot of resources in terms of costs, personnel and logistics given the large number of smallholders in the supply chain. In addition, spatiotemporal dynamics of the supply chain means individual farmers are not always consistently linked to a given mill, whereas the village as a whole might be a consistent supplier.

In such environments, it can be more efficient to take a larger scale approach to traceability for smallholders, by identifying the origin of FFB supply down to administrative units, rather than farmers, defined through legal and/or customary boundaries. Examples might include traceability to villages or sub-districts. This level of traceability can also be combined with measures of risk assigned to each administrative unit, as a basis for setting compliance baselines and informing engagement priorities. The Risk Calibrated Approach (RCA) is one such example (See box below).

#### **The Risk Calibrated Approach to Traceability to Plantation (RCA TTP)**

The RCA was developed with the understanding that risks to No Deforestation and Peat (NDP) vary spatially within the supply shed of a mill. RCA TTP was initiated by Daemeter Consulting with support from Proforest. By aggregating regions with small producers such as smallholders into legally demarcated administrative units, such as villages or sub-districts, these units can then be classified based on the area of land considered high risk for potential

conversion. Higher risk areas are land containing forests, protected areas and uncultivated peat. The administrative units are then classified as high or low risk depending on the extent of high-risk land they contain. Companies adopting this method are then able to gain clarity on production regions of their supply base that merit prioritisation for risk mitigation and interventions. Figure 3 below shows an example of a visualisation of high-risk areas based on the RCA TTP approach.



**Figure 3:** Visualisation of high-risk areas (red) mapped in Riau, Indonesia, based on the RCA TTP approach (Image source: Daemeter)

## 2.4 Approach to collection of traceability data

Companies should adopt a systematic approach to operationalising traceability to ensure regular and accurate reporting of traceability progress against set targets. Companies should start with defining traceability and set commitments including targets to achieve both TTM and TTP. From there the process flow can be developed with a general outline illustrated as follows in Figure 4.



**Figure 4:** Stepwise approach for the traceability process to manage data and reporting

### Step 1: Collect: information gathering from direct suppliers and other sources

Collecting information about direct suppliers' traceability can be done through the implementation of a data collection strategy and the use of different tools which complement each other and provide efficiency in the traceability process. Table 3 summarises a recommended minimum set of traceability data to be collected. Companies can then refer to the possible sources described further below in terms of public reporting and open-source information to see what data from this list is available for their supply chain, and can plan to close the data gaps.

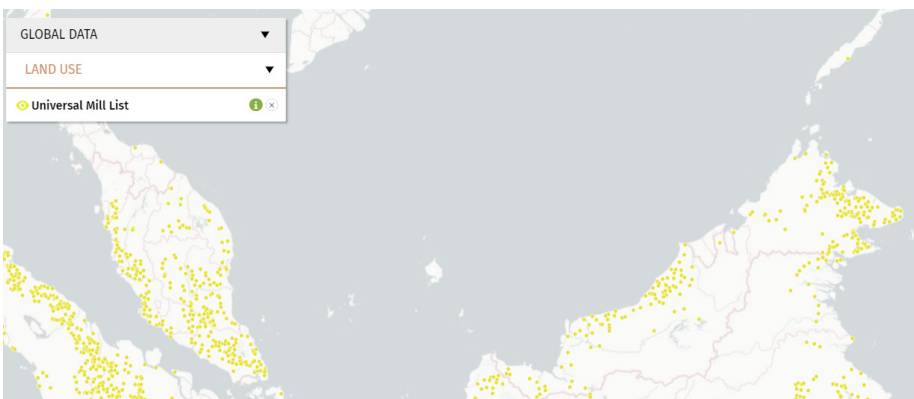
**Table 3 Minimum data requirements for traceability**

Traceability Aspect	Minimum data to be collected
<b>Traceability to Mill</b>	Mill name Parent company name Location address of mill GPS coordinates (latitude and longitude) RSPO Certification status of mill Universal Mill List ID (UML) Total volumes (CPO and PK) in supply chain
<b>Traceability to Plantation</b>	Concession Name Parent company name Concession boundaries, representative coordinates (latitude and longitude) Total area RSPO certification Total volumes (FFB)
<b>Traceability to Production region</b>	Name of smallest administrative unit, sub-national jurisdiction, country Number of smallholders per administrative unit Estimated total planted area Estimated total volumes

### Online platforms

With the urgency in the need for traceability to support risk identification and mitigation, industry players and stakeholders have collaborated to increase supply chain transparency. This has led to the establishment of platforms and tools that are publicly managed and regularly updated and can support companies in their traceability collection and supply chain mapping efforts. Table 4 shows some examples of online platforms that provide open-source palm oil supply chain information.

**Table 4 Examples of Open Source data on online platforms that provide palm oil supply chain information**

Source of Data	Details
<p><b>Universal Mill List (UML)<sup>10</sup></b></p> <p>The Universal Mill List (UML) is a database of palm oil mill locations across the world with associated group, company, and mill names, RSPO certification status and unique “universal IDs”.</p>	<p>The list currently contains the details for almost 2000 mills worldwide and is updated regularly. The list is available for download and also can be viewed spatially from the Global Forest Watch Pro online platform.</p> 

**Figure 5:** Mills mapped out on the GFW Pro platform as per the UML (Image source: Global Forest Watch Pro; retrieved in January 2022)<sup>10</sup>

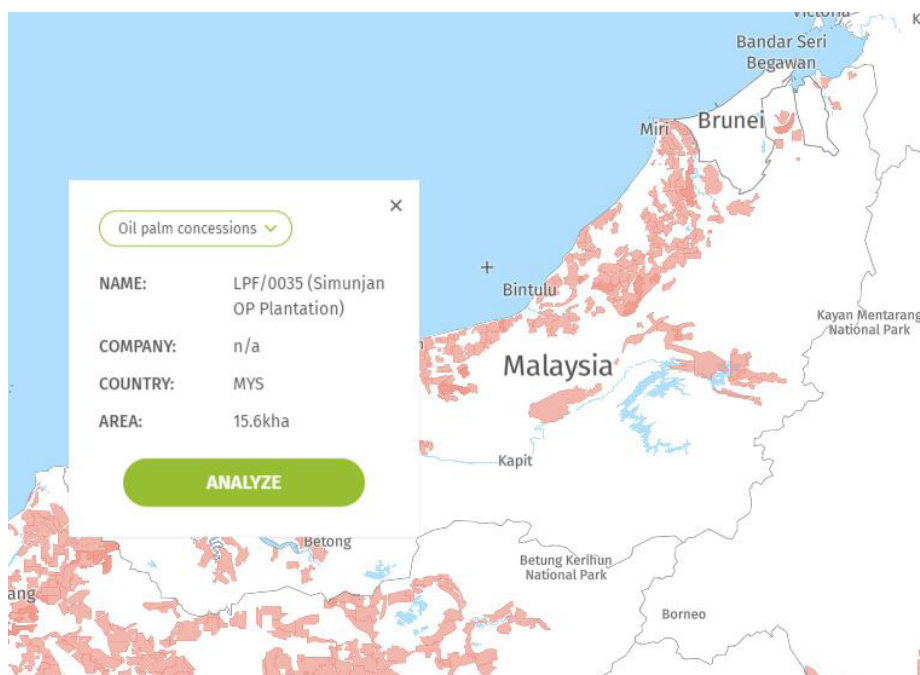


Source of Data

**GFW Concession Mapping<sup>11</sup>** shows oil palm concessions in certain production regions. Information on each concession is provided.

