

Reducing Global Deforestation Associated with Commodity Supply Chains in China

Climate and Forests 2030

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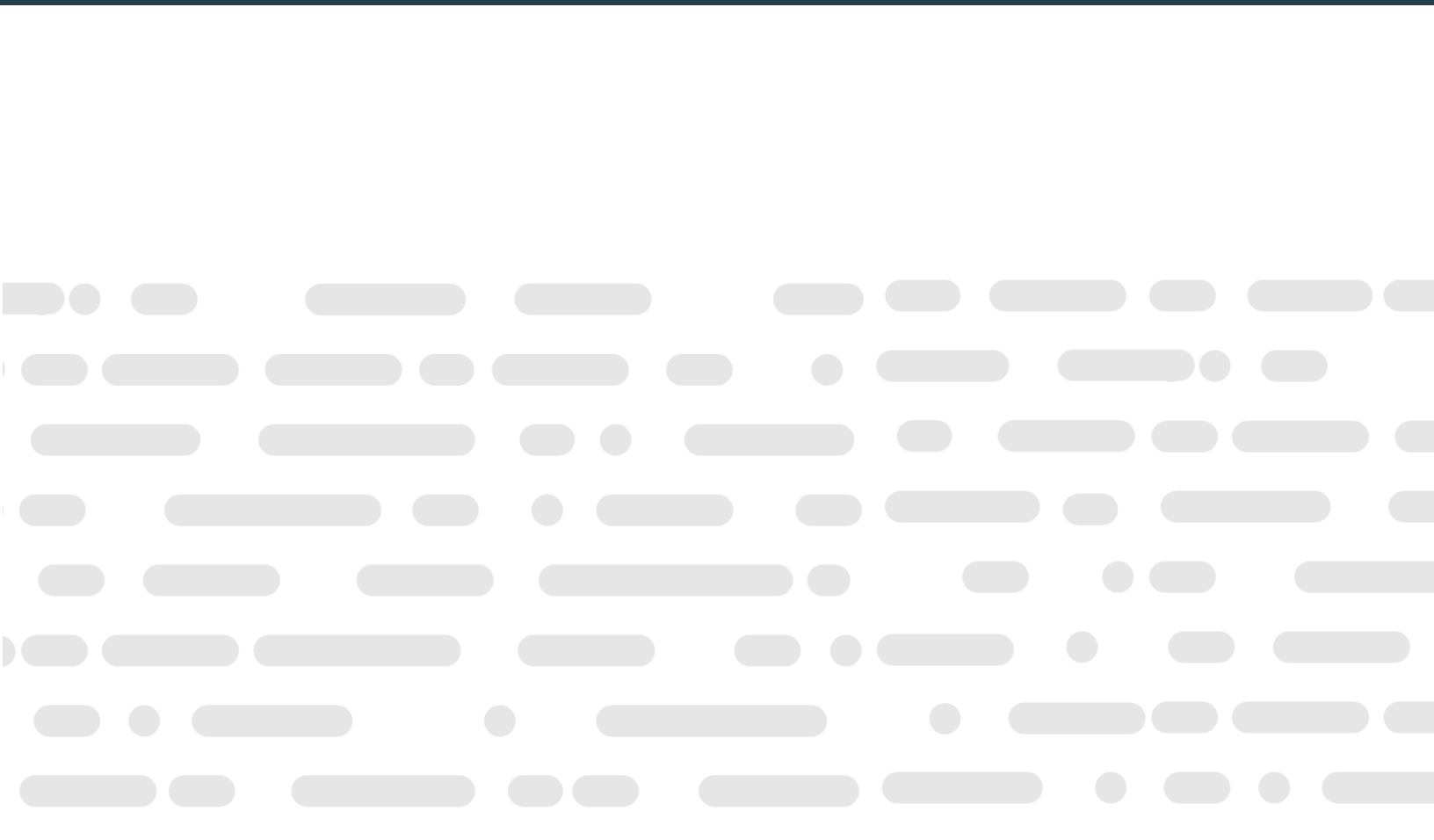
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Background

The Climate and Land Use Alliance (CLUA), with the support of Meridian Institute, is exploring the integration of climate and land use with justice, equity, health, and economic recovery through Climate and Forests 2030: Resources for Funders. This focus is intended to inspire innovation and investment in integrated work on forests, rights, and sustainable land use and will inform a new strategic plan for CLUA for the period 2021 to 2030.

To inform the thinking, CLUA commissioned a series of “thought pieces” to provide diverse inputs into developing a more integrated approach for forests and land use. These are meant to stimulate discussion and debate and are not intended to reflect the views of CLUA, its member foundations, or Meridian Institute. The views expressed in this paper are those of the author. They have been informed by commentary and input by a range of other experts.

