

The State of Industrial Livestock Farming in Asia

And Its Impacts on Deforestation and People's Livelihoods

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Introduction

Agriculture and intensive livestock farming are the principal drivers of global deforestation and forest degradation. As the demand for meat and dairy products increases, changing patterns of consumption are turning regions such as Asia into central battlegrounds in the global fight to mitigate climate change and protect fragile and vital ecosystems from irreversible destruction.

According to the <u>United Nations Food and Agriculture Organization (FAO)</u>, agricultural expansion drives almost 90% of global deforestation, with livestock farming responsible for almost 40% of all forest loss. When you account for the total area of global arable land used for livestock grazing and cropland dedicated to animal feed production, livestock farming takes up almost 80% of all agricultural land.

The shift towards industrialised livestock farming also has a direct impact on some of Asia's most marginalised communities, including Indigenous Peoples and women in all their diversity. Deforestation and the growth of industrialised farming are placing environmental, social, and economic pressures on traditional small-scale agriculture globally. Small-scale agriculture is the primary source of income and employment for 70% of the world's rural poor, according to the World Bank, with women most commonly responsible for the production of food crops within small-scale farming systems.



Despite a global slowdown in deforestation rates, more forest area has been lost in Southeast Asia <u>over the past 20 years</u> than anywhere else in the world. The role that deforestation plays in global warming has been <u>well documented</u>. Despite international commitments to reduce deforestation and mitigate climate change, policy incoherence and lax enforcement of environmental laws and regulations continue to allow and sometimes encourage the industrialisation of the livestock sector across Asia.

Furthermore, shifts in government policies and the economic slowdown caused by the COVID-19 pandemic have failed to deter increased investments into animal agriculture worldwide. According to the <u>Stop Financing Factory Farm Campaign</u> – a coalition of over 50 global organisations of which the Global Forest Coalition (GFC) is an active member working to ensure the inclusion of voices from the Global South – in the case of Asia, the top five development banks have poured around \$4.5 billion into Big Meat companies in countries such as Vietnam, China, and Singapore, among others.

The social and environmental toll of this expansion is clear to see. Forested lands are being cleared, particularly in Southeast Asia, to make space for livestock farms, and runoff from animal farms is polluting waterways upon which downstream communities depend. But it's not only forests that are in danger. The once biodiversity-rich ecosystems of Southeast Asia's coastlines, which include mangroves, coral reefs, and seagrass, are being replaced by expanding aquaculture farms, damaging once pristine natural environments under the auspices of a "blue economy."

How rapid and extensive is the increasing demand for meat and dairy in Asia, and how is this growth impacting deforestation and forest degradation across the region? Without intervention, do we have any chance of meeting global climate change mitigation goals and keeping global temperature rises to below 1.5°C and 2°C?



GLOBAL FOREST COALITION INDUSTRIAL LIVESTOCK FARMING IN ASIA

Asia's increasing appetite for meat and dairy

Historically, meat consumption across Asia has been far lower than in Europe and other northern regions, with populations in many East and Southeast Asian countries relying on fish and plant-based proteins. But increased urbanisation and rising incomes have led to seismic shifts in food consumption patterns across Asia in recent decades. with arowina demand for more diversified, protein-rich diets leading to evergreater meat and dairy consumption in almost all countries across the region. In countries such as China, Vietnam, and South Korea, pork consumption is increasing. In the Philippines, Thailand, and Japan, chicken and pork increasingly occupy a central place in consumption patterns, whilst the populations of Indonesia and Malaysia consume mainly chicken meat and products.

To fuel this rising demand for meat, many countries in East and Southeast Asia have seen an increase in deforestation to clear land for agricultural-related practices over recent years. Many Asian countries are also increasing imports of animal feed and meat linked deforestation, and the products to weakening of food systems in other regions of the world, most notably from countries in Latin America, including Argentina, Mexico, and Brazil, among others. Although rice, cassava, rubber, and palm oil plantations are the main drivers of agricultural-related deforestation in Asia, maize and soy still play an essential role as feedstock for animal production.



