



Tracking China's soy and beef imprint on South America

Photo: Fábio Nascimento





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Foreword from the editor:

Very few images have commanded the scale of global media attention, and censure, recently as those depicting the fires that raged through the Amazon during August and September 2019.

French president Emmanuel Macron was among those quick to express indignation as flames tore through parts of the forest while Brazilian counterpart Jair Bolsonaro vigorously defended what he saw as his country's right to 'develop' its portion of the Amazon - a hotbed of illegal logging, mining and cattle ranching - as it saw fit.

The fires may have reignited an impassioned international debate about sovereign resource management and responsibilities to limit the emissions that cause climate change, but they also helped illuminate the complex role of both producers and consumers of South American agricultural commodities in driving deforestation in its most sensitive biomes.

Conspicuously inaudible in the chorus of voices condemning Bolsonaro's permissiveness, even encouragement, towards loggers and ranchers clearing land for pasture, was China. Chinese food companies bought up a quarter of Brazilian beef exports in 2018, up 50% on the previous year and more than any other country.

As well as beef, China buys more soy than any other country from both Brazil, where production grew 312% between 1991 and 2017, and Argentina. Soy has not been so closely associated with Amazon deforestation since a 2006 moratorium in which multinational traders agreed not to purchase soy grown on

subsequently deforested land.

Yet, the expansion of the crop has devastated the Cerrado, a vast tropical savannah where no such commercial pact exists and where half of all forest cover has been lost. Similar trends occur in neighbouring Argentina, Paraguay and, more recently, Bolivia. Soy plantations also displace cattle ranchers towards pristine forests despite much already degraded land being suitable for pasture.

Meanwhile the port, road and rail infrastructure required to transport the crop to markets further penetrates forests, with consequences for ecosystems and the communities that steward them.

Beyond the fires, this past year witnessed a landmark Intergovernmental Panel on Climate Change (IPCC) report on land use that urged drastic changes to the way we produce food. Trade tensions between the US and China also place more pressure on South America to meet the latter's demand for tariff-hit US agricultural products, principally soy.

As global trade patterns shift, it becomes vitally important to track and better understand their impacts on forests, emissions, soil and water sources. Recognising this, *Diálogo Chino* presents this special selection of articles examining China's soy and beef footprints in South America, which explores new ways of satisfying growing Chinese demand whilst making trade more sustainable. And despite the numerous challenges, there are causes for optimism.

Chinese consumers increasingly care about what they eat and the market for sustainably-sourced foods is growing. In recognition of this - and the reputational damage that links with environmental mismanagement can incur - big state-owned Chinese commodities traders such as COFCO have made commitments to eliminate deforestation from supply chains.

South American and international producers are responding to such signals, offering market-based solutions to the urgent problem of expansive soy and beef. Chinese financial institutions that support the trade are ever more aware of their exposure to 'deforestation risk'.

This special series zooms-in on the loci of soy- and beef-related deforestation in Brazil. We travelled to Itaituba in Pará and São Luis in Maranhão to document the effects of China-backed port infrastructure on local livelihoods. We observe the spread of soy-linked deforestation in the Argentine Chaco region ask what opening beef exports to China will mean for the Bolivian Amazon.

We also assess the potential for improved sustainability through silvopastoral farming models, which combine forestry, forage plants and cattle ranching, and alternatives to soy and beef, including the 'tiger nut', a tuber, and plant-based meat substitutes.

China's agricultural engagement with South America is driving radical changes to the region's economy and environment. The articles in this series bring unique Chinese and local perspectives to the conversation about how to improve sustainability, which has implications not only for those invested in the agriculture trade, but for the entire globe.

Isabel Hilton
founder and editor, *Diálogo Chino*





Cattle ranching is a major driver of deforestation in the Brazilian Amazon
Photo: CIFOR

[Thais Lazzeri](#)

Chinese demand for Brazilian beef raises deforestation risk

Southern Brazil eyes lucrative Chinese market, displacing ranches to the Amazon to meet domestic demand

Last year the Brazilian beef industry broke its own records. It exported 1.6 million tonnes, up 11% compared to the previous year, according to the Brazilian Association of Beef Exporting Industries (Abiec).

But while the industry celebrated, the numbers rang alarm bells for environmentalists.

“Livestock is the major driver of Brazilian deforestation,” said

forest engineer Paulo Barreto, of the Amazon Institute of People and the Environment (IMAZON). Barreto stressed that the boom in exports puts extra pressure on forests since domestic production almost matches consumption. “If it were only for the domestic market, this would not happen.”

According to IMAZON, 40% of new cattle herds are in the Amazon. Approximately 80% of recently deforested land

will be used for livestock, with 20% of new beef going abroad, along with 80% of leather.

Much of this growth goes to China, the top buyer of Brazilian beef. It purchases almost a quarter of all exports and numbers are rising fast. Last year, China purchased 50% more Brazilian beef than in 2017 —the steepest increase in volume of any importer.

After eight years of decline,

deforestation in the Amazon region began to grow again in 2012, when beef exports grew 7.8% compared to the previous year, according to Abiec.

DECOUPLING DEFORESTATION AND GROWTH

Some factions of Brazilian agribusiness fiercely fight environmental protection agencies' efforts to curb deforestation, claiming that the industry is vital for economic growth.

Last year, its caucus in Congress supported the successful presidential candidacy of Jair Bolsonaro, who called the agencies "fine factories". Bolsonaro's agriculture minister pledged to create a "more favourable" environment for agribusiness.

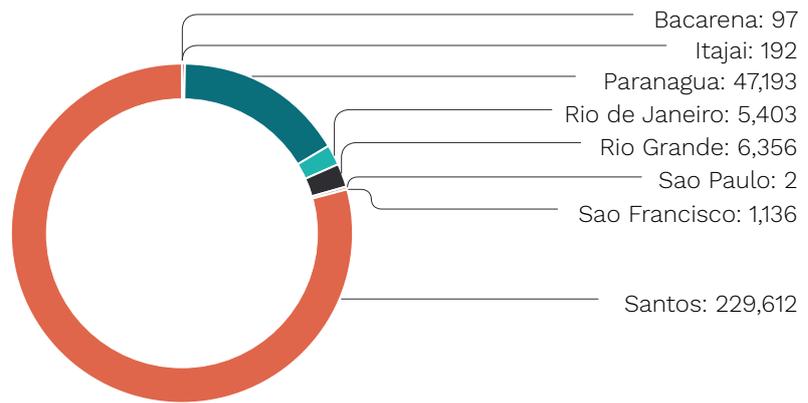
However, deforestation in the Amazon is not a necessary evil for economic development. A recent study by the University of São Paulo's Institute of Energy and Environment showed that agricultural production in the rainforest can be highly inefficient in terms of land use.

The 750,000 square kilometre area of the Amazon that has been deforested for cattle ranching – a land mass twice the size of Germany – contributes only 14.5% of

14.5%

the value of Brazilian agricultural products that come from the Amazon

Brazilian beef exports to China by port (tonnes)



the total value of Brazilian agricultural products. São Paulo state produces almost the same value with a quarter of the farmland.

The Amazonian areas were most often deforested illegally, with around 65% used for low-productivity pasture, which counts as less than one head of cattle per hectare, according to the Amazon Environmental Research Institute (IPAM).

MAPPING SUPPLY CHAINS

The process of tracing cattle reared on deforested land to international markets is inhibited by logistical and other issues. There is still no evidence that beef coming from pastures in deforested parts of the Amazon goes to China, for example.

Given the transport costs, meat produced in the south of Brazil is more competitive for the Chinese market since it is closer to major ports with links to Asia, such as Santos in São Paulo State.

However, researchers believe that because the south now caters for foreign beef demand, the Amazon may have increased production to supply the domestic market.

"It is a type of indirect effect," said Barreto. "The connection is very strong."

Global Canopy, an NGO, maps supply chains associated with deforestation in tropical forests. The organisation compares data to identify which Brazilian municipalities produce beef that ends up in China.

"Our idea is to connect businesses and go to the municipality where the meat originates, thereby connecting the origin of the meat to deforestation," said Simone Bauch, Global Canopy's director for Latin America. However, tracing is difficult because, as Bauch pointed out, "cattle move".

According to Christina MacFarquhar, one of the scientists responsible for the mapping, nine of the top 20 companies surveyed produce cattle for the Chinese market. The other 11 feature in the leather supply chain.

Beef purchasers include companies like the Kai Bo supermarket chain, one of the largest importers, and retail giant China Resources National, operated by CR Vanguard.

Global Canopy's project will also investigate how



Photo: Marcelo Carvalho on Unsplash

committed companies are to implementing good practices and preventing deforestation.

“Basically, the results are not positive, since we did not find anti-deforestation policies on the Chinese companies’ websites,” said MacFarquar, who concedes that the movement to eliminate deforestation from supply chains is new in China.

There is, however, some evidence that Chinese companies are willing to improve sustainability in agricultural supply chains.

Jun Liu, chairman of China’s largest food processor COFCO, announced in a January 2018 article that coincided with the World Economic Forum in Davos, Switzerland, that the company would support tougher rules on trading soy that is cultivated in deforested areas.

While Global Canopy’s mapping project does not try to dissuade Chinese and other international companies from buying beef associated with deforestation, they encourage them to drive changes in the meat supply

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We believe in the power these companies have to influence and encourage Brazil to change

chain that could help prevent it.

“We believe in the power these companies have to influence and encourage Brazil to change,” MacFarquar said.

GREENHOUSE GASES

Deforestation has become a growing international concern because of the carbon emitted when trees are felled, which causes climate change.

In 2016 Brazil featured seventh in the list of the world’s biggest greenhouse gas emitters. According to the Working Group for Zero Deforestation,

over half of Brazil’s emissions are caused by deforestation.

According to the watchdog Climate Observatory, fertiliser use and methane produced by livestock also contribute planet-warming gases. The last report from the Intergovernmental Panel on Climate Change stressed the urgent need to completely halt deforestation, which could be one of Brazil’s main contributions in the fight against global warming.

As part of its commitments under the Paris Agreement, the previous Brazilian government pledged to cut its emissions by 37% by 2025 and 43% by 2030, conditional on international financial assistance.

While Brazil’s new administration stopped short of pulling out of the Paris Agreement, it is highly unlikely to advance policies that will lead to lower emissions. President Bolsonaro said Brazil “does not owe the world anything” when it comes to the environment.

Bolsonaro’s uncooperative stance could put more emphasis on the private sector to advance sustainability in food production. Researchers even believe that as well as protecting forests, sourcing deforestation-free beef could be good for business.

MacFarquar said consumers worldwide are increasingly opting for brands with clear policies on the environment and sustainability:

“This is not just about saving the planet and the forests but about saving your finances and your business.” 

How soy and beef spark Amazon fires – and how to stop it

Research shows production can increase without deforesting, yet 80% of forest cleared is for pasture

In the Amazonian city of São Félix do Xingu, in Pará state, there are nearly 20 head of cattle for each inhabitant. With more than two million cows, São Félix is the Brazilian city with the largest herd.

It also is the city with this year's third highest number of fires, which are destroying the Amazon and shocking the world.

The fires around São Félix demonstrate how farmers clear land for cattle. Almost 80% of destruction in the Amazon is associated with creating pasture, according to a 2016 report by the UN's Food

and Agriculture Organization.

Brazil is the world's number one beef exporter. China and Hong Kong are its main buyers. But the country is also the largest exporter of soy to China. As soy expands in other Brazilian regions, it sparks a chain of events that involves the displacement of other farmers and ranchers who, sometimes in cahoots with illegal loggers and miners, clear swathes of the Amazon.

Brazil's president Jair Bolsonaro insists that economic development in the Amazonian region, one of the country's poorest, should

prevail over forest preservation. In a meeting about the fires with Amazon region governors last week, Bolsonaro said that new reserves would "make Brazil unviable".

However, research shows that the destruction of the Amazon could also destroy Brazilian agribusiness, a central pillar of the local economy.

More than 90% of Brazilian agriculture is not irrigated and depends on the rain the Amazon creates. Amazon deforestation reduces the amount of water produced by evapotranspiration and increases temperatures,



Photo: skeeze from Pixabay

also generating higher CO₂ emissions, according to André Guimarães, executive director of the Amazonia Environmental Research Institute (IPAM).

“China is among those most interested in safeguarding the water produced by the Amazon region because it makes commodity production cheaper,” he said.

AGRIBUSINESS FIGHTS BACK

Some members of Brazil’s agribusiness lobby are attempting to distance themselves from reports linking them to Amazon deforestation. The culprits, they say, are land grabbers seeking to profit from real estate speculation, not profitable and legal businesses.

Luiz Cornacchioni, executive director of the Brazilian Agribusiness Association, says he’s in discussions with the government on how to take more effective action against illegal deforestation and one of its main causes – land fraud.

“Sustainability is the name of the game. The sector cannot be harmed by criminals,” he said. “Brazilian agribusiness has already shown that it is possible to produce as well as preserve. We have a Forest Code that must be complied with. The government needs to apply the law and the penalties it establishes.”

In 2017, the amount of soy planted in deforested areas grew by 27.5%, according to a report by the Soy Moratorium, an environmental accord

between soy producers, the government, and civil society to refrain from purchasing or planting in deforested areas in Amazon states Mato Grosso, Maranhão, Tocantins, Pará, Rondônia, or Amapá.

Approximately 76% of crops planted in deforested areas are in Mato Grosso, the number one producing state nationwide. Nevertheless, there are signs that the accord works. The average rate of deforestation in the 89 municipalities of Mato Grosso is 6.5 times lower following the 2006 Soy Moratorium. Only 1% of soy in the Amazon region is planted in recently deforested areas.

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The forces of the just and honest must all be aligned, including the buyers of Brazilian commodities

The notion that deforestation increases production is misleading, according to Ricardo Abramovay, an economist at the University of São Paulo. He argues that land investments should not concentrate on turning forest to pasture, but rather in technology to make it more productive.

Between 1991 and 2017, Brazilian soy production soared 312%, while the planted area expanded 61%,

90%

of Brazilian agriculture is not irrigated and depends on rainfall

demonstrating an increase in productivity, according to the watchdog Climate Observatory.

Nor is deforesting in order to plant more yielding great results in Brazil. Between 2007 and 2016, the average yearly deforestation of 7,400 square kilometres translated into a 0.013% increase in Brazil’s GDP, according to the Zero Zero Deforestation Working Group.

“Destruction of the forest is not necessarily required to increase soy production”, Abramovay wrote in his 2018 book *The Amazon Needs a Natural Knowledge Economy*.

IPAM’s Guimarães made a distinction between productive law-abiding agribusiness and environmental crimes committed in the Amazon.

“More than 90% of deforestation is illegal, the result of criminal acts by land grabbers, loggers, and gold miners,” he said. “If it is crime, the forces of the just and honest must all be aligned, including the buyers of Brazilian commodities.”

The most vulnerable regions of the Amazon produce much more meat and soy for the domestic market than for export, researchers say. However, foreign demand for products from parts of the

country where agriculture has less impact on the forest pushes producers focused on the domestic market towards regions with high deforestation rates.

The complexity of the meat production chain and the lack of transparency in meat-packing operations also encourage bad practices, known as “cattle laundering” by processing plants and their suppliers.

An investigation by Repórter Brasil found that large companies in the sector, such as JBS, Marfrig and Frigol, buy cattle from ranchers who have received fines in regions notorious for deforestation, and which are at the epicentre of fires raging in the Amazon.

Amazon cattle ranching is also relatively unproductive. The Amazonia Environmental Research Institute (IPAM) showed that 65% of deforested land is used for low-quality pasture. On average, each head of cattle in the region occupies an area equivalent to a football pitch.

Almost one fifth of it has been destroyed. In 1960 it was 1%.

Brazil has shown that it can slow deforestation. Between 2003 and 2012, rates fell by 80%.

However, since 2012 the pace has picked up and Brazil has begun to backtrack on an international commitment to bring annual deforestation down to 3,800 square kilometres next year.