Details

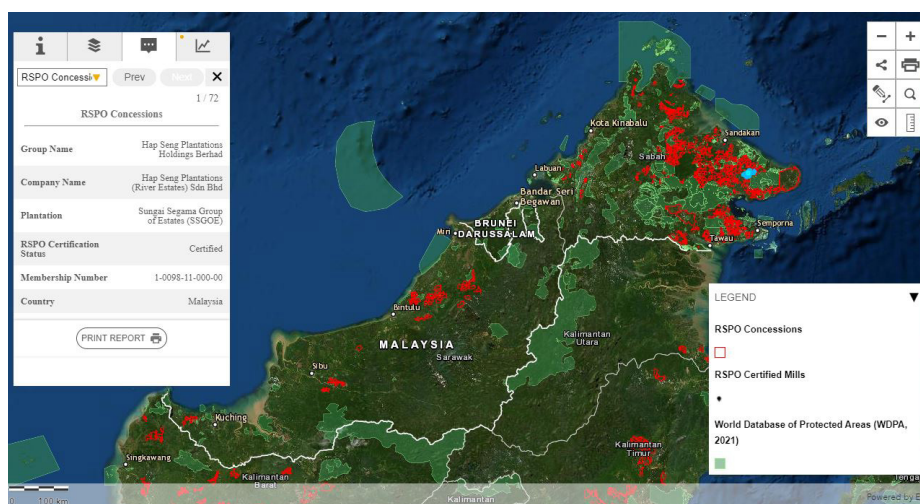
Concession data is only available for certain concessions in Indonesia, Sarawak in Malaysia and Liberia, Republic of Congo and Cameroon.



**Figure 6:** Concessions mapped out on the GFW platform (Image source: Global Forest Watch; retrieved in January 2022)<sup>12</sup>

**RSPO GeoPortal<sup>13</sup>** RSPO has mapped out all certified concessions and mills, as well as those of RSPO members who are not yet certified.

The maps are viewable and provide information on the parent company name, location and certification status. As RSPO certified production accounts for about 20% of total palm oil traded, the locations of certified and member companies provide a good indication of production regions.



**Figure 7:** RSPO members' concessions mapped on the RSPO GeoPortal (Image source: RSPO; retrieved in January 2022)<sup>13</sup>

## Source of Data

**MSPO Trace**<sup>14</sup>  
As part of MSPO certification<sup>15</sup> mandated in Malaysia, all certified entities are required to record their traceability information in the online platform MSPO Trace.

## Details

If a MSPO-certified product is purchased, the MSPO code can be used to provide its specific traceability to plantation. The information on all certified entities is publicly available. Further information specific to a company's supply chains are available through portal access that is granted along with MSPO certification status, especially for downstream buyers.

Track.No	Certification Body	Certification	Parent Company	Company	Certified Entity / Cluster	MPOB Code	No of Smallholders	State	Certified Area (Ha)	Certified Capacity(MT/Hr)
OPMC304686	Nesus Certification Sdn Bhd	Part 3	INDRANIKA JAYA SDN BHD	INDRANIKA JAYA SDN BHD	INDRANIKA JAYA SDN BHD			Saravak	3673.58	
OPMC304685	Nesus Certification Sdn Bhd	Part 3	TABARUK ABADI SDN BHD.	TABARUK ABADI SDN BHD.	TABARUK ABADI SDN BHD.			Saravak	5282	
OPMC304684	Nesus Certification Sdn Bhd	Part 3	GOOD HARVEST PLANTATION SDN BHD	GOOD HARVEST PLANTATION SDN BHD	GOOD HARVEST PLANTATION SDN BHD			Saravak	1659.762	
OPMC304683	Nesus Certification Sdn Bhd	Part 3	LCDA HOLDINGS SDN BHD	LCDA HOLDINGS SDN BHD	Jemoreng Oil Palm			Saravak	979	
OPMC304683	Nesus Certification Sdn Bhd	Part 3	LCDA HOLDINGS SDN BHD	LCDA HOLDINGS SDN BHD	Dalat Oil Palm			Saravak	778	
OPMC304682	Nesus Certification Sdn Bhd	Part 3	HAPPY MERCANTILE SDN BHD	HAPPY MERCANTILE SDN BHD	HAPPY MERCANTILE SDN BHD			Saravak	254.95	

**Figure 8:** List of MSPO-certified entities on the MSPO Trace platform. (Image source: MSPO Trace; retrieved in January 2022)<sup>16</sup>

## Public reporting by companies in the supply chain

Public commitments and the increased demand for transparency by stakeholders have led companies to make their traceability reporting public on their websites or annual reports (e.g. mill lists, traceability score etc.). Downstream companies can use the information published by upstream companies to collect traceability data relevant for their supply chains.

## Mill lists

Most companies are now publishing and updating regularly the list of mills in their supply chain and reference the UML (see Table 5). Companies can collect these lists from their suppliers' websites.

**Table 5 Example of mill lists produced and reported publicly by two companies**

## Source of Data

**Wilmar**<sup>17</sup> report regularly on their traceability with mill lists for each refinery.

## Details of Public Mill Lists



List of supplying mills (direct)

Parent company	Palm Oil Mill	UML ID	MSPO Status	Latitude	Longitude
Alambani Palm Oil Mill Sdn Bhd	Alambani Palm Oil Mill Sdn Bhd	PO1000003714	No	1.585440°	113.676650°
SALCRA	Buu Palm Oil Mill Sdn Bhd	PO1000003886	No	1.499070°	109.985200°
Endoreah Plantation Bhd	Buu Plantations Sdn Bhd	PO1000003936	No	3.941730°	114.026540°
WTK Holdings Bhd	Biogrow City Plantations Sdn Bhd	PO1000002999	No	4.585110°	114.936490°
Borneo Agro-Resources Sdn Bhd	Borneo Agro-Resources Sdn Bhd	PO1000003725	No	3.276300°	113.426610°
Boisland Plantations Bhd	Boisland Palma Kanawit Oil Mill Sdn Bhd (Kanawit Mill)	PO1000007375	No	2.161380°	112.099520°
Boisland Plantations Bhd	Boisland Palma Tanjung Sdn Bhd (Luangan Bantut Mill)	PO1000007885	No	3.726470°	113.280910°
Double Dynasty Sdn Bhd	DID Palm Oil Mill Sdn Bhd	PO1000007497	No	3.142920°	113.316930°
WTK Holdings Bhd	Dinda-Polita Sebelang Sdn Bhd	PO1000010017	No	2.664610°	112.164730°
Yuwang Group	Empressa (M) Sdn Bhd	PO1000008426	No	3.821583°	114.026083°
Polera Berhad	Polera Samanhan Jaya Sdn Bhd	PO1000003759	No	3.399460°	110.455440°
Polera Berhad	Polera Vantage Sri Aman Sdn Bhd	PO1000005774	No	1.957390°	111.400495°
Golden Agro Plantations Sdn Bhd	GAPO Oil Mill Sdn Bhd	PO1000010864	No	2.672500°	112.127111°