A recent paper published in <u>Science Advances</u> reveals that between 1980 and 2010, China saw the largest increase per capita in meat, milk, and dairy consumption globally. The research showed that to feed this meat appetite, China's livestock population almost tripled over the last 20 years, from 142 to 441 million animals, leading to huge demands for agricultural land for pasture and animal feed.

From the 1980s onwards, the transition towards industrial farming in China was also stimulated by favourable government policies and limited environmental regulations. For example, the number of dairy cattle increased from 120,000 in 1949 to 6 million in 2019, and recent years have seen <u>industrialised dairy farms spread across China</u>, with large-scale dairy farms accounting for <u>over 70% of all dairy farms in China</u> as of 2020.

In a report published in <u>Nature Sustainability</u> in 2021, data showed the demand for domestically produced livestock products in China could rise by up to 30% by 2050, requiring up to 12 million hectares (Mha) of additional pasture; this is in addition to any increased imports needed to meet increasing demands for livestock products. Based on <u>the OECD and FAO</u>, one-third of the overall projected increase in meat consumption between 2021 and 2030 is attributed to pork meat, with China accounting for 70% of that.

According to the <u>FAO-OECD Outlook 2021–2030</u>, "international meat trade will expand in response to growing demand from countries in Asia and the Near East, where production will remain largely insufficient to meet demand. Import demand in several middle- and high-income Asian countries has been steadily increasing due to a shift toward diets that include higher quantities of animal products." However, China, the world's largest consumer of pork, is setting targets for almost complete self-sufficiency in pork production. To achieve this, it says it wants <u>75% of all pig farms to be "large scale" farms by 2025</u>, rising to 85% by 2030. It has set similar targets for beef and poultry products.

Similar trends are being documented in Southeast Asia. According to research from the <u>US</u> <u>Department of Agriculture (USDA)</u>, over the next decade, all the region's nations are projected to increase their consumption and production of pork and poultry. This, in turn, is projected to see Southeast Asia become the world's fastest-growing importer of soybean meal, which is widely used in livestock feed.

As USDA research shows, poultry production across the region expanded by 56% between 2009 and 2018, increasing from 5.9 million metric tons (mmt) in 2009 to 9.2 mmt in 2018, and is expected to reach 12.3 mmt by 2028. Pork production across the region, which is relatively lower than poultry, perhaps in part due to the region's large Muslim population, expanded by 23% over the same period.

Concurrently, poultry plays the dominant role in majority-Muslim Indonesia and Malaysia. Growing consumer demand for cheap animal protein has driven major structural changes in poultry production over recent decades. Indonesia is the world's fourth most populous country, after China, India, and the USA. According to FAO and OECD data, at 7.6kg per capita, meat consumption in Indonesia remains relatively low in comparison to more economically developed neighbours such as Thailand, 19.2kg per capita, and Malaysia, 60.4kg per capita. Nevertheless, demand for meat-based proteins is predicted to continue to increase in Indonesia over the next decade, placing ever greater demands for agricultural land for farming and livestock feed.

Of all the <u>10 Southeast Asian nations</u>, Vietnam's hog and poultry production has grown the fastest, with annual production predicted to reach 3.3 mmt by 2028, <u>according to the USDA</u>. Much of this growth has been aided by government policies supportive of industrial livestock farming and <u>foreign investments from development banks</u>, including the International Finance Corporation (IFC), the private sector arm of the World Bank.

In Vietnam, the livestock sector has witnessed intense commercialisation over the past two decades, leading to a huge growth in animal numbers and <u>increased demand for imported</u> <u>animal feed</u>. The livestock sector in Cambodia has also seen a rapid commercialisation, with <u>poultry production increasing by 54%</u> between 2007 and 2015.

Japan has also seen a <u>rapid rise in meat consumption</u> over recent decades. This rising demand has been met by increased intensity of livestock farming and foreign imports. According to FAO data, between 1961 and 2003, domestic production in Japan increased by 247.5% for beef and 517.4% for pork. Over the same time period, imports increased by 10,839.90% for beef and 111,684.10% for pork.

