

An update on Astra Agro Lestari *One year after its new sustainability policy*



Commissioned by



September 2016

Colophon

Aidenvironment report:

An update on Astra Agro Lestari

One year after its new sustainability policy

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Date:

19 September 2016

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Overview of Astra's oil palm concessions

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Aidenvironment is part of Stichting AERA, registered at the Chamber of Commerce of Amsterdam in the Netherlands, number 41208024

An update on Astra Agro Lestari

One year after its new sustainability policy

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Summary

A new sustainability policy

Astra Agro Lestari (Astra) is the second largest private palm oil grower in Indonesia. It manages around 300,000 hectares of oil palm trees in Kalimantan, Sumatra and Sulawesi. Over the last five years Astra expanded its planted area by 35,000 hectares. Since 2014 the company has also been active in the downstream oil palm business, through refineries in Sumatra and Sulawesi.

In 2015 Astra seriously raised the bar on its sustainability commitments. In June it introduced an immediate moratorium on land conversion across all its operations in Indonesia. In September it published an ambitious No Deforestation, No Peat, No Exploitation policy.

Research and scope

For this report, published one year after the launch of Astra's new sustainability policy, a spatial analysis was conducted on Astra's deforestation, fires and the opening up of peatlands. The analysis was done for the period from June 2015 (Astra's moratorium) through mid-August 2016. In addition, Astra's practices to ensure compliance by its third-party suppliers to its new policy were analysed.

This report does not contain any analysis of Astra's (possible) social issues, such as land disputes and labour rights violations. Some social issues have been identified in Aidenvironment's earlier report on Astra Agro Lestari, which was published in May 2015.

On 5 September 2016 Aidenvironment has sent a draft-version of this report to Astra. Astra was given the opportunity to comment on the draft-report, and give answers to specific questions. Astra responded on 15 September 2016. Its answers have been incorporated into this final report.

Results

The spatial analysis showed that since June 2015 clearing and planting of oil palm have been at a low level inside Astra's concessions. No peatlands were opened through clearing by Astra, and there has been no deforestation for plantation development inside Astra's concessions.

Astra contributed to Indonesia's 2015 haze disaster that took place between July and October 2015, and resulted in enormous environmental and economic losses for the country. Thousands of hectares burnt inside Astra's concessions, including valuable forests and oil palm plantings. No evidence was found of intentional burnings by Astra between June 2015 and mid-August 2016. The company provides little public information on how it prevents/mitigates fires.

The palm oil products that Astra sells are not necessary from its own plantations. About one third is sourced from third parties, mainly smallholders. In 2016 Astra also bought substantial amounts of palm oil from the company PT Austindo Nusantara Jaya (PT ANJ). PT ANJ cleared approximately 8,000 hectares of forests (likely High Carbon Stock) in West Papua between early 2014 and mid-2015. It is not clear whether Astra has engaged with PT ANJ on sustainability issues, before buying the substantial amounts of CPO in 2016.

One case of deforestation was found that is linked to Astra. Astra manages the existing plantations of PT Adau Hijau Lestari (PT AHL) and PT Adau Agro Kalbar (PT AAK) in West Kalimantan. It does not own these concessions. Between mid-June and Mid-August 2016 around 300 hectares of forest were cleared, very likely inside the concession boundaries of PT AHL and PT AAK.

1. Sustainability policy

1.1 Setting the bar high since May 2015

Astra Agro Lestari (from here: Astra) is the second largest private palm oil company in terms of planted area in Indonesia.¹ As of 31 December 2015, it managed 298,000 hectares fully planted with oil palm trees. Astra's planted areas are scattered over Kalimantan (47%), Sumatra (36%) and Sulawesi (17%).² Figure 1 provides a geographical overview of Astra's oil palm concessions.

Figure 1: Geographical overview of Astra's oil palm concessions (concessions in red).



On 19 May 2015, Astra announced the development of the required policy to meet the obligations of the Indonesian Palm Oil Pledge (IPOP).³ The IPOP, which was disbanded on 1 July 2016, brought together several private-sector palm oil companies with a commitment to No Deforestation, No Peat, No Exploitation policies.⁴

On 11 June 2015, Astra introduced an immediate moratorium on all land conversion. There would be no clearance of any natural forest either by the Company or any of its contractors across all its operations in Indonesia.⁵

On 21 September 2015, Astra published its updated Sustainability policy committing to No Deforestation, No Peat, and No Exploitation across its supply chain (more detailed description below). It had appointed three consultants (Daemeter, Proforest and the Rainforest Alliance; operating under the name CORE) to advise on the development of an action plan. Astra and the consultants would work with key stakeholders, such as the government, industry bodies, NGOs and smallholders.⁶

In April 2016 Astra launched its 2015 Sustainability report. This report was "old style". No reference was made to the new policy and progress with the implementation of it.⁷

On 12 July 2016, Astra reiterated that, together with the consultants, it was designing a process to develop the action plan. The action plan would be the roadmap to build a traceable and transparent supply chain, develop programs for smallholders and third-party suppliers, and create an open, transparent, and consultative process to resolve all complaints, grievances, and conflicts.⁸

1.2 No Deforestation, No Peat, No Exploitation policies

A large group of leading private palm oil growers, traders and processors have adopted No Deforestation, No Peat, No Exploitation policies, including Astra. While the strength and scope of No Deforestation policies vary, in general they surpass requirements of RSPO and other industry standards. The following are key elements of No Deforestation policies:

- Ending all deforestation and conserving High Conservation Value (HCV) areas and High Carbon Stock (HCS) areas (using the High Carbon Stock approach)⁹;
- Protecting all peatlands (regardless of depth);
- Recognizing the right of local communities to give or withhold their Free, Prior and Informed Consent (FPIC) to any new developments;
- Complying with the fundamental conventions of the International Labour Organisation (ILO)¹⁰ and upholding the wider United Nations Guiding Principles on Business and Human Rights.¹¹

The policies apply to a signatory's own plantation operations as well as all the plantations operated by their third-party suppliers.

2. Screening Astra’s policy compliance for 2015/2016

2.1 Research & scope

The main research for this report comprised spatial analysis focusing on deforestation, fires and the opening up of peatlands. Astra’s oil palm concessions were screened on these issues for the period from June 2015 until mid-August 2016. In addition, Astra’s practices since the launch of its sustainability policy were checked concerning supply chain transparency and supplier compliance.