**Figure 9:** List of mills supplying to Wilmar refineries published on Wilmar's website (Image source: Wilmar International; retrieved in January 2022)<sup>17</sup>

**Table 5 Example of mill lists produced and reported publicly by two companies**

**Source of Data**

**Details of Public Mill Lists**

ISF<sup>18</sup> publish their mill lists on a quarterly basis.

Intercontinental Specialty Fats Sdn Bhd					
Traceability Assessment Period: July - September 2021					
Crude Palm Oil (CPO) Suppliers					
No.	Palm Oil Mill	UML	Parent Company of (P.O.M)	Address	State
1	Dara Lam Soon	PO1000007798	Lam Soon Cannery Private Limited	92 KM Off Kuantan-Segamat Highway, 26700 Muadzam Shah, Pahang, Malaysia	Pahang
2	Jeram Padang	PO1000000280	Kuala Lumpur Kepong Berhad	KM 12, Jalan Jetai - Rompin, 72100 Bahau, Negeri Sembilan, Malaysia	Negeri Sembilan
3	Kelayaan	PO1000000201	Kuala Lumpur Kepong Berhad	KB 110, 86609 Paloh, Kluang, Johor, Malaysia	Johor
4	Batu Lintang	PO1000000894	Kuala Lumpur Kepong Berhad	09800 Serdang, Kedah, Malaysia	Kedah
5	Changkat Chermim	PO1000000896	Kuala Lumpur Kepong Berhad	Batu 13 1/2, 32400 Ayer Tawar, Perak, Malaysia	Perak
6	Tereh	PO1000001263	Kulim Berhad	K.B 538, 86009 Kluang, Johor, Malaysia	Johor
7	Pasir Panjang	PO1000005256	Kulim Berhad	K.B 527, 81909 Kota Tinggi, Johor, Malaysia	Johor
8	Palong Cocoa	PO1000001265	Kulim Berhad	K.B 504, 85009 Segamat, Johor, Malaysia	Johor
9	Carotino	PO1000000128	Carotino/JC Chang Group	PT 116, Lot No. 3840, Mukim Ulu Lepar, 26500 Kuantan, Pahang, Malaysia	Pahang
10	Jeroco	PO1000000936	Hap Seng Plantations Holdings Berhad	Off KM 40, Jalan Jeroco, 91109 Lahad Datu, Sabah, Malaysia	Sabah

**Figure 10:** List of supplying mills to ISF refineries published on ISF's website (Image source: ISF; retrieved in January 2022)<sup>18</sup>

**Traceability progress**

In addition to mill lists, companies are also regularly reporting on their TTM and TTP progress (see Table 6) which can also be used by downstream companies to calculate their own traceability score based on volumes purchased from the suppliers.

**Table 6 Example of traceability reporting by companies**

**Company**

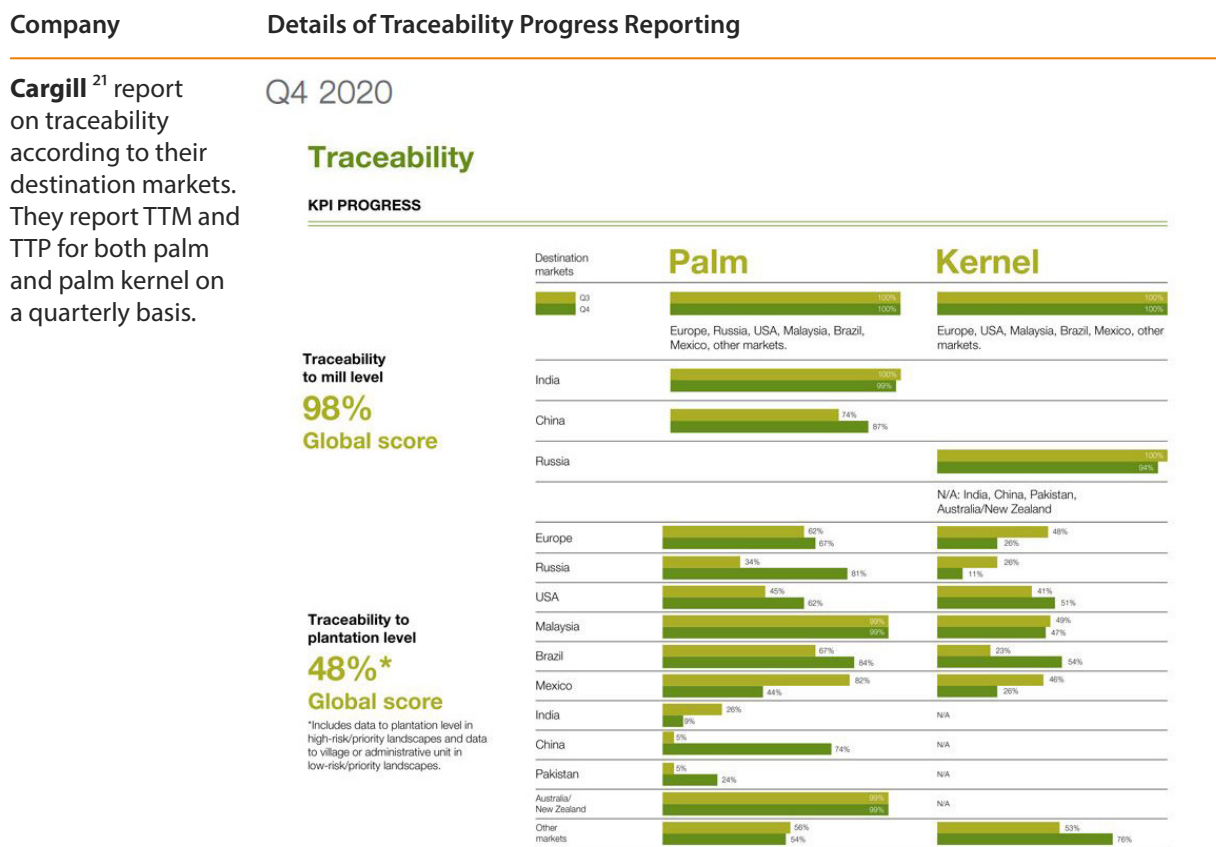
**Details of Traceability Progress Reporting**

AAK<sup>19</sup> have set targets to achieve traceability and report the percentages achieved on an annual basis. Their annual report<sup>20</sup> covers traceability by destination market.