Some researchers predict that deforestation in the Amazon could surpass 10,000 square kilometres this year.

CHINA’S RESPONSE

In contrast to French president Emmanuel Macron, who appears to have taken up protecting the Amazon as his newest political cause, the Chinese government has largely remained tight-lipped on the fires.

However, it has downplayed suggestions that the country bears some responsibility for driving deforestation in the Amazon.

“The correlation is new to me,” foreign ministry spokesperson Geng Shuang said at an August 26 press conference, in response to a question about about global beef consumption and the fires, which noted China’s possible role as a major importer.

China was aware of the fires and supported the Brazilian government in its efforts to fight them, he added.

In a meeting with representatives from Brazilian agribusiness last month, Jingtao Chi, chairman of COFCO International, China’s largest trading company, which imports a quarter of Brazil’s soy, repeated “sustainability” several times, according to IPAM’s Guimarães.

In January, Jun Lyu, another COFCO executive, caused a stir by publishing an article urging the international community to combine efforts in combatting deforestation.

Isabel Nepstad, a senior consultant for the Solidaridad Network, which monitors global supply chains, said that by joining the ranks of major international trading

companies, COFCO is setting a good example for other Chinese companies.

“Its announcements caught the attention of other companies in China and abroad,” she said. “But because other companies do not yet have sustainability departments and COFCO has the advantage of being a state-owned company with global operations, it will take time before we see more public commitments from Chinese players.”

NGO Global Canopy, which maps production chains and their impact on tropical deforestation, has investigated supply chains in the beef and leather trade between Brazil and China, which are exposed to a “deforestation risk”.

The top 20 Chinese companies in these sectors do not have sustainability policies related to deforestation, despite their significant impact, Global Canopy found.

“It is in fact a consumer market that directly impacts the expansion of Brazilian agribusiness,” said André Vasconcelos, a Latin America researcher at Global Canopy, who also works on the Trase supply chain transparency tool.

In an interview with Brazilian news portal UOL, Chinese Minister-Counsellor Qu Yuhui said that the current crisis was “a bit fabricated” and that Brazil has one of the best standards for environmental conservation in the world.

“Brazil has been consistent in protecting the environment,” he said. “It is not me recognising this [fact], but rather the Chinese government.” 



World meat production has tripled in the past four decades
Photo: Fábio Nascimento

[Fermín Koop](#)

Climate crisis threatens Latin America's food production model

As a global food supplier, the region must adapt land use to combat climate change, new IPCC report says

With the largest amount of cultivatable land in the world, Latin America plays a key role in global food production. The region has experienced significant agricultural expansion in the last 50 years, increasing the cultivated area from 560 to 740 million hectares – with devastating environmental consequences.

Much land today is deforested or degraded and

its biodiversity decimated. Preventing further expansion will be central to combating climate change and ensuring food supplies, according to a new report by the Intergovernmental Panel on Climate Change (IPCC).

According to the IPCC, which brings together climate scientists worldwide, the misuse of land can exacerbate global warming and worsen its effects.

“Land is already being affected by climate change. This has a particular emphasis on Latin America as a food-producing region,” said Eduardo Calvo Buendía, a Peruvian researcher and IPCC co-chair.

“The use of the land can contribute to the solution of the problem but making progress only with this sector is not enough.”

14%

of the world's degraded land is in Latin America

VICTIMS AND VICTIMISERS

The land – and how human beings use it – has both drive and feel the effects of climate change, according to Esteban Jobbágy, an Argentine researcher at the IPCC.

Population growth and changes in diets since the middle of the last century have led to unprecedented rates of land and water use. Agriculture consumes around 70% of the world's freshwater.

“Latin America still has a lot of land that can be used for agriculture. This report opens the eyes of decision-makers in the region,” Jobbágy added.

Agriculture, forestry and other land uses generate 23% of greenhouse gas emissions globally. But its expansion, at the expense of native forests, not only generates more emissions but also degrades soils and limits its capacity to absorb emissions.

There are currently more than two billion hectares of degraded land in the world, 14% of which is in Latin America, according to the UN's Food and Agriculture Organisation (FAO). Degradation occurs due to deforestation, intensive application of agrochemicals and erosion.

Land degradation is also associated with poverty. Farmers with fewer resources have less access to land and water and work with low-quality soils that are highly vulnerable. Around 40% of the world's most degraded land is in areas with high levels of poverty.

“The report is a call to strengthen Latin America's agriculture systems. We must stop deforestation processes, promote crop rotation systems and strengthen agroecological production,” said Miguel Taboada, a researcher at the Institute of Argentina's Agricultural Technology Institute (INTA).

“

Agricultural systems are not resilient enough

FOOD SECURITY

Latin America has just 8% of the world's population but 23% of potentially arable land. Its global share of currently cultivated land is 12%, while it also has 46% of tropical forests and 31% of the planet's freshwater, according to the FAO.

This makes the region a central actor in guaranteeing food security, which today is threatened by climate change. Rainfall patterns are changing and extreme

weather phenomena increasingly common, putting agricultural production and the Latin American economy at risk.

IPCC projections are not good, especially for tropical countries in Latin America such as Brazil and Colombia, which would see a drop in crop yields as a result of global warming.

“The tropical countries of South America will be the most affected in the region, with negative consequences on their economy. Their agricultural systems are not resilient enough,” said Louis Verchot, a US researcher at the IPCC. “Both small and large scale agriculture will face difficulties.”

Depending on different climatic scenarios, the increase in temperature in Latin America could vary from 2°C to 6°C, according to the IPCC. At the same time, by the 2050s it is estimated that around 50% of the region's agricultural land will be affected by desertification.

DIET CHANGES

Livestock occupies a central role in Latin America but if consumers can be persuaded to eat less meat because of climate and health reasons, this could change the sector's plans to expand.

World meat production has tripled in the last four decades. Today two billion people are overweight or obese, which is often linked to increased meat consumption.

In its new report, the IPCC



Less extensive farming methods can reduce pressure on forests
Photo: Fábio Nascimento

50%

of Latin American land could become desert by 2050

THE PATH FORWARD

Along with dietary changes, the IPCC highlighted a series of short- and long-term solutions for Latin America.

There are actions that would have immediate positive effects, such as conserving wetlands and forest ecosystems, which store huge amounts of greenhouse gases that are released when they are destroyed. Other interventions, like reforestation, need decades to be effective.

Land must remain productive to maintain food security given expected global population increases and the negative impacts of climate change, the IPCC said.

Experts highlighted Latin America's great potential to drive change as a principal food producer. So-called "climate-smart agriculture" must advance without degrading soil. There is also the potential to increase productivity in currently cultivated land, without expanding production and encouraging deforestation.

"The region can do much more to manage its soils sustainably," Verchot said. "You can maintain the productivity of currently cultivated soils so you don't have to deforest more areas. For this, governments have to invest in rural areas." 

highlighted the benefits of moving from a meat and dairy-based diet to a plant-based diet. This brings "great opportunities" to mitigate and adapt to climate change, in addition to bringing health benefits, promoting less extensive livestock systems (such as silvopastoral models), and reducing pressure on native forests.

Latin America and the Caribbean is responsible for more than a quarter of world beef production and

20% of poultry. In the last decade, exports of beef from the region have more than doubled, while exports of pork and poultry from Brazil and Chile have more than quadrupled.

"It is questioning how sustainable this food chain is and in Latin America, it can have great consequences," said Jobbágy, "Lower consumption of animal products could give us more chances to combat climate change."

Chinese consumers ignore calls to eat less beef

Imports rise as domestic farmers struggle to meet demand

Despite increasing prices and evidence that too much beef is bad for health and the environment, a belief that eating red meat makes you strong persists in China, and consumption is accelerating.

Shortly after the Chinese New Year holiday, business was brisk again at the beef and lamb section of the Xinfadi Wholesale Food Market.

Known as “Beijing’s shopping basket”, the market is popular with urbanites looking to pick up cheap fresh food. But according to Li Cheng, who has been selling meat here for more than a decade, the price of beef has been rising almost

daily since December.

Figures from the Ministry of Agriculture show that in January and February wholesale beef prices rose over 11% compared to the same period in 2018. Importers have been stepping in to profit.

UNTIL THE COWS COME HOME

Hao Na, CEO of New Zealand import-export firm Taonga Belt and Road Industrial Park Limited, told *Diálogo Chino* that the rising price of beef is linked to rocketing chicken prices and an outbreak of African swine fever which hit pork supply.

But the longer-term cause is simply domestic supply not meeting demand.

Prosperity has fed the demand for beef. By 2017, China consumed 7.94 million tonnes of the red meat, more than any other country in the world, but much lower per person than the global average.

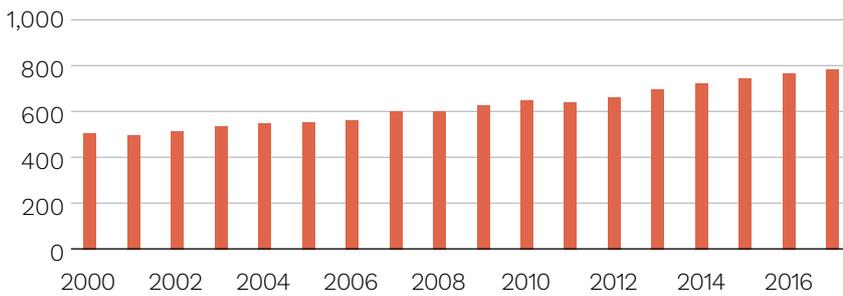
China’s farmers haven’t been able to keep pace with the growth. Up until 2017, beef farms were usually small-scale operations, with only 2% sending more than 1,000 head of cattle to market annually. These farmers have been discouraged from expanding by rising costs for land, labour and fodder.



Photo: pxhere

Annual beef consumption in China since 2000

● Annual beef consumption (10,000 tonnes)



The additional demand has been met by imports. Data published by the customs authorities in January put total beef imports for 2018 at one million tonnes, up from just 23,700 tonnes in 2010. A Ministry of Agriculture report predicts a sustained rise in beef and lamb consumption in the coming decade, with beef imports continuing to grow.

Liu Yi, 25, is an aircraft pilot living in Shanghai. He grew up in Xi'an eating the well-regarded local beef but today he often buys imported cuts from the supermarket: "It's not ideal for making Chinese dishes. But sometimes Chinese beef, from Shaanxi, Gansu or Inner Mongolia, is even more expensive than the imported beef."

Since 2015, South America has been gradually becoming an important source of China's beef imports. Figures show that in 2013 Australia provided half of China's beef imports, but by 2017, 70% came from South America.

In just three years, from 2015 to 2018, Brazil's exports of beef to China jumped from 56,000 tonnes to 320,000 tonnes. In 2018, 50% of the beef exported by Uruguay and Argentina ended up on Chinese tables. China has now become of the most important buyer for South American beef.

Sergio Ray, foreign markets officer at the Argentine Beef Promotion Institute, made a trip to Beijing last year to advertise Argentinian beef.

Hao Na says that while South American beef is slightly inferior to that from Australia and New Zealand, it is plentiful and cheaper, and so is being imported in large quantities.

THE BEEF COMPLEX

Many Chinese consumers see beef as a healthy option, according to Jian Yi, founder of the Good Food Academy. He says that after watching the 1984 Los Angeles Olympics,

the first to be broadcast in China, many Chinese people concluded that the success of foreign athletes was partly down to consuming more beef and milk.

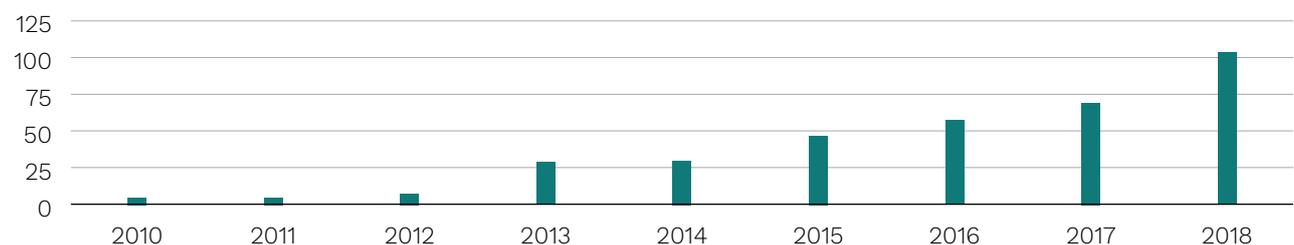
Zhu Jiajin, a food science professor at Zhejiang University, told *Diálogo Chino* that beef is high in absorbable proteins, as well as micronutrients including iron, potassium and selenium. But studies have also linked red meat to increased risk of heart disease, cancer and diabetes. Zhu Jian suggests wealthier people may be eating too much red meat while those in poorer households aren't eating enough.

THE ENVIRONMENTAL COSTS OF LIVESTOCK FARMING

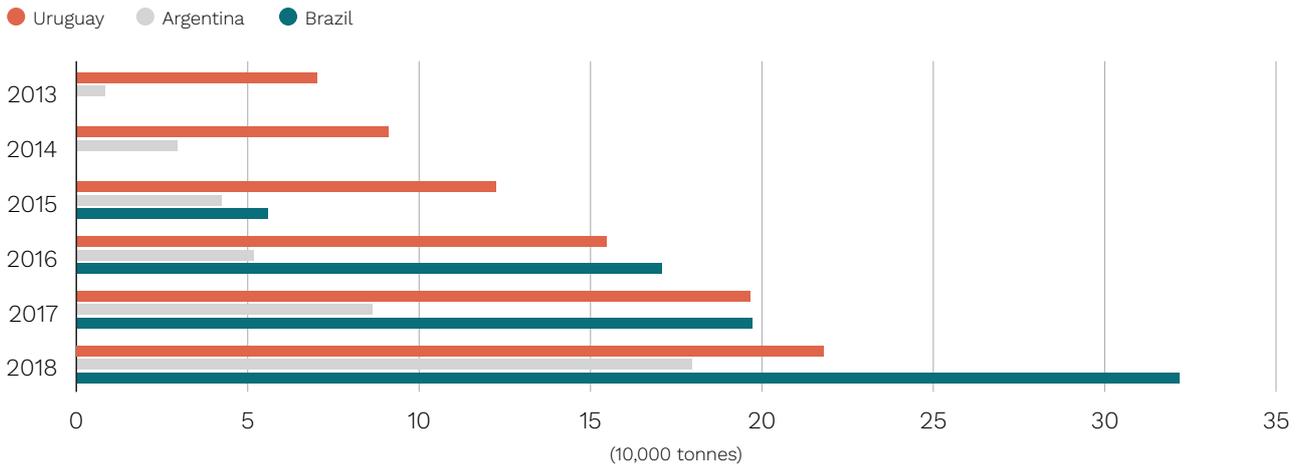
Beyond its effects on health, beef consumption increases carbon emissions and pollution from farming. In 2006, the UN Food and Agriculture Organisation pointed out that livestock farming is a major contributor to the greenhouse effect, being responsible for a higher share of carbon emissions than the transportation sector. That was the year that China's domestic beef production ended six years of growth, with imports then rising to meet demand.

Chinese beef imports since 2010

● Chinese beef imports (10,000 tonnes)



Changes in Chinese beef imports by Country



Cattle produce more emissions than any other farm animal. Producing one kilogram of beef releases twice as much greenhouse gases as a kilogram of lamb, and 3.5 times as much as chicken or pork.

South America, China's main supplier of imported beef, has incurred huge environmental costs. Data from the World Resources Institute shows that beef production is the biggest driver of deforestation. Vast expanses of Amazon rainforest have been felled to make way for pastures. In Brazil alone, three quarters of deforestation is directly or indirectly linked to livestock farming. Brazil now has over 209 million head of cattle, and 20% of the beef it produces is exported.