This report does not contain any analysis of Astra’s (possible) social issues, such as land disputes and labour rights violations. Astra’s policy implementation was thus not checked on the No Exploitation part of its No Deforestation, No Peat, No Exploitation policy.

For an overview of deforestation, fires and the opening up of peatlands before June 2015, Aidenvironment refers to its report of May 2015: Sustainability assessment of Astra Agro Lestari.¹²

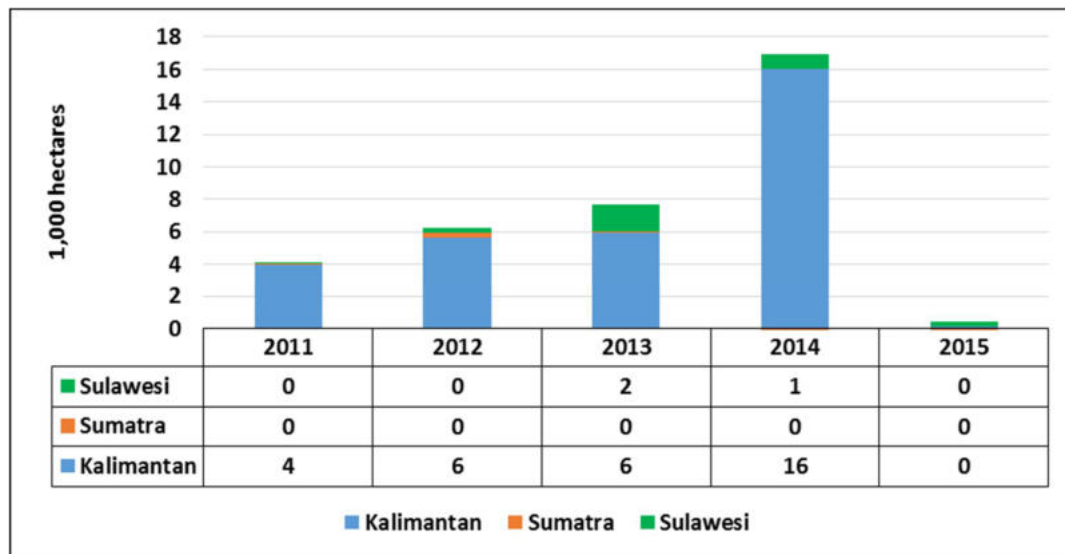
While oil palm is the main business of Astra, the company is also developing rubber plantations. These developments have been excluded in the research for this report.

The methodology used for this report is described in the annex of this report.

2.2 New plantings

Since June 2015, clearing and planting of oil palm have been at a low level in Astra’s concessions. Notable is that Astra did not expand its oil palm area in 2015. Over the last five years Astra has added 35,000 hectares to its oil palm planted area. Figure 2 shows the expansion over the years per region. By far most of the new plantings took place in Kalimantan.¹³

Figure 2: New plantings Astra over the last five years.



2.3 Case 1: Forest fires in South Kalimantan

Policy

In September 2015 Astra launched its new sustainability policy, with a statement on fires:

“We will maintain our Zero Burn policy. This means that there can be no use of fire in the preparation of new planting, or replanting or any other development on our plantations. We will actively work on fire and haze mitigation in our plantations.”¹⁴

Practice

Aidenvironment has not found any evidence of intentional burnings by Astra between June 2015 and mid-August 2016. However, Astra took its share in Indonesia’s 2015 haze disaster that resulted in enormous environmental and economic losses for the country. Between July and October 2015, there were 677 hotspots (all confidence > 50%) recorded inside Astra’s concessions.¹⁵

Three plantations in South Kalimantan - all located in the same peat area - accounted for 63 per cent of the recorded hotspots. The fire outbreaks caused thousands of hectares to burn inside Astra’s concessions, including valuable forests and oil palm plantings. Concerning the plantations in South Kalimantan, Astra’s fire and haze mitigation was certainly not effective during 2015.

Fires also raged inside Astra’s oil palm concessions of PT Cipta Narada Lestari (Central Kalimantan) and PT Borneo Indah Marjaya (East Kalimantan). These fires also caused forest loss.¹⁶

In contrast to companies such as Wilmar International and Golden Agri-Resources¹⁷, Astra has not publicly elaborated on its efforts to prevent/mitigate its 2015 fires.¹⁸ Striking is that Astra’s sustainability policy does not yet cover how it will prevent fires, such as through the restoration of peatlands and their forests.¹⁹ Aidenvironment’s questions on these two matters were left unanswered by Astra in its response on 15 September 2016 to the draft-version of this report.

Astra stated on 15 September 2016 that none of the fires occurring inside of Astra’s estates during July - October 2015 were carried out by Astra, or for the purposes of Astra’s plantation development. The fires were the result of sparks from areas surrounding its concessions, the company said. Astra had reported the fire incidents to the Indonesian government.

Astra also mentioned that since October 2015 it has made further improvements on its fire prevention and mitigation procedure in compliance with government regulations, but failed to provide any details.

Table 1. Recorded hotspots within Astra’s concession areas (2015)

Plantation company	Province	Number of hotspots	%
PT Tribuana Mas	South Kalimantan	222	33
PT Subur Agro Makmur	South Kalimantan	103	15
PT Cakung Permata Nusa	South Kalimantan	101	15
PT Cipta Narada Lestari	Central Kalimantan	50	7
PT Borneo Indah Marjaya	East Kalimantan	44	7
Other		157	23
Total		677	100