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I. Introduction

As the world's largest emitter of greenhouse gases, China holds a crucial role to play in addressing climate change. China is stepping up efforts with President Xi Jinping's pledge that the country will aim to peak emissions before 2030 and reach carbon neutrality by 2060. The commitment was followed by a set of more specific targets¹ released in December 2020 and integrated into the environmental goals in China Vision 2035.²

The concept of ecological civilization³ has been the guiding framework in China to address environmental challenges including climate change in the context of sustainable development. "Making new progress in building an ecological civilization" continues to be highlighted in China's 14th Five-Year Plan (2021-2025). Ecological civilization is expected to play a significant role not only in China's domestic development, but also in its involvement in global governance. President Xi Jinping proposed the vision of "building a community of shared future for mankind" to collectively address global challenges. The concept of ecological civilization is also featured in the promotion of a Green Belt and Road Initiative (BRI), aiming to enhance global cooperation on climate, biodiversity, and sustainable development.

Reducing deforestation is a key area for mitigating global climate change. The supply chains of key agricultural and forest commodities such as soy, palm oil, beef, timber, and pulp & paper are important drivers of tropical deforestation and biodiversity loss. Major consumer markets including the EU and the U.S. have enacted policy measures such as the U.S. Lacey Act and EU Timber Regulation for timber. To reduce imports of illegal and deforestation-risk commodities, the European Commission adopted an EU Communication on Stepping up EU Action to

Protect and Restore the World's Forests in 2019 and the UK introduced a new due diligence law through the Environment Bill in 2020. Similar laws are currently under consideration in the U.S. Congress. Despite increasing attention to sustainable supply chains, current global efforts by the private sector and governments are insufficient to address commodity-driven deforestation (Bager *et al.* 2020).

Policy-makers in China are increasingly recognizing the importance of agricultural and forest commodity supply chains in tackling climate change, biodiversity loss, and sustainable development. In 2020, the China Council for International Cooperation on Environment and Development (CCICED) published a special policy study on greening China's soft commodity⁴ value chains. The BRI International Green Development Coalition commissioned a study on developing a Green Commodity Supply Chain Index to improve the sustainability and security of supply chains in BRI participating countries. As China takes more proactive domestic measures to address climate change and achieve the ecological civilization vision, policy-makers may also become more receptive to reducing the international environmental footprint of commodity supply chains.

The Covid-19 pandemic has disrupted global supply chains and highlighted the link between natural ecosystems and human health. Deforestation and forest degradation increase the risk of zoonotic disease outbreaks originating from wildlife (Evans *et al.* 2020). Trade tensions between the U.S. and China have further added uncertainty and instability to global supply chains. As a result, China is prioritizing the security and safety of supply chains⁵ in its economic recovery from the pandemic. This could have mixed impacts on China's efforts to address the international environmental footprint of its commodity supply chains. The focus on security and

¹ China will lower carbon dioxide emissions per unit of GDP by 65% from 2005 levels, increase the share of non-fossil fuels in primary energy consumption to approximately 25% by 2030, increase forest stocks by 6 billion cubic meters above 2005 levels, and bring the total installed capacity of wind and solar power to over 1,200 GW by 2030.

² China's 2035 Vision includes increasing economic and technological strength, new industrialization, the modernization of China's system and capacity for governance, eco-friendly ways of work and life, the implementation of the peaceful China initiative, reaching the level of moderately developed countries in per capita GDP, achieving a new stage of opening up, and more.

³ Ecological civilization is a development vision incorporated into the Constitution of China for a green and prosperous future in which humans live in harmony with nature (Hanson 2019). It also emphasizes the need to actively regenerate and sustain nature through economic and societal reforms toward sustainability.

⁴ Soft commodities are raw materials and their derivatives, grown or produced by agriculture and forestry sectors (CCICED 2020).

⁵ China is focusing on maintaining security in six areas (job security, basic living needs, operations of market entities, food and energy security, stable industrial and supply chains, and the normal functioning of primary-level governments) to ensure stability on six fronts (employment, the financial sector, foreign trade, foreign investment, domestic investment, and expectations).

safety could mitigate global deforestation risk by reducing reliance on commodity imports; however, such focus may also marginalize sustainability efforts in the next decade.

II. What is China’s role in global commodity supply chains?

With rapid economic growth in the past 40 years, China’s middle class is rising exponentially. China’s population has surpassed 1.4 billion and the size of the middle-income group has grown from 100 million in 2010 to more than 400 million in 2019 (CNS 2020). Today, more than 60% of the total population lives in urban areas, and this number is expected to reach 70% by 2030. Consumer spending is expanding rapidly and contributed to almost 58% of the country’s total GDP growth in 2019 (NBS 2020a).