China's livestock farming sector has tripled in size over the past three decades. This growth has come at a cost. In June 2018, environmental inspectors from central government found severe breaches of emissions regulations by livestock farmers in Heilongjiang, with large quantities of manure being dumped and badly polluted water discharged

directly onto grasslands.

Research recently published in the journal *Nature* says that if current levels of red meat consumption and processed foods continue as population levels rise, the environmental effects of the food system could increase by up to 90% by 2050, beyond the planet's ability to cope.

LESS BEEF?

A major report on diet published in the *Lancet* this January recommended that the bulk of people's protein should come from plants, with an average intake of red meat of just 14 grams per day. That less carbon-intensive diet would also be more environmentally friendly. In 2016, the Chinese Nutrition Society suggested adults eat 40–75 grams of meat or poultry a day.

But the Chinese public does not seem convinced. In an online poll of 500,000 people about eating beef and health, the most popular answer expressed scepticism about calls to eat less beef: "An average steak is 150g, you'd need to eat it over two days. How's that going to make us

stronger?"

Some big meat-eaters do seem to be more willing to change their eating habits for the sake of the environment. Research in China by Wildaid, an international NGO, found that one third of 5,218 respondents said they could eat less meat for the sake of the environment.

Zhu says that there are plenty of foods which can provide the same nutrients as beef. "If the public aren't sure exactly what to eat, they should just ensure they eat a varied diet." But Zhu is refraining from commenting on substitutes such as "artificial meat" which have been making the news recently, saying that even if they have the same nutritional value as beef, they won't be a perfect replacement: "We still don't fully understand what's in beef and what it does."

For pilot Liu Yi, "Food is a gift from nature. I could eat less meat for the sake of the environment, but there's no need to eat artificial meat." 🇨🇳

The names of some interviewees have been changed.

Meat consumption threatens international climate commitments

Rising demand from emerging markets puts pressure on South American forests and emissions targets

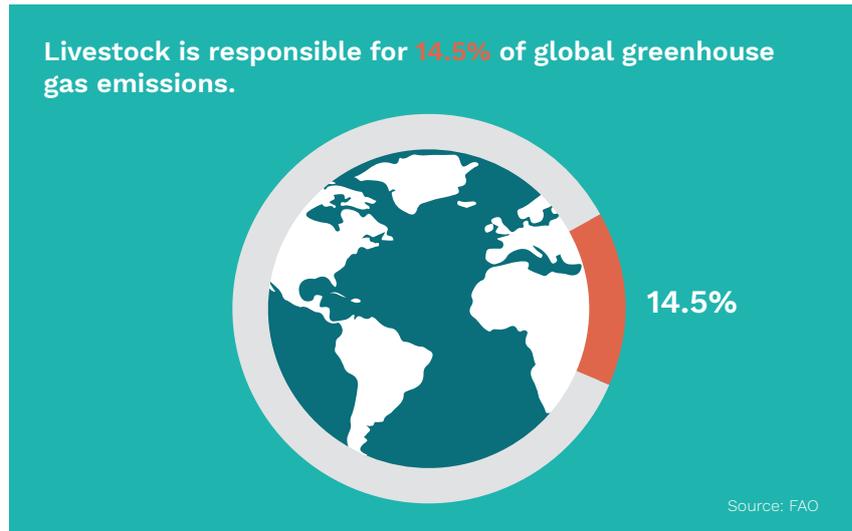
Campaigns to cut meat consumption have been highly visible throughout UN climate change conferences (COPs) in recent years, with livestock responsible for 14.5% of global greenhouse gas emissions (GHGs).

Yet the lack of progress is clearly on show at COP24 at the last round of talks in Poland, with beef burgers, ham gnocchi and bacon conspicuous among the catering options.

If over the two-week conference the 22,000 attendees chose meat-based food, the emissions footprint would be equivalent to burning more than two million litres of fuel, according to an analysis presented at the summit.

“The lack of attention to food as a way to solve the climate crisis was reflected in the food options at COP24, with menus based on meat and dairy instead of offering plant-based options,” a report by campaigners Farm Forward, Brighter Green and the Center for Biological Diversity said.

Food production creates massive environmental impacts due to greenhouse gas emissions from animals (mostly methane),



deforestation and water consumption. Latin America has thousands of hectares devoted to agriculture and rearing livestock.

Without action, the impact will worsen. The world’s population is expected to increase by 2.3 billion by 2050 and global salaries will triple, enabling more people to afford meat-based diets.

“If we continue producing food the way we are and the demand continues to grow, we will need to cut down all the forests in the world to meet demand in 2050. But there is huge potential for improvement with greater efficiency,” said Tobias Baedeker, a World Bank economist who specialises in agriculture.

DIET CHANGES

Two billion people in high meat-consuming countries such as the US, Brazil and Russia should reduce consumption by 40%, limiting intake to 1.5 servings per week, according to a study by the World Resource Institute (WRI) presented at the COP.

Globally, meat and dairy production uses 83% of land dedicated to agriculture and generates 60% of the sector’s emissions. Along with cutting consumption, the other main challenge is increasing the amount of food produced per hectare.

“Latin America has a central role, with many hectares of poorly managed pasture



Photo: Alex Proimos

25%

methane emissions contribute 25% more to global warming than carbon dioxide.

land that could be more efficient. The problem is that it is cheaper to deforest than to improve productivity,” said Timothy Searchinger, the WRI report’s author.

A cow belches through its nose every three minutes. Inside the first chamber of their stomachs, known as the rumen, are bacteria that break down everything they eat. During the process they emit methane, a gas that contributes 25 times more to global warming than carbon dioxide, which transport and industry are

largely responsible for.

On top of this are emissions from waste and indirect emissions linked to deforestation through the expansion of pasture. The transgenic (GMO) soybean boom in Latin America largely displaced cattle ranching to new regions, many covered by native forests.

Compared to pigs or chickens, cows need 28 times more land and eleven times more food and water. They also generate five times more emissions, according to US-based researcher Gidon Eshel. The gap is even greater compared to plants such as potatoes and rice, which need around 160 times fewer resources.

However, persuading the whole world to switch to a vegetarian or vegan diet

is not realistic, according to the WRI report, which instead calls on people to reduce meat consumption. Other recent scientific reports agree.

To prevent average global warming of more than 2°C by the end of the century, as targeted in the Paris Agreement, the world must eat 75% less beef, 90% less pork and cut egg consumption by half, according to research by Oxford University.

Experts recommend introducing subsidies for plant-based foods, changes in office and school menus and taxes on meat-based products. At the same time, they urge far-reaching changes in agricultural methods.

“There is a tendency towards the industrialisation of meat production. That

means that cows are fed corn and soybeans, crops that require more land,” said Wanqing Zhou, a researcher at the Brighter Green think tank.

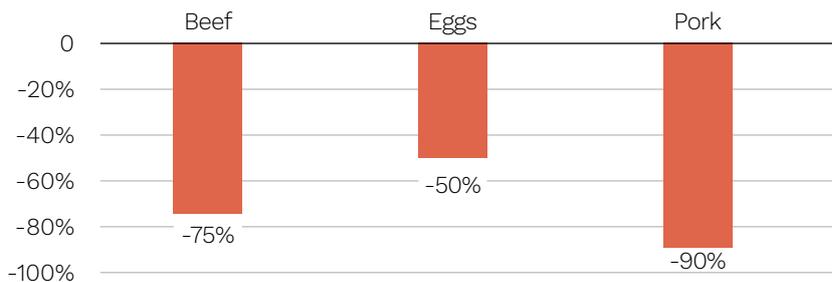
“Transforming unprotected ecosystems into areas of food cultivation for cows has been one of the most profitable practices that the livestock sector has found and that has led to increases in emissions, as seen in the [South American] Gran Chaco [eco]region,” she said.

RISING CONSUMPTION

According to UK think tank Chatham House, global meat consumption is expected to grow 75% by 2050. China will be responsible for a large part of the increase.

The average Chinese citizen will consume 55 kilos of meat per year by 2026, 10% more than in 2017, according to a report by UN’s Food and Agriculture Organisation and the Organisation for Economic Cooperation and Development (OECD). Pork will remain the preferred option, representing 60% of

Change in consumption required to limit global warming to 2°C this century



Source: Oxford University

95%

over 95% of Chinese meat imports come from Brazil, Uruguay, Australia, Argentina and New Zealand.

“Chinese consumers are familiar with Latin American words like ‘asado’ [barbeque] and ‘churrasco’ [grilled beef] and that will help maintain imports. The biggest advantage of Latin American meat is the cost and that is why it is expected that imports to China will continue to be mainly from those countries,” said Zhou.

the total.

More than 95% of Chinese meat imports come from Brazil, Uruguay, Australia, Argentina and New Zealand. Between 2011 and 2016, imports of beef increased 370%. The trend looks set to continue, as local producers struggle to compete with the big exporters.

In Argentina, the volume of beef exported between January and October 2018 was the highest in the last nine years, with China the main demand centre. The South American country shipped 155,144 tonnes in the first ten months of the year, twice that exported in 2017.

Brazil has also increased beef exports by almost 60% in 2018. They now exceed one million tonnes. More than 45% of the total went to China. The figures are expected to rise next year.

Reyes Tirado, a researcher at Greenpeace said: “The world needs to get towards levels of meat and dairy consumption that allow for a safe planet. Privileged societies in developed and developing countries have to lead the change.”



A cattle feedlot in the Amazonian municipality of Porto Velho
Photo: Fábio Nascimento

Will exporting beef to China cause deforestation in Bolivia?

The opening of the Chinese market to Bolivian beef is a boon for livestock farmers but the environmental consequences could be severe

The recent Belt and Road Forum in Beijing brought news that Bolivian meat will soon start to be sold in China. The new market will bring opportunity to livestock farmers, but unless they migrate to more sustainable production, serious deforestation may also result. In the last two decades, livestock caused 60% of deforestation in the country – similar to Brazil and Colombia.

Bolivian cattle ranchers aim to export 20,000 tonnes of beef in the second half of this year. That would make the Andean country about US\$75 million, or five times more than in all of 2018, according to figures from the Bolivian Foreign Trade Institute (IBCE).

By 2020, the goal is to sell 40,000 tonnes to China.

HOPES OF A MEAT BOOM

On 26 April, the Bolivian foreign minister, Diego Pary, and the minister of Chinese customs, Ni Yuefeng, signed a protocol that opened the doors for the export of Bolivian beef to China.

As the consumption of beef rises sharply among the 1.4 billion people in China, Bolivian ranchers and civil servants are



Bolivian farmers are celebrating the opening of the beef market to China, news that is welcomed as it is likely to increase their production.
Photo: Fegazacruz

hoping to benefit.

“This means exporting in almost half a year what has been done in 10 years,” said Gary Rodríguez, president of the IBCE, which supports exporters. “By 2020, we would be selling US\$150 million to the world only for the export of meat. However, the projection is to move from a cattle herd of 10 million to 17 million in 10 years.”

That would mean going from using 13 million hectares for livestock rearing to 20 million hectares, according to the goals of the Livestock Development Plan 2020–2030 presented by ranchers to former president Evo Morales in January.

On top of this, small farmers will need to be helped to increase their productivity

through bank loans and agricultural training.

Investments will also need to be made in productive and commercial infrastructure, and water dams, as Oscar Ciro Pereyra, president of the Confederation of Cattle Ranchers of Bolivia (Congabol), explained.

However, it is unclear how they will go about it. *Diálogo Chino* reached out to Pereyra for clarification on three occasions, but received no answer.

Currently, 90% of exported meat (about 3,500 tonnes) goes to Peru. In farmers' sights are markets like Vietnam (already open), Russia (in the process of opening) and the European Union (which has only approved select cuts of meat). None is as promising as China.

At least three companies from the department of Santa Cruz are ready to export beef to China, having been visited by their Chinese customers and certified by the National Service of Agricultural Health and Food Safety (Senasag).

In turn, farmers in the Amazonian department of Beni expect the government to fulfil its promise to build a cold-storage plant in the department's capital Trinidad, so they no longer need to depend on the one in Santa Cruz.

"In Beni we have a lot of potential to grow, but we need investments. We hope that exports will be opened and that the new Soil Use Plan will be approved so that we can have the infrastructure in Beni, without having to dismantle around us," says José Eduardo Iriarte, member of the board of the Federation of Livestock of Beni (FegaBeni).

The scientific and environmental communities are concerned about the "dismantling", by which Iriarte means deforesting.

"With this type of agroextractivism we are going to seriously exacerbate problems of droughts, floods, climatic changes, appearance of pests, soil erosion ... We are having droughts because there is savage deforestation happening in Beni and Santa Cruz," says Miguel Ángel Crespo, agroecology expert and director of the environmental NGO Probioma.

"Farmers do not want to understand they must conserve forests because they want only open pastures. But livestock have to shelter from



Deforestation has been rapidly increasing in regions such as Santa Cruz. Photo: Edmond Sánchez/FAN

high and low temperatures, otherwise stress leads to low yields," he adds.

COWS VS. FORESTS

The main cause of deforestation in Bolivia is livestock, according to a study published by the Friends of Nature Foundation (FAN) in 2014.

"As of the year 2000, the perception we had that the expansion of the agricultural frontier was mainly for soy changed. From the years 2000 until 2018, it is livestock. We analysed until 2013 and more than 60% of deforestation was caused by livestock," says FAN director Natalia Calderón, an expert on climate change and conservation.

"It is going to mean the expansion of the space that is destined to the cattle ... We are not yet talking about incentives for producers, technology, technical assistance, adequate monitoring, control and inspection," she explains, adding that they have detected expansion in deforestation in regions such as Charagua and Chiquitania in Santa Cruz. In fact, the department accounts for 78% of the country's deforestation.

The problem raised by environmental experts is

that the conversation about increased meat production is not accompanied by a discussion of issues such as soil management or better solutions to cope with climate change, such as silvopastoral systems where cows share space with trees.

"You have to think about changing the production model to a more sustainable one with qualitatively different products and not similar to those that Brazil, Argentina and Paraguay produce, for example" says Miguel Ángel Crespo, who is concerned about the profitability of transporting meat from the interior to a port in the Pacific and then on to China.

"To export, Bolivia has to compete ... If it wants to export meat that is organic, that comes from cattle fed with natural pastures – that would be the only way out for Bolivia to be competitive. Otherwise it's going to be another debacle like soy, whose prices fall and the producers ask the government to pay them subsidies that come out of our taxes."

Farmers feel their industry is not mainly responsible for deforestation, especially in Beni, which has extensive plains covered by pastures

(pampas and savannas) and humid tropical forests on gentle piedmont slopes.

“It’s completely false. The livestock of Beni is made in the pampas and the clearing is minimal if we compare it to Santa Cruz or Brazil. The clearing in Beni is only to make cattle paddocks, in the high places. We take care of the environment. Since our grandparents we have made a cattle ranch in the pampas, even the agriculture that we want to carry out now is in the same system,” says guild leader Iriarte, although he recognises that there was deforestation in the north, in the towns of Riberalta, Guayaramerín and Vaca Díez province.

This sustainable feature of Benian meat, which bears the “Bolivia Natural Beef” seal, could lead the way for other regions.

“In Beni there is livestock but it is done in natural pastures, which does not necessarily imply deforestation. They would have to be careful there in everything that has to do with the management of water and soil,” says Calderón of FAN.

In any case, some researchers see reasons for caution. Although the livestock industry plans its production on existing pastures and natural pampas, illegal deforestation may still result.

“The pampas fulfil important functions in the ecosystem that will be lost when they become livestock pastures,” says biologist Vincent Vos of the Centre for Research and Promotion of Farmers (Cipca).

For him, it is worrisome that

the new land use plan of Beni identifies extensive agriculture in areas that still have large forest coverage and, even, with forest management plans registered in the Forest and Land Authority (ABT) in municipalities such as Riberalta.