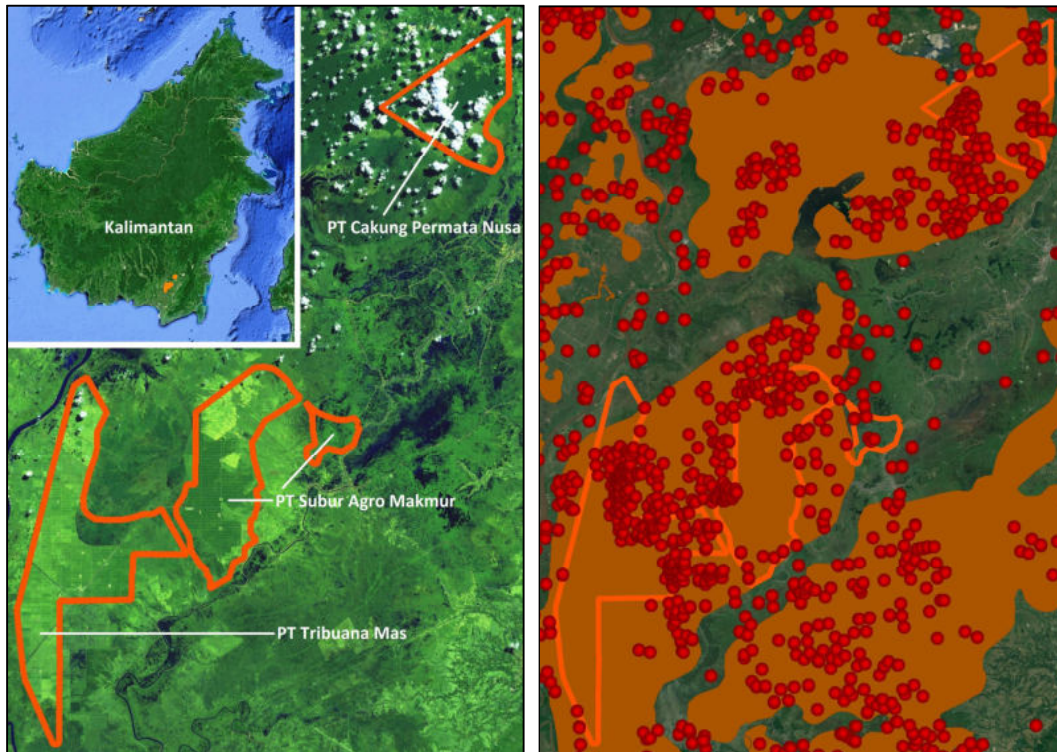
Source: Hotspots (confidence > 50 percent). Fire Information for Resource Management System, <http://go.nasa.gov/27awNfg>.

The three South Kalimantan concessions

The period between July and October 2015 formed an exceptionally dry season for South Kalimantan. The three Astra concessions that experienced most hotspots in 2015 are all located in the same peatland area of South Kalimantan. Disturbed peatlands are fire prone because of the build-up of dry, flammable fuels (through drainage) as well as lower humidity resulting from a reduced tree canopy.²⁰

Figure 3 below shows the concession boundaries (in orange), peat areas²¹ (in brown), and the hotspots²² that were recorded for 2015 (red dots). From the figure it becomes clear that most hotspots were recorded on peatlands.

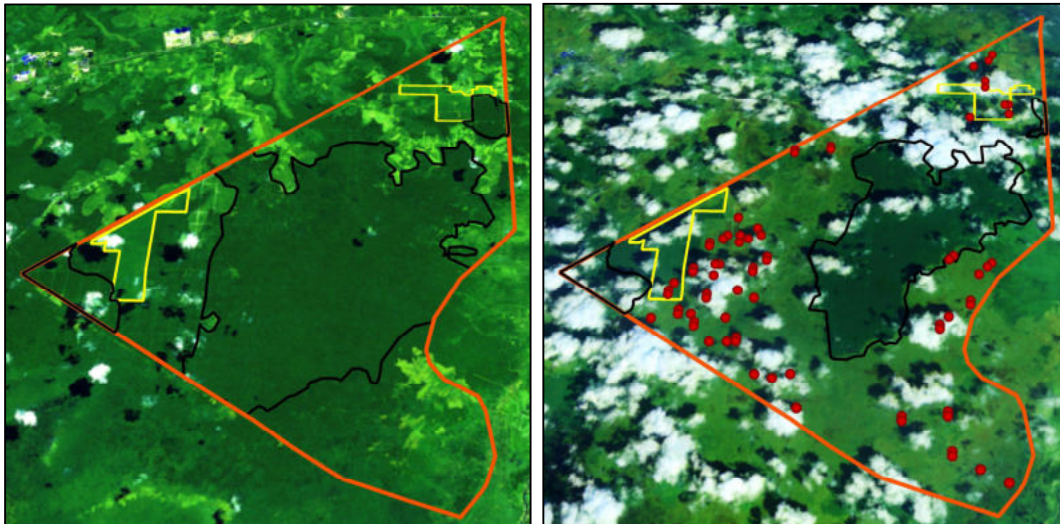
Figure 3: The three South Kalimantan concessions, peatlands and fires



PT Cakung Permata Nusa

Astra's subsidiary PT Cakung Permata Nusa has seven estates. The one that was hit by a fire outbreak in 2015 has an area of 9,700 hectares. Only 400 hectares of oil palm are presently planted, as was already the case by the end of 2011.²³ In July 2015, at least 4,700 hectares inside the concession were forested.²⁴ From August to October 2015, 101 hotspots were recorded inside the estate, causing burnt forests amounting to 2,400 hectares. As of November 2015, there were 2,300 hectares of forests left. Between November 2015 and August 2016 there were no developments (such as planting, clearing, fires, forests recovering) inside the concession.²⁵ Figure 4 below shows the satellite imagery as of July and November 2015, the forested areas (marked in black), the hotspots (red dots) and the planted areas (marked in yellow).

Figure 4: PT Cakung Permata Nusa in July (left) and November 2015 (right)



Background: Landsat 8 Imagery of 20-28 July and 9-17 November 2015.

PT Tribuana Mas and PT Subur Agro Makmur

Further analysis for PT Tribuana Mas and PT Subur Agro Makmur shows that most hotspots were recorded in areas that are not planted with oil palm. This is a common phenomenon. Usually fires do not occur/spread in areas that have been planted with oil palm for at least a few years. Figure 5 below shows the concession areas of PT Tribuana Mas (on the left side; within orange) and PT Subur Agro Makmur (the two areas within orange on the right side). The areas inside the black marked boundaries are not planted with oil palm.