The growth in the middle class has also increased demand for agricultural and forest commodities including soy, palm oil, beef, timber, and pulp & paper over the past few decades. From 2010 to 2020, China’s domestic soybean consumption grew from 66 million metric tons to 118 million metric tons and its beef consumption increased from 6.3 million metric tons to 9.3 million metric tons (USDA 2021). China’s palm oil consumption reached more than 7 million tons in 2019 and was entirely dependent on imports (CDP 2020). Despite a slowdown in the overall economy, growth in consumption is expected to continue in the next decade. The World Economic

Forum (2018) estimates that China and India will account for 29% of global soy demand and 27% of global palm oil demand in 2025.

Domestic supply of key agricultural and forest commodities has not caught up with the rising demand. The capacity to expand domestic production is limited as rapid urbanization and industrialization have put enormous pressure on China’s arable land in recent years. While China has 18% of the global population to feed, its landmass only includes 9% of the world’s arable land (FOLU 2019), making it heavily dependent on imports. As part of domestic conservation efforts, China has completely banned commercial logging in its natural forests since 2016. Despite recent efforts to expand domestic supply, the country only produced 19.6 million tons of soybeans in 2020 while it was estimated to import more than 100 million tons of soybeans (NBS 2020b).

Due to the rising demand and limited expansion capacity in domestic production, China’s imports of soy, palm oil, beef, timber, and pulp & paper have soared in recent years. China is now the world’s largest single country importer of soy, beef, and timber, and the second largest importer of palm oil (CCICED 2020). Its share of global imports of these commodities is estimated to further rise by 2025 (World Economic Forum 2018). China’s growth in commodity imports has stimulated expansion of plantations in major producer countries, which continues to be one of the key drivers for global deforestation.

TABLE 1: China's imports of soy, pulp & paper, timber, beef, and palm oil in 2018

COMMODITIES	CHINA'S SHARE OF GLOBAL IMPORTS	GLOBAL RANK	UNIT
Soy	60%	1	USD
Pulp & paper	38%	1	USD
Timber	33%	1	USD
Beef	17%	1	Tonnage
Palm oil	12%	2	USD

Source: CCICED 2020

China's domestic production of soy and palm oil makes up a small portion of the overall demand and often does not have the same level of deforestation risk as its imported commodities due to land conversion and forest conservation policies (CDP 2017). If China takes effective measures to reduce deforestation associated with imported agricultural and forest commodities together with the other major markets such as the EU, U.S., and India, it could help the world move towards more sustainable supply chains and contribute to global efforts to address climate change, biodiversity loss, and sustainable development.

III. What are the challenges and opportunities in China to accelerate positive trends during the 2021-2030 period?

Challenges during 2021-2030

To accelerate positive trends to reduce deforestation associated with commodity supply chains in the next decade, both incentive barriers and implementation challenges need to be addressed.

Incentive barriers

The first incentive barrier is the lack of a clear Chinese policy signal and narrative on sustainable commodity supply chains with links to the vision of ecological civilization. In the Chinese system, a clear policy signal at the top level is necessary to efficiently promote sustainable supply chains through domestic and international efforts. A simple narrative of sustainable supply chains is also crucial so that policy-makers, researchers, entrepreneurs, and the general public can understand the concept and relate to the impacts of their decisions on global climate, biodiversity, and sustainable development agendas. For example, the green BRI provides a platform to engage with different supply chain stakeholders but lacks clear policies to reduce deforestation. The lack of a policy signal and narrative also leads to limited awareness among consumers in China about the impact of supply chains on climate change, biodiversity, and sustainable development.

The second incentive barrier lies in the impact of voluntary and mandatory measures to promote sustainable supply chains. China has released a few voluntary overseas sustainable investment guidelines in the forestry sector over the years, but the impact on private sector actors remains limited. Mandatory policy measures are necessary to incentivize the private sector to take actions and accelerate positive trends of supply chain initiatives in the next decade. For example, China recently revised its Forest Law and included legality requirements for timber supply chains. China should build on the revised law and require companies importing agricultural and forest commodities to exercise due diligence to ensure the commodity is legally and sustainably sourced in producer countries.

The lack of consumer awareness about sustainable supply chains also prevents effective market-based approaches to reduce deforestation in agricultural and commodity supply chains. Despite recent trends showing Chinese consumers are paying more attention to sustainability, the issues of deforestation, climate change, biodiversity loss, and sustainable development have yet to be well understood in the Chinese market. Consumers are reluctant to pay a price premium for sustainably-sourced commodities and sometimes do not know how to verify the sustainability of specific commodity supply chains. More research is necessary to understand the cost of sustainable commodities as well as technical solutions to ensure chain of custody in supply chains.