Aquaculture is also rapidly expanding and industrialising across East and Southeast Asia. FAO estimates that, globally, <u>aquaculture accounted for 46% of the total production and 52% of fish</u> for human consumption in 2020. Fish farming is dominated by Asia, which has produced 89% of the global total in volume terms in the last 20 years. China has produced more farmed aquatic food than the rest of the world combined since 1991. Still, Vietnam and Indonesia remain major global exporters of aquaculture products, with Vietnam being the fourth largest aquaculture producer in the world, accounting for 3.8 mmt of farmed seafood annually. China and Vietnam are also among the few nations in the world where farmed fish outperforms wild catch, at 76% and 55%, respectively.

What are the environmental, social, and economic impacts of the increasing demand for livestock products? Can the rising protein demands of the populations of Asia be met in a sustainable way?

Increased livestock farming and its impact on forests and other ecosystems

The rising consumer demand for livestock products in Asia can be directly linked to deforestation in the region and beyond, particularly in South America. Predictions that <u>global demand for meat will continue to increase</u> over the coming decades mean radical changes to our food systems must be implemented to reverse <u>livestock-induced</u> <u>deforestation</u> and mitigate climate change.

Southeast Asia is home to nearly <u>15% of the world's tropical forests</u> and includes at least four of the twenty-five globally important biodiversity hotspots. <u>FAO figures</u> show that between 1990 and 2020, Southeast Asia lost more than one-sixth of its forests, equal to an area of 37.6 Mha, more than the total land mass of Malaysia. Indonesia was by far the worst affected, losing one-fifth of all its forest cover – more trees than the other nine Southeast Asian countries combined.



According to research published in <u>Nature Sustainability</u>, conversion of forest to cropland is increasingly taking place in higher elevation forests across Southeast Asia, which is home to around half of the world's tropical mountain forests. The clearing of tropical mountain forests has greater implications for climate change, as these forests store comparatively more carbon than lowland forests. They are also biodiversity-rich, and their loss has huge implications for downstream communities and those who depend on forest resources.

Whilst the drivers of deforestation differ from country to country, overall, <u>73% of</u> <u>deforestation in Southeast Asia is commodity-driven</u>, the vast majority of that being due to the clearing of forests for agricultural production. Palm-oil production remains a key driver of forest loss in the region, particularly in Malaysia and Indonesia. However, the role of rapidly expanding industrial livestock farming cannot be ignored, particularly given the projections for increased demand and resulting pressures for agricultural land over the coming decades.

While deforestation rates across China are relatively low compared to Southeast Asia, projected food demand increases will put the country's forests under considerable threat. According to recent research published in the journal <u>Nature</u>, increasing food demand, especially for livestock products, will domestically require up to 12 million ha of additional pasture over the next 30 years.

It is important to note that China's total maize commodity market amounts to <u>50 million</u> tonnes per year. However, in 2021, the Chinese Ministry of Agriculture and Rural Affairs, as part of the government's food security initiatives, referred to the use of corn processing byproducts in animal feed as one of several options to <u>replace soy meal and corn</u> to reduce dependency on imports.

According to Feednavigator, a leading online news source for the global animal feed industry, China's demand for soy to feed pork and chicken <u>increased substantially in 2020</u>. In the same year, agrotechnology groups were working on improved varieties of <u>maize for livestock feed</u>. Since 2016, the Chinese company Origin Agritech Ltd – China's leading agricultural biotechnology company – has been <u>working with DuPont to provide a new variety of maize</u> for farmers in China. In January of 2022, Origin Agritech signed an agreement with BaoDao Feed Ltd, a Chinese feed producer with 78.68 million USD in annual sales, to <u>produce and sell specialised corn crops</u> to feed producers, which could continue to impact forest areas as meat demand increases.

Reforestation programmes helped increase China's total forest cover from 8.6% in 1949 to 23% in 2020. However, this does not paint a complete picture. According to <u>Global</u> <u>Forest Watch</u>, the total area of primary forests (with native tree species relatively untouched by human activity) declined by 4.5% between 2002 and 2021 – making up 0.73% of its total tree cover loss over that period.



<u>OECD-FAO reports</u> project China will account for most of the total increase in global meat production between 2022-2030. The projected increase in global meat production is led mainly by growth in poultry, with the fallout from the outbreaks of African swine fever in China, the Philippines, and Vietnam expected to continue to subdue growth in production until 2023.