**Figure 11:** Traceability scores and results (i.e. TTM and TTP) through the years as reported by AAK on AAK website (Image source: AAK; retrieved in January 2022)<sup>19</sup>

**Table 6 Example of traceability reporting by companies**



**Figure 12:** Traceability progress as reported by Cargill on Cargill's website (Image source: Cargill; retrieved in January 2022)<sup>21</sup>

### Data collection from suppliers

When suppliers' data are not fully available in the public domain, companies should pursue data collection directly from suppliers. This can be through a supplier engagement strategy as detailed in **Briefing Note 03: Engage within and beyond supply chains**.

Companies can consider including traceability data as part of the shipping requirements of a supplier. This is especially useful when dealing with traders who aggregate shipments with several production sources.

### Step 2: Review and verification of data

Verifying traceability data and information aims to guarantee the quality, integrity and accuracy of the data collected and build the trust of stakeholders. Verification has to ensure that the volumes reported match those processed by the company, match the flow of volumes reported by the named companies in the supply chain, and fit the correct timeframe of data collection and reporting. The most robust verification process consists of the verification of data and the process by an independent third party such as a certification body.

PepsiCo<sup>22</sup> developed a traceability protocol which can be used by an independent party as a reference for the verification of mill data.

When collecting traceability data from the public platforms listed earlier it is important to understand the assurance processes involved in verifying the data prior to publishing. The assurance process is usually available within the platform and should be reviewed and validated.

If there is no public indication of verification, the company should engage their suppliers and require the data to be verified. The box on the right shows an example from Bunge on verification of their data (see Figure 13).<sup>23</sup> Verification of data and reporting is covered in **Briefing Note 04: Monitor, verify and report.**

### Step 3: Analyse data

Once traceability data is collected and verified companies are able to analyse the data and calculate traceability scores. Scores provide a good indicator of the progress towards achieving traceability in the supply chain. The following methodology can be used to calculate the traceability score:

$$\frac{\text{Amount of traceable palm oil}}{\text{Total volume of palm oil}} \times 100 = \text{Percentage of traceable palm oil}$$

Volumes are qualified as traceable only if all the data and information gathered regarding the respective processing mills and producing plantations and production regions meet the criteria in Table 2. The calculations will provide the percentage of palm oil volumes traceable to mill, to plantation, and to production. When calculating based on percentages gathered from suppliers' reporting, the following method applies. As such, both TTM and TTP can be respectively calculated using these formula bands from suppliers' traceability data.

$$\frac{(\text{Percentage of traceable palm oil supplier A} \times \text{Volume supplied by supplier A}) + (\text{Percentage of traceable palm oil supplier B} \times \text{Volume supplied by supplier B})}{\text{Total volume of traceable and non-traceable palm oil supplier A+B}}$$

### Step 4: Reporting of traceability (Transparency)

Companies are expected to report transparently on the progress made towards meeting their policy commitments and their traceability targets. This would take the form of traceability scores for reporting progress in achieving both TTM and TTP, the publication of mill lists and other information that a company's stakeholders may be interested in, such as the list of companies that are direct suppliers.

**Bunge** engages Control Union to carry out verification of all traceability and NDPE compliance data collected and analysed, prior to public reporting.



## VERIFICATION STATEMENT

As an independent organization

Control Union Certifications B.V.

Moesuwentaan 4-6  
8011 BZ Zwolle  
The Netherlands

confirms to have verified that

Traceability to mill

Traceability to plantation

NDPE scores

as published by

Bunge Loders Croklaan Group B.V.

Hogeweg 1  
15210 A2 Wormerveer  
The Netherlands

comply to the requirements set out in BLC Palm Oil Traceability Protocol (version January 2020)<sup>1</sup>

### Figure 13:

Verification certificate issued by Control Union to Bunge (Image source: Bunge Loders Croklaan; retrieved in January 2022)<sup>23</sup>



## 03 Key steps, tools and approaches for risk assessments in supply chains

Risk assessment is a systematic process of evaluating potential risk in a company's current or future operations, supply chains, and investments.<sup>24</sup> This includes identifying and assessing any actual or potential adverse impacts on rights-holders, against which all internationally recognised human rights should be used as a reference point.<sup>25</sup> Traceability and transparency in supply chains, together with environmental and social risk assessments, can help companies to identify and mitigate potential risks and remediate negative impacts from the production of oil palm in the supply base.

Companies should consider an environmental and social/human rights risk assessment as a first step:

- In the context of assessing land use change such as deforestation, companies should aim to transition to monitoring of deforestation, which supersedes the environmental risk assessment.
- As defined by the United Nations Guiding Principles on Business and Human Rights (UNGPs), companies are encouraged to uphold their responsibility to respect human rights and undertake a Responsible Business Conduct approach by performing Human Rights Due Diligence (HRDD), the first step of which is assessing actual and potential human rights risks. It is important that a company considers all human rights potentially or actually impacted by its business operations and supply chains.

Understanding and assessing environmental and social risks allows a company to develop action plans and take action to address (i.e. mitigating or remediating) the risks that are highlighted. Using the results of the risk assessments, companies can prioritise their actions. Actions may include engagement with new and/or current suppliers to address upstream risks, for example, by strengthening due diligence criteria. It may also be necessary for companies to take action beyond their supply chain at a landscape or jurisdictional level, or through sectoral and collaborative engagement where collaboration with others is necessary to tackle widespread and/or systemic issues upstream. Information on prioritisation and taking action is detailed in **Briefing Note 03**.

### 3.1 Environmental risk assessment tools

Several tools such as geospatial monitoring have been developed over the years to allow companies to assess potential environmental risks in their supply chain. With the advancement of technology, environmental risk assessments have now become accessible to all companies to better understand risks in their supply chain. The main environmental risks that can be evaluated and monitored remotely via satellite are deforestation, land use change and fire use.