Another barrier results from the market structure for some commodities. The lack of effective market platforms often leaves businesses little room to demand sustainably-sourced commodities. For example, excessive competition in China's soy crushing industry has led to overcapacity in the sector and inflated the demand for soybean imports. Soybean companies in China are preoccupied with business competition — with limited incentives and resources to demand sustainability — and failed to send real demand signals to producer countries (Paulson Institute unpublished). The timber products processing industry in China has faced similar overcapacity challenge in recent years (CTWPDA 2015). Efforts to address sustainable sourcing incentives for the private sector need to consider the evolving market situation and key business actors for

individual commodities.

Implementation challenges

The first implementation challenge results from commodity supply chains that cross jurisdictional and expertise boundaries of various government agencies. Trade, finance, environment, agriculture, forestry, and customs are all involved in the management of supply chains (CCICED 2020). A cross-sectoral approach is therefore necessary to develop policy guidance and facilitate cross-agency coordination on the design and implementation of supply chain initiatives. In China, the Ministry of Ecology and Environment is the leading agency for developing environment and sustainability policies. The Ministry of Commerce manages international trade of different agricultural and forest commodities. The Ministry of Agriculture and Rural Affairs and the State Forestry and Grassland Administration are responsible for developing overall policies of agricultural and forest commodities. Other agencies involved in the management of supply chains include the General Administration of Customs, China Banking and Insurance Regulatory Commission, China International Development Cooperation Agency, and the State Administration for Market Regulation. The first barrier to overcome would be how to develop coordinated and comprehensive responses to reduce deforestation associated with commodity supply chains while achieving food security and other key policy priorities.

Engagement with producer countries is another challenge to supply chain sustainability. As one of the largest importers of agricultural and forest commodities, China needs to coordinate with producer countries to ensure adequate supply of sustainable commodities. It is important to understand the laws and regulations of producer countries to verify the legality and sustainability of agricultural and forest commodities. Demand-side approaches need to be complemented by sustainable production and trade measures on the supply side. This may require China's development assistance to producer countries to help increase commodity yields on existing land and improve traceability along commodity supply chains. In addition, China needs to strike a balance between demanding sustainably-produced commodities and respecting the national sovereignty of its trading partners.

Finally, uncertainty from the Covid-19 pandemic and

trade tensions between the U.S. and China could add risk to China's efforts to reduce deforestation in global supply chains. China recently introduced a "dual circulation" strategy relying more on "internal circulation" including domestic production, distribution, and consumption supported by innovation in its economy (Yao 2020). While China's recent policy shift towards domestic market and supply chain security may mitigate deforestation risk by reducing its reliance on imports, it may also hinder sustainability efforts when global supply of key agricultural and forest commodities is unstable.

Opportunities during 2021-2030

As the world's largest consumer and importer of major commodities that drive tropical deforestation, China has the power to create positive changes across commodity supply chains to advance the global climate, biodiversity, and sustainable development agendas. A number of Chinese policy initiatives, international efforts, and private sector and civil society practices present opportunities to accelerate positive trends in the 2021-2030 period.

Green Belt and Road Initiative (BRI)

The BRI is China's largest foreign policy initiative to enhance international connectivity and cooperation. It could have significant environmental risks — including deforestation — especially in countries with weak governance (Ruta 2018). By May 2020, China had signed BRI cooperative agreements with 138 countries (CAITEC 2020), many of which are producers of major agricultural and forest commodities. China has pledged to promote a green BRI in its trade and investment activities with partners. The pledge has been supported by high-level political commitment from President Xi, policy measures from relevant ministries, and international partnership for implementation. In 2017, China published *Policy Guidance on Promoting the Green Belt and Road Initiative* and the *BRI Ecological and Environmental Cooperation Plan* to establish the policy framework for a green BRI. In 2019, China launched the Belt and Road Initiative International Green Development Coalition to develop partnerships with governments, private sector stakeholders, civil society organizations, and international organizations to integrate sustainable development into the BRI.

Efforts to halt global deforestation associated with

commodity supply chains could build on China's existing policy and institutional support on the green BRI. The Belt and Road Initiative International Green Development Coalition commissioned a policy study in 2020 on green supply chains, and one of the early efforts involves developing a "Green Commodity Supply Chain Index" for Chinese governments, companies, and financial institutions to assess environmental and social risks in commodity supply chains.

China Council for International Cooperation on Environment and Development (CCICED) special policy study

Hosted in China's Ministry of Ecology and Environment, CCICED is a high-level advisory body that develops policy recommendations on environment and sustainable development for the Chinese government. In 2020, CCICED published a special policy study on greening China's soft commodity value chains including soy, palm oil, beef, pulp & paper, and timber. The study identified actions China could take to improve the environmental and economic sustainability of these commodities including "establishing a national green value chains strategy, adopting mandatory and voluntary measures to green soft commodity value chains, and building on existing Chinese policy levers and initiatives" (CCICED 2020). A summary of these recommendations along with those from other CCICED special policy studies have been submitted to the State Council for consideration.