With millions more animals being farmed across East and Southeast Asia each year, there is an almost insatiable demand for feed. To meet demand, more and more soy and other animal feed are being imported, much of it <u>linked to deforestation in South America</u>.

China's rising demand for meat and dairy is having a devastating impact on South America's forests. A <u>report by Trase and CDP</u> found that 43% of deforestation emissions in 2017 due to soybean cultivation in Brazil can be attributed to China's soybean imports to meet demands for feed for China's growing livestock farms. Other significant importers of soy from South America include <u>Indonesia and Vietnam</u>.

China also imports vast amounts of beef from overseas to meet rising demand in the country – much of it linked to the biggest deforestation driving companies of Brazil. Beef exports from Brazil to China increased by a staggering 76% year on year from 2019 to 2020, according to a <u>report by Safras & Mercado</u>, with nearly half of all meat imported by China coming from Brazil. In 2017, nearly <u>70% of China's meat imports from Brazil</u> came from the Amazon and the vast tropical savanna region of Cerrado. In 2021, Brazil approved 22 new meat processing plants for exports, 14 of which are in the Amazon region. This sensitive biome is home to 50% of the facilities authorised to sell to China.

Japan is also another major importer of livestock products. <u>Research shows</u> that Japan's reliance on imported meat, mainly from the United States, Canada, Australia, and the European Union, has meant that there has been no significant linkage found between livestock farming and deforestation across the Japanese archipelago. However, according to <u>Global Forest Watch</u>, from 2001 to 2021, Japan lost 811,000 ha of tree cover, equivalent to a 3.1% decrease in tree cover since 2000.

The aquaculture industry has been the primary driver of mangrove deforestation in Southeast Asia over the past 30 years. Mangroves host a unique set of rich biodiversity, are an important carbon sink, and can hold up to <u>four times more carbon per hectare</u> than tropical rainforests. They also provide livelihoods for coastal communities and protect them from tidal surges and floods.

Southeast Asia is losing 0.18% of its mangrove forests every year. Between 1990 and 2020, some 387,000 ha of mangroves were lost in South and Southeast Asia, more than one-third of total global mangrove loss over the period. More than half of the mangroves in the Philippines have been <u>lost since 1990</u>, and between 2009-2019, Indonesia alone <u>lost 182,091 ha of mangroves</u>, predominantly to clear areas for aquaculture. Mangrove deforestation in Indonesia is expected to continue or increase as shrimp farmers clear new areas due to low productivity in existing farms.

Between 1950 and 2001, <u>China lost around 50% of its mangrove forests</u>, primarily due to the expansion of coastal aquaculture. New restoration initiatives and regulations have seen China's mangrove forest area increase by an average of 1.8% per year since 2001. However, studies have shown that these remaining mangroves are still threatened and suffering extensive degradation due to widespread human activities.

Industrial animal agriculture threatens the environment due to waste management challenges, whilst the economic concentration on large-scale industrialised farms pushes small farmers out of the market and reduces employment opportunities. The loss of forest land also has direct impacts on communities that depend directly on forest resources for their homes and livelihoods. Furthermore, industrialised livestock farming and the need for agrichemicals and antibiotics present major health challenges to all consumers.

So what is being done to address these alarming warning signs? What are the solutions, and what are policymakers, civil society, and the private sector doing to respond to these threats? Can Asia's rising demand for protein be met in a sustainable way that meets climate change mitigation targets whilst also respecting the rights and dignity of its people, especially women, Indigenous Peoples, and other marginalised communities?

Tipping point: The need to address livestock farming and its impact on deforestation in Asia and beyond

Finding a deforestation-free and socially, economically, and environmentally sustainable means to meet the rising demand for higher protein food in China and across Asia is perhaps one of the greatest challenges facing the world at this time. Countries must urgently and consistently assess the environmental and social impacts of economic incentives in sectors driving deforestation, including livestock and agriculture production, and adjust policies to ensure the protection of forests and compatibility with climate change commitments.

Countries across Asia have signed up to a series of international commitments to address climate change and deforestation, but implementation on the ground remains slow while other economic and agricultural policies, including those to expand livestock industries, appear to contradict these commitments, presenting major challenges to addressing deforestation in the region.



