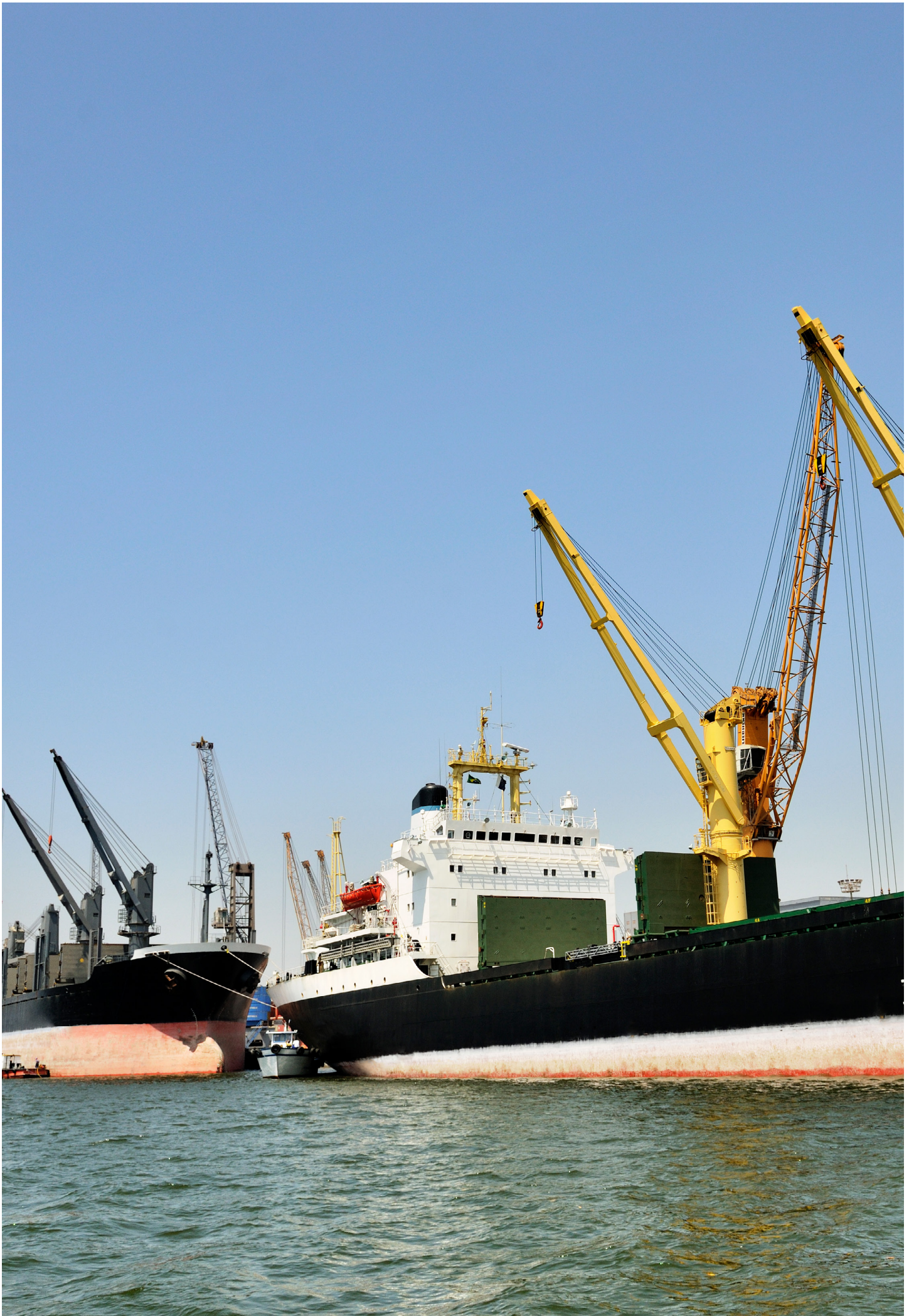


DECOUPLING CHINA'S SOY IMPORTS FROM DEFORESTATION DRIVEN CARBON EMISSIONS IN BRAZIL



KEY MESSAGES

Brazil is a leading source of soy for global markets, and China is Brazil's biggest customer. This brief uses Trase¹ and company data reported to CDP to explore how this relationship exposes China to climate risks arising from the deforestation linked to soy expansion. We assess the carbon dioxide emissions linked to China's soy imports and identify the key companies involved. The briefing highlights key risks and opportunities and puts forward recommendations for the parties involved.