The CCICED study provided a roadmap for greening China's soft commodity value chains by establishing a long-term inter-ministerial committee and a technical supporting organization to implement the recommendations on key agricultural and forest commodities (CCICED 2020). CCICED is currently in the process of developing a second phase of the study to follow up on the recommendations for developing due diligence and traceability systems to improve the transparency of commodity supply chains. The ongoing work of CCICED could help convince policy-makers in China about the importance of supply chain sustainability and map out specific actions to reduce global deforestation.

Green finance

China was the first country to develop a systematic roadmap for reform across all segments of the

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country's financial and environmental governance systems. In 2016, seven government agencies including the People's Bank of China issued the *Guidelines for Establishing the Green Financial System*, which aims to mobilize and incentivize more private capital to invest in green sectors. China's Green Credit Guidelines, published in 2012, require Chinese banks and financial institutions to consider any environmental risks of projects before approval or investment. As the financial sector begins to integrate environmental concerns into its decision making, these guidelines should be updated to include deforestation risk in commodity supply chains.

Food security

Food security has been the top priority in China's economic development and continues to be highlighted in its 14th Five-Year Plan. The security of agricultural supply chains has become even more important amidst the Covid-19 pandemic and trade frictions with the U.S. China is taking measures to reduce its reliance on food imports and diversify its commodity sourcing. The country is expanding the soybean planting area in Northeast and Central China through subsidies to soybean farmers and increasing soybean imports from Russia (Global Times 2020; Xinhua 2019). President Xi Jinping announced a "Clear Your Plate" campaign in 2020 to reduce food loss and waste. China is also currently drafting a food security law, which will outline the responsibilities of different levels of government agencies to reduce waste and ensure stable food supply (Xinhua 2020).

Efforts to reduce deforestation associated with agricultural and forest commodities should align with China's actions to maintain food security. China could invest in manufacturing capacity to produce nutritious and plant-based protein alternatives in order to reduce reliance on commodity imports and

associated deforestation in producer countries (CCICED 2020). For example, developing alternative animal feed sources could play a role in reducing reliance on soybean imports, used primarily for animal feed in China.

International cooperation

China's efforts to reduce deforestation associated with agricultural and forest commodity supply chains could be coordinated with similar initiatives in other major markets and integrated into bilateral and multilateral trade agreements. Markets including the EU, the U.S., Australia, Japan, and South Korea have developed laws to ban the import of illegally-sourced timber in their supply chains. The European Commission adopted an *EU Communication on Stepping up EU Action to Protect and Restore the World's Forests* in 2019 to ensure that imports of commodities such as soybeans, palm oil, and beef are free from illegal deforestation. China and the EU could draw on each other's experiences, coordinate engagement with producers on sustainable supply chains, and jointly pursue sustainable supply chains in multilateral agreements including the Convention of Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC) (Schmidt-Traub *et al.* 2020). The UK adopted a due diligence law in 2020 to curb illegal deforestation in commodity supply chains and recently launched the Forest, Agriculture and Commodity Trade (FACT) Dialogue to foster collaboration between producer and consumer countries on sustainable commodity supply chains ahead of the UNFCCC COP26 climate summit. China could develop technical partnerships with the UK as well as other consumer and producer countries through the FACT Dialogue (FOLU forthcoming).

China could also incorporate measures to green soft commodity imports in bilateral and multilateral trade agreements. In 2020, the EU and China reached agreement in principle for a Comprehensive Agreement on Investment (CAI) that includes a section on investment and sustainable development. China and 14 other countries signed the Regional Comprehensive Economic Partnership (RCEP) agreement, the largest free trade agreement in history, to facilitate trade and investment opportunities in the Asia-Pacific region. Members of RCEP include major agricultural commodity producers as well as markets with regulations on the

legality of commodity imports in place. China is also a major proponent of the World Trade Organization (WTO) and could support developing plurilateral initiatives to reduce deforestation in the production and trade of agricultural and forest commodities at WTO.

Private sector and civil society efforts

A number of civil society organizations have fostered partnerships with industry associations, companies, financial institutions, and think tanks in China to raise awareness on supply chain sustainability; develop the capacity of private sector actors on issues of legality, due diligence, and traceability through tools and platforms; and facilitate compliance with relevant laws and regulations in commodity supply chains. These efforts have focused on reducing deforestation associated with the supply chains of soy, beef, palm oil, timber, pulp & paper, and rubber in recent years. COFCO International, the overseas platform of China's largest food and agriculture company, intends to fully trace all soy purchased from Brazil by 2023 (COFCO International 2020). Future efforts to promote sustainable supply chains could build on these existing initiatives and commitments, and coordinate strategies for halting deforestation through commodity sourcing, procurement, and consumption in China.