Figure 5: Hotspots 2015 of PT Tribuana Mas and PT Subur Agro Makmur

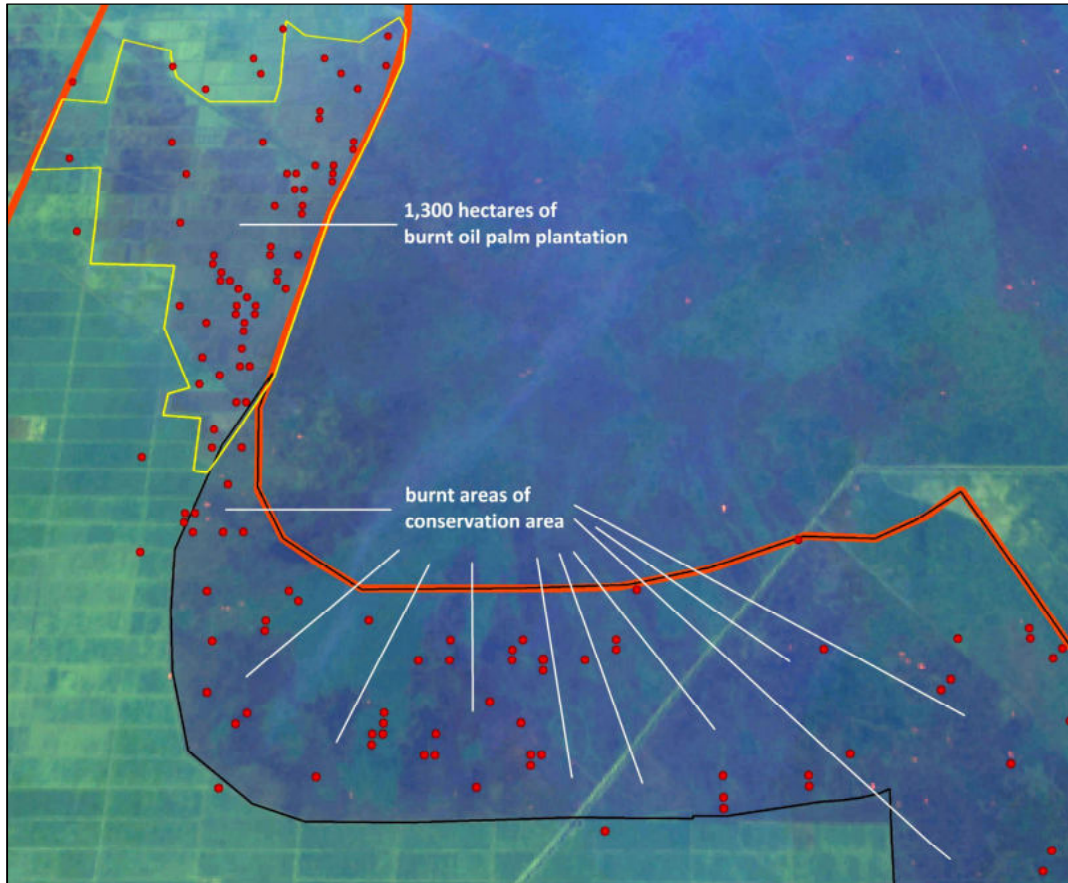


Background: Landsat 8 imagery of 27 July to 4 August 2016.

For PT Tribuana Mas, however, the fires also raged over areas planted with oil palm. Figure 6 shows some 1,300 hectares of burnt plantation (within yellow markings), suggesting an economic loss for the company. The area marked with black represents a conservation area, according to a list of High

Conservation Value (HCV) areas on Astra’s website in early 2015. During the second half of 2013 this area also experienced many fires.²⁶ At present, this area may no longer be considered HCV by Astra, as it lacks forests. Astra’s list of HCV areas can also be no longer found on its website or in its 2015 Sustainability report, which has decreased transparency on Astra’s conservation goals.

Figure 6: Burnt areas PT Tribuana Mas 2015



Background: Landsat 8 imagery of 14 to 22 September 2015.

2.4 Case 2: Astra's supply chain

Policy

Astra's goals on supply chain transparency and supplier compliance are found under the header "Moving Forward" in its Sustainability policy of September 2015. Astra has not yet set a deadline for implementation. Astra's goals on supply chain transparency and suppliers' compliance are:

- "Progressively build a traceable, transparent supply chain, making available to our key stakeholders maps of our concessions, as well as locations of third-party suppliers' plantations and mills, and appoint an independent verifier to assess compliance of this policy.
- Work with our smallholders and other suppliers to 'socialise' and encourage them to adopt this policy.
- Not knowingly source from suppliers who are in contravention of this policy, or failing to work alongside us to adopt it.
- Develop a grievance system that is transparent to our stakeholders."

Practice

Since Astra's announcement of its policy there has been no publicly available information on any progress with regard to achieving the policy goals on supply chain transparency and suppliers' compliance.

In 2016, Astra bought substantial amounts of CPO (Crude Palm Oil) from the palm oil company PT Austindo Nusantara Jaya (PT ANJ). Between 2014 and mid-2015 PT ANJ cleared approximately 8,000 hectares of highly forested landscapes in West Papua province, without identifying and conserving HCS forest areas. Four companies with No Deforestation policies suspended sourcing from PT ANJ. Between 2014 and mid-2015 PT ANJ acted in contravention of Astra's sustainability policy of September 2015. Astra did not answer Aidenvironment's question whether Astra had assessed the sustainability record of PT ANJ and engaged with PT ANJ on sustainability issues, before deciding to buy large amounts of CPO from PT ANJ in 2016.

In its response to the draft-version of this report, Astra stated that its supply chain is an area to be evaluated by the CORE-coalition (Daemeter, Proforest and the Rainforest Alliance), towards its action plan on building traceable and transparent supply chains. Assessing the refinery that sourced from PT ANJ (the 50%-owned PT Kreasijaya Adhikarya, Sumatra) would be a priority under this assessment work.