- ▼ China is the largest market for Brazilian soy. Between 2010 and 2017, China's soy imports from Brazil increased 170%. In 2017, nearly 65% of all the soy exported from Brazil went to China.
- ▼ Over 70% of the carbon dioxide (CO₂) emissions risk² from deforestation related to China's imports of Brazilian soy is concentrated in the Matopiba region, home to the Cerrado, the world's most biodiverse savannah.
- ▼ Chinese companies and government can play a role in supporting existing international, national and sub-national efforts in Brazil towards deforestation-free soy and in doing so, China can reduce the CO₂ emissions risks linked to its soy imports as well as its long-term food security risks. This presents an opportunity for China to demonstrate leadership in driving deforestation-free agriculture policies globally.

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1. <http://trase.earth> Trase is a joint initiative from the Stockholm Environment Institute and Global Canopy that maps forest-risk commodity supply chains.

2. Emissions risk, calculated through Trase data, represents: CO₂ emissions attributable to annual rate of soy deforestation risk (averaged across the previous five years), including from above and below-ground biomass and litter. As for deforestation, emissions are allocated to the actors along the supply chain in proportion to the volume of soy that they export from a given municipality relative to the total production of soy (by all actors) in the same municipality. Emissions risks associated with a supply chain for a given year of export is based on deforestation and associated emissions that occur in the previous year. Note that this only covers the Cerrado and Amazon biomes, rather than entire country (Brazil).

INTERNATIONAL TRADE OF AGRICULTURAL COMMODITIES

An Important Driver of Deforestation and Global Carbon Emissions

Tropical deforestation, mainly driven by agricultural expansion³ makes up around eight percent of global anthropogenic greenhouse gas (GHG) emissions⁴. If tropical deforestation were a country, it would rank third in CO₂ emissions, following China and the US. Left intact, forests are a natural, and cost-effective way to provide a quarter of the climate change mitigation needed to keep temperature increases below two degrees⁴.

The international trade in forest-risk agricultural commodities has been shown to play a major part in driving carbon emissions from tropical deforestation⁵. Brazilian soy, for example, is largely produced for the export market, with almost 70% of the soybeans produced in Brazil shipped to countries such as China in 2018. Driven by the growth in global protein demand, the production of soy in Brazil increased 66% between 2010 and 2017. From 2010-2016 this increase led to an additional 104 million tons of CO₂ emissions as a result of deforestation and conversion of native vegetation.

China is taking ambitious measures to reduce the carbon intensity of its economy⁶ and could demonstrate leadership in international fora on nature-based solutions and biodiversity⁷ by ensuring its role as a key buyer of soy helps reduce tropical deforestation and the associated emissions.

This brief explores how China could address the emissions impacts of imported Brazilian soy. To quantify this emissions risk, we use Trase data to calculate the CO₂ emissions attributable to the annual rate of soy deforestation⁸. In doing so, we see how China's emissions risks are concentrated in a small proportion of imports, creating clear opportunities for engagement with a small number of traders in key soy producing regions.

By pursuing a clear engagement strategy that demands actions from traders and producers, China could significantly reduce its exposure to soy-related deforestation risks – and the resulting emissions.



3. Curtis, P.G; et al, 2018. Science. Classifying drivers of global forest loss. <https://science.sciencemag.org/content/361/6407/1108>

4. Gibbs D., Harris, N., Seymour, F., 2018. World Resources Institute. By the Numbers: The Value of Tropical Forests in the Climate Change Equation. <https://www.wri.org/blog/2018/10/numbers-value-tropical-forests-climate-change-equation>

5. Pendrill, F.; et al, 2019. Global Environmental Change. Agricultural and forestry trade drives large share of tropical deforestation emissions. <https://www.sciencedirect.com/science/article/pii/S0959378018314365>

6. China introduced its National Strategy on Energy Production and Consumption Revolution (2016-2030) a few weeks after the Paris Agreement came into force. One recent study found that China's emissions will likely peak significantly earlier than the 2030 target between 2021 and 2025. A different study also found that country's emissions may have already plateaued.