GLOBAL FOREST COALITION INDUSTRIAL LIVESTOCK FARMING IN ASIA Many of the countries of East and Southeast Asia are also plagued by <u>corruption</u>, political instability, weak rule of law, and <u>human rights violations</u>, making implementing policies difficult and undermining the role of civil society in tackling deforestation.

All countries in Asia are party to and have ratified the 1994 UN Framework Convention on Climate Change (UNFCCC). Under the REDD+ (Reduced Emissions from Deforestation and Forest Degradation) Convention, enshrined in the 2016 Paris Agreement, <u>Indonesia</u> has committed to cutting annual deforestation by half, while <u>Vietnam</u>, <u>Cambodia</u>, and <u>Myanmar</u> have pledged to increase the area of land under forest cover. However, GFC and its allies have emphasised all <u>the risks that schemes such as REDD+ put on people and ecosystems</u>, as these solutions do not change the production systems and exacerbate inequalities.

Progress by governments has been scant. In 2019, Indonesia made permanent an earlier moratorium banning the clearing of forests for logging or agricultural purposes since 2011. Similar legislation and policies have been seen in China and other countries across Asia. However, according to a <u>recent assessment</u>, Indonesia was among many countries that rolled back social and environmental laws, regulations, and safeguards under COVID-19.

Vietnam signed an agreement in 2020 with the World Bank's Forest Carbon Partnership Facility to receive climate financing for cutting carbon emissions and reducing deforestation. This agreement aims to incentivise sustainable land management at scale and reduce deforestation and forest degradation while supporting sustainable economic growth. However, it remains unclear and does not incentivize radical change away from industrial production. The question is, how a change can be achieved so long as the government continues to support and promote the industrialisation of the livestock sector?

Common practices on factory farms are <u>presented as solutions</u>, even if they only perpetuate animal production under a business-as-usual scenario. In countries such as Vietnam, Biogas production from manure has received crucial <u>financial support</u>, which may keep climate scenarios under control but does not point to urgent systemic changes. An <u>appropriate approach away from market-based solutions</u> in which the rights of forest inhabitants, women, and community-based governance are at the core can avoid perpetuating the root causes of the climate crisis.

On the ground, the picture remains the same across much of the region. Governments are failing to balance fiscal policies with climate change mitigation commitments. As with much of the world, a lack of policy coherence across much of Asia threatens to undermine climate change commitments. Governments must wake up to the social, economic, and environmental threats the region and the world face if urgent action isn't taken to move away from industrial livestock farming to more sustainable food systems.

Greater attention must be placed on food policy coherence, ensuring that policies designed to improve one food system outcome – health, environmental, social, or economic – do not undermine others.



There are some positive signs regarding shifts toward plant-based and alternative proteins. However, insufficient action is being taken to scale back industrial-livestock farming and end deforestation-linked agricultural production. China, for example, has, for the first time, included a section on <u>"creating future foods"</u> as part of its <u>five-year agricultural plan (2021-2025)</u>. Yet, at the same time, regulations are not being put in place to end the import of deforestation-linked commodities, particularly beef and livestock feed from South America.

In 2020, investigations by the Chinese National Forestry and Grassland Administration found <u>56,800 suspected illegal forest land occupation projects across the country</u>, including livestock farms, covering an area of 68,700 ha.

Environmentalists in China have highlighted how weak forest governance, including flawed or entirely absent provisions for the rights of local forest communities and gendered perspectives, hamper efforts to tackle deforestation. Consequently, this exacerbates the disempowerment of local communities, marginalisation of women, lack of community rights to forest resources, and unequal and insecure land tenure of families and forest communities.

Indonesia's vision for sustainable forest management can be supported by resolute political will and strong regulations and ensuring local communities stay at the heart of the conversation. This idea is gaining momentum and has been integrated into some reforestation efforts. President Joko Widodo initiated the social forestry programme in 2015 to provide communities with legal access to 12.7 million ha of forests. It entails land rezoning, capacity building, and improving the sustainable livelihood value chain.