Miguel Ángel Crespo of Probioma believes mitigation measures need to be taken on deforestation, as well as the use of genetically modified crops and agrotoxins for food production: “These two aspects will strongly influence exports and the agricultural sector. More and more countries have more regulations that are closing the doors to products that come from regions with high use of transgenic and agrochemicals and areas of deforestation.”

They are not the only environmental impacts that could be increased by livestock activity.

Livestock farming, which requires a lot of water, is spreading into regions scarce in water.

“Livestock is expanding in two critical areas for the water issue: in the Chaco and Chiquitania regions, which are ecosystems that already have a fragility in terms of the amount of water. The climate change scenarios show us that there will be a reduction of water in these ecosystems,” explains Natalia Calderón, whose organisation has also done studies on how livestock faeces contaminate water sources. “More climate change, plus an expansion of livestock management areas without considering proper management of water

resources, could be critical,” she adds.

Bolivia’s plans to increase its meat production and then export it to the other side of the world could clash with another reality.

Many organisations are promoting diets with less red meat. In its latest Global Environment Outlook report, the UN explains how reducing beef consumption lowers greenhouse gas emissions. This is because cows produce a lot of methane and forested areas are some of the world’s best carbon sinks.

“One of the great challenges for the planet is to meet the high demand for food because of population growth and, at the same time, reduce the impacts of agriculture and livestock to meet the demand for food. We do not know if there are public policies to guarantee that this process is sustainable, or if there are demands from the markets (China and Russia) on these points, or that the agroindustrial companies are talking about these points in the agreements,” says Calderón.

In May, in a meeting with members of a commission of the Chamber of Deputies, the Confederation of Cattle Ranchers of Bolivia said they have a strategy that considers technological innovation and competitiveness to promote more sustainable production.

Although no more details are known at present, whether these solutions exist and are effectively implemented could depend on whether markets such as China’s demand meat produced in a way that preserves forests. 

Are cows raised in forests better for the environment?

Argentina launches ‘silvopastoral’ ranching to produce lower carbon beef

In a scene from the not-too-distant future, a young woman in Beijing points her smartphone at a QR code stuck to a packet of beef from Argentina. She finds out that it’s produced from cows who enjoy the shade of forested space.

Experts say silvopastoral farming – a method that combines forestry, forage plants and livestock – has a range of benefits in addition to animal welfare, including healthier soils and fewer greenhouse gas emissions. Its two varieties involve rearing cattle either in pre-existing native forests or in newly-planted ones.

“It is a very good environmental, economic and social system,” said Pedro Botta, an agronomist from the ministry of agribusiness in Buenos Aires province, where silvopastoral farming is gaining ground on small islands surrounded by the brown waters of the Paraná de Las Palmas River.

Native forest silvopasture extends across an estimated seven million hectares of Argentina, mostly in the northern Chaco region and in Patagonia to the south. As for planted silvopastoral

forests, there are an estimated 150,000 hectares, mainly in the regions of Corrientes, Buenos Aires, Misiones and Neuquén.

ANIMAL WELFARE

Argentina’s National Institute of Agricultural Technology (INTA) is experimenting with a silvopastoral project that expressly promotes animal well-being, according to INTA engineer Edgardo Casaubón. One farm combines forestry, beef farming and beekeeping.

Juan Ravalli, a vet from the Ministry of Agribusiness, said about silvopasture: “The animals are in a state of peace and they don’t have heat stroke problems because they have trees.”

Botta added: “In open fields or in feedlots, if there is a change in temperature, animals can die.”

FEWER PESTICIDES, BETTER SOILS

Another quality of silvopastoral agriculture is its low use of pesticides compared to other forms of livestock rearing. Pesticides are used to maintain the quality of the pasture cows feed on.



Argentina uses more than 300 million litres of agrochemicals per year, nearly nine times more than the 34 million used in 1990. The expansion of silvopasture could help reduce this.

“The use of chemicals is minimal or nil, compared to other livestock systems,” said Casaubón, adding: “Caterpillars are the main pests in the Delta area. Because I have the trees, birds that feed on insects can nest and eat caterpillars. I don’t need to use chemicals.”

The shade that trees offer in silvopastoral systems also changes the composition of the grassland and allows cows to thrive, Botta said.

Trees also help avoid soil erosion, according to Patricia Cornaglia, an expert on silvopastoral systems at the University of Buenos Aires’ faculty of agronomy.



*silvopasture in the Cauca Department of Colombia
Photo: Neil Palmer*

“At the correct distance [they] allow the growth of natural pastures and an undergrowth that serves as a refuge for wildlife,” she said.

CLIMATE CHANGE

Cattle farming is one of the main sources of global greenhouse gas emissions, largely because livestock emits methane and nitrous oxide. In Argentina, it is responsible for around 25% of emissions, according to the government.

Cornaglia said that in silvopastoral systems, trees absorb part of the emissions from livestock and could therefore help Argentina reduce its emissions and meet its climate commitments.

Silvopastoral systems could even lead to the production of what its promoters call “carbon-neutral meat”.

Producers calculate livestock’s annual emissions of methane

and nitrous oxide – more potent gases in terms of their planet-warming effects – and work out an equivalent value in terms of carbon dioxide (CO₂). Each gramme of nitrous oxide emitted by cows is worth 300 grammes of CO₂, while each gramme of methane equates to 25 grammes of CO₂.

“In Brazil, they estimate that they can compensate for five cows with each hectare of eucalyptus planted,” said Botta. “With 100 hectares they can compensate for 500 cows.”

Such a product would appeal to international markets such as China, where many consumers care increasingly about the climate and environmental impacts of food.

“Cattle fattened by grass are valued because they have no added hormones,” Cornaglia said, adding that other means of fattening cows, such as with genetically modified soybeans, are less desirable.

CHINA EXPORTS

Argentina exported a total of 550,503 tonnes of beef in 2018, of which 207,000 tonnes were destined for China. The second largest importer was Russia, which bought 42,380 tonnes. Together, the two countries account for two thirds of exports.

China’s beef consumption has grown by around 30% in the past nine years, driven by demand from the growing middle classes, dietary changes and international marketing efforts by Argentina.

According to Ernesto Fernández Taboada, executive director of the China-Argentina Chamber of Commerce,

Argentina has an opportunity to export carbon-neutral meat with silvopastoral certification.

“As long as Argentina can spread the message that part of its production has that certification, it may be of interest to a sector of Chinese consumers who want to consume healthy products. We very much welcome this,” he said.

CRITICISMS

Despite its benefits, some Argentine environmental organisations have questioned the development of silvopastoral systems.

“When you see a silvopastoral system it is easy to fall in love, everything is divine,” said Pablo Preliasco, head of sustainable livestock at NGO Fundación Vida Silvestre Argentina. “But if I used to have natural pastures with a lot of biodiversity and today I have silvopastoral [farming] with only three species, it’s a disaster.”

Vida Silvestre advocates a silvopastoral system called Forest Management with Integrated Livestock, which according to Preliasco benefits native forest, conserves biodiversity and maintains ecosystem services, whilst producing meat of a higher quality.

However, Noemí Cruz, coordinator of Greenpeace’s forest campaign said even an integrated approach in native forests seems like damage limitation: “Agro-productive development is prioritised more than environmental development and on too large a scale. It doesn’t guarantee the maintenance and regeneration of native forests.”

Can meat substitutes reduce China's environmental impact in Latin America?

The rise of plant-based meat alternatives could reduce pressures on land and water



"Sweet and Sour Omnipork" made from plant protein
Photo: Omnipork

Ming Court, a Michelin-starred restaurant in Hong Kong famed for its authentic Cantonese cuisine, raised eyebrows last year by serving a special take on sweet and sour pork, a southern China dish steeped in tradition.

Chef Li Yuet Faat replaced real pork with Omnipork, a meat substitute made from peas, soy and mushroom protein. Created by Hong Kong-based Right Treat, Omnipork seeks to offer

a healthier alternative to consumers, while drastically reducing the environmental impact of production.

In a letter explaining why they launched a product that mimics the use of pork in Asian cuisine, Right Treat founder David Yeung noted: "In China, 65% of all meat consumed is pork. There are 1.3 billion human beings in China, yet there are 700 million pigs."

The scale of China's pork

industry has turned the country into the world's largest consumer and importer of soybeans, which typically make up 20% of pig feed. In 2018, 75% of China's soybean purchases came from Brazil. Driven by increased wealth, China has also become the largest importer of beef from Argentina, Brazil and Uruguay.

But while Latin American governments have celebrated an increasingly close trade relationship with China,

environmental organisations are concerned about the environmental impacts. In Brazil alone, increased soy production resulted in the loss of 223,000 hectares of forest between 2013 and 2017.

“Clearing land for grazing and to grow feed crops like corn and soy is the leading cause of deforestation and ecological destruction in Latin America. Much of this is done to serve the Chinese meat market,” says Matt Ball from the Good Food Institute, a US-based non-profit that promotes plant-based meat alternatives.

“If China moves more to plant-based meats, agricultural sustainability in both China and Latin America would vastly improve, given how much less land plant-based meat requires,” says Ball.

CHANGING DIETARY PREFERENCES

According to a recent survey backed by the New Zealand government, more than 60% of Chinese consumers intend to eat more fruit and vegetables, and 39% are reducing their overall meat intake. The shift is attributed to increased health awareness, which is in turn driven by rising incomes.

Moreover, 42% of respondents desire foods that are better for the environment, and more than 50% are interested in trying novel plant-based protein products.

Nevertheless, consumption of animal protein will not disappear soon. While pork intake has fallen, dairy,

seafood and beef is expected to increase.

Public policy is also playing a role in shaping consumer choices. In 2016, driven by health and environmental concerns, the Chinese government released national dietary guidelines recommending a 50% reduction in meat consumption.

“

reducing meat consumption can have a tremendous impact in meat producing countries

To promote the guidelines, the Chinese Nutrition Society partnered with WildAid, a San Francisco-based environmental advocacy organisation, to produce a public outreach campaign highlighting the benefits of a plant-based diet.

In a video advert featuring Arnold Schwarzenegger and film director James Cameron, WildAid sought to explicitly draw the connection between meat consumption and environmental harm.

“An increase in awareness about meat’s negative impact on personal and planetary health tends to make consumers more likely to consider plant-based options,”

says Jen Leung, WildAid’s climate director. “The traditional Chinese diet is very plant-forward and has always used meat alternatives such as tofu and wheat gluten.”

THE RISE OF PLANT PROTEIN

Environmental claims have been a big part of the success story of plant-based food producers such as Beyond Meat, which has seen its stock surge close to 250% since its stock market launch in May and is targeting 2019 sales of US\$210 million.

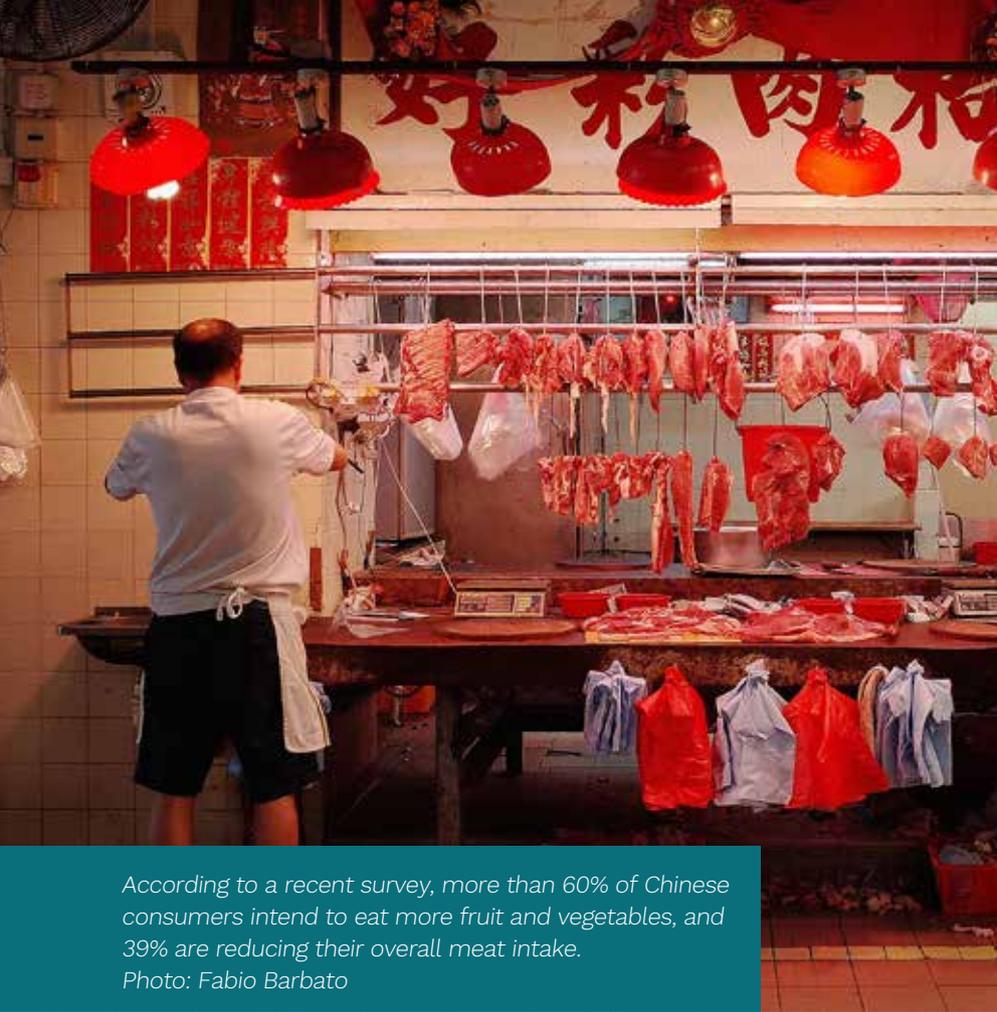
To appeal to consumers and investors, Beyond Meat and rival Impossible Foods rely heavily on a mission-driven product positioning that highlights the environmental benefits of plant-based meat substitutes.

In a recently published “life cycle assessment”, Impossible Foods said that its burgers require 87% less water and 96% less land to produce than conventional beef, while generating 89% less greenhouse gas emissions.

In a similar report released in 2018, researchers at the University of Michigan found that the Beyond Burger generates 90% less greenhouse gas emissions and requires 46% less energy than its beef counterpart.

Having already launched their products in Hong Kong, Impossible Foods and Beyond Meat are among several international plant-based food companies eyeing the Chinese market.

Domestic players don’t



According to a recent survey, more than 60% of Chinese consumers intend to eat more fruit and vegetables, and 39% are reducing their overall meat intake.
Photo: Fabio Barbato

want to be left behind either. A number of Chinese companies, such as Whole Perfect Food, have been selling “mock meat” for decades, mostly targeting consumers that shun meat for religious reasons.

Having seen the success of their overseas peers, these companies are now trying to expand their appeal to mainstream consumers.

From a commercial and environmental standpoint, China has become the alternative meat industry’s most prized market, since it accounts for 28% of global meat consumption and 50% of global pork consumption.

Although figures are hard to come by, a recent report by the Good Food Institute estimates that sales of

plant-based “meat” in China reached US\$910 million in 2018, representing an average annual growth rate of 15% over the past five years.

IMPACT ON LATIN AMERICA

Driven by the ongoing US trade dispute, Chinese purchases of Brazilian soybeans increased 30% in 2018, reaching 66 million tonnes and accounting for 75% of total imports.

A shift in consumption from pork to plant-based alternatives could in theory reduce demand for South American soybeans, which China mostly uses to feed pigs.

It is difficult to predict just how quickly this might happen given the nascent state of the meat substitute market, particularly as

many plant-based products include soy protein as a key ingredient, which could continue to sustain demand for soybeans even if meat consumption decreases.

And even if demand for soy is lower, consumption of beef is expected to grow in China, much of which is increasingly sourced from South America.

Nevertheless, even marginal increases in soybean and meat production have a disproportionate environmental impact in producing countries such as Brazil, so a slowdown in demand could have big effects.