7. Statement by His Excellency Mr. Li Ganjie, Minister of Ecology and Environment of the People's Republic of China, 2019. <https://www.cbd.int/action-agenda/china-statement.shtml>

8. Emissions risk, calculated through Trase data, including from above and below ground biomass and litter, see footnote 1

CHINA - BRAZIL'S KEY SOY TRADING PARTNER

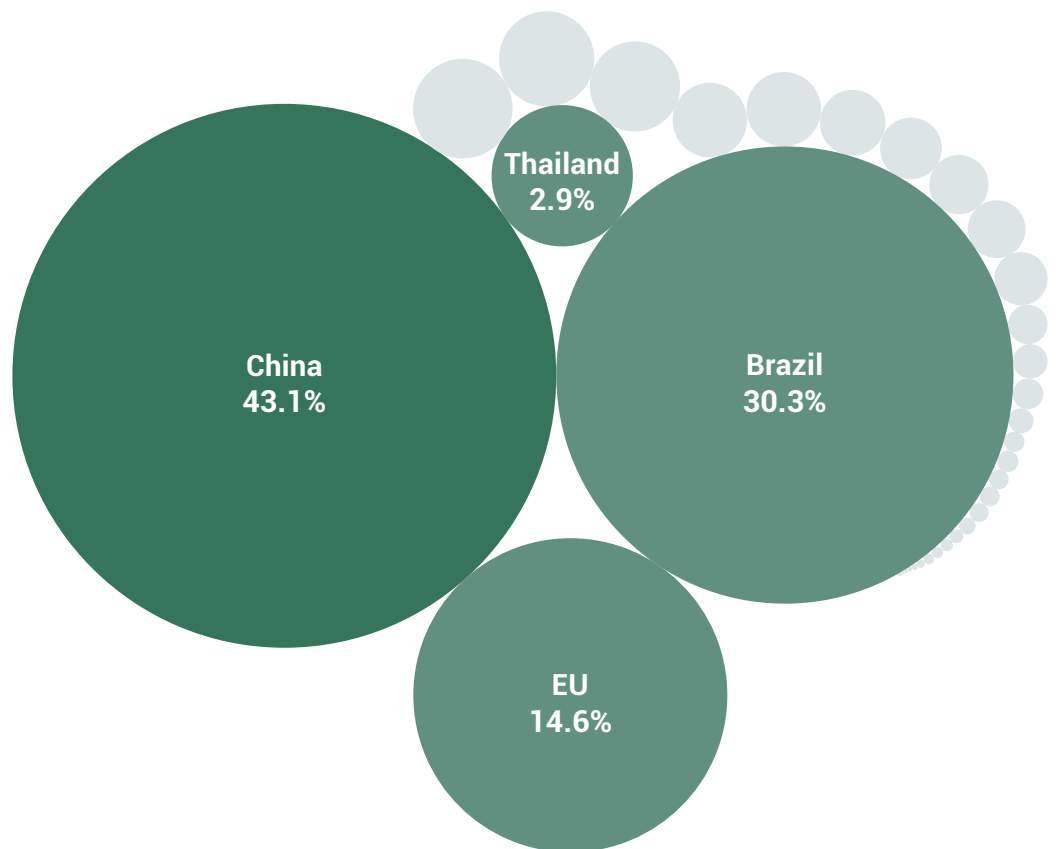
China is the largest market for Brazilian soy. Between 2010 and 2017, China's soy imports from Brazil increased 170% to more than 54 million tons, and in 2017, nearly 65% of all the soy exported from Brazil went to China⁹.

The increase in production of soy, if not decoupled from deforestation, can have a significant negative impact on climate and biodiversity. It is estimated that in 2017 soy imports into China were associated with 6.5 million tons of CO₂ emissions linked to deforestation for soy expansion in the Amazon and Cerrado. This represents 43% of all CO₂ emissions risk from soy deforestation in these regions¹⁰ (Figure 1), two of the most biodiverse

terrestrial regions in the world. In comparison, the domestic market in Brazil accounts for 30% of the emissions risk and the European Union for 15%.