Astra refineries and deals with KLK

In 2015, Astra's oil palm refinery business (two refineries) already generated 41% of its revenue. Astra owns an oil palm refinery in North Mamuju district, West Sulawesi. The name of this subsidiary is PT Tanjung Sarana Lestari (PT TSL). The production was launched in 2014. Sales in 2014 were 0.35 million tons, jumping to 0.6 million tons in 2015.²⁷ Together with the Malaysian oil palm giant, Kuala Lumpur Kepong (KLK), Astra has formed a joint marketing venture that focuses on the sale of palm oil products from Astra's refinery and mills in West Sulawesi. The joint venture, Astra-KLK Pte Ltd, is incorporated in Singapore. KLK has a 51% stake, while Astra owns the remaining 49%. Astra's sales to Astra-KLK Pte Ltd generated 33% of Astra's revenue over 2015, while in 2014 this was 18%.²⁸ Likely Astra's plantations in Sulawesi supply the lion's share of CPO used by the refinery. KLK does not have plantations in Sulawesi.²⁹

In January 2015, Astra paid IDR 75 billion (USD 6 million) to secure a 50% stake in a joint venture company named PT Kreasijaya Adhikarya (PT KJA). KLK is the joint venture partner. The refinery of PT

KJA has a processing capacity of 600 thousand tons of CPO a year and is located in Dumai, Riau Province. In 2015 the refinery sold around 0.3 million tons of palm oil products. Astra's sales to PT KJA generated 8% of Astra's revenue over 2015. It sold about 0.15 million tons of CPO to PT KJA.³⁰

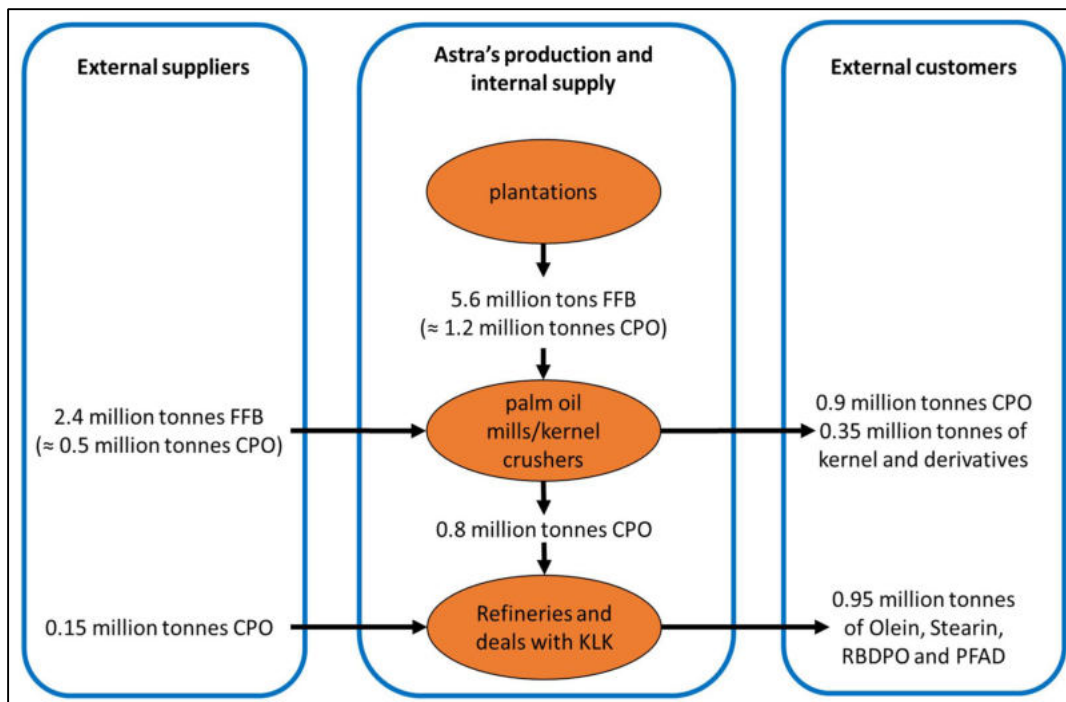
Figure 7: Location of Astra's two oil palm refineries



Volume flows

Figure 8 below shows the volume flows of Astra's oil palm business in 2015, as extracted from Astra's 2015 Annual report.³¹ In 2015, Astra's CPO production from own plantations amounted to 1.2 million tonnes, while the input into its business from third-party suppliers was equal to 0.65 million tonnes of CPO. This means that one third of Astra's sales volume originates from third-party suppliers.