According to Leung, “reducing meat consumption can have a tremendous impact in meat-producing countries – it can improve water and air quality, it can protect forests and biodiversity and it can have a significant impact on climate mitigation by reducing overall GHG emissions”.

In the short term, environmentalists may have an unexpected and powerful ally in the fight to shift consumer perceptions about meat.

African swine fever could reduce China’s pork production by 30% in 2019, which would severely decrease the country’s demand for South American soybeans.

With domestic pork prices expected to increase up to 70% and heightened concerns around food safety, Chinese consumers could move quickly toward plant-based alternatives. 🇺🇸



Satellite images of soy cultivation
in Brazil's Mato Grosso state
Photo: Sentinel Hub

[Thais Lazzeri](#)

Tracking China's soy footprint in Brazil

Report connects Brazilian soy exported to China with deforestation in specific municipalities

Chinese imports of Brazilian soy are linked to the deforestation of 223,000 hectares between 2013 and 2017, according to new research of production chains by monitoring project Trase. The extent of deforestation is equivalent to an area two times the size of New York City.

Of all importers, China is the most exposed to Brazilian soy linked to deforestation because it buys more than anyone else, Trase said. Between 2013 and 2017, China bought 42% of Brazil's

soy, triple the quantity purchased by second largest importer, the EU.

Yet, despite the risks associated with its large trade volume, China purchases proportionally less soy from places with higher rates of deforestation than the EU. China buys most of its soy from southern Brazil, while European purchases are concentrated in areas further north.

"China is the main buyer and really promotes

changes in large regions of Brazil," says André Vasconcelos, a Latin America researcher at Global Canopy, which is responsible for the Trase initiative along with the Stockholm Environment Institute.

Trase combined data on production, buying patterns and deforestation to calculate China's "deforestation risk". The percentage risk is calculated by multiplying total soy-related deforestation in producing areas by the

share of that soy output that China buys. Trase calculated that Chinese buyers are exposed to an 8% risk of deforestation-linked soy.

Brazil planted 128,600 square kilometres of soy to produce the 54 million tonnes purchased by China in 2017. Last year, imports swelled to 84 million tonnes, mainly as a result of the US-China trade war.

LOCALISED DEFORESTATION

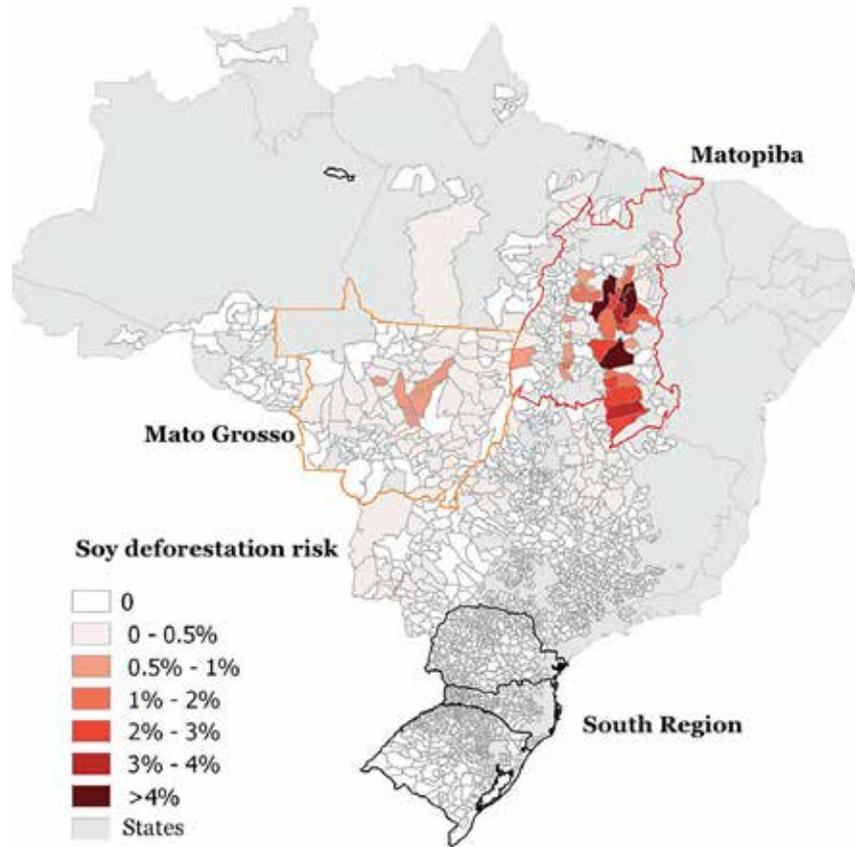
More than 2,000 Brazilian municipalities produce soy destined for China. But according to Trase’s report, only a handful of those producing soy purchased by China are associated with deforestation.

“Because it is very concentrated, we believe that this is an opportunity for China to reduce this impact,” Vasconcelos said.

Soy from a region known as “Matopiba”, which comprises the states of Maranhão, Tocantins, Piauí, and Bahia, carries the highest risk of deforestation. This area contains the Cerrado biome, where soy cultivation is expanding most in Brazil.

It is also the region most threatened by deforestation. Forest conservation group Imaflora estimates that soy production in Matopiba grew 310% between 2001 and 2017. The EU buys most of its soy from Matopiba.

According to Trase’s calculations, there is an 81%



“Because it is very concentrated, we believe that this is an opportunity for China to reduce this impact

chance that soy cultivated in Matopiba is associated with deforestation.

RESPONSIBLE COMPANIES

The Trase study also showed that although hundreds of companies are involved in the Brazil-China soy production chain, just six account for 70% of the volume exported from

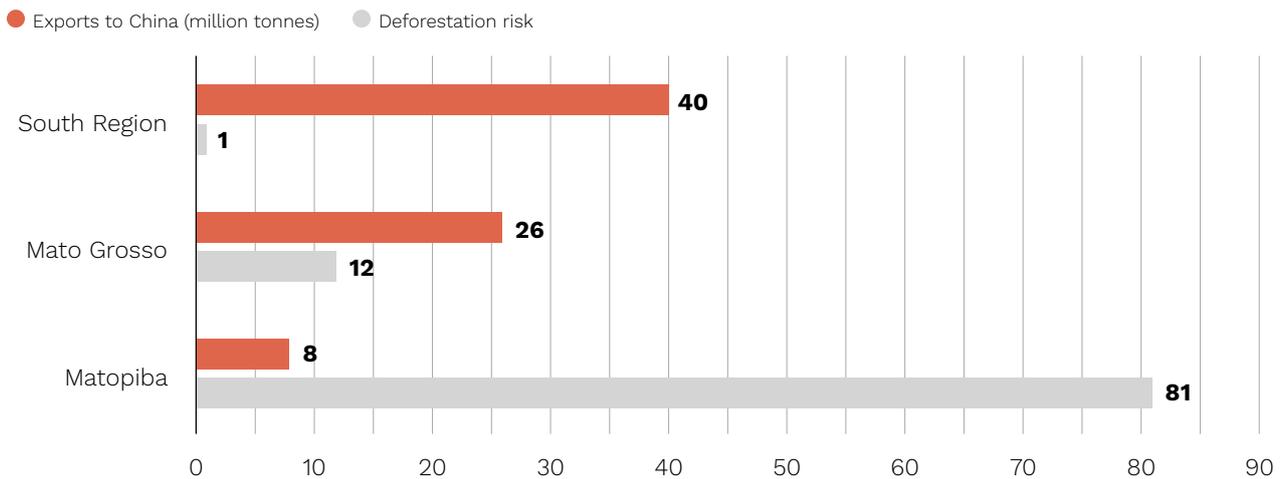
Matopiba to China: Agrex, Amaggi, LD Commodities, Multigrain, Cargill, Bunge, and ADM.

COFCO, the largest Chinese company involved in the chain, also ranks among the largest exporters of soy to China, with a 7% share. In Matopiba, COFCO is the seventh largest exporter, responsible for 6% of exports.

In January this year, COFCO president Jun Lyu surprised the World Economic Forum in Davos by urging the international community to join efforts to combat deforestation. In an article, Jun highlighted the impacts of the soy production chain on forests and the need to protect the Brazilian Cerrado.

“Efforts against deforestation would gain

Brazilian soy producing regions' exports to China and deforestation risk (2013-2017)



significant momentum if more emerging market players in both producing and consuming countries got behind sustainable commodities,” he wrote.

Vasconcelos has seen a growing concern about deforestation in supply chains among Chinese companies. “We are very enthusiastic about COFCO’s position. It is important that the sector takes a position and works to combat deforestation,” he said.

Companies like COFCO are also concerned with damage to their reputations and the perceptions of shareholders and consumers. Experts believe that being associated with deforestation could negatively impact the growth of Brazilian soy in new markets.

Studies have shown that deforestation is not necessary to increase production. Soybean production soared 312% between 1991 and 2017, while planted area expanded 61%, according to data from the watchdog

95%

over 95% of Chinese meat imports come from Brazil, Uruguay, Australia, Argentina and New Zealand.

Climate Observatory. Researchers argue that growers should use areas that are already degraded, which in the Amazon and Cerrado total over 30 million hectares.

“This is land more or less the size of Brazil’s agricultural production that is abandoned and in the process of degradation,” said Eduardo Assad, a researcher at EMBRAPA, a state-owned agricultural research company.

CLIMATE CONSEQUENCES

Deforestation is already changing rainfall patterns. According to APRASOJA,

the Brazilian association of soy and corn producers, Brazil lost 11 million tonnes of crops worth roughly R\$ 17 billion (US\$4.4 billion) as a result of heavy rains and lengthy droughts.

“For quite some time we have been warning that the biggest problems that can happen in our non-irrigated agriculture are a lack of water or too much rain,” said Assad.

Without standing forests, evapotranspiration – where vegetation captures and pumps water into the atmosphere – decreases dramatically. The rains created by the Amazon are dwindling and no longer reach the Cerrado, for example, endangering harvests. Persistent rains are just as harmful.

As deforested vegetation decomposes it also releases greenhouse gases (GHGs). In 2016, Brazil became the world’s sixth largest emitter of GHGs. That year, half the 2,278 billion tonnes of carbon it emitted resulted from deforestation. 🇧🇷



Photo: Richard Walker

[Manuela Andreoni](#)

US-China trade war raises fears of deforestation in Brazil

Chinese buyers turn to Latin America for soy following tariff hike

For years, Arnaldo Carneiro stuck to his master plan to contain deforestation in Brazil.

Carneiro, who directs Global Canopy, a non-governmental organisation, demonstrated the complicity of importers of Brazilian soybeans in the degradation of the environment. He implored them to purchase only from farmers who could guarantee they did not clear land for cultivation.

The strategy worked better in Europe. In 2015, seven European countries signed the Amsterdam Declaration committing to support private sector initiatives against deforestation in their production chains.

“Europe is a slightly more conscious market,” said Carneiro. “[They are] concerned with impacts on the front line.”

Now, however, Carneiro’s

strategy has suffered a big setback that has renewed concerns for Brazilian forests: the US-China trade war.

TRADE SPAT IMPACTS

The world's two largest economies began to impose tit-for-tat tariffs on a range of imports in March 2018. China hit US soybeans – a heavily traded commodity – with a punitive 25% levy. Since then, Chinese demand for Brazilian soy has spiked.

The trade war also kick-started a game of musical chairs between soybean purchasers and producers.

Chinese buyers have increasingly switched to Brazil to avoid the high tariffs imposed on US products. Meanwhile, European dealers have flocked to the US as prices slumped for their soybeans, which flooded the market after losing eager Chinese customers.

Historically, China has accounted for approximately one-third of US soybean consumption. Chinese people have increasingly stronger purchasing power and want to eat better. Soybeans play an important part in food production since they are fed to Chinese pigs.

In June 2018, 37% of soy imported to Europe came from the US, an explosive increase compared to 9% the previous year. At the same time, the volume of soybeans exported from Brazil to China grew 15% from January to September 2018 compared to the same

period in 2017, according to official figures. Demand was so high that Brazilian reserves have almost ran out.

All this could significantly change how international markets push for less deforestation in Brazil.

Chinese companies tend to be less focused on the environmental consequences of meeting their country's soy demand. This worries Carneiro.

“China is very concerned with the food security of its population,” explains Carneiro, who regularly talks to Chinese companies about anti-deforestation commitments. “They are much less concerned with environmental problems in other countries. What they do not want is to be involved with any illegal activity.”

After all, clearing natural

vegetation is not necessarily illegal. According to Brazil's Institute of Forest and Agricultural Management and Certification (IMAFLORA), there are 103 million hectares of unprotected natural vegetation in Brazil – land that can be deforested legally.

Carneiro's work used to involve convincing the Europeans not to deforest land even the Brazilian government considered it lawful to clear. But it is different with China.

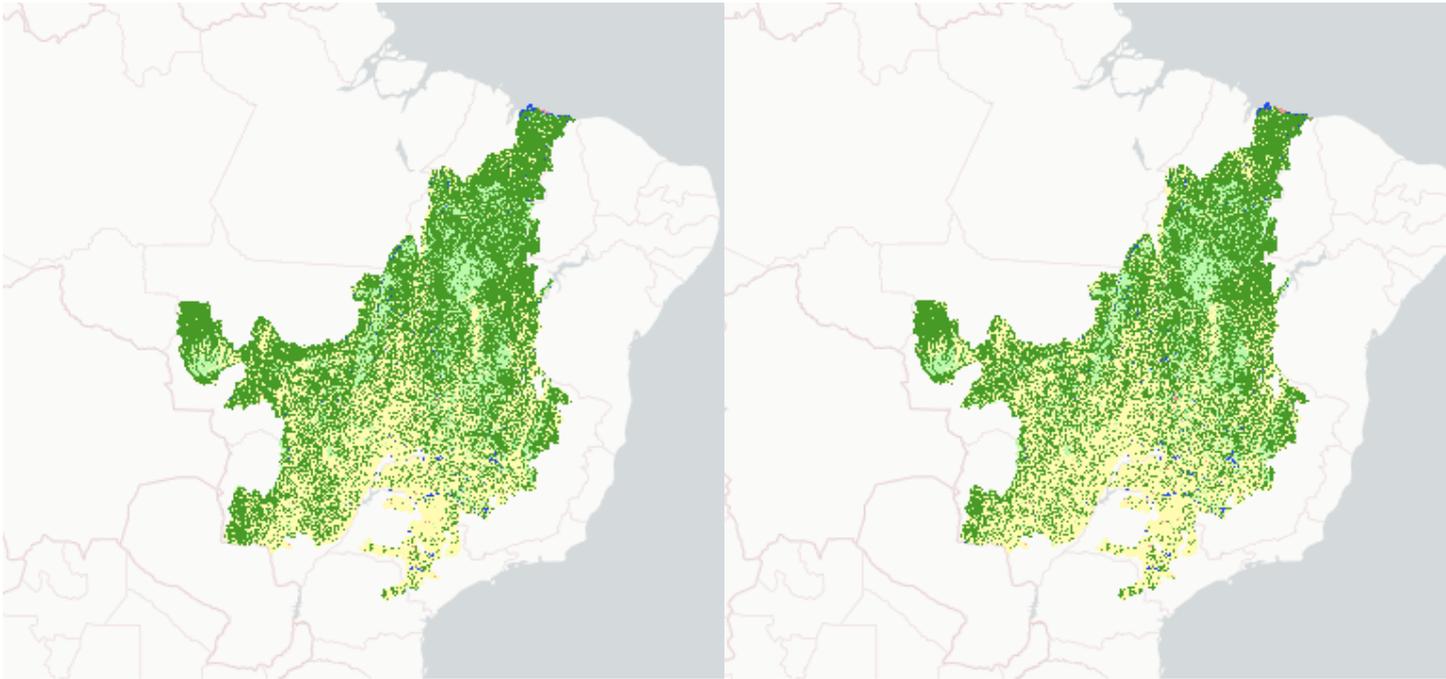
“Europe wants us to deliver zero deforestation in commodities,” explains André Nassar, president of the Brazilian Association of Vegetable Oil Industries (ABIOVE), which includes major traders like Bunge and Cargill. “The Chinese will not ask us for more than we are delivering now.”