These figures underscore China's growing exposure to CO₂ emissions risk from Brazilian soy as well as its outsized role in potentially addressing these risks.

Figure 1 Countries most exposed to CO2 emissions risk from soy deforestation in Brazil in 2017.



9. <https://trase.earth/explore>

10. Amazon and Cerrado biomes are where almost all the soy-related deforestation take place in Brazil.

AN OVERLOOKED INVESTMENT RISK

To begin addressing these emissions risks, China could prioritise a few sourcing regions and municipalities where the majority of deforestation and conversion-related CO₂ emissions risk linked to its soy imports are concentrated. The risks are particularly high in the Matopiba region (representing the Brazilian states of Maranhão, Tocantins, Piauí and Bahia).

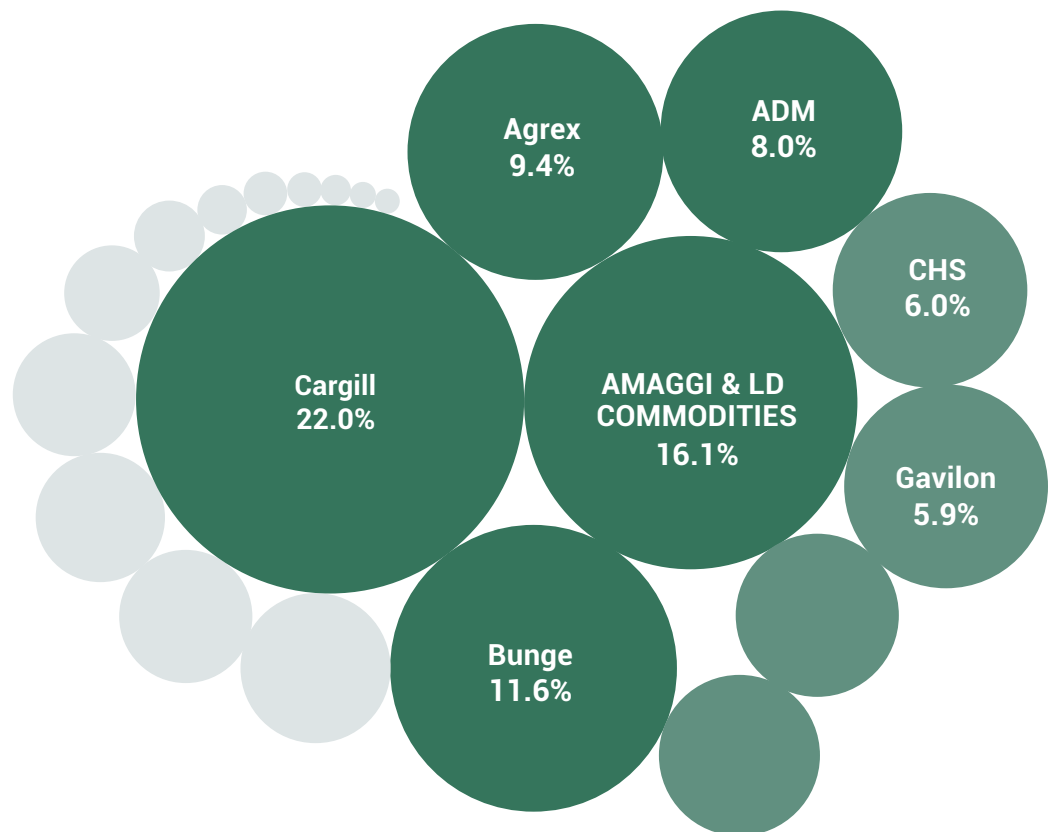
Trase data shows that in 2017, this high-risk region only provided 10% of the soy exported to China whilst being responsible for more than 70% of China's deforestation emissions risk. Additionally, 19 out of the 20 sourcing municipalities which together account for nearly 50% of the CO₂ emissions risk associated to China's soy imports are located in Matopiba. To put this in context, over 800 municipalities account for the remaining 50% of the emissions risk.