Figure 8: Astra's third-party relations in 2015, in volumes



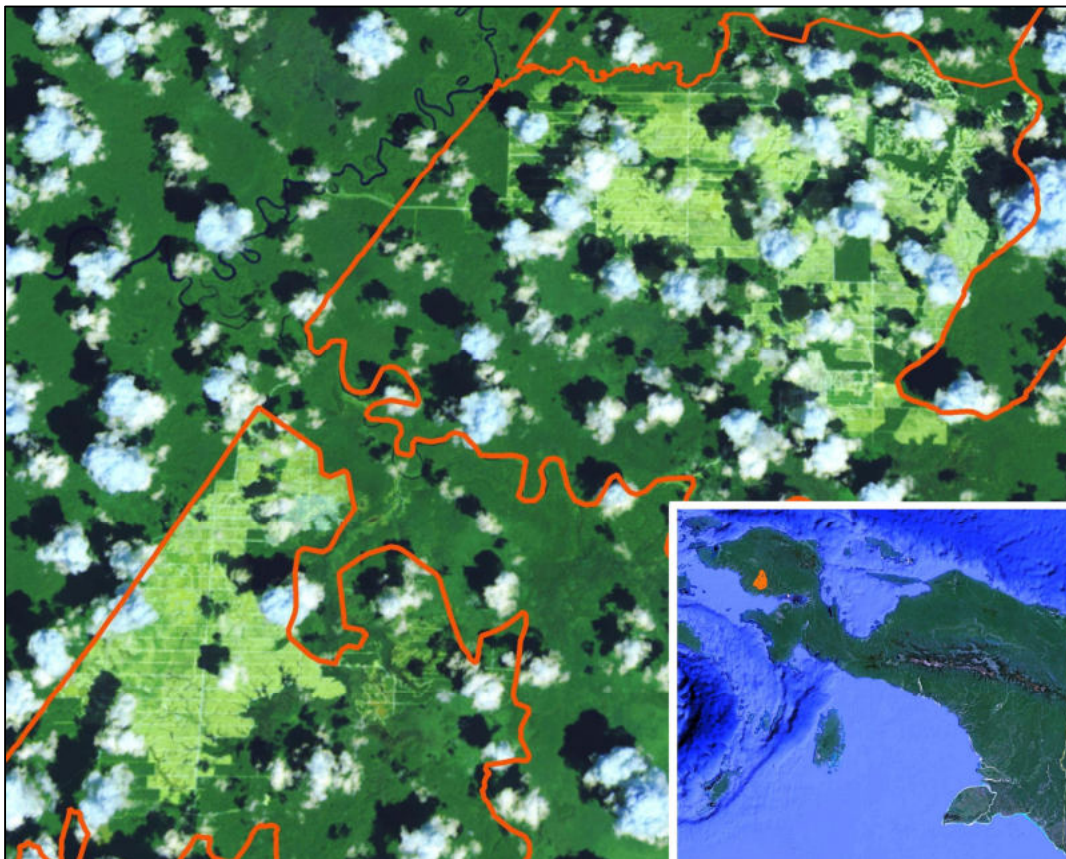
External suppliers to Astra

FFB deliveries to Astra's palm oil mills comprised most of the third-party volumes in 2015. Most likely the plantations of these suppliers are located adjacent to Astra's receiving mills. These third parties are not smallholders under Astra's plasma program, as plasma deliveries have already been included to Astra's own FFB production. According to Astra's 2015 Annual report, the sourcing is from farmer groups managing oil palm smallholdings, covering a total area of around 95,000 hectares.³²

Astra's external CPO-suppliers (150,000 tonnes in 2015) are larger companies, as these companies own palm oil mills. One of the palm oil companies identified to be supplying CPO to Astra is the palm oil company PT Austindo Nusantara Jaya (PT ANJ). In the first half of 2016, the refinery company PT Kreasijaya Adhikarya (50% Astra, 50% KLK) bought around 33,000 tonnes of CPO from PT ANJ. The Astra/KLK joint venture PT Kreasijaya Adhikarya accounted for 35% of PT ANJ's revenue from sales for the same period.³³

In 2015, four processors/traders (Wilmar, GAR, the Apical group and Musim Mas) have suspended their business with PT ANJ, because PT ANJ's operations were deemed non-compliant with their No Deforestation policies.³⁴ Between 2014 and mid-2015 PT ANJ had been clearing approximately 8,000 hectares of highly forested landscapes in West Papua province. The company had not identified and conserved HCS forest areas. Since mid-2015, after processors/traders suspended their trade, there has been no further development of PT ANJ's concessions (totaling 54,000 hectares) in West Papua.³⁵ While it stopped clearing in West Papua by mid-2015, PT ANJ still has no clear sustainability policy.

Figure 9: Cleared forests by PT ANJ in West Papua province



Source: Landsat imagery of 3 to 11 December 2015

2.5 Case 3: Deforestation in West Kalimantan

Policy

In June 2015 Astra introduced an immediate moratorium on all land conversion.³⁶ On deforestation it said:

“AAL will ensure that there will be no clearance of any natural forest either by the Company or any of its contractors across all its operations in Indonesia.”

Astra’s sustainability policy of September 2015 mentions the following on (No) deforestation:

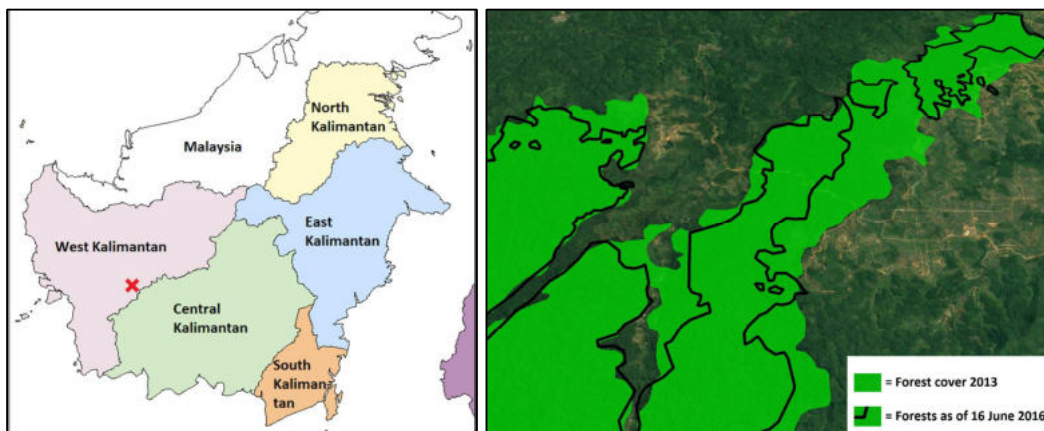
- “There will be no development in potential HCS forests, as defined by the methodology determined by the HCS Approach Steering Group (The HCS Approach Toolkit), or whatever becomes recognised as the industry standard in the future. We aim to conserve all identified HCS forest areas together with HCV areas in partnership with local communities and other stakeholders.
- We will implement international best practices in the identification, protection and management of HCV areas following the Indonesian toolkit in accordance with the procedures set out by HCV Resource Network (HCVRN). We will ensure that HCV studies are completed by credible service providers. We will work with the broader stakeholder community to identify and engage appropriate experts whenever competent and credible HCV assessors are not readily available.”

Practice

This case does not represent any deforestation for plantation development inside Astra’s concessions since June 2015 (through mid-August 2016). The case is about the plantation companies PT Adau Hijau Lestari (PT AHL) and PT Adau Agro Kalbar (PT AAK), located in Melawi district, West Kalimantan. In 2013 and 2014 Astra assisted with PT AAK and PT AHL on their palm oil plantation operation (and deforestation). Yet, Astra has never acquired the plantation companies.

According to Astra, since June 2015 PT AAK and PT AHL have not been deforesting for plantation development and its activities have been limited to the existing plantation. However, since June 2015 there has been at least 400 hectares deforestation, very likely inside the concession boundaries of PT AAK and PT AHL.