Though varying standards



US President Donald Trump and Chinese counterpart Xi Jinping met at the G20 in 2017, prior to kicking-off a trade dispute that has lasted over a year
Photo: The White House

● Forest ● Non-forest nature reserve ● Agriculture and Livestock Area



1987

1997

between buyers of Brazilian soy are a concern, some organisations are fighting to close the gap. Rose Niu, who leads the department of conservation at the Paulson Institute in Washington DC, acknowledges the difference between Europe and China, but says efforts are underway to drive change.

“In the past three years, several organisations (including our institute) have been working with soybean traders for China to adopt more stringent environmental requirements in trade with South American countries,” Niu wrote in an e-mail. “I hope that traders in China will do as good a job as the Europeans in the near future.”

DEMAND DRIVES EXPANSION

The trade war has encouraged Brazilian

producers to increase production in order to absorb as much of the excess demand as possible. This pressure could result in further deforestation since soy yields are increased by expanding the planted area.

Brazil is about to replace the US as the largest producer of soybeans in the world. There are 33 million hectares of soybean plantations – an area equivalent to the size of Malaysia. This is almost triple the area under cultivation two decades ago.

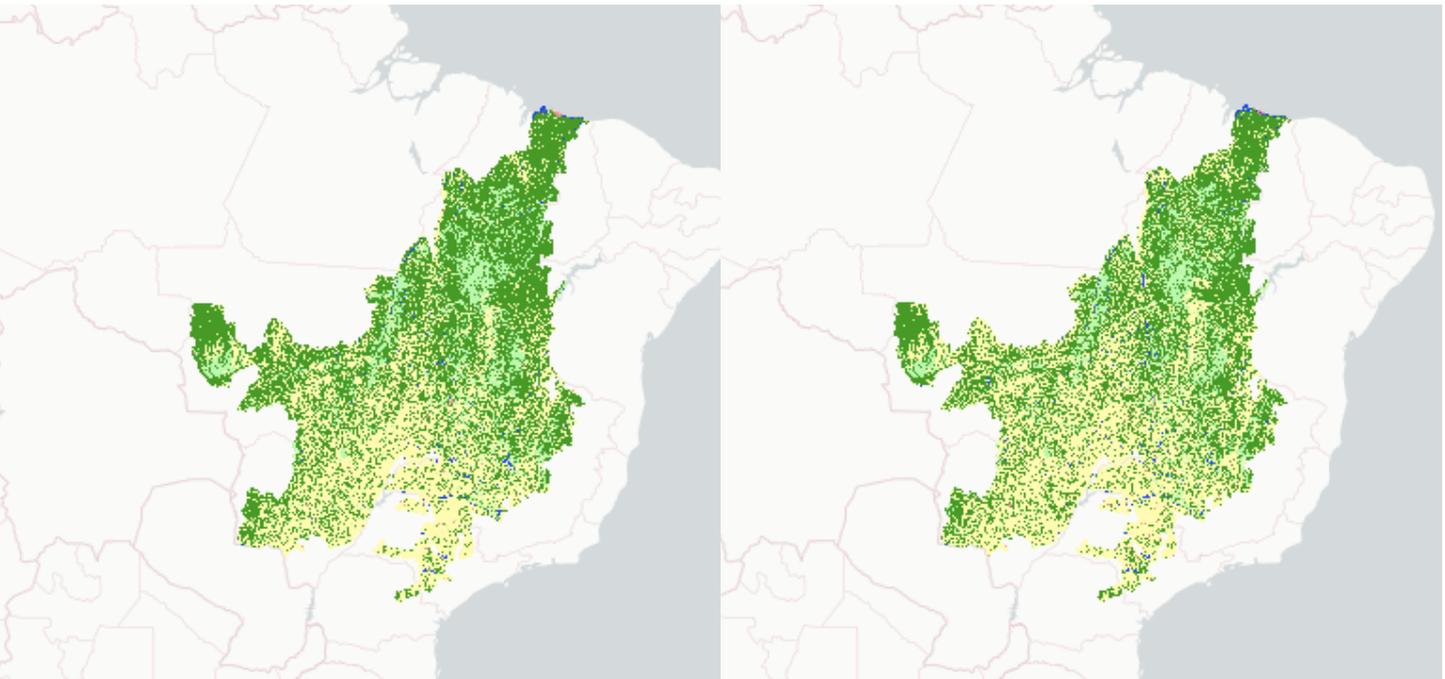
Brazil is not the only country in the region facing pressure to produce. Argentina and Paraguay are also major producers of soybeans. In 2016, the three countries combined produced nearly half the soy consumed worldwide.

Pedro Henriques Pereira, a business intelligence adviser at the Brazilian

Confederation of Agriculture and Livestock (CNA), has already detected some excitement in the market about expanding soy production. But for now, the confederation is advising a cautious approach for producers who want to invest with an eye on Chinese demand.

“This movement creates major uncertainty. It guarantees a short-term increase, but there is a risk in the medium- and long-term that something could happen and the producer could end up with a lot of soy on his hands,” says Pereira.

Pereira foresees a less significant increase in planted area, around 4%. But the market suggests the potential increase is greater. For example, SLC Agrícola, one of the giants of the Brazilian agricultural sector, announced a 7% expansion



2007

2017

in its area planted with soybeans for the coming season.

“Our main concern is that creating such large demand in a short space of time can cause deforestation and conversion of natural vegetation,” says Edegar de Oliveira Rosa, coordinator of the Food and Agriculture Programme at WWF-Brazil.

For the most part, the Amazon is protected from this hunger for more planted areas. Since 2006, a pact called the Soy Moratorium between producers and environmental activists has prevented the deforestation of tropical forests to produce soybeans.

The danger lies mostly in the Cerrado, a savanna-like biome with rich biodiversity that is essential for balancing Brazil’s ecosystem. Soy cultivation is overwhelmingly

concentrated in this region. Yet since the 1970s, the Cerrado has lost nearly half of its natural vegetation to expansion of agriculture and pastures.

According to data collected by Trase, a global platform that monitors commodity production chains, an estimated 3.5 million hectares of soybeans have been planted in areas of Cerrado that were covered by native vegetation 15 years ago.

Land in the Cerrado is significantly cheaper than in other regions where the soy industry is more established, like southern Brazil. This means that it is not the planting of soybeans itself that concerns environmentalists, but also real estate speculation by large rural property owners. Landowners may try to capitalise on the expanding market to clear land and

prepare it for farming, thereby obtaining higher prices.

According to Carneiro, activity should only increase on already degraded land, eliminating the need to deforest. But simple economics mean the danger remains. “They clear the forests because it is cheaper,” he explains.

ABIOVE’s Nassar plays down the risks. He says that even though deforestation is still a problem, it is much less serious than it used to be. Data from ABIOVE shows that deforestation caused by soybean farming decreased from 27% per planted hectare between 2002 and 2007 to 7% over the past four years.

“We support having no more deforestation in the chain,” explains Nassar. “But we have to see this as a process of transition.” 🇧🇷



Deforestation in northern Argentina has slowed but efforts to halt it further are woefully underfunded.
Photo: Greenpeace Argentina

[Martin De Ambrosio](#)

Stark images show soy-linked deforestation in Argentina

Greenpeace report shows rapid deforestation in Argentina's Chaco as forest laws prove ineffective

Argentina exports soy to China that is associated with deforestation.

When Chinese soy demand and that of other countries increases, the agricultural frontier tends to expand at the expense of native forests. All in violation of the Forest Law that sought to preserve them.

A study by Greenpeace records – visually and

statistically – the extent of forest loss in four Argentine provinces, where 112,766 hectares were deforested in 2018. Of those, 40,965 were in areas where industrial exploitation is prohibited or restricted by law.

“We see the before and after to verify if there is a change in land use, or deforestation,” said Hernán Giardini, head of the Greenpeace forest

campaign, who added that the organisation works in the provinces of Santiago del Estero, Salta, Chaco and Formosa, which account for 80% of Argentina's deforestation over the past 30 years.

Greenpeace attributes deforestation to the advance of the agricultural frontier, mainly for soy cultivation, but also livestock. Since the enactment of the Forest

Law at the end of 2017, 2.6 million hectares have been deforested, 840,000 of which were supposedly protected.

The Rosario Board of Trade estimates that 17.6 million hectares of plantation will yield around 55 million tonnes of soy in the 2018-19 harvest. This would represent a 27.5% increase on the previous period. Production of wheat, corn and other cereals has also showed an uptick since 2015. Most soy is exported. Argentina consumes scarcely any.

HALF FULL OR HALF EMPTY?

Argentina's decade old Forest Law had been viewed optimistically and pessimistically in almost equal measure. There are facts to justify both positions.

Since the law came into force, the rate of forest loss has slowed by half from 300,000 hectares per year to around 150,000, but conservation is still woefully underfunded – it receives on average 5% of the budget it should under the Forest Law. Meanwhile, deforestation continues in prohibited areas, owing to provincial exemptions.

“Some owners present silvopastoral [also known as agroforestry] plans and then we see that in reality more trees are taken,” says Juan Pedro Cano, director of forestry at the Environment and Sustainable Development Secretariat. “They leave only patches of trees.”



Photo: Greenpeace



Photo: Greenpeace

US\$50,000

the fine for illegally clearing 500 hectares of forest

Cano said Greenpeace's numbers match official data and agreed that the expansion of the agricultural and livestock frontier, not just soy, drives deforestation.

"Beyond demand, it's commodity prices that accompany deforestation," Cano says, claiming that when soy prices go up, agricultural activity and deforestation also rise in the rush to capitalise.

Argentina's constitution gives the provinces responsibility to manage their own natural resources, even if national minimum budget laws are enacted that constrain choices, as has been the case with forests and glaciers.

"We want to stop thinking about forests as a hindrance to economic production," said Cano, who is enthusiastic about a new system of alerts based on satellite information that is shared with provincial authorities.

Giardini said that when illegal deforestation is detected companies incur measly fines, if they have to pay anything at all.

"It depends on each province, the fine, or the type of infraction. Fines of two million pesos (US\$50,000) are paid for

clearing 500 hectares, a figure that doesn't discourage," he says.

For this reason, Greenpeace presented a bill to reform the penal code and to make environmental crimes offenses that can lead to imprisonment.

GLOBALISATION

Gustavo Girado, an economist specialising in relations with China at the National University of Lanús, said directly correlating Chinese soy demand with Argentine deforestation is a mistake, as much China-bound soy travels via the US.

“

We don't adapt to the ecosystem, the ecosystem adapts to us

"The ships come out with the raw material and then they are told which port to go to," he said, adding that when prices come down, producers look to plant other products. "For ten years we have sold them the same thing."

Another issue is how far the area devoted to soy can grow in Argentina.

"It's hard to know. There are many areas where it could still be planted," said Giardini, adding that genetic modifications to the crop would enable it to be planted in areas where there is low rainfall.

Giardini added that scientific solutions for increasing productivity seem to exist only for large-scale industrial producers, not for rural smallholders or agroecological farmers.

"We don't adapt to the ecosystem, the ecosystem adapts to us," he said.

The question of how to solve demand for a product, whose cultivation interacts with sensitive forest ecosystems as the world's food demand grows, is an urgent one.

Giardini said that consumer-led initiatives and voluntary corporate standards could be a way forward.

"There was a commitment of that type by grain dealers who did not buy soy from the Amazon. That could be extended to the Chaco area. Don't buy unless zero deforestation is guaranteed," he said.

"It will inevitably have to be done if you want to comply with the Paris Agreement on climate change. In Argentina, changes in land use and livestock generate more than half of the greenhouse gases that the country emits." 

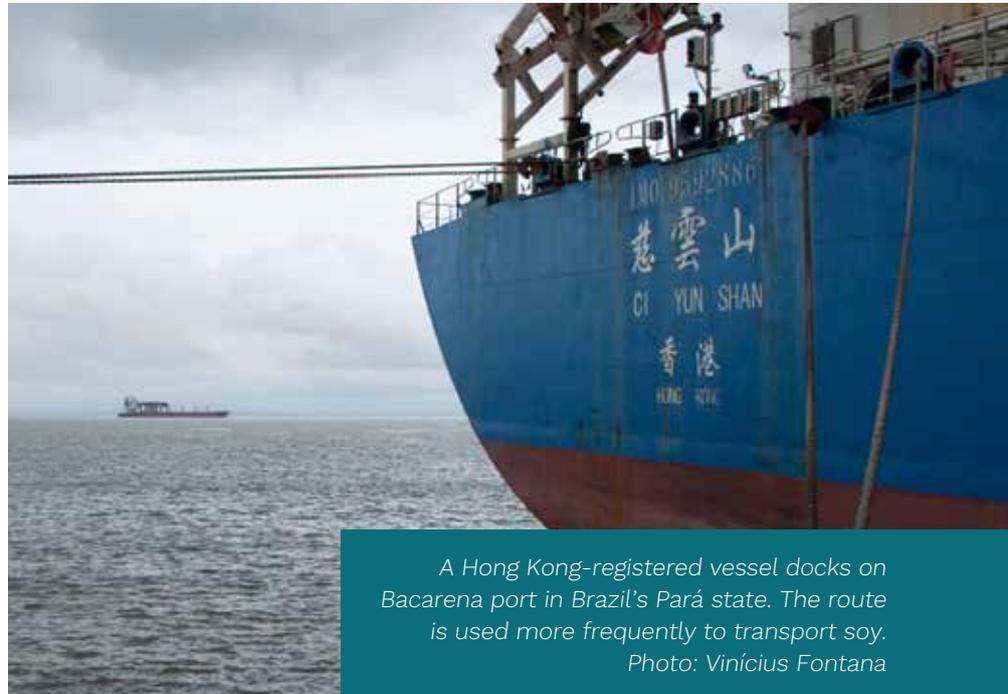
Soy demand pushes agribusiness to the banks of the Amazon

Indigenous people complain of trade route's disruption and fear migratory pressures and pollution

The Amazon Basin is the largest maze of waterways in the world. For millennia, its rivers, creeks, and bays have served as thoroughfares for the people and animals of the forest. Today, the heaviest traffic in the region still comes from river dwellers' canoes and small boats. But larger ships are becoming increasingly common.

The contrast between convoys of barges, or comboios, and the untouched Amazon landscape is striking. As they navigate the rivers of the northern state of Pará, they create waves that shake small, stilted houses and canoes tied up to piers. They carry all kinds of products. Most carry soybeans destined for China.

Use of this "northern route" is growing fast and indigenous communities near transit hub Itaituba are concerned about the contamination of the local environment and their food sources. The Brazilian Association of Cereal Exporters (ANEC) puts the



A Hong Kong-registered vessel docks on Bacarena port in Brazil's Pará state. The route is used more frequently to transport soy. Photo: Vinícius Fontana

28%

the growth in soy exports from ports in the Amazon basin

growth in soy exports from ports in the Amazon Basin at 28% between 2017 and 2018. At other Brazilian ports, the increase was 22%.

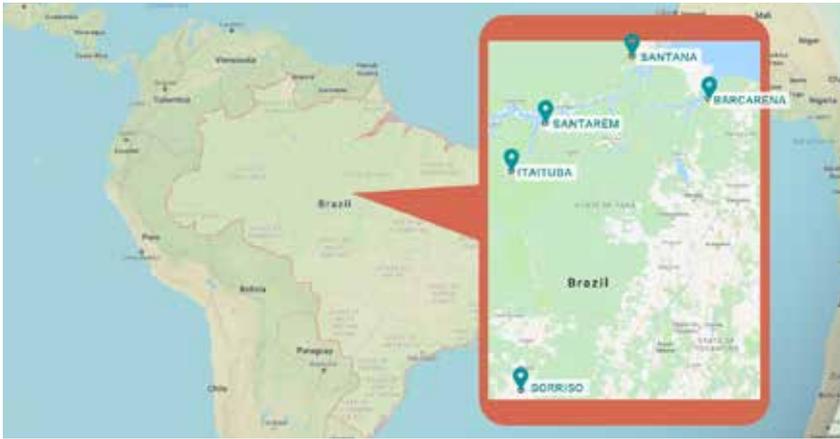
The northern route speeds up shipping to China, the main importer of Brazilian soy. According to data from shipping agency Cargonave, 89 bulk carriers departed from the ports of Santarém, Barcarena, Santana, and Itacoatiara over the past 8

months. 39 of these (43%) were China-bound.