Civil society has also begun to respond to the problems of increasing livestock farming and its associated ecological impacts and welfare issues. Traditionally, animal rights activism or opposition to animal agriculture in the Asia context was rare. However, in recent years, an increasing number of groups and initiatives have risen to the challenge.

In developing countries across Asia, as awareness of the environment and animal welfare is rising, consumer ethics are also following those in more developed economies. In China, for example, <u>recent research</u> shows that plant-based proteins are gaining increasing recognition among the broader population.

The role played by civil society and those communities most impacted by deforestation and shifts to industrial agriculture is also critical for raising awareness of the problem and pointing the direction to solutions. Civil society organisations in Asia have long focused on the environmental and human rights impacts of shifts to industrialised agriculture. However, there has been comparatively less focus on drawing the connections between food systems and these violations – demonstrating how rising demand for meat and dairy products is fueling environmental catastrophes and rights violations across the region.

However, some organisations are already rising to the challenge and working to support an adequate transition toward sustainable food production systems. In Indonesia, GFC member Walhi has been working on a research project looking into unsustainable corporate livestock and dairy production in East Java and East Nusa Tenggara. The project aims to raise public awareness of the dangers unsustainable livestock farming poses to the environment and Indigenous People's rights.



In Nepal, the National Forum for Advocacy (NAFAN) has been working to raise awareness of these issues from a human rights and biodiversity-centred perspective. In collaboration with the Agriculture and Forestry University, they recently organised a public hearing on animal farming and agroforestry in Raksirang village of Makawanpur with the participation of more than 100 livestock farmers, forest user groups, and university students.

Similar efforts are also being made by <u>Krishi Avam Paristhitiki Vikas Sansthan (KRAPAVIS)</u> in India, the People's Coalition for Food Sovereignty (PCFS), and Kasama in the Philippines. The Center for Human Rights and Development (CHRD) in Mongolia has been working to increase understanding and capacities among rural communities, especially women and youth, and advocates against the negative environmental, social, and animal welfare impacts of unsustainable livestock production and consumption.

Putting small-scale producers, agroecological practices (with adequate financial and technical support), and local markets at the centre of food systems is key to reducing the devastating impacts of extensive and industrial livestock farming. The work of GFC members in Asia shows how local smallholders are not only the most affected by the production of grains and fodder for animal feed but also the ones who consciously contribute directly to changing consumption patterns through exchanging knowledge and good practices. Promoting policies and legal frameworks and supporting local, sustainable production initiatives with a gender-focused approach are urgent measures that can reduce ecosystemic and human vulnerability to the global challenges framed in the SDGs.



A pathway to an intensive agriculture-free future

Asia presents the global battle to mitigate climate change with a great threat and opportunity. On one side, while governments and environmental groups continue to battle various problems in the region, there is a need for greater recognition of the role intensive livestock farming is playing in fuelling the global ecological crisis. Civil society, governments, the private sector, and consumers alike must quickly wake up to this threat and assign resources to finding solutions capable of reversing the trend of industrialised livestock farming and the damage it is doing to the environment.

Businesses also have a central role to play in ensuring that their actions are in line with national and international regimes to meet global climate commitments. The people at large, through knowledge sharing, capacity building for advocacy, and better clarity on who is behind the livestock industry, should continue working to hold governments, corporations, and financial institutions accountable for respecting the full enjoyment of human rights and care for the biosphere.

The projections for meat and dairy demands in Asia over the coming decades are incompatible with global commitments to mitigate climate change and reverse deforestation. Dramatic changes are needed in the way we manage food production and the way in which we use land. This will require bold decisions and policy coherence from governments.

The only path to a sustainable and equitable solution to these pressing and complex problems is one where all communities and stakeholders – particularly women, Indigenous Peoples, and other marginalised groups – are informed and have agency in the policy decisions affecting them and future generations. That means civil society and communities across Asia and the world placing time, energy, and resources into working to address the problems that face us all and holding our governments and private business to account for their actions.

And therein lies the opportunity. Faced with the reality of the science, Asian countries have little choice but to seek investment into new technologies that do not undermine sovereign and traditional food production and possibilities to forge a future where global food security no longer relies on deforestation-linked animal agriculture and in so doing, ensure the world averts a climate catastrophe.

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