

ANNEX

1. CDP data and analysis

Data points used

CDP analyzed the below data points of its 2017 Forests Questionnaire.

Table 1 Questions analyzed from CDP's 2017 Forests Questionnaire

TOPIC	QUESTIONS ANALYSED
Company commitments	Applicable to all respondents: <i>F8.2 – Has your organization made a commitment to reduce or remove deforestation and forest degradation from your direct operations and/or supply chain?</i> <i>F8.2a – Please identify which of the following criteria are specifically stated in your organization's commitment to reduce or remove deforestation and forest degradation from your direct operations and/or supply chain.</i>
Use of certification	Applicable to all respondents: <i>F9.4 – Do you specify any third-party certification schemes for your selected commodities? Please indicate the percentage of total production and/or consumption currently certified.</i>
Traceability	Applicable to producers, processors and/or traders: <i>F6.1a – Please describe the system you have in place to track and monitor the origin of raw materials for your selected commodities.</i> Applicable to manufacturers and/or retailers: <i>F6.3 – Please provide details on the level of traceability your organization has for your selected commodities.</i>
Engaging with suppliers	Applicable to producers, processors and/or traders: <i>F10.2 – Are you working with smallholders to encourage and support sustainable forest management practices?</i> Applicable to manufacturers and/or retailers: <i>F10.3 – Are you working with your direct suppliers to support and improve their capacity to supply sustainable materials?</i>
Volume	The volume included in the analysis relates to production or consumption data provided by companies in response to question: <i>F5.2a – Please disclose your production and/or consumption data using the table below.</i>

Volume calculation

Companies apply several types of units when reporting volumes to CDP, depending on the form of the commodity. The following assumptions were made to convert the collected data to metric tons to facilitate analysis.

- For palm, companies reported on palm oil, palm kernel, palm derivatives and other products. Due to the lack of differentiation between the volumes across these products, total volume has been assumed to be for palm oil.
- For cattle products, different reported units have been converted to cattle heads to then be converted again to metric tons applying a ratio of 0.3085 metric tons per cattle head.
- For soy, companies reported on soybean, soy oil and other products. Due to the lack of differentiation between the volumes across these products, total reported volumes have been assumed to relate to soy bean.

For calculating global market share for each commodity, the following sources are used:

- Palm: Total global production volumes of palm oil as reported by the United States Department of Agriculture (2018), at 69.73 million metric tons¹.
- Soy: Total global production of soybean and soy oil as reported by the United States Department of Agriculture (2018), at 336.7 million metric tons of soybean².
- Cattle: Total meat from cattle as report by FAOSTAT (2018), at 93.2 million metric tons³. The total number of cattle slaughtered for meat was used to calculate volumes of cattle product.

Data limitations

There are a number of limitations in the scope and coverage of the reported data by companies to CDP and in the presented analysis:

- Among the 112 companies that reported on palm oil, soy and cattle products, 61 were from the ‘deforestation powerbroker’ companies identified by Global Canopy’s Forest 500. Together, these account for nearly a fourth of the total Forest 500 companies.
- Not all companies reported the commodity volumes they handle. The results presented on market share area are therefore only limited to those companies that choose to disclose this. The aggregate volume data however also includes companies that have disclosed privately.
- Not all companies specify the type of commodity products they handle, making it difficult to confirm exact volumes per product type.
- Companies provide information on volumes in a number of different units, depending on the form of the commodity. As mentioned above, assumptions were therefore needed in order to convert all values to metric tons.
- There could be overlap in volumes reported by companies operating at different stages of the supply chain.