With China's soy imports from Matopiba are on the rise – imports increased by 540% between

2010 and 2017 – the case is clear for China to begin addressing this risk by focusing its efforts on this high-risk area.

A closer look at the companies responsible for the majority of soy exports from Matopiba region to China, highlights a similar concentration of CO₂ emission risks in a few companies. According to Trase, in 2017 five traders: Cargill, Bunge, the joint venture Amaggi & LD Commodities¹¹, Archer Daniels Midland (ADM) and Agrex, accounted for nearly 70% of all the soy exported to China from the region and the associated emissions risks.

Figure 2 Top five traders most exposed to CO₂ emissions from soy deforestation risk in the soy trade from Matopiba to China in 2017.



11. Amaggi and LD Commodities set up a joint venture in 2009. In 2017, the Japanese company Zen Noh Grain Brazil also became a partner in the joint venture.

RISKS TO INTERNATIONAL GRAIN TRADERS AND THE CASE FOR CHINA'S ENGAGEMENT

The agriculture sector is especially vulnerable to climate change. Increased frequency of extreme events, such as droughts and floods, as well as higher temperatures and changing precipitation patterns, are already reducing food security in some regions¹².

Deforestation and its related emissions, and the negative impacts on rising local temperatures¹³ can exacerbate these effects. These environmental risks to the agriculture sector will very likely translate to business risk. Grain traders are however still largely lagging in identifying and acting upon those risks, exposing downstream Chinese companies to potential risk and jeopardizing China's food security.

Company data disclosed to CDP¹⁴ shows that four of the six companies involved in the Brazil-China soy trade either independently (ADM, Agrex, Bunge, and Cargill) or as part of a joint venture (Amaggi and Louis Dreyfus)¹⁵, have identified at least one climate change or forest-related risk that could have a substantive financial or strategic impact on their business. Closer scrutiny of these reported risks and companies' perception of the likelihood and magnitude of the impacts underscores misplaced confidence and a potentially insufficient response to risk.

Most notably, Cargill doesn't identify any inherent climate-related risks that have the potential to cause a substantive financial or strategic impact on its business¹⁶, whilst perceiving regulatory uncertainty as the only forest-related risk driver for soy¹⁷. In contrast, ADM and Amaggi report physical risks respectively related to increased severity of extreme weather events and changes in precipitation patterns which would lead to

disruptions in the supply chain and production capacity. ADM assesses this risk to be very unlikely with medium to low impacts.

Only Amaggi, which is also part of the joint venture Amaggi & LD Commodities, collects and calculates greenhouse gas (GHG) emissions related to soy. Cargill and Bunge aim to do so either within the next two years or in the future. ADM reports that it is currently not possible to do so.

As key customers of these traders, Chinese companies could look to understand how their suppliers identify and manage climate and forests-related risks and impacts to ensure long-term resilience of their supply chains. By engaging with them, either individually, or through CDP's supply chain programme, they can ensure that their demand for soy is not linked to deforestation or the conversion of native vegetation. This would send a strong market signal to stimulate a faster transition towards sustainable and low carbon agricultural practices.

By doing so, they will increase the resilience of their soy supply chains and security of China's food supply. For individual Chinese companies, this could mean a reduction in the climate change and forests-related risks they are exposed to through their international soy suppliers.

12. IPCC, 2019. Chapter 5: Food Security. In: Climate Change and Land. An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems. https://www.ipcc.ch/site/assets/uploads/2019/08/2f.-Chapter-5_FINAL.pdf

13. Cohn, A.; et al, 2019. Environmental Research Letters. Forest loss in Brazil increases maximum temperatures within 50 km. <https://iopscience.iop.org/article/10.1088/1748-9326/ab31fb>

14. In 2018, ADM, Cargill, Bunge and Amaggi publicly responded publicly to CDP's climate change, forests or both questionnaires. Companies can report climate change, forests and water security data including identified risks and opportunities to investors and customers by responding to CDP's annual questionnaires. Companies can choose whether their response can be made public by CDP or not.