NEW ROUTES

The comboios leave Itaituba and Santarém in Pará, which are closer to the soy producing mid-west region of Brazil, and travel downriver to the ports of Vila do Conde in Barcarena and Santana in neighbouring state of Amapá. From there, cargo is transferred to larger ships that travel to China via the Panama canal.

This route cuts transport costs. Itaituba lies 1,100 kilometres from soy producing city Sorriso, in the state of Mato Grosso, Brazil's agricultural heartland. The Atlantic port of Santos, an alternative point of departure



with the Pará state public prosecutor's office.

“The number of traffic accidents also climbs, and as more people from elsewhere arrive, so do child prostitution and drug trafficking,” she added.

The port facilities also impact Mundurucu indigenous peoples' way of life. The most affected live in Praia do Índio, a village about 10 kilometres from the centre of Itaituba.

“There are three ports right in front of my village,” says Alessandra Korap, a community leader in Praia do Índio. “Companies say there is no impact because the ports are on the other side of the river, but this affects our fishing area. When trucks reach the port, they fill up the silos and dust falls into the river. When we cut open the fish, their bellies are all ruined.”



*A great share of Brazil's commodity exports are destined for China.
Photo: Sarita Reed*

in the southeast, is connected by approximately 2,000 kilometres of road. A large comboio consisting of 12 barges has the same cargo capacity as around 900 trucks.

China's eagerness to import Brazilian soy quicker has grown since the trade war with the US that began in 2018. Last year, Brazil set new records for soy exports to China, the destination of 82% of the total, according to ANEC. This has created demand for new supply lines.

Agribusiness strategists say inland waterways help decongest crowded roads that link midwest regions to Santos and Paranaguá.

However, the creation of infrastructure that supports heavy shipping traffic in the middle of the Amazon has led to rights violations, environmental damage and inconsistent environmental licensing.

SOCIAL AND ENVIRONMENTAL IMPACTS

In Miritituba, Pará, the first social impacts were felt with the influx of construction workers from other regions.

“The flow of jobs increased, but there may be unemployment because of mass layoffs after construction is finished,” said Ione Nakamura, state prosecutor for agrarian law

According to NGO Fase, other consequences of the route include land speculation, noise pollution, and pesticides leaking from the barges. As the forest and the rivers are increasingly overrun by port companies, native inhabitants may be forced to move to cities with little infrastructure. In most cases, this process condemns river dwellers and indigenous people to poverty and marginalisation.

Brazilian law states that affected communities must be offered public consultations on the impacts of infrastructure projects. The International Labour Organisation's convention 169, which Brazil has ratified, mandates that indigenous and

quilombola communities must be afforded public hearings on projects.

The Munduruku, however, claim that they were not consulted on the Cianport and Turia River ports.

“The companies are trampling on the consultation protocol we created. The city of Itaituba is full of ports, and soon they’ll move on to our land,” says Juarez Saw Munduruku, leader of the Sawré Muybu tribe.

Prosecutors also allege that environmental risks were not properly assessed. The State Department of Environment and Sustainability (SEMAS) granted Miritituba an environmental license. But the public prosecutor’s office said the large number of joint ventures and potential damage means federal agency IBAMA should have evaluated the project.

“We need to understand that environmental licensing for ECTs (cargo transfer stations or ports) cannot be viewed in isolation,” said Nakamura. “Are all these ventures feasible for a watershed considering that there are also several other highways and dams in the region?”

In Amapá, near the port of Santana, an endpoint on the internal soy shipment route, the risks posed by port developments are already evident. From a boat, the ruins of a port belonging to London-based mining company AngloAmerican that collapsed in 2013 are clearly visible.

The disaster killed six people and could have had even greater human costs. It sits

right next to the bustling Porto do Grego, a boarding point for passenger vessels that travel down the Amazon. It is also home to two fishing communities.

According to Joaquim Cabral, a federal prosecutor in Amapá, high commodity prices meant the terminal was overloaded in the rush to capitalise. “Sometimes, the thirst for profits brings harm to the region.”

“
Sometimes, the
thirst for profits
brings harm to the
region

FROM THE TAPAJÓS TO THE PACIFIC

Many new ports in the Amazon region are simple ECT installations. Grain dealer Bunge owned the first station that began operations in Miritituba in 2014. Since then, several companies have expressed interest in building their own.

“We are not talking about just one but rather a series of ventures across the entire state of Pará. At least 30 want to establish [transfer stations] in the Miritituba region alone,” says Nakamura.

According to Diana Aguiar, an advisor to Fase and author of the study *The geopolitics of Chinese infrastructure in South America*, the new logistics corridor

demonstrates China’s role as a major commodities buyer and investor in global infrastructure.

The Chinese are not only buying Brazilian soy, but producing it in and exporting it from the country. Chinese companies already use ports in the Amazon to sell their own products. This is true of COFCO, China’s largest grain dealer and already the fourth-largest soya exporter in Brazil.

According to COFCO, a private terminal owned by the company in Santos hosts its main operations. But in 2018, Hidrovias do Brasil, which operates a cargo station in Miritituba, added clauses to its contract with COFCO to provide cargo transfer, river shipping, and port operation services. The contract was extended to 2031 and allows an increased maximum grain volume of 9,630 tonnes.

Chinese are also interested in expediting the flow of soy through the northern passage by improving road and rail infrastructure. One such project is the Paraense Railroad, which will connect southeastern Pará to the port of Barcarena. Another, Ferrogrão, will link Mato Grosso to Itaituba.

Both projects are still undergoing feasibility studies, but authorities have confirmed Chinese investor interest. Website Relatório Reservado published an article noting COFCO’s interest in Ferrogrão. 

COFCO declined an offer to be interviewed for this article.

São Luis megaport conflict intensifies

Demolitions of traditional communities' houses continue amid protests and investigations into the legality of the São Luis project

Demonstrators warned police that there was a pregnant woman among them. They stood in front of a queue of diggers, trying to protect their homes against repossession by a private company. But the police pushed through to let the machines pass and soon used pepper spray.

The pregnant woman staggered away from the diggers, her hands over her eyes.

It was August 12, 2019. Residents of the Cajueiro community in the Brazilian Amazon were continuing a struggle they have waged since 2014. They are trying to save their houses from a government-authorized plan that will dispossess them – a megaport linking São Luís, in the Amazonian state of Maranhão, to the world's markets.

The São Luís Port project, headed by China Communications Construction Company (CCCC) and the Brazilian company WPR-São Luís Gestão de Portos e Terminais, and part-financed by a US\$2.6 billion loan

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How can the state grant a public deed to the community and then, years later, someone appears claiming to be the owner of the area?

from the Industrial and Commercial Bank of China (ICBC), aims to facilitate the export of Brazilian iron ore and soy.

There are other ports in the region, but this would be the first to be operated by a company from China, the main buyer of Brazilian commodities.

REPOSESSION

On that August day, 22 tracts of land were repossessed and even more houses destroyed. Today, 34 of the



original 250 inhabitants live there. Only seven lots have not yet been repossessed.

Last month, more than 100 Brazilian and international signatories concerned about authorities' treatment of the community sent a letter in support of Cajueiro residents



A stone indicating the construction site of the São Luis port
 Photo: Ingrid Barros

mining and agricultural products from the Amazon and Cerrado regions.

The project reveals conflicting visions for the Amazon – those who see it as a new frontier for industrial and agricultural development, and those who view forest protection as vital.

The Amazon has already lost 18% of its forest cover, while half of the Cerrado savannah's original vegetation is gone. Preserved areas are often home to indigenous people, quilombola communities of slave descendants, and small rural producers like those defending Cajueiro.

“There used to be community members who had lived there together for decades, who had a good life and helped preserve the forest,” explained Ademar Pereira, age 70, one of the villagers who lost his home.

“Now, it is complete sadness.”

INVESTIGATIONS AND PROTESTS

Construction of the port has already deforested an area equivalent to 200 football pitches. In order for the project to progress, it must displace more families from Cajueiro, a community dating back to the mid-nineteenth century.

Houses at the site have been demolished since 2014, some with, others without legal authorisation, as revealed in the investigation for a recent journalistic investigation



Destruction of a house in the Cajueiro community on August 12 to make way for the São Luis port project.
 Photo: Ingrid Barros

to Leilani Farha, the UN's special rapporteur for housing.

The conflict between the police and the community demonstrated the government's brutal commitment to ensuring that the project goes ahead, even as the state and

federal prosecution services questioned its legality.

São Luís Port is part of the “Northern Arc” initiative, a recipient of a flurry of public and private investments in ports, railroads, and highways designed to expedite the transit of

entitled *Besieged by Progress*. Some residents have been threatened by hired gunmen, according to the Pastoral Land Commission.

Criminal activity could underpin much of the venture, as many land purchases and sales are dubious.

Investigations by the Maranhão public prosecutor's office indicate that a criminal operation has been forging titles for public land in order to enable to work on infrastructure projects in the area surrounding São Luís. In April 2019, prosecutors seized enough computers and documents to fill four pickup trucks.

The land title scheme appears to be led by a group comprised of companies, deed registry offices, and public servants, according to Haroldo Paiva de Brito, who specialises in agrarian conflicts at the Maranhão state prosecutor's office.

"How can the state grant a public deed to the community and then, years later, someone appears claiming to be the owner of the area?" he asked.

"From what we have found, private individuals have usurped public land and sold it to companies linked to the port construction project. This can lead to the annulment of the private land deed and project licensing."

NO SLOWING DOWN

According to Ana Carolina Carvalho Dias, a lawyer



Carlos Augusto Barbosa, a fisher who lives in one of the communities in Cajueiro fixes a net for fishing crab, which are increasingly scarce in the region. Photo: Ingrid Barros

18%

of the Amazon region's forest cover has already been lost

for the Jesus do Cajueiro Residents Union, land repossession for the port was illegal since it was not determined who owns the land.

Nor were residents given any warning that they would be removed. Dias said they began to be removed on Monday 12, but the court order authorising repossession only arrived the following day.

Taken by surprise, residents soon found themselves and their belongings in the street and with their

houses demolished.

"In a democratic state, the parties involved in proceedings should be summoned and informed prior to actions such as these," Dias said. "The repossession was not in line with this process, and treated the residents like squatters."

Days later, as they demonstrated against authorities' brutality, protesters, residents and former residents of Cajueiro were forcibly pushed back from the Palácio dos Leões, the seat of the local government, by police using rubber bullets and tear gas.

The Ordem dos Advogados do Brasil in Maranhão is investigating the case.

Asked whether the repossession was authorised by the state



judiciary, governor Flávio Dino, a member of Brazil's Communist Party, tweeted: "the military police cannot simply refuse to carry out a court order. There have been several attempts at mediation, which unfortunately were not successful. It is not up to the governor to revoke or suspend a decision by another branch of government".

WPR-São Luís Gestão de Portos e Terminais is offering those removed from the Cajueiro community "a new house, employment, temporary emergency financial assistance, and food assistance", according to a pamphlet distributed by the company. It does not give details, or state how long benefits will be offered.

In a statement, the government of Maranhão

says it is investigating allegations of violence against Cajueiro residents and protestors, but didn't explain why repossessions took place without warning. At the time of publishing, CCCC hadn't responded to requests for an interview. Nor was it possible to make contact with WPR-São Luís Gestão de Portos e Terminais.

GRAND CHINESE DESIGNS

Former president Michel Temer secured ICBC finance for the São Luís Port in September 2017.

Such investments are part of the Chinese government's policy encouraging domestic companies to expand their business overseas, according to Ariel Armony, director of the University of Pittsburgh's Center for International Studies.

As well as encountering resistance locally, Chinese investments in developing

infrastructure around the world have been met with opposition on the world stage, with top US officials arguing that China is competing in a new Cold War-style bid for political leadership.

"Although the intent of this policy has been largely economic, Chinese leaders understand that this global expansion has geopolitical ramifications," Armony said.

On the environmental and social impacts of projects, China has demanded more transparency and respect for local legislation in its Latin American projects, however strict laws may be, Armony said.

However, he noted problems including the violation of indigenous and traditional people's rights in projects with Chinese involvement in the region:

"There is a dark side of China's expansion in the global South." 🇺🇳



Land cleared for the São Luís port
Photo: Ingrid Barros



A new report by Carbon Disclosure Project (CDP), reveals the link between Chinese financial institutions and deforestation for soy cultivation in Brazil. Photo: IBAMA

[Lili Pike](#)

Can banks in Beijing stop deforestation in South America?

Report calls for a rethink from financial institutions as deforestation linked to Chinese soy imports increases

Chinese banks have come under fire in recent years for continuing to fund coal-fired power plants overseas despite the unfolding climate crisis. Now, a report makes the case that Chinese financial institutions should also address a less obvious perpetrator: the soybean.

China is the world's largest importer of soy and in the wake of the trade war it has increased imports from South America. This is expected to drive a new wave of deforestation in South America, imperiling the region's biodiversity and critical carbon sinks.

The report by the Carbon Disclosure Project (CDP) reveals the link between Chinese financial institutions and deforestation, via their clients in the soy business.

To date, these institutions lag behind international best practice in addressing deforestation. But CDP argues that they can play a key role in pushing for sustainability in the sector going forward.

So can banks in Beijing

prevent deforestation in South America?

CUTTING TREES TO GROW SOY

China's soy imports were associated with 49,000 hectares of 'deforestation risk' in 2017, according to the watchdog Trase. This represents 46% of all the area in Brazil at risk of deforestation because of soy.

The rate of deforestation is expected to rise as China looks to Brazil to replace its soy trade with the US. Brazil was previously China's second largest source. According to the CDP report, to make up for the US shortfall, Brazil would have to deforest 25 to 57 times the amount it did to meet Chinese demand from 2013 to 2017.

This trend is significant from a climate change perspective because Brazil is the world's sixth largest emitter of greenhouse gases. One half of its emissions come from deforestation. The report states that agriculture is the main driver of deforestation, and soy cultivation is one of the main culprits.

DEFORESTATION RISKS

CDP argues that the environmental impact of soy cultivation presents risks for both Chinese companies buying the beans and the institutions financing them. Global calls to address deforestation are putting pressure on banks and companies and could affect their business.

The Paris Agreement included forest conservation and restoration as one of its key

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To make up for the US shortfall, Brazil would have to deforest 25 to 57 times the amount it did to meet Chinese demand from 2013 to 2017.

goals because 10-15% of all greenhouse gas emissions come from forest degradation or loss.

The UN Sustainable Development Goals also aim to stop deforestation and restore degraded forests globally by 2030.

In response to this global call, efforts have been made to prevent deforestation. In 2018, 50 investors managing over US\$5.6 trillion in assets formed a coalition with companies to push for zero deforestation in Brazil's Cerrado region.

As these efforts increase alongside national government regulation and direct climate impacts, companies are being pushed to decrease operations in areas of high deforestation risk. In CDP's 2017 survey, 32% of responding companies reported having already experienced detrimental impacts associated with the production or consumption of forest-risk commodities, including soy.

To the extent to which companies are affected by these risks and changes, their financiers are also affected. According to the report,

34% of the Chinese financial institutions' loans to the sector – at least US\$2.1 billion – are exposed to deforestation risks. A few major Chinese banks provide the bulk of loans to the sector, with Bank of China at the top supplying 32%.