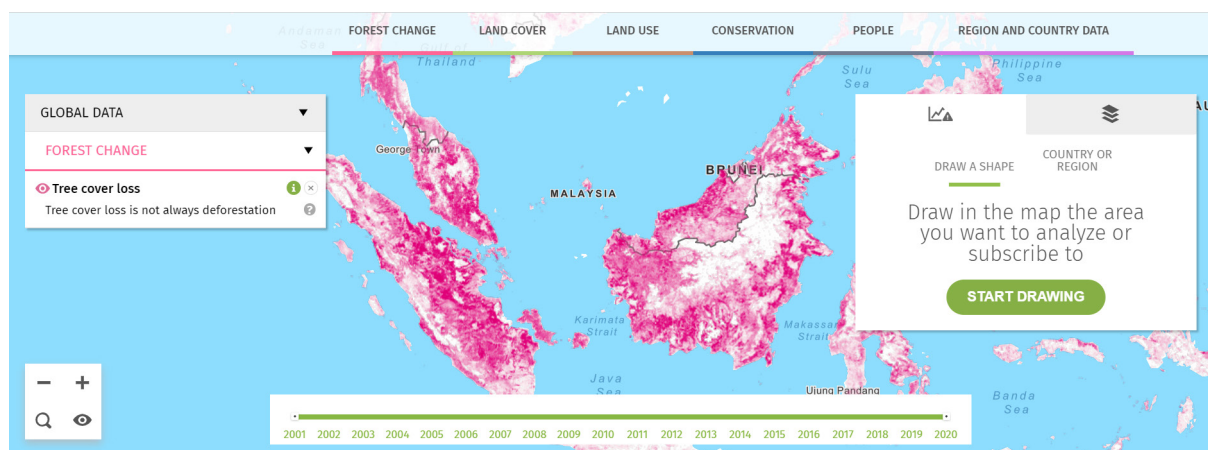
Other impacts such as decreases in biodiversity or waterways pollution can be assessed through site assessments to understand better the regional context and severity of the issues. Review of certain platforms such as the IUCN red list of species<sup>26</sup> can give an overview of the biodiversity impacts pertaining to species range and population, and this information can be overlaid with sourcing regions to better correlate. However, such type of research and overviews are not extensive enough to understand the local context for mitigation and remediation of specific issues; but can be precursors for in-depth site assessments such as Environmental Impact Assessments (EIA) and High Conservation Values (HCV)<sup>27</sup> Assessments.

Land use change risk assessment is possible once a certain level of traceability in the upstream supply chain is achieved. With this information and a risk monitoring tool (see Table 7), companies will be able to assess the recent and historical land use changes in these production areas and understand the level of risk associated with the sourcing of palm oil. The same tools can be used in the longer term to monitor deforestation.

**Table 7 A list of available tools for conducting Environmental Risk Assessments.****Tool and Description****Global Forest Watch Pro (GFW Pro)**

GFW Pro was launched in 2014 by World Resources Institute (WRI) and various project partners. It is the first free open access spatial data tool designed to monitor deforestation globally. GFW Pro enables the assessment of environmental risk for all soft commodities, provides deforestation alerts, and occurrence data for various land cover types, land uses, climate and biodiversity.

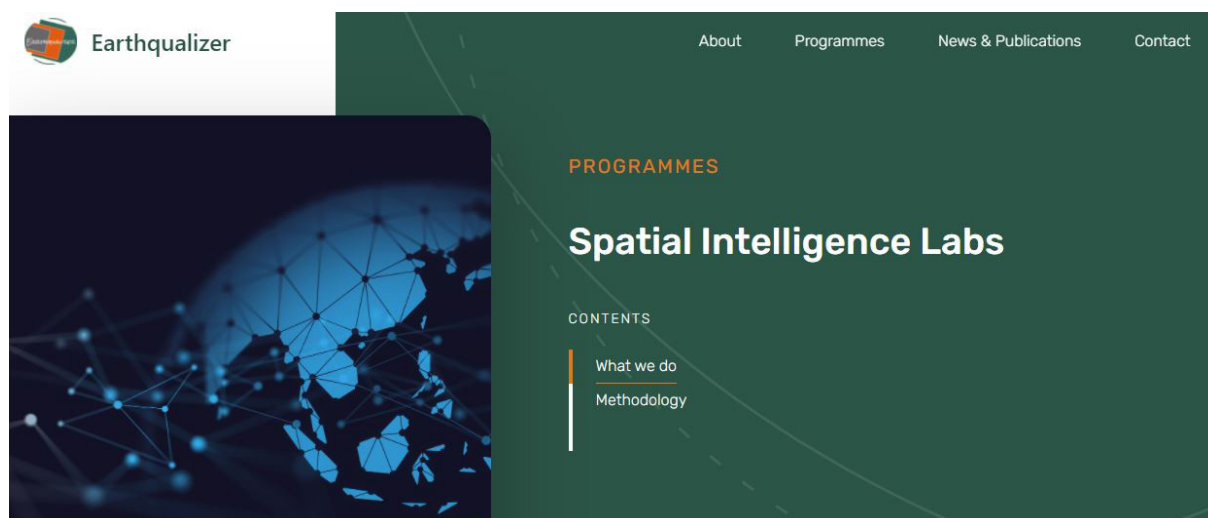
The environmental risks of supply chains and production sites can be assessed by simply uploading the spatial data (e.g. GPS coordinates) to the site.

**Figure 14:**

GFW Pro's visual map of analysed tree cover loss from 2001 to 2020 over Malaysia and Indonesia. A slider at the bottom enables the user to visualise their desired period in which tree cover was lost (Image source: GFW Pro; retrieved in January 2022)<sup>28</sup>

**Earthqualizer**

Earthqualizer was founded in December 2019, as a spin-off of Aidenvironment Foundation (Asia) in the Netherlands. Earthqualizer is non-profit organisation that is dedicated to transforming the supply-chain of agricultural commodities for the benefit of people and nature. Earthqualizer works with corporate partners to deploy the Supplier Group Monitoring Programme (SGMP) which is a risk management tool that screens and monitors palm oil traders' compliance with NDPE policies.

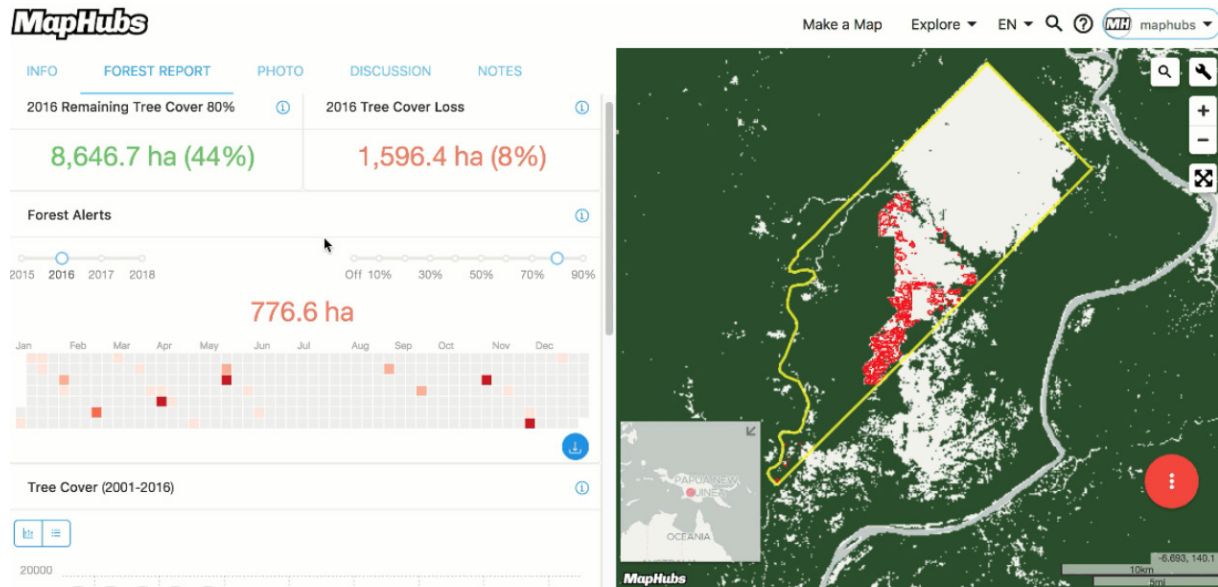
**Figure 15:**

Earthqualizer's Spatial Intelligence Labs programme connected to their SGMP tool (Image source: Earthqualizer; retrieved in January 2022)<sup>29</sup>