Table 2. Coverage of Forest 500 companies in the CDP analysis of market shares

	Share of Forest 500 companies reporting volumes (and included in the CDP analysis of market shares) out of all companies reporting volumes included in the analysis	Share of forest 500 companies that reported volumes to CDP (and were included in the analysis) out of total Forest 500 companies assessed for each commodity
Palm	70%	27%
Soybean	67%	15%
Cattle products	68%	20%

2. Global Canopy data and analysis

2.1 Company action on deforestation

As part of the Company action on deforestation project, Global Canopy analyzed the commitments of 137 companies in the soy and cattle supply chains in Brazil, Argentina and Paraguay. These companies cover three biomes – the Amazon, Chaco and Cerrado – and included:

- 102 soy companies (73 downstream and 29 upstream), half of which are Forest 500 companies. Together, these account for 38% of soy companies identified by Forest 500 as the most influential ‘powerbrokers’.

¹ United States Department of Agriculture (2018). Oilseeds: World Markets and Trade. USDA Foreign Agricultural Service. At <https://apps.fas.usda.gov/psdonline/circulars/oilseeds.pdf>

² United States Department of Agriculture (2018). Oilseeds: World Markets and Trade. USDA Foreign Agricultural Service. At <https://apps.fas.usda.gov/psdonline/circulars/oilseeds.pdf>

³ Food and Agriculture Organization of the United Nation (2018). FAOSTAT. Livestock Primary. At <http://www.fao.org/faostat/en/#data/QL>

- 98 cattle companies (71 downstream and 27 upstream), 27 of which are Forest 500 companies. Together, these account for 33% of the cattle companies identified by Forest 500 as the most influential 'powerbrokers'.

Companies were assessed against information publicly available on their websites and on external platforms (including CDP Forests and Trase). Global Canopy carried out an analysis of the existence and robustness of company policies and commitments to address deforestation risks in their supply chains. Policies were assessed against the following criteria: inclusion of an overall zero/net zero deforestation commitment, commodity-specific commitments to protect forest landscapes, geographic and supply chain scope, and requirements for time-bound actions. Beyond commitment ambitions, Global Canopy also developed indicators to capture self-reported actions taken by companies to implement their policies and commitments. Indicators on self-reported progress include whether companies regularly report progress, monitor compliance in their supply chain, engage with non-compliant suppliers and implement traceability systems.

Data limitations

The platform's geographic coverage is limited to Brazil, Argentina, and Paraguay. Additionally, the indicators on self-reported progress rely on data provided by companies and do not include verification of company reported progress or an assessment of the on-the-ground impacts of company policies.

2.2 Forest 500

Global Canopy also provided data on the policies of 250 Forest 500 companies. Companies included in the Forest 500 are some of the most influential companies operating in forest risk commodity supply chains. They are identified based on the scale of their commodity production, the volume of commodities they trade or process, and their market share in manufacturing and retail sectors.

Data limitations

The platform focuses on the 250 most influential companies operating across major forest risk commodity supply chains. This focus means that there is limited coverage of small and medium-sized enterprises in the Forest 500 and that coverage across some forest risk commodities (in particular cattle and timber) is limited. Additionally, a large number of the 250 companies in the Forest 500 are headquartered in North America and Europe and there is lower coverage of companies that play key roles in the domestic and regional markets of forest-risk regions such as South America and Southeast Asia.

3. SPOTT data and analysis

SPOTT assesses commodity producers and traders on the public disclosure of their policies, operations and commitments related to environmental, social and governance issues. Their 2017 assessment of palm oil companies covered 50 palm oil producers and traders, including some but not all of the key players. SPOTT conducts review of each company's publicly available reports and analyzes the results against indicators specific to the scope of its operations. Currently, this assessment includes 125 indicators across the ten sustainability areas.

Data limitations

SPOTT assesses palm oil companies against a comprehensive list of criteria and indicators. However, there are some data limitations:

- SPOTT assesses only information from producers and traders in palm oil industry. This means that manufacturers and retailers are excluded from this assessment.
- Data comes from public reports prepared by companies. There is a risk that the data on palm oil plantations may not include all the plantations these companies own.