15. As Amaggi and LD Commodities hasn't published forests or climate related data or policies, CDP looked at the two companies behind the joint venture separately.

16. In response to CDP's Climate Change questionnaire, Cargill noted that whilst the company hasn't identified any climate-related risks with the potential to have substantive impacts, it has 'built balanced, structured and diverse processes and strategies to mitigate potential climate change-related risks'.

17. Cargill's response to CDP's Climate Change and Forests questionnaires can be found on CDP's website and accessed after registration on the website.

DEMONSTRATING LEADERSHIP

As the main buyers of Brazilian soy, Chinese companies and government can play a crucial role in supporting existing international, national and sub-national efforts in Brazil towards deforestation-free soy, taking advantage of the investment and other opportunities linked to these efforts.

For instance, in July 2019, COFCO International Ltd. signed a \$2.1 billion sustainability-linked loan. Under the deal, COFCO will benefit from lower interest rates in exchange for meeting certain environmental objectives such as improved soybean traceability to ensure it does not contribute to further deforestation in Brazil. COFCO is the first mainland Chinese company to pioneer such a financing agreement, which is expected to save the company about US\$1 million per year. International traders such as Louis Dreyfus Co., Gunvor Group Ltd., Olam and Wilmar have all signed similar loans in the past two years and other soy traders are exploring various environmentally linked financial opportunities¹⁸.

There have also been developments on the international front. In 2017, 23 global Fast Moving Consumer Goods (FMCG) companies including Walmart and McDonald's, came together to introduce the **Statement of Support (SoS) for the Cerrado Manifesto**. The aim of the statement is to demonstrate industry-wide support to 'halt deforestation in the Cerrado, adopt sustainable land management practices and mitigate financial risks associated with deforestation and climate change'¹⁹. A new industry-led private fund is being developed alongside the SoS to provide financial incentives for farmers to expand

soy production onto already opened areas. This finance mechanism is designed to reward soy farmers in the Cerrado for preserving a higher percentage of native vegetation on their property than is legally required. A few downstream companies that consume soy and products embedded with soy, including Tesco, have already committed to support the mechanism²⁰.

Currently, the SoS has been signed by 70 global FMCG companies and more than 50 investors²¹. Strikingly, international grain traders and Chinese companies are absent from this list. By joining this platform and bringing their suppliers, Chinese companies have an opportunity to demonstrate leadership and to contribute towards development of joint solutions with their international peers.

The Chinese government could also identify learnings from European government efforts to support the shift to more sustainable supply chains as demonstrated through the **Amsterdam Declaration** partnership. This non-legally binding declaration is supported by governments in Denmark, France, Germany, Italy, the Netherlands, Norway and the United Kingdom. China can use learnings from this partnership to inform its own policies.



18. Hoffman A., Poh J., Zhong, C., 2019. Bloomberg. Chinese Food Giant Raises \$2.1 Billion in Country's First Sustainability Loan. <https://www.bloomberg.com/news/articles/2019-07-16/cofco-raises-2-1-billion-in-china-s-first-sustainability-loan>

19. <https://cerradostatement.fairr.org/>

20. Byrne J., 2019. Food Navigator. Tesco, Nutreco and Grieg Seafood announce funding for soy farmers in the Cerrado region of Brazil. <https://www.feednavigator.com/Article/2019/12/06/Business-es-announce-funding-for-soy-farmers-in-the-Cerrado>

21. <https://cerradostatement.fairr.org/signatories/>

WHAT CAN CHINESE POLICYMAKERS AND COMPANIES DO?

The deforestation-related CO₂ emissions associated with China's imports and the negative impact on local and global climates, risk undermining China's leadership in combating climate and biodiversity crises, as well as putting the country's food security at risk in the longer term²².

As the largest buyer of Brazilian soy, China has significant influence in the market and plays an outsized role in accelerating existing trends and scaling solutions. Demand for deforestation and conversion free soy from Chinese government and companies can create the impetus for grain traders and producers in Brazil to move quickly towards deforestation-free and lower emission

production systems. By supporting existing national and sub-national measures in Brazil and global market-led initiatives, China can reduce the CO₂ emissions risks linked to its soy imports as well as its long-term food security risks. This will also be an opportunity for the country to pioneer a cohesive climate change strategy at home and abroad.