**Table 7 A list of available tools for conducting Environmental Risk Assessments.**

**MapHubs’ Forest Report**

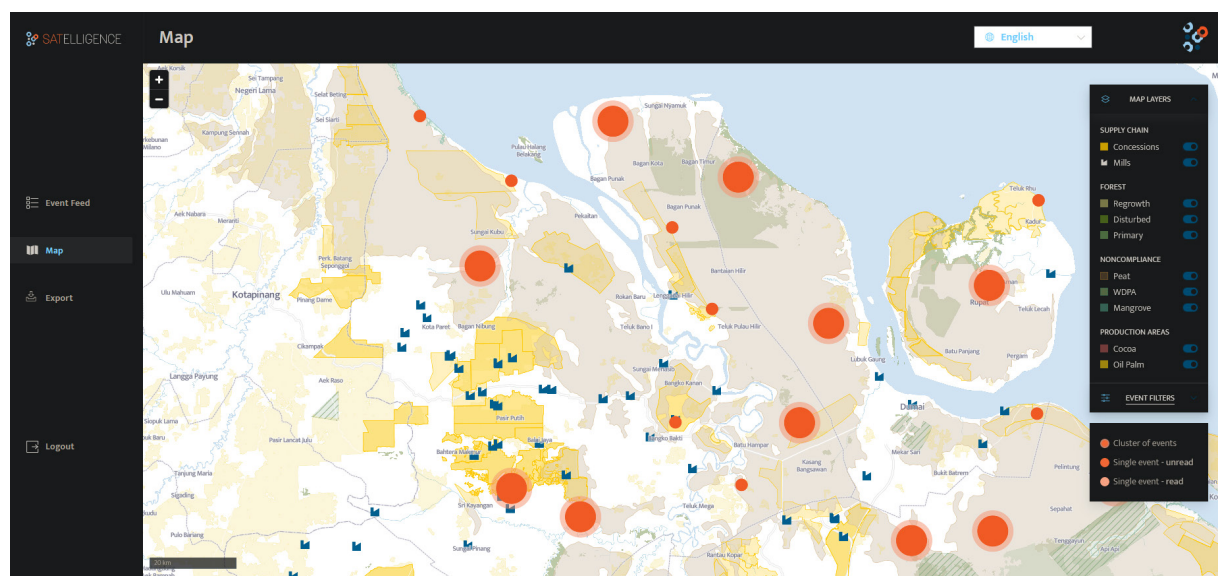
MapHubs was founded in 2017 and provides services for deforestation monitoring and other natural resource issues. Their ‘Forest Report’ monitoring platform provides analytical reports of deforestation. They use forest alerts, land use data and satellite imagery. The platform offers both free and paid services.



**Figure 16:** MapHubs’ Forest Report analysis on tree cover loss in 2016 at a selected location (Image source: MapHubs; retrieved in January 2022)<sup>30</sup>

**Satelligence**

The company was established in 2016 and specialises in providing detailed, semi-automated satellite-based analyses. This includes analysis on environmental risks and performance across forestry and various agricultural commodities. Satelligence provides a web interface that contains spatial maps, risk summaries, quantification of risk occurrence and the total area affected. This is a paid service.

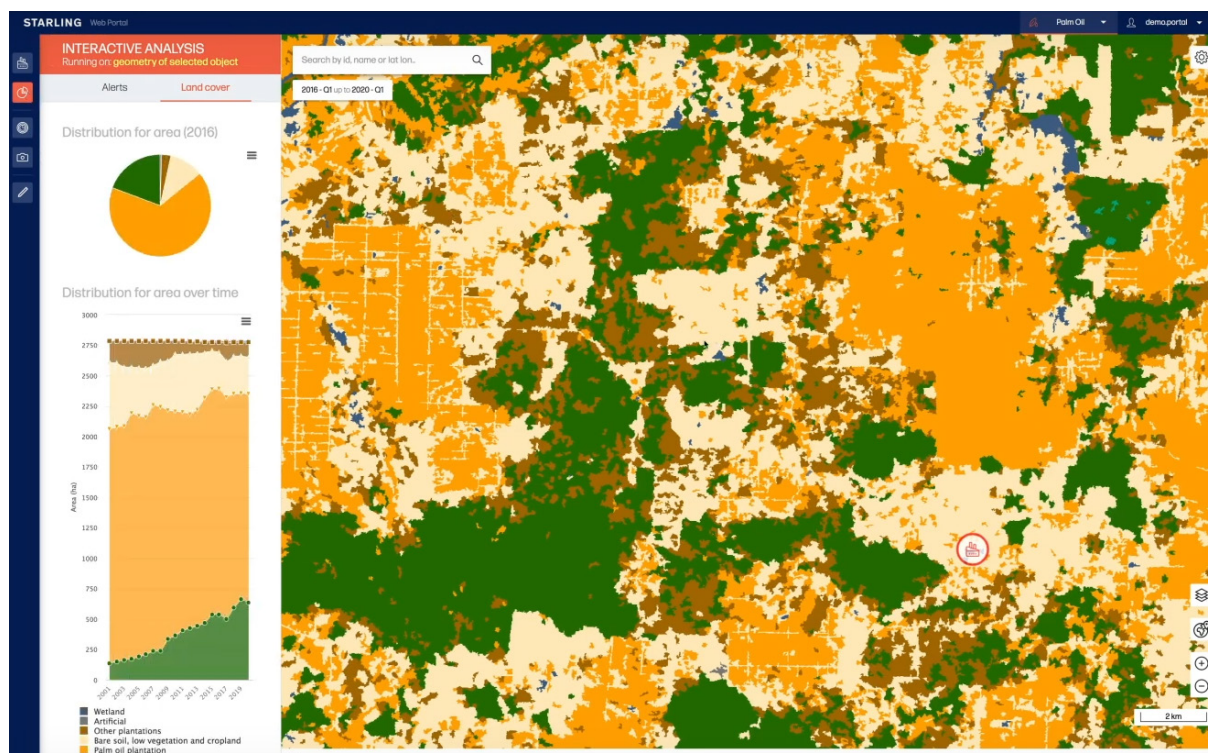


**Figure 17:** Satelligence’s mapping of detected deforestation within concessions in Indonesia (Image source: Satelligence; retrieved in January 2022)<sup>31</sup>



**Table 7 A list of available tools for conducting Environmental Risk Assessments.****Starling**

Starling was created by Earthworm in collaboration with SarVision and Airbus. Starling is a satellite monitoring service platform that can identify forestry changes and verifying sustainable sourcing commitments, land cover types, land tenure and others. Change detection using this service occurs daily while confirmed forest loss alerts are provided every 5-7 days. Users may interact with the data through a web interface which provides a base map, monitoring layer and summary dashboards. This is a paid service.