ADDRESSING DEFORESTATION

So far, these banks have not developed any policies to address deforestation, the report finds. Only eight of the institutions analysed take environmental factors into account in their decisions, and those that do focus on screening key polluters as defined by the Ministry of Ecology and Environment, not on deforestation.

Although Chinese banks are not currently aware of their exposure to risk or taking action, CDP makes the case that they could influence their clients to take action.

Some financial institutions outside of China have already been putting this theory to the test. HSBC requires customers to acquire certifications of global zero-deforestation from the Roundtable on Responsible Soy Association (RTRS) and will discontinue business in the case of non-

10-15%

of all greenhouse gas emissions come from forest degradation or loss

compliance. JP Morgan Chase & Co requires the same.

While good on paper, these policies have limited effect, according to Isabel Nepstad, program manager for Solidaridad's China Sustainable Commodity Trade Program. "It is really hard for them alone to push this on their clients because it is very easy for the Chinese company to switch and go to another bank, especially a Chinese bank that doesn't have these policies," she said.

However, if more banks were to join together in adopting these policies, they may have more influence.

The CDP report recommends that Chinese financial institutions first assess their deforestation risk exposure, including requesting data from client companies on their soy supply chains, and then formulate policy responses as international banks have done.

They recommend that banks prioritise client companies active in high deforestation risk sectors and incentivise them to eliminate deforestation from their supply chains.

Chinese shareholders can also play a role as they currently have higher exposure to deforestation risk than banks.

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Based on our research and interviews, shareholders are in a better position to engage soy companies

“Based on our research and interviews, shareholders (institutional investors) are in a better position to engage soy companies [...] They also have considerable influence on portfolio companies,” Sabrina Zhang, the director of CDP China said.

“Some institutional investors in China who are seeking a presence in international capital markets are also motivated to increase their sustainable investment.”

ROLE FOR GOVERNMENTS

Whether financial institutions have enough of an incentive to take action in the short term depends on how acutely they feel risks. So far, Nepstad says, “They don't see the risks and it

isn't directly impacting them.”

Regulatory and corporate action to address deforestation is on the rise, but most companies are still pursuing short-term thinking about their bottom lines.

Deforestation changes rainfall patterns, which has already led to R\$17 billion (US\$4.4 billion) in crop losses in Brazil. Droughts and rainstorms are harbingers of climate impacts to come, but since companies grow soy globally, they are able to weather short-term regional supply fluctuations, according to Nepstad.

Nepstad says government action is needed to push companies and financial institutions forward. Regulatory efforts may increase in years to come, bringing the urgency of the issue to the fore and requiring financial institutions and companies to act.

Ahead of the international negotiations to preserve biodiversity COP to be held in Kunming, China in 2020, countries have begun discussing ways to address deforestation linked to agriculture.

Zhang said: “If the Chinese government starts to advocate, regulate and develop guidelines for sustainable agricultural supply chains, and starts to ask financial institutions to incorporate deforestation considerations into their financial decisions, that would provide a strong driving force for both companies and financial institutions to implement changes in line with the government.” 

Can the ‘tiger nut’ solve China’s soybean crisis?

The tuber of *Cyperus esculentus*, known as the tiger nut, could ease China’s reliance on soy imports

In the village of Jiangu in southwest Hebei, Wang Sanxiu is persuading visitors to try his tiger nut milk. The 61 year old points proudly to photos on the wall, explaining how he came to produce the liquid, which is a little sweeter than soymilk, from a crop of *Cyperus esculentus* he planted last year.

Not many people know about the milk of the tiger nut – which gets its name from its streaky surface – and so Wang tells everyone that not only do these tubers have a higher oil yield than soybean, but the rest of the *Cyperus* plant makes good livestock fodder too.

“I just happened to hear about it,” Wang says, “and I realised the whole plant is valuable, and could make up for China’s soybean shortage.”

The China-US trade war, which started in 2018, has created huge shortfalls in China’s soybean supply. Many people have been



Photo: Arco Images GmbH



Wang Sanxiu and his *Cyperus* farmland.
Photo: Wang Chen

searching for solutions to the crisis, from soil-fingered Wang in the fields of Hebei to white-coated technicians at top universities.

“A lot of agricultural researchers are interested in the tiger nut at the moment. Universities want to send research students here for placements.”

SAVING THE OIL CROP MARKET

As far as Wang is concerned the tiger nut is a miracle. After retiring from the construction industry last year, he set up Beijing Youzhili Agricultural Technology. In March 2018, his new company planted tiger nuts on almost 400 mu (27 hectares) of sandy rented

soil in rural Hebei. For most of the year since, he's been busy either in the fields or the storehouses.

China-US trade frictions worsened shortly after Wang planted his crop, with China announcing in April 2018 a 25% tariff on US soybean imports. When Wang saw this in the media, he knew he'd made the right choice.

Soy is the main ingredient in cooking oil and animal fodder, with tens of millions of tonnes of its meal powering the farms that send fish, meat and eggs onto the Chinese dinner table. Up to 1995, China was a major exporter of soy. But since then increasing consumption and the expansion of livestock farming has caused domestic demand to rocket.

Currently, over 85% of soybeans on the Chinese market come from outside the country. With more than 900 million tonnes imported in 2017, China is the world's biggest importer of the crop, accounting for 65% of the global trade. About one third of those imports came from the US. But the trade frictions caused China's 2018 soybean imports to fall for the first time in seven years, by 7.9% on the previous year, with a 49.4% plummet in imports from the US.

China is trying various methods to stabilise the market. It has been increasing soy imports from South American countries such as Brazil and Argentina, thereby increasing deforestation. In 2018, 68.8 million tonnes came in from Brazil, up 15 million tonnes on 2017. It is also implementing "a

soybean stimulus plan" at home, according to a key document issued by the government in February 2019. That means expanding soy planting, promoting new varieties, new technologies and mechanisation, as well as increasing subsidies for soybean farmers. An extra five million mu (330,000 hectares) of soybean and oil crops will be planted in 2019, according to an official statement.

The tiger nut is one oil crop with the potential to be a substitute for soybean.

THE 'MAGICAL' TIGER NUT?

Wang harvested 800,000 jin (480,000 kilogrammes) of tiger nuts last year, far more than he'd expected, and he now employs ten villagers to help with planting, weeding, picking, cleaning and packaging. He reports fielding daily phone calls from buyers after the autumn harvest. This year he's planning to greatly increase his tiger nut plantation from 400 mu to 15,400 mu, by renting more sandy land near the city of Zhangjiakou in northern Hebei.

The tiger nut is not a wholly new arrival in China. Having originated in Africa and the Mediterranean, it first came to the country in 1952, courtesy of the Chinese Academy of Sciences' Institute of Botany. The institute has favourably compared the quantity and quality of the oil of the tiger nut to that of the olive.

In November last year, the Ministry of Science and Technology's Department of Rural Development held a seminar on innovation in the tiger nut sector, discussing how



Part of Wang Sanxiu's tiger nut yield.
Photo: Wang Chen

the tuber could reduce reliance on soy imports. A number of provinces present said they would encourage rapid expansion of tiger nut planting to help the process along.

Some hail the tiger nut as the ideal alternative to soy, but others wonder if its benefits have been exaggerated by those who stand to benefit.

Cyperus esculentus has a chequered history. After a short-lived planting craze in the 1970s, tiger nuts rose to prominence again in the 1990s during a push for crop diversification. Back then tiger nut sceptic Xu Yuanlin was in his thirties, and working on a farm in Shaanxi that planted tiger nuts on 27 mu (2 hectares) of mudflats.

Because the plant looked very similar to a weed common



on the mudflats, weeding was very difficult. And the tuber's rough surface made it tricky to pull out of the soil. In the end, only 300-500 jin (180-300 kilogrammes) were harvested – nowhere near enough to compensate for the costs and labour involved.

Xu decided he would never plant tiger nuts again. Yet it was six or seven years before the land was completely clear of the plant: it can sprout from its tubers and has roots which reach half a metre below the surface – miss a single fragment and it will return.

“If you're planting oil crops, you're better off with peanuts or sunflowers. They can grow in sandy soil just like the tiger nut, but the technology and the market is better developed,” Xu said. “Over-

promoting tiger nut planting is just going to mean lots of farmers suffering losses.”

A YOUNG MARKET

Despite Xu's concerns, Wang Sanxiu remains confident: “Planting tiger nuts makes use of barren sandy land and helps enrich farmers. And as the technology develops, there'll be no problems with output.”

A team at the Chinese Academy of Agricultural Sciences has been turning technology on the tuber itself. In January last year, after ten years of work, it announced the “Tiger Nut 1”. Produced by using radiation to increase desirable mutations, the crop has a reported net yield of 568 kilogrammes of nut per mu – several times Xu's yield in the 1990s – and produces

four times as much oil as the soybean, and twice as much as canola. In August 2018, the same team announced the “Tiger Nut 2”, with a smoother surface for easy harvesting and a yield of up to 800 kilogrammes per mu.

Zhang Xuekun, deputy director of the institute, explained that large-scale planting of Tiger Nut 1 will start in the second half of this year, in Hebei's Nangong. Planting of Tiger Nut 2 will take place next year, in Huangfeng, also in Hebei.

However, research advances can't mature the tiger nut market overnight. Ecommerce platform Taobao lists less than 20 tiger nut products, mostly lightly processed packaged nuts and one type of tiger nut oil. These attract only occasional sales.

Wang Sanxiu's mission for the year is to develop the sector, by expanding the market for the tiger nut and its products. His mobile rings often, and he says there are suppliers, processors and agents from around the country asking about partnership opportunities.

In late March 2019 his company obtained licenses for producing products including tiger nut oil and a drink concentrate.

“The trade war with the US is still going on, and our tiger nuts can fill the gap left by soybeans,” said Wang.

“The problem at the moment is that people aren't aware of the tiger nut. Sales aren't going to be a problem once they know about it.”



Photo: Divulgação

[Cleyton Vilarino](#)

Chinese consumers can help drive sustainable agriculture in Brazil

Latin America summit identifies opportunities and challenges in responsible food production

With climbing rates of deforestation and the likelihood of relaxed rules on pesticide use, Brazil is faltering on the path towards sustainable agriculture. The key to a greener sector could lie two oceans away in China, the largest importer of Brazilian agricultural products.

Changing consumption in China, where purchasing power continues to grow, is essential to accelerate change in Brazilian agribusiness' production model, experts said at the Sustainable Foods

Summit in São Paulo.

“If this change comes, it will come from the demand from these markets,” said Caio Penido, president of the Sustainable Beef Working Group (GTPS), on the importance of Asia and the Middle East for Brazil’s trade. “It would be the perfect combination: we would be able to intensify [production in] our degraded areas without illegal deforestation, supplying food to this region.”

The fourth annual Latin American event highlighted the importance of

certification programmes and sustainability in the food industry. The event noted opportunities for a sector that has sought to adopt practices to protect the environment by investing in new technologies and pushing the government to offer more benefits for those who adopt sustainable practices.

However, Penido claims there is still resistance from many producers because of the costs and uncertainties of improving sustainability.

“They ask; ‘what’s in it for me?’” he adds.

At present, there would seem to be few incentives for food producers. But this could change if consumers in Brazil and abroad were willing to pay higher prices. Since China established its place as the country’s main trading partner nearly a decade ago, producers say demand there could play a major role in the transformation.

According to a study by agriculture research institute EMBRAPA, approximately 66% of Brazil’s territory is made up of preserved native vegetation. A third of this total was identified within rural private properties, which means farmers have a big share of the responsibility in preserving them.

Although the figures suggest a big challenge for Brazilian farmers, they also show Brazil’s potential to offer consumer products consistent with environmental preservation. To date, however, the country has not managed to successfully market its potential for



Caio Penido, President of the working group for sustainable livestock.
Photo: GTPS

sustainable produce.

“Someone needs to explain to Chinese importers that few countries can offer these characteristics,” Penido adds.

WHY PAY MORE?

According to Richard Lee, director of sustainability at the multinational brewing group Ambev, cost is key.

“Consumers often say they want [sustainable products], but will they be willing to pay more?” he asks.

In China, there are signs that the time is ripe to transform consumption habits. According to a national opinion poll published in 2017, 73.7% of Chinese are willing to spend more for environmentally friendly products.

Both governments and civil society groups have been working to change habits too. The Brazilian government, for example, adopted the Rural Environmental Cadastre (or registry, CAR in

the Portuguese acronym) to track deforestation in rural landholdings. Meanwhile, organisations such as the Paulson Institute have been working for years with soy traders for China to adopt more sustainable practices.

In Belém, northern Brazil, NGO Solidaridad Network convened a meeting of Chinese and Latin American soy trade stakeholders focusing on monitoring land use change and controlling deforestation linked to soy production.

Among the principles crucial to furthering these goals, they identified political will, improved transparency and traceability in the trade, and market pressure maintained by companies committed to buying only from registered producers.

“Chinese soy industry actors are beginning to set in place a framework and capacity building for implementing sustainable sourcing,” said Changyu Sun, an oils and grains specialist at Shanghai-based Wilmar-Kerry Trading Co. Limited.

Brazil offers several sustainability certificates, though producers still struggle to make the necessary investments to get them. They are considered very rigorous.

But this doesn’t mean the industry isn’t growing. Consumption of certified organic fresh produce, for example, has grown 11% between 2012 and 2017, from 337,000 tonnes a year to 376,000 tonnes. Sales of certified organic industrialised products have almost doubled in the period,



Deise Caron, Certification Manager of FoodChain ID, during the event. Photo: FoodChain ID

from US\$46 million a year to US\$87 million, according to Euromonitor Consulting.

Deise Caron, certification manager for FoodChain ID, believes that the demand for products certified for a commitment to sustainability will soon expand. “We think that even China and the US have already increased demand for sustainable products,” she said.

Notable among the reasons for the advance in responsible consumption in China is the growing middle class, said Augusto Freire, president of the ProTerra Foundation.

“The middle class in China is larger than Brazil’s entire population. And they are already paying more for safer products,” says Freire, recognising that consumption is still very small at the “base

of the [economic] pyramid”, where there is less concern with sustainability issues. “It’s just a question of time”.

According to Chinese customs data, the country imported twice the volume of soy from Brazil in October 2018 compared to the same month in 2017, jumping from 3.38 million to 6.92 million tonnes. Meanwhile, Chinese imports of US soy fell from 1.33 million tonnes in October 2017 to only just 66,900 tonnes in October last year as the trade war between the two countries escalated.

In addition to government trade policies, major brands are also important actors in stimulating more sustainable production.

“The main engine of the international markets are food and beverage

companies,” says Miguel Hernandez, regional director of Bonsucro, an internationally-recognised certifying body for the sugarcane sector. “Although the US and China are Brazil’s largest export markets, it is possible they will not be the destination for its sustainable produce, and the brands have the final say on where products go.”

NEW GOVERNMENT, NEW UNCERTAINTIES

Freire says Brazil needs strong public policies to protect its major food producing biomes: “Brazil can more than double its production without touching a single hectare of land in the Cerrado and the Amazon, just by remediating unproductive and degraded areas.”

However, it appears that these concerns do not align with the policy orientation of president Jair Bolsonaro. Bolsonaro has threatened to withdraw Brazil from the Paris Accord and has worked on efforts to backed out of hosting the UN Climate Conference this year.

As a result, Brazil’s image has been tarnished in international markets, Freire says. He recalls Brazil gaining credibility by slowing deforestation in the early 2000s, and by implementing policies like the soy moratorium, an industry commitment to zero deforestation in the Amazon.

“But now everyone is concerned with what is going to happen,” Freire lamented. “This is very bad for Brazil’s image.” 🇧🇷



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Diálogo Chino

London office: China Dialogue Trust, 15 Printing House Yard,
Perseverance Works, London, E2 7PR
United Kingdom

Contact: informacion@dialogochino.net

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