Recommendations for the Chinese government:

- 1 Recognize commodity-driven deforestation as a key impediment to achieving global climate and biodiversity objectives and communicate a non-binding objective to remove deforestation from agricultural supply chains²³.
 - In 2020, China will host the Convention on Biological Diversity (CBD2020) and one of the key meetings of the post-2020 biodiversity framework negotiations. As the host of CBD2020, China has a unique opportunity to announce this commitment and take on a leading role in developing concrete solutions to address this challenge. Under China's leadership, this event could provide a platform for all stakeholders including Chinese companies to explore and exchange solutions to decoupling production of agricultural commodities globally from deforestation, its associated CO₂ emissions, and biodiversity loss²⁴.
- 2 Explore verified deforestation and conversion-free trade deals with Brazil that demonstrate a commitment to deforestation-free and low carbon agricultural practice. China's Soybean Industry Association has signed a Memorandum of Understanding (MoU) with the Brazilian Association of Vegetable Oil Industries (ABIOVE). These could provide the framework within which China can pursue these trade agreements.
- 3 Support access to information on forests and commodity supply chains, and exchange learning and best practice with other soy importing countries on greening international supply chains.
 - The United Kingdom (UK) for example recently launched the **Global Resources Initiative**, a taskforce of business and civil society leaders to develop solutions for reducing the UK's footprint on the global environment. The taskforce will seek solutions that ensure the sustainability and resiliency of the UK's food system without contributing to deforestation and environmental degradation abroad. The **Amsterdam Declaration** also provides a framework for collaboration between different consumer countries.
 - In 2017, France **introduced a Duty of Vigilance Law**, requiring companies to identify environmental risks within their supply chains and take 'adequate and effectively implemented' measures to address these risks. This law also stipulates that companies should publish 'vigilance plans' outlining measures taken. France has also established legal mechanisms to enforce the law. France could offer learnings from this pioneering law and potential outcomes, two years after it came to force.

22. The agriculture sector is very vulnerable to climate change. Extreme events, such as droughts and floods, as well as less predictable weather patterns, have negative impacts on food production. The IPCC Land Report indicates that climate change is already affecting food security and this will be exacerbated in the future.

23. As a co-lead of the Nature-Based Solutions track during the United Nations Secretary General Summit, China has already recognized the role of forests in climate change mitigation and adaptation. China has also proposed to include the Nature-Based Solutions in the "Global Biodiversity Framework 2020"

24. CDP, 2019. Aligning china's development strategies and commodity trade to achieve a sustainable soy supply chain - For Chinese Policymakers and Companies. https://6fefcbb86e61af1b-2fc4-c70d8ead6ced550b4d987d7c03fcd1d.ssl.cf3.rackcdn.com/cms/reports/documents/000/004/224/original/China_Policy_Brief_EN.pdf?1553103162

- 4 Introduce policies that would incentivise companies to shift to deforestation and conversion-free soy supply chains.
 - ▼ China can mandate its central bank and other financial institutions financing soy trade in China to extend favourable conditions for import of deforestation and conversion-free soy. Certification schemes such as the **Roundtable for Responsible Soy** (RTRS) can provide assurance. RTRS also offers certifications for Non Genetically Modified (Non-GM) soy.

Recommendations for Chinese soy buyers:

- 1 Follow a step-wise approach to:
 - ▼ understand exposure to emissions and deforestation risks in their supply chains using tools such as **Trase**;
 - ▼ follow international best practice such as the **Accountability Framework** to establish time-bound public commitments, policies and action plans towards removing deforestation and conversion from their supply chains;
 - ▼ communicate deforestation and conversion-free requirements to traders;
 - ▼ work with suppliers through programs such as **CDP Supply Chain** to implement these commitments; and
 - ▼ improve transparency and report on progress through platforms such as **CDP**.
- 2 Explore financial opportunities offered by international financial institutions linked to sourcing sustainably produced and deforestation-free soy such as sustainability-linked loans.
- 3 Collaborate with sub-national governments, traders and local producers to promote and invest in sustainable soy production.



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