**Figure 18:** Starling's Forest Change interactive analysis (Image source: Starling; retrieved in January 2022)<sup>32</sup>

Table 8 below provides a summary of the costs and data types provided by each of the tools. All of them provide technical support in forest monitoring of palm oil supply chains and do not require strong technical expertise from the user.

**Table 8 Summary of cost and data types provided by tools listed**

Tool	Cost	Data types provided
1. GFW Pro	Free, paid service options	Optical
2. Earthqualizer	Free, paid service options	Optical
3. Map Hubs	Free, paid service options	Optical
4. Satelligence	Paid service	Optical, Radar
5. Starling	Paid service	Optical, Radar

The list of deforestation monitoring tools provided in Table 7 is by no means exhaustive. It provides an overview of the tools most used by companies sourcing palm oil to conduct environmental risk assessments of their supply chains. For example, Nestlé has been using Starling since the end of 2018 to monitor 100% of its global palm oil supply chain, supporting Nestlé to progress towards meeting their no

deforestation commitment by contributing to industry transformation through a publicly accessible monitoring system.<sup>33</sup>

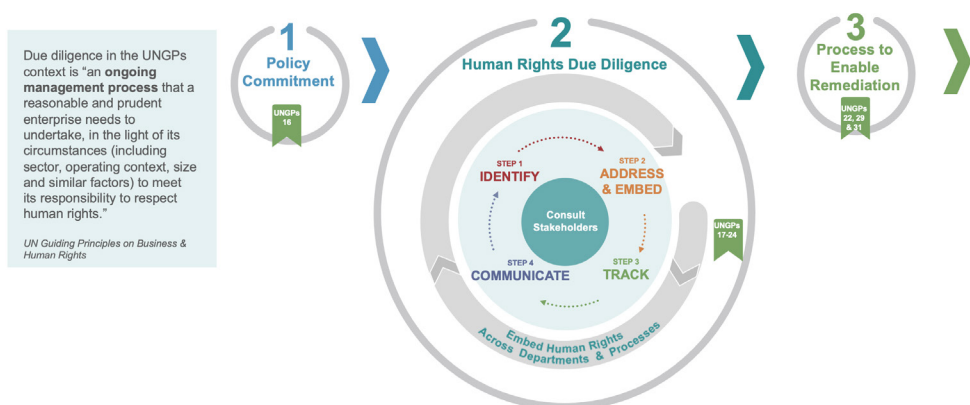
As of March 2021, a new radar-based monitoring system for detecting deforestation known as Radar Alerts for Detecting Deforestation (RADD) is being used by GFW to provide deforestation alerts to the public. This system is the result of the efforts of a coalition of 10 major palm oil producers, Wageningen University, Satelligence and World Resources Institute,<sup>34</sup> and is unique as it uses the European Space Agency’s Sentinel-1 satellites which provide imagery that can penetrate clouds, smoke and haze.<sup>35</sup>

While desktop-based environmental risk assessment is fast becoming a staple in palm oil companies, there are other ways of evaluating risks such as the review of NGO reports. One such example is Mighty Earth’s Rapid Response Monitoring System<sup>36</sup> which is supported by MapHubs, Aidenvironment and Planet and they currently monitor around 21 million hectares across Malaysia and Indonesia. It focuses on oil palm concessions, to identify deforestation and new peatland development. The team utilises a mix of satellite imagery and case studies shared by partners and independent researchers, which are then analysed to identify supply chain and financial links between plantations and related agricultural buyers. Mighty Earth then produces a report compiling the grievances received and analysed, and publishes the report on their website. In the long term, companies should aim to transition towards regular monitoring of land use changes after completing the environmental assessment as a first step. Monitoring will be covered in **Briefing Note 04**.

### 3.2 Social risk assessment – process & tools

A social risk assessment is an exercise to identify and evaluate the risk of negative social issues occurring. By assessing risk, we are asking: how likely is it that a problem is occurring or may occur in the future? As such, it is an indication, not a guarantee, that negative social issues are taking place. Companies can therefore rely on risk assessments as initial guidance to help them identify and understand hotspots for risk, and to guide the prioritisation of their efforts and drive improvements in the social performance of their operations and supply chain.

**The UN Guiding Principles on Business and Human Rights (UNGPs on Business and Human Rights)** is a global voluntary framework unanimously endorsed by the UN Human Rights Council in 2011. It provides guidance on the concept of Human Rights Due Diligence (HRDD) as one component of its recommended approach to Responsible Business Conduct for companies to uphold their responsibility to respect human rights. HRDD is defined by the UNGPs as “an ongoing risk management process that a reasonable and prudent company needs to follow in order to identify, prevent, mitigate and account for how it addresses its adverse human rights impacts.”<sup>37</sup> Figure 19 below illustrates the approach, which includes four key steps: identifying actual and potential human rights impacts; addressing and integrating the findings; tracking responses; and communicating how these impacts are being addressed.<sup>37</sup>



**Figure 19:** The UNGPs’ approach to responsible business conduct (Image source: Proforest)



## Human rights risk assessment (HRRRA)

The identification of actual and potential human rights risks is the critical first step in the HRDD process, which can be done through a Human Rights Risk Assessment. A business enterprise's human rights risks are “any risks that its operations may lead to one or more adverse human rights impacts” and therefore relate to potential human rights impact.<sup>38</sup> A company's potential impacts should be addressed through prevention or mitigation, while actual impacts should be remediated.<sup>25</sup>

An HRRRA can be a qualitative desktop study of social risks, for example, in sourcing regions. HRRRAs can start with a preliminary high-level scoping study of what is known about the actual and potential salient human rights issues associated with the production of each commodity within the context of a country or region: seeking to highlight groups of people who might be most at risk, what activities are associated with those risks, which risks are identified, how severe those risks may be, and any significant gaps in available knowledge. The scope of social risks identified can include labour, land and community rights, women's rights and gender equality, smallholder and farmer livelihoods.