IV. What is the blue sky vision for sustainable supply chains in China by 2030?

What is the best possible scenario for China to take action on supply chains by 2030?

A Chinese vision to reduce global deforestation in commodity supply chains during the next decade should involve three areas: policy and institutional support, market development, and international efforts.

Policy and institutional support

- China announces policy commitments and long-term targets to reduce deforestation associated with its agricultural and forest commodity supply chains.

- China develops a national strategy on supply chains aligned with green BRI and green finance to achieve policy commitments and targets.
- China establishes institutional support by identifying a leading government agency or establishing an inter-ministerial committee to design and implement regulations on commodity supply chains.

Policy and institutional support lay the foundation for China's efforts to promote sustainable supply chains. China should announce policy commitments and long-term targets comparable to its climate pledge to reduce global deforestation, elevating the priority of supply chains in China's environment and sustainable development agenda. These commitments and targets should be followed with a national strategy with clear policy guidance that is integrated into China's existing initiatives on the green BRI and green finance. Institutional arrangements are important to sustain efforts in the long run. China should assign a leading ministry or establish an inter-ministerial committee consisting of all relevant ministries to design and implement regulations and policies to reduce deforestation associated with agricultural and forest commodity supply chains. The regulations and policies should be commodity-specific and make it mandatory for companies to develop due diligence systems to reduce deforestation risk in their supply chains.

Market development

- Companies (including state-owned enterprises) adopt due diligence measures and traceability systems to eliminate deforestation in agricultural and forest commodity supply chains.
- Consumer awareness of legality and sustainability in commodity supply chains improves.
- Financial institutions incorporate supply chain sustainability into investment risk assessments and increase financial support for sustainable supply chains.

Market development is the backbone of the vision to reduce deforestation associated with agricultural and forest commodity supply chains during the 2021-2030 period. Companies, including state-owned enterprises, should implement due diligence and traceability systems to ensure imported commodities are legally and sustainably sourced in compliance with relevant regulations. Effective market platforms should be developed to incentivize companies to take actions on sustainable sourcing and send real demand signals to international commodity producers (Paulson Institute unpublished). Establishment of market platforms should be aligned with supply chain restructuring reforms in China. Consumers should have a better understanding of the issues of supply chains, climate change, biodiversity, and sustainable development through interventions or behavior-changing strategies. Improved consumer awareness could send a signal to business actors along the supply chain to increase demand for sustainably-produced commodities. Financial institutions should integrate sustainable supply chains into their risk assessment procedures and provide more support to companies engaging in sustainable commodity supply chains.

International efforts

- China coordinates with other major markets to develop joint efforts on sustainable supply chains.
- China supports sustainable soft commodity production in producer countries through south-south cooperation and green BRI.
- China integrates its commitments and actions on supply chains into international agreements on trade, climate change, biodiversity, and sustainable development.

China needs to collaborate and coordinate with other major markets and producer countries to achieve the vision in the next decade. As the host of the CBD COP15 in 2021, China has an opportunity to set an ambitious and realistic commitment and encourage other countries to join a global commitment on sustainable supply chains. China could also further signal its intent on sustainable supply chains and establish collaboration with other producer and consumer countries through the newly launched

FACT Dialogue to continue the momentum at the UNFCCC COP26. By working with other major importers of agricultural and forest commodities, the impact of demand-side approaches on reducing global deforestation will be greater. China could leverage existing initiatives on south-south cooperation and green BRI to support sustainable production of commodities such as boosting yields on existing land to reduce deforestation and demonstrating legality and sustainability in trade (CCICED 2020). In the long-term, commitments and actions on supply chains should be incorporated into international agreements on trade, climate change, biodiversity, and sustainable development.

What key social justice and equity issues are relevant to the vision?

Social issues of justice and equity are deeply embedded in agricultural and forest commodity supply chains. Unsustainable production and trade of those commodities could harm farmers' livelihoods in producer countries and lead to unequal access to capital and resources among stakeholders in the supply chains. Unsustainable supply chains could also hinder the achievement of SDGs including on gender equality, reduced inequalities, decent work, and economic growth, as well as peace, justice, and strong institutions (CCICED 2020). Thus, the vision to reduce global deforestation associated with agricultural and forest commodity supply chains should consider the following principles.

First, social dimensions should be incorporated into the definition of supply chain sustainability and included in policy design and implementation of relevant initiatives. Compliance with laws in supply chains to protect forests and nature should not overlook impacts on the interests of indigenous peoples, smallholders, local communities, workers, women, and children.

Second, benefits should be shared among stakeholders in global supply chains. Agricultural and forest commodity markets connect global demands to local producers. Profits from economic activities are distributed across supply chains, often unevenly. It is important to bring socio-economic

development to different actors and enhance the transparency of how benefits are allocated in supply chains. This means adopting more fair labor practices and providing equal opportunities and fair compensation to empower women, smallholders, and other vulnerable stakeholders in commodity supply chains.