Figure 10: Location and forests of PT AHL/AAK



PT AHL and PT AAK

Aidenvironment has identified that between June and mid-August 2016 around 300 hectares of natural forests had been cleared, very likely inside the concession boundaries of PT AHL and/or PT AAK. Between October 2015 and June 2016 the deforestation amounted to some 100 hectares. Likely the cleared forests were High Carbon Stock. In its report of May 2015 Aidenvironment also documented deforestation inside the concession boundaries of PT AHL and/or PT AAK.³⁷ A newspaper article dated August 2014 mentioned 3,700 hectares of oil palm already being planted.³⁸

In July 2011 Astra acquired a right to take over all the shares in PT AAK.³⁹ In its response to the draft-version of this report Astra wrote that as of September 2016 the acquisition of PT AHL and PT AAK has not been completed. The discussion for potential acquisition of PT AHL/AAK is currently on-hold. In 2013 and 2014 Astra assisted PT AAK and PT AHL with its plantation development (including the deforestation). Astra claims that since June 2015 its activities have been limited to ground up-keep and maintenance for the existing plantation and harvesting for the mature plantation.

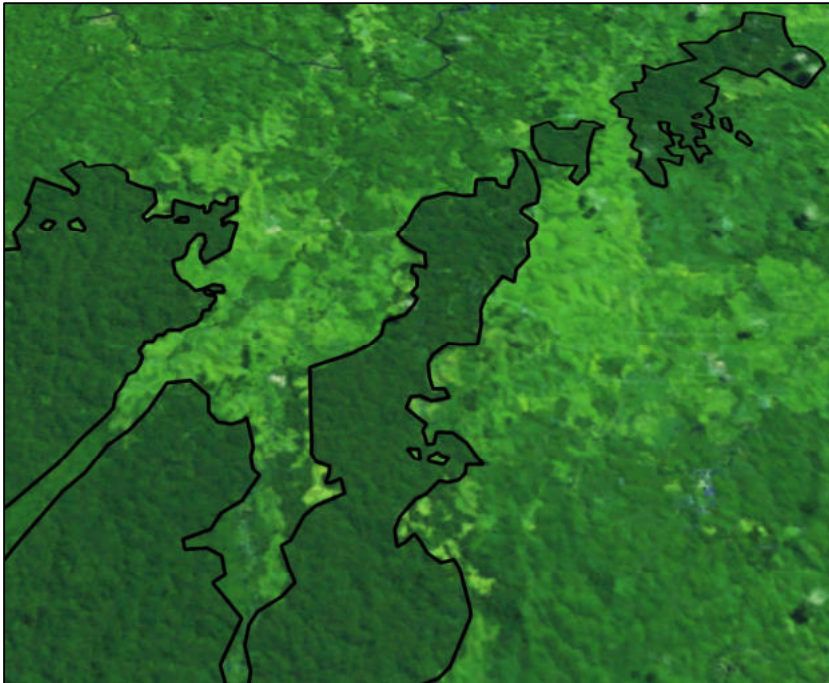
In its response Astra also wrote that, in line with its June 2015 moratorium, it had requested PT AAK and PT AHL to stop land clearing (on their estates). According to Astra no plantation development has taken place since the Astra moratorium in June 2015, suggesting that the deforestation has not been conducted on behalf of PT AHL and/or PT AAK. Aidenvironment has observed that the pattern of forest clearing since October 2015 isn't typical for plantation companies. Likely other actors have caused the deforestation.

Aidenvironment had requested Astra to hand over the concession boundaries of PT AHL and PT AAK to check on whether the deforestation found occurred inside or outside their concession boundaries. Astra responded that, by regulation, all requests for geospatial data relating to estate boundaries should be submitted to the (governmental) National Land Agency (BPN). While Astra states that on the estates of PT AHL and PT AAL there has been no deforestation since June 2015, Aidenvironment maintains that it is very likely that the deforestation has taken place inside the concession boundaries of PT AHL and/or PT AAK, as the deforestation took place inside available concession boundaries.⁴⁰ This would mean that, while Astra is managing the existing plantation of PT AHL/AAK, it apparently doesn't feel responsible for what is happening in other parts of the concessions.

Astra also responded that it has not made a final decision on Astra's future involvement in PT AAK/AHL. It reassured that the discussions would only proceed within the framework of its sustainability policy.

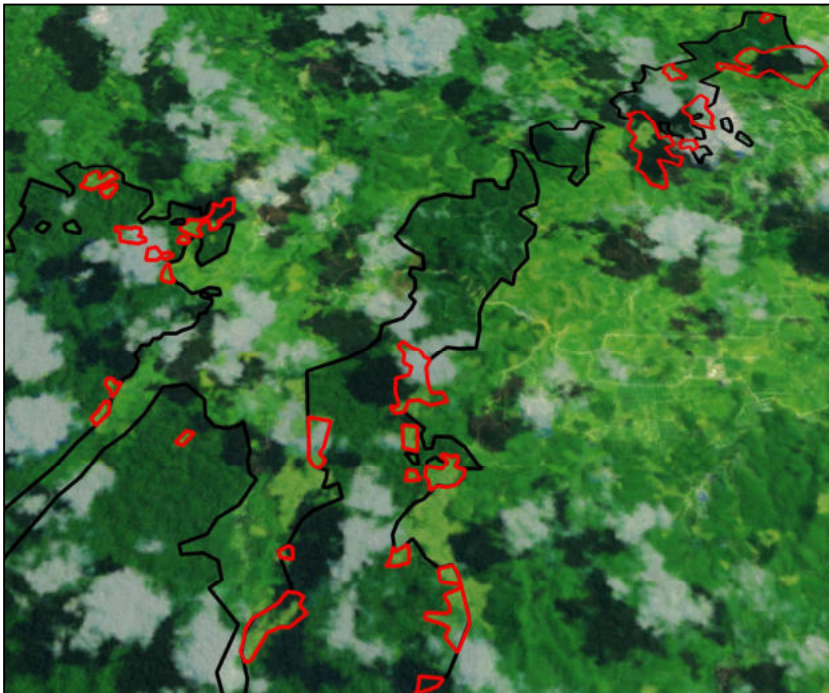
The figures 11 and 12 show the 300 hectares forest clearance that happened between mid-June and mid-August 2016.