When conducting the desk-based risk assessments, different methods can be used, such as:<sup>39</sup>

- **Literature reviews** on social issues associated with particular geographies, commodities or production systems
- **Structured expert interviews** (these experts can be auditors, researchers, civil society representatives, human rights defenders or credible proxies for the rights-holders at risk as well (which may include human rights defenders too))
- **National-level datasets and indices** (examples include **Verité's Vizualize risk tool for forced and child labour**, IFC's **GMAP tool**, **OECD information on gender or corruption**, and **US CBP trade sanctions**)
- **Data from supplier questionnaires**
- Information should also be gathered from **previous site assessment visits** (i.e. human rights risk assessments) where on-the-ground interviews were conducted with affected stakeholders and CSOs

Stakeholder consultations should include engagement and participation of rightsholders or relevant proxies (NGOs, CSOs for example) and representatives (for example of the most vulnerable groups and individuals (i.e. migrant workers, women, children, sexual and gender minorities etc).

### A company can use an HRRRA to answer the following questions:

- Is this risk widespread in our supply chain, or only present in some parts?
- Do the root causes suggest it can be easily addressed via actions in the supply chain?
- Are there opportunities for driving change via localised or jurisdictional initiatives in the regions which we source from?
- Can we drive change via leverage in the broader sector or industry?

The box above provides some examples of questions that can be answered through conducting an HRRRA. However, in contexts where risk of severe impact is perceived to be high and insufficient information is available from desk-based sources, companies can consider carrying out more granular site assessments – such as a Human Rights Impact Assessment (HRIA), which is described under the section 'Other Assessment Tools'.

**An introductory video on Human Rights Due Diligence**<sup>40</sup> was produced by the Social Issues Working Group of the Palm Oil Collaboration Group. The video introduces Human Rights Due Diligence, including the role of a risk assessment and touches on key points such as a business case for respecting human rights, and some examples of actions that can be taken by upstream and downstream companies.

### Other assessment tools

Examples of other assessment tools that can be used for the 1<sup>st</sup> step in the HRDD approach are the Social Impact Assessment (SIA) and Human Rights Impact Assessment (HRIA). Both these tools are typically used by **upstream companies** to identify actual and potential human rights impacts caused by their business operations and supply chains.

### Social impact assessment (SIA)

Social impact assessment is a **project planning tool**, which can be part of an environmental impact assessment (EIA), especially when EIAs are part of a legal or regulatory requirement or standard. The impacts identified can then be mitigated through the Environment Social Management Plan (ESMP). SIAs are used to identify, predict and assess the direct and indirect impacts occurring at a project site or within the project's wider area of influence.<sup>40</sup> SIAs are therefore more likely used in the upstream supply chain. Although SIAs are used as an impact prediction mechanism and decision-making tool to consider social impacts in advance of a permitting or licensing decision, SIAs also play an important role in the ongoing management of social issues throughout the whole project development cycle – from conception to post-closure.<sup>41</sup>

When conducting an SIA, affected communities are engaged through a participatory process to identify, assess and manage these social impacts.<sup>42</sup> The box on right shows the typical scope of an SIA.<sup>43</sup>

#### The scope of an SIA typically covers:

- People's way of life
- Culture & community
- Political systems
- Environment, health & well-being
- Personal & property rights
- Fears & Aspirations

### Human rights impact assessment (HRIA)

A human rights impact assessment is a **direct assessment used at site-level**, such as refineries, mills, and plantations. It is a voluntary tool used to identify, understand, assess and address the adverse effects of a business project or activities on the human rights enjoyment of impacted rightsholders such as workers and community members.<sup>44</sup> When conducting an HRIA, engagement with rights-holders or credible proxies (local NGOs, CSOs for example) is highly recommended in order to achieve a thorough assessment and understanding of human rights impacts.<sup>45</sup>

It is important to note that an HRIA is not the same as a risk assessment – risk assessments focus on predicting future occurrence of events and the associated implications for the business; whilst an HRIA focuses on actual and potential impacts on rights-holders.<sup>45</sup> HRIAs may not be technically or financially feasible for most companies due to high costs and the requirement for a HR specialist to conduct it.<sup>45</sup> Furthermore, as such assessments are conducted at site-level and have an upstream focus, it is an assessment that downstream companies could expect their suppliers to conduct. Downstream companies are also encouraged to support their upstream actors in this process via provision of technical or financial support.

To access more practical risk assessment tools that companies can use to implement the HRDD approach, please visit the **HRDD library of tools**<sup>46</sup> curated by the Palm Oil Collaboration Group. The library is an online resource listing HRDD tools which can be browsed thematically (i.e. IP/LC, labour); and categorically based on the different HRDD steps.

## What should companies take into account when working out how to assess social risks?

All companies should respect human rights as expressed in the **International Bill of Human Rights**<sup>47</sup>. The UNGPs (i.e. principle 11, 12 and 23) expect companies to respect internationally recognised human rights and not merely legal compliance with national laws.<sup>25</sup> As such, the scope of a risk assessment should cover the company's entire supply base and should include all internationally recognised human rights issues, including beyond the scope of legal compliance. Where national laws fall below the standard of internationally recognised human rights, companies should respect the higher standard.

Risk assessments should be initiated as early as possible in the development of a company's new activity or relationship, and as HRDD is an ongoing processes to assess human rights impacts, social/human rights risk assessments should be updated or renewed in instances such as the following.<sup>38</sup>

- new joint venture or business acquisition in palm
- new supplier added
- supplier adds new sourcing origin (country or region)
- supplier acquires new business or changes ownership
- major change in context in a current sourcing country (e.g. mass migration, instability, civic freedoms etc)

## What to do with the results of the risk assessment?

With the results of the risk assessment, businesses can understand their exposure to social risk within a specific supply chain, commodity or region. According to the second step of the UNGPs human rights due diligence, businesses are expected to take appropriate action to address the risks and issues identified.

As it may be unreasonably difficult to address all risks identified, prioritisation of actions should be based on the **greatest risk to people (as opposed to the risk to business)** and the **UNGP's guidance on the principle of severity (judged by scale, scope and irremediability)**, with the severity of the risk as the predominant factor in determining priorities for action.<sup>25</sup> This means that when an abuse is severe, even when volumes or leverage is low, it should be addressed as a priority, and this could be done by working with others.<sup>25</sup>

As such, the results of a company's risk assessment can help it evaluate the risk type, severity<sup>48</sup> and likelihood of social issues and deploy appropriate strategies and actions effectively *within* and *beyond* its own supply chain.

More information on addressing social or human rights risks will be covered in **Briefing Note 03** which covers prioritisation and taking action.

## Learn more and help us improve

More information is provided in the references below and at [www.palmoiltoolkit.net](http://www.palmoiltoolkit.net)

Please also share with us information that will improve this Briefing Note (via [palmoiltoolkit@proforest.net](mailto:palmoiltoolkit@proforest.net)).

## Acknowledgements

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