4. Analysis for pulp and paper

In order to assess the volumes of pulp and paper covered by a commitment, the following method was used:

- The 20 of the largest pulp and paper companies that operate in forest-risk regions across Asia and South America were identified through two sources: the top 100 pulp and paper companies list published by RISI⁴ and the 25 timber and pulp companies assessed by Zoological Society of London⁵ (Table 2). Five of these are Forest 500 companies.
- For production volumes, data was used from the RISI report and individual company reports. Where pulp and paper production volumes were not available, the companies' annual production capacities were used as a proxy for production volumes.
- To identify the companies that have a forest commitment, publicly available company reports and company webpages were reviewed, as well as referring to Supply-Change.org.⁶
- For pulp and paper volumes under a commitment, it was assumed that the total production volume falls under a commitment.
- For the pulp and paper market share under a commitment, FAOSTAT⁷ data was used for total pulp and paper (pulp for paper, and paper and paperboard) production volumes in Asia and South America (2016 data), at 277.06 million metric tons and global production volumes at 594 million metric tons (2016 data).

Table 3. Pulp and paper companies assessed

COMPANY	HEADQUARTERS
Marubeni	Japan
Rengo	Japan
Hokuetsu Corp	Japan
Fibria	Brazil
Arauco	Chile
Empresas CMPC	Chile
Daio Paper	Japan
Lee and Man Paper	China
Vinda Paper	China
Hansol Paper	South Korea
Suzano	Brazil
Klabin	Klabin
Asia Pulp and Paper	Indonesia
APRIL	Indonesia
Mitsubishi Paper Mills	Japan
Oji Paper	Japan
Shandong Sun Paper Industry	China
Shandong Chenming Paper Holdings	China
Nine Dragons Paper Holdings	China
Nippon Paper	Japan

⁴ RISI (2016). The PPI Top 100. At <https://technology.risiinfo.com/mills/asia-pacific-europe-latin-america-north-america/ppi-top-100>

⁵ Zoological Society of London (2018). Timber and Pulp: ESG policy transparency assessments. At <https://www.spott.org/timber-pulp/>

⁶ Supply Change (2018). Timber and Pulp. At http://www.supply-change.org/commodity/timber_and_pulp

⁷ Food and Agriculture Organization of the United Nations (2018). FAOSTAT. Forestry Production and Trade. At <http://www.fao.org/faostat/en/#data/FO>

5. Additional information on Figure 4 (Volume of Palm Oil, Soy, and Cattle Products Production and Consumption under Commitments as Reported to CDP, 2017)

- **Palm oil:** Of the ten largest palm oil companies that disclose consumption or production data to CDP, six make this information publicly available. This includes major producers (e.g. Wilmar International Limited), traders (e.g. Bunge) and manufacturers (e.g. Unilever plc), although many of these companies are active at other supply chain stages as well. Other major palm oil companies such as Sime Darby, PT Musim Mas, Bumitama Agri Ltd or Procter and Gamble Company have disclosed this information privately.
- **Soy:** Of the 10 soy companies that reported largest consumption and production volumes to CDP, seven disclose this information publicly. These include major producers, processors and traders (e.g. Archer Daniels Midland, JBS S/A and Marfrig Global Foods S/A), and manufacturers and retailers (e.g. Nestle and McDonald's Corporation). Some companies disclose this information privately (e.g. Grupo Andre Maggi and BRF S.A).
- **Cattle:** Of the ten cattle companies that disclose the largest consumption or production volumes to CDP, all make this information publicly available. These companies include the largest beef processors in the world (e.g. JBS, Marfrig and Minerva) and key retailers (e.g. McDonalds and J Sainsbury).
- **Pulp and paper:** These companies include some of the largest pulp and paper producers (e.g. Asia Pulp and Paper) and manufacturers (e.g. APRIL) in Indonesia, and the second largest manufacturer in the world (OJI Paper) with operations in many forest risk countries including Indonesia and Malaysia. Other companies that have reported volumes and have a commitment include Marubeni, Klabin, Mitsubishi Paper Mills and Rengo.