# INDONESIA

| Indicators | Description | Source |
|---|---|---|
| **Agricultural indicators** | | |
| Palm oil production (t) | Total palm oil production in tonnes (metric tons) of crude palm oil (CPO) equivalent, based on area of planted oil palm at *kabupaten* (district) level and CPO production at province level. | CPO production is from the Directorate General of Estate Crops via the statistics agency (BPS) (https://www.bps.go.id/). <br><br> Area of planted oil palm is from Auriga's 2016 palm cover map, derived from SPOT satellite imagery. |
| Oil palm cover (ha) | Area (in hectares) of land planted with oil palm trees. It includes all types of plantations such as estates and smallholders. | Auriga's 2016 palm cover map derived from SPOT satellite imagery. |
| Product | Includes all crude palm oil (CPO) and refined palm oil (RPO) products categorised under the HS code 1511. | Per-shipment trade data (see **SEI-PCS Indonesia palm oil v1.1** data sources and methods document). |
| **Socio-economic indicators** | | |
| Smallholder productivity (kg/ha) | Total production (kg) by smallholders divided by productive area (hectares) per *kabupaten* (district). | Crop Estate Statistics of Indonesia: Palm Oil (Directorate General of Estate Crops) (https://www.bps.go.id/). |
| Rural employment (%) | Rate of employment in rural areas, calculated as number of workers divided by population (age 15-64) per *kabupaten* (district). | National Socio-Economic Survey (SUSENAS). |
| **Environmental indicators** | | |
| Territorial deforestation (ha) | Annual deforestation per *kabupaten* (district) in hectares, based on the loss of tree cover (following Hansen at al. (2013), who used 90% tree canopy cover density), in locations which were previously defined as forest cover. <br><br> Limited to Kalimantan, Sumatra and Papua. | Carlson, K.M. et al. (2018). Effect of oil palm sustainability certification on deforestation and fire in Indonesia. *Proceedings of the National Academy of Sciences*, 115(1). 121-126. DOI: 10.1073/pnas.1704728114 (https://www.pnas.org/content/115/1/121). <br><br> Gunarso, P. et al. (2013). Oil palm and land use change in Indonesia, Malaysia, and Papua New Guinea. In *Reports from the Technical Panels of the Second Greenhouse Gas Working Group of the Roundtable on Sustainable Palm Oil.* Killeen, T.J. and Goon, J. (eds). Roundtable on Sustainable Palm Oil, Kuala Lumpur, Malaysia. 29–63. (Link). <br><br> Hansen, M.C. et al. (2013). High-resolution global maps of 21st-century forest cover change. *Science*, 342. 850–853. DOI: 10.1126/science.1244693 (https://science.sciencemag.org/content/342/6160/850). |

| Oil palm deforestation (ha) | Annual forest loss per *kabupaten* (district) in hectares, calculated by identifying locations with a loss of tree cover (Hansen et al. 2013) in areas that were previously defined as forest cover and which fall within oil palm cover mapped using SPOT imagery in 2018 (Auriga). | Auriga's 2018 palm cover map derived from SPOT satellite imagery.

Territorial deforestation (see above). |
|---|---|---|
| Oil palm deforestation risk (hectares) | Oil palm deforestation risk (hectares) is the deforestation for palm that is allocated to the actors along the supply chain in proportion to the volume of palm oil that they export from a given *kabupaten* (district) relative to the total production of palm oil in that *kabupaten.* Deforestation risk for a given year of export is calculated based on the total deforestation for the period 3-4 years before the year of harvest and export. This period reflects the typical delay between the clearance of forest and the first harvest on cleared land, and provides an estimate of the new deforestation associated with the expansion of palm that has contributed to a given year of harvest. | Auriga's 2016 palm cover map derived from SPOT satellite imagery.

Territorial deforestation (see above). |
| Oil palm planted on peat (ha) | Area of peatland of all depths planted with oil palm in 2016, in hectares, based on the Indonesian Peatland Map. It includes all types of plantations such as estates and smallholders. | Auriga's 2016 palm cover map derived from SPOT satellite imagery.

Wahyunto, N.K. et al. (2014). Indonesian peatland map: method, certainty, and uses. *Proceeding Lokakarya Kajian dan Sebaran Gambut di Indonesia.* 81-96. |
| Fire hotspots (number) | Number of fire hotspots detected by satellite imagery in a given year within each *kabupaten* (district). Includes all hotspots identified regardless of confidence level. | NASA's Fire Information for Resource Management System (FIRMS) (https://firms.modaps.eosdis.nasa.gov/). |
| **Actor commitments** | | |
| ISPO certification (number) | Number of mills certified by ISPO in each *kabupaten* (district). | Indonesian Sustainable Palm Oil System (ISPO) (http://ispo-org.or.id/). |

| RSPO certification (number) | Number of mills certified by RSPO (active certification) in each *kabupaten* (district). | Roundtable on Sustainable Palm Oil (RSPO) (https://rspo.org/). |
|---|---|---|
| Zero-deforestation commitments | Commitments traders have made to zero deforestation across their global supply chains. If the company has made a No Deforestation, No Peat and No Exploitation (NDPE) commitment, this is labelled as 'company NDPE commitment'. | Commitments made public on company websites as well as those collected by SPOTT (www.spott.org) and Forest 500 (http://forest500.org/). |
| **Contextual layers** | | |
| Province boundaries | | Badan Pusat Statistik (BPS) (https://www.bps.go.id/). |
| Geocodes | Spatial codes given to each *kabupaten* (district), in the format ID-XXXX. | 2016 *kabupaten* boundaries defined by Badan Informasi Geospasial (BIG) (https://www.big.go.id/).<br><br>Geocodes are from Badan Pusat Statistik (BPS) (https://www.bps.go.id/). |