Third, the impact of supply chain initiatives on local vulnerable stakeholders should be carefully studied.

Efforts to ensure the sustainability of supply chains should not lead to unintended consequences for vulnerable stakeholders. A comprehensive study of the cost and benefits of supply chain actions – from a variety of perspectives – requires coordination between China and producer countries regarding the impact of policies on managing production and trade.

Experience and lessons from China's agricultural reforms and rural development in the past decades can inform the discussion about social justice and equity issues associated with agricultural and forest commodities in producer countries. The growth in agriculture and off-farm employment, driven by policy reforms, technological progress, and investment in public infrastructure, has significantly reduced rural poverty and improved the livelihoods of smallholders in China (Huang *et al.* 2020). China's success with the Ecological Conservation Red Line Initiative⁶ and afforestation efforts in recent years can help producer countries design integrated land use planning policies to address deforestation associated with commodity production (FOLU forthcoming).

Social justice and equity should be incorporated into Chinese development assistance programs related to sustainable supply chains and the green BRI. The China International Development Cooperation Agency could engage with producer countries in China's south-south cooperation program to increase development assistance in key areas to improve justice and equity issues, smallholder livelihoods, and sustainable production. The green BRI is another avenue to bring together concerned countries and commit to justice and equity in the supply chains of agricultural and forest commodities. The Belt and Road Initiative International Green Development

⁶ The Ecological Conservation Red Line Initiative is China's domestic spatial land use planning framework that delineates areas for special protection or management, in order to minimize landcover change and prevent net biodiversity loss and degradation of ecosystem services. The categories range from strictly protected areas with no significant human presence to watershed protection areas that can sustain some agriculture and other human activities with limited ecological impacts.

Coalition can facilitate coordination with key supply chain stakeholders in BRI countries on social justice and equity to support the implementation of the UN 2030 Agenda for Sustainable Development.

What can the climate and land use philanthropic and donor community do to help realize this vision?

The philanthropic and donor community has an important role to play in helping to realize the vision of reducing deforestation associated with agricultural and forest commodity supply chains in China. Given the huge demand in China's domestic market and the country's increasing commitments on climate change, China serves as a strategic entry point for efforts to develop demand-side approaches for global supply chains to reduce deforestation. To overcome the barriers and leverage opportunities discussed earlier in this paper, the philanthropic and donor community could support engagement with China in an "inside-outside" approach that highlights collaboration and coordination between governments, businesses, financial institutions, research institutions, and civil society organizations both in China and internationally. The "inside-outside" approach could include the following priorities:

- Partnerships with Chinese think tanks (especially those affiliated with government agencies) to develop a Chinese consensus and narrative for sustainable supply chains.
- Government-to-government dialogues (such as China-EU-U.S.-UK) to develop joint demand-side efforts for promoting sustainable supply chains and to coordinate with supply-side approaches in producer countries.
- Awareness-raising activities to educate consumers about supply chain sustainability.
- Engagement with private sector actors to improve due diligence and traceability measures in supply chains.
- Alignment with China's green public procurement program.
- Independent monitoring and law enforcement activities in producer countries to promote sustainable production.

Partnerships with Chinese think tanks

The philanthropic and donor community can support partnerships between the international community and Chinese think tanks to promote sustainable supply chain research and analysis. Policy development in China is often supported by data-driven and detail-oriented research developed by Chinese think tanks, especially those affiliated with government agencies. For example, the Ministry of Commerce, the Ministry of Ecology and Environment, the National Development and Reform Commission, the Ministry of Agriculture and Rural Affairs, and the State Forestry and Grassland Administration all have affiliated think tanks that support policy design and implementation through research. Major universities also serve as think tanks to different government agencies in China. These think tanks, given their unique influence on policy development, can help create buy-in in government for reducing deforestation associated with commodity supply chains.

Partnerships with Chinese think tanks could focus on developing a Chinese consensus and narrative on sustainable agricultural and forest commodity supply chains with links to China's vision of ecological civilization and other major policy frameworks. For example, the narrative could be of ecologically-friendly supply chains to support China's vision of ecological civilization. Joint research projects with Chinese think tanks provide a channel to convey a message of reducing deforestation in supply chains to policy-makers and their trusted advisors in the relevant ministries. The CCICED special policy studies and the newly-established BRI Green Development Institute are both examples of this type of partnership involving exchanges of expertise and information with key Chinese experts.

Government-to-government dialogues

The philanthropic and donor community can help facilitate dialogues between China and other consumer countries as well as producer countries. This is an outside strategy of encouraging and engaging China to take joint actions to reduce global deforestation associated with commodity supply chains. Government-to-government dialogues have been an important and trusted approach in China to foster international cooperation on a variety of issues. Civil society organizations can play a role in sharing knowledge and experience of sustainable

supply chain practices in different regions.