Figure 11: Forested area PT AHL/AAK as of 16 June 2016



Sources: Forest cover maps 2015 and 2016 Ministry of Environment and Forestry, Sentinel-2 image 16 June 2016, Landsat 8 image of 9 to 17 June (this figure)

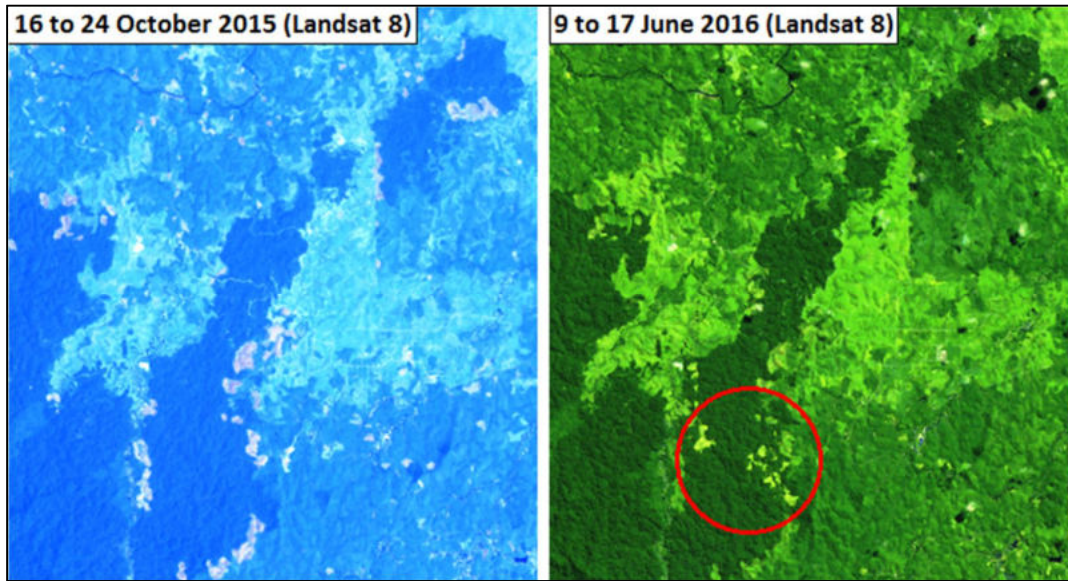
Figure 12: Deforestation until mid-August 2016 (inside red boundaries)



Sources: Landsat 8 image of 12 to 20 August 2016 (this figure), Landsat 7 image of 12 August 2016 to 13 September 2016, Landsat 8 Image of 27 July to 4 August 2016.

Between October 2015 and June 2016 the deforestation amounted to some 100 hectares within the concession boundaries.

Figure 13: Clearing by Astra's PT AAK and PT AHL between October 2015 and June 2016



The drone photo below of 6 September 2016 shows that at least one of the areas has been recently deforested and also has been burnt.

Photo: Cleared and burnt areas, very likely within the concession boundaries of PT AHL/AAK



© Aidenvironment (drone photo), 6 September 2016, coordinates: S 0°49'4.30"; E 111°28'24.13"

Conclusion

On deforestation and peat clearance

Astra's moratorium on land conversion (June 2015) and the part of its new No Deforestation policy (September 2015) on not clearing of forests/peatlands inside its own concessions has been effective. In the period between June 2015 and mid-August 2016 no peat areas were cleared by Astra. There was also no deforestation for plantation development inside Astra's concessions. One case of deforestation was found that is linked to Astra. In West-Kalimantan it manages oil palm plantations inside larger concessions. Since June 2016 there has been 300 hectares of deforestation, very likely inside the concession boundaries.

On fires

On fires Astra's achievements have not been effective. Thousands hectares of natural forests were lost inside Astra's Kalimantan concessions during Indonesia's 2015 haze disaster. Astra provides little public information on how it prevents/mitigates fires. Striking is that Astra's sustainability policy does not yet cover how it will prevent fires, such as through the restoration of peatlands and their forests. During research for this report there was no evidence found of intentional burnings by Astra and its subsidiaries between June 2015 and mid-August 2016.

On third-party supplies

Since its announcement of the new sustainability policy in September 2015, Astra has yet not made visible progress on achieving its policy goals on supply chain transparency and suppliers' compliance. Astra's supply chain mainly comprises smallholders. Yet, it does also source from large palm oil companies to fill its refineries. One major third-party supplier to the Sumatra refinery, PT ANJ, could be tracked down during the research for this report. Astra should have deemed this company "high risk". It has recently cleared 8,000 hectares of highly forested landscapes in West Papua. In its response to a draft-version of this report, Astra stated to give its Sumatra refinery (co-owned with the Malaysian oil palm giant Kuala Lumpur Kepong) extra attention in its forthcoming supply chain assessments.

Annex: methodology

Spatial analysis

The main research for this report comprised spatial analysis focusing on deforestation, fires and the opening up of peatlands. Astra's oil palm concessions were screened for the period from June 2015 until present.

A variety of sources was used to extract the boundaries of Astra's oil palm concessions:

- Concession boundaries according to maps of the ministry of Environment and Forestry.
- Astra's annual reports and notifications for ISPO-certification.
- Plantation Business Permits (IUP, *Ijin Usaha Perkebunan*), according to district governments.
- Various sources (newspaper articles mainly) for concessions not mentioned in Astra's annual reports.

The result of this exercise was a map with concession boundaries for almost all of Astra's 45 plantation companies. This map was partially incomplete (for example some 27,000 hectares of smallholder areas within Jambi province of Sumatra could not be identified) and perhaps not 100% correct (missing data to establish full certainty about the concession boundary). Yet this map with concession boundaries functioned as a base for the spatial analysis.

All the 2015 hotspots that were recorded inside Astra's oil palm concessions were retrieved and counted. In addition, recent Landsat imagery was compared with imagery from June 2015 onwards, to check for deforestation, burnt areas, opening up of peatlands etc. In addition, maps on forest cover and land use categorization were retrieved from the ministry of Environment and Forestry for every year since 2011 for Sulawesi and Kalimantan. The Sumatra areas were excluded, since Astra's planted areas have not changed since at least 2011 in that area.

Reviewing documents

Most of the other research comprised reviewing documents, mainly the annual reports of Astra and its policy announcements.

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