As other markets are considering similar approaches to halt deforestation associated with supply chains, dialogues between China and other consumer countries can help coordinate efforts to create a larger impact on reducing global deforestation. The China-EU Summit could help facilitate collaboration between China and EU to make joint commitments, exchange experience, and coordinate engagement with producer countries. The new Biden Administration in the U.S. presents an opportunity to rebuild the U.S.-China environmental cooperation that made the Paris Agreement possible. China's participation in the FACT Dialogue could contribute to more coordinated and integrated efforts on supply chains within biodiversity and climate agendas at the CBD COP15 and UNFCCC COP26.

Given the huge demand in China's domestic market and the country's increasing commitments on climate change, China serves as a strategic entry point for efforts to develop demand-side approaches for global supply chains to reduce deforestation.

Engagement with commodity producer countries could also benefit from government-to-government dialogues as China's demand-side approaches to curb deforestation need to be coordinated with supply-side interventions to implement sustainable production and trade. Producer country governments could send signals to China to adopt sustainable procurement policies on the demand side. Engagement could be aligned with green BRI efforts by linking BRI sustainable development initiatives with commodity supply chain challenges. This could also facilitate efforts to incorporate requirements on supply chain sustainability into bilateral trade agreements and China's south-south development assistance programs.

Awareness-raising among consumers

The philanthropic and donor community could support activities to educate consumers in China about sustainable supply chains in the context of addressing deforestation, climate change, biodiversity loss and sustainable development. The

lack of consumer awareness about sustainability and environmental footprints is one of the main implementation barriers to curbing deforestation associated with China's agricultural and forest commodity supply chains. If Chinese consumers begin to demand sustainably-sourced products, they will create a powerful incentive for business actors in the supply chain to respond with more sustainable sourcing practices.

China's increasing emphasis on supply chain safety amid recovery from the Covid-19 pandemic presents an opportunity to generate benefits and reform social norms towards sustainable agricultural commodities. Awareness-raising activities in China could build on the existing supply chain initiatives developed by civil society organizations. Beginning with journalists focused on environmental topics and e-commerce companies engaged in commodity supply chains, these efforts could eventually be expanded to cover ordinary consumers and companies in agricultural and forest commodity businesses. Experience from consumer campaigns to stop illegal wildlife trade in China could help inform efforts on sustainable supply chains. The development of tools and technologies that improve transparency of commodity supply chains could also have a positive impact on public views of commodity supply chains associated with deforestation.

Engagement with private sector actors

The philanthropic and donor community could support private sector actors as they implement sustainability commitments, reform their sourcing patterns, and strengthen traceability and due diligence of their commodity supply chains. This engagement should include financial institutions in order to incorporate deforestation risk into the investment risk assessment process. Verification of sourcing locations and proof of compliance with laws and regulations can incentivize companies and financial institutions to improve accountability for sustainable sourcing commitments. More research is needed to understand how to incentivize Chinese business actors through market-based approaches to tackle sustainability and send real demand signals to international producers.

Engagement can focus on raising awareness and building capacity of private sector actors to reduce deforestation in commodity supply chains. Current

supply chain initiatives often find it difficult to reach Chinese commodity importers. Multinational companies with a strong Chinese presence provide an entry point for engaging business actors to raise the profile of sustainable sourcing. The development of technologies such as remote sensing and blockchains can help private sector actors improve due diligence and traceability systems and comply with laws and regulations on supply chain sustainability.

Green public procurement

The philanthropic and donor community could support activities to align sustainable supply chains with China's green public procurement program. Under the program, all levels of government agencies and other public institutions including schools and hospitals are required to prioritize goods procurement from two lists: environmental labeling products and energy conservation products. A few forest products such as furniture, wood-based panels, and office paper are currently listed under the environmental labeling products category, but other agricultural commodities have not been included.

Adding agricultural and forest commodities to China's green public procurement program can send a strong signal regarding the importance of sustainable commodity supply chains to private actors. To achieve this goal, the philanthropic and donor community can facilitate research and dialogue to develop standards for commodity-specific procurement practices.

Independent monitoring and law enforcement

Supporting independent monitoring and law enforcement activities in producer countries is another outside strategy that the philanthropic and donor community could implement. Both civil society and governments in producer countries can put external pressure on China and other consumer markets to adopt effective demand-side approaches and avoid reputational risks around deforestation.

Independent monitoring efforts can inform the progress in sustainable production and procurement and provide inputs to any of the strategies mentioned above. Law enforcement and policy reforms in producer countries have direct impacts on deforestation at the landscape level and lay the

foundation for dialogues with China on supply chains. Technologies such as remote sensing and blockchain can be leveraged to strengthen independent monitoring and law enforcement activities.

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