

What's at steak?

— the real cost of meat —

Impacts of the industrial livestock and feedstock industry
on forests, climate change, farmers and communities

November 2016 | globalforestcoalition.org



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ⁱ The full length versions of the country case studies and associated references can be accessed at: <http://globalforestcoalition.org/whats-at-steak/>

Cattle ranching in Brazil. Jai Mansson/Flickr

What's at steak? The real cost of meat

Impacts of the industrial livestock and feedstock industries on forests, climate change, farmers and communities

Published in November 2016 by Global Forest Coalition

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We would also like to thank the following organisations for their contributions:

Brighter Green
European Coordination of La Via Campesina
Norwegian Farmers and Smallholders Union

Cover photo: Gado. Kelly Sato/Flickr
Back cover: Peasant working in the field. Jing/Flickr

This report was made possible with the support of Misereor.
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Executive Summary

This report aims to expose the many ways in which industrial livestock farming is impacting our lives and environment, and to argue that—precisely because it does cause so many problems—transforming the industrial livestock sector should be a key objective not only the United Nations Food and Agriculture Organization, but also of the Parties to the Convention on Biological Diversity and the UN Framework Convention on Climate Change. Put simply, changing the way we produce meat and dairy products, and how much of them we eat, could provide relatively easy to achieve but far-reaching win-win-win impacts—for people, including farmers and women, for forests and biodiversity, for animals and for our climate.

This is because the industrial livestock industry is a major contributor to forest and biodiversity loss and to climate change, as well as posing a threat to the world's small-scale food producers, and the availability of healthy and nutritious food for all. For example, the livestock sector as a whole already contributes an estimated 14.5% of global greenhouse gas emissions. So far these impacts have received little attention, but concern is growing. We aim to help turn the spotlight onto this overlooked sector, looking at what's happening on the ground in five countries: Bolivia, Brazil, India, Paraguay, and Russia.

This is an urgent matter, because livestock production (for grazing and feedcrops) already accounts for the majority of agricultural land use across the world. In anticipation, without corrective measures, global demand for livestock products is expected to increase by 70% by 2050. Demand for meat in developing countries is spiraling, and urbanisation is changing people's eating habits. This in turn threatens to drive up demand for cropland, and to increase the use of fertilisers, tropical forest loss and greenhouse gas emissions.

Beef is a particular concern. Figures from the Food and Agriculture Organization (FAO) show that beef and cattle milk production are the worst offenders as far as climate change is concerned, accounting for 41% and 20% of the livestock sector's emissions respectively. This is partly because cattle ranching is a significant driver of forest and biodiversity loss, especially in Latin America, where much of the world's deforestation takes place. It has been estimated that emissions from cattle raising may be responsible for half of all Brazil's greenhouse gas emissions. Our case studies show that Bolivia and Paraguay are similarly impacted.

Another important trend is the fact that small family farms are rapidly giving way to large-scale, factory farms, and this is particularly prevalent in the livestock industry. In Paraguay, for example, the problem of land being grabbed from small farmers and Indigenous Peoples for cattle-ranching and soy production remains a key preoccupation, including because it is systematically undermining the country's capacity to produce food for local consumption.

In India household backyard poultry production—mostly by women for their own families' consumption and for additional income—used to be ubiquitous, but has now been almost totally replaced by a vertically integrated industrial model where farmers work under contract with large agribusiness corporations.

Millions of animals are being raised in inhumane, unsanitary and polluting industrial conditions, including in Concentrated Animal Feedlot Operations (CAFOs) such as mega-dairies. This intensive approach to livestock is associated with numerous health issues. In many countries

animals are treated with hormones and antibiotics to promote growth. The unnecessary use of antibiotics is leading to drug-resistant bacteria and the spread of untreatable bacterial infections. The industrial production of livestock—in India's poultry sector for example, and to produce pesticide-sprayed soya in Paraguay—also creates significant public health dangers, and water availability and quality is a particular concern. Overall, consumers eating food products may be consuming a cocktail of pesticides, hormones, parasites and/or bacteria.

Many impacts relating to livestock production are quantity-related as well, so the number of animals is an important factor in the sustainability of any livestock production system. Due to the relatively high ecological footprint of farm animals, small-scale and extensive systems like pastoralism and family farms have significantly less negative environmental and social impacts, and health and animal welfare impacts, than CAFOs and other systems where thousands of animals are farmed. Limiting demand for

livestock products like meat and dairy is essential.

Nevertheless governments are seeking to expand industrial agriculture, including by boosting international trade. The inclusion of agriculture in the then newly established World Trade Organization (WTO) in 1995 was a major coup for large agribusinesses: Bringing agriculture into the WTO meant that WTO members and new applicants had to negotiate to open up their agricultural markets to imports, creating new business opportunities for companies big enough to trade internationally.

Russia demonstrates the policy problems that can arise as a result, because of the conflict created between its WTO obligation to open its markets and its desire to ensure food self-sufficiency. A similar tension is evident in Bolivia, where incoming Brazilian investors have taken advantage of the low cost of land and free trade 'tariff preferences' under the Andean Community (CAN).



Police protecting crop spraying operations from the protests of local communities, in Paraguay. Luis Wagner/CIC



A broiler chicken facility near New Delhi. Sangamithra Iyer/Brighter Green

Governments in countries such as India, Brazil and Paraguay are actively encouraging corporate concentration in the livestock sector. For example, Brazil, has a so-called 'national champions' policy which favours large companies who are expected to advance the country's interests as they prosper. This has put many small slaughterhouses out of business, and made life much harder for small cattle breeders, who have become captive to the big slaughterhouses, who pay them lower prices and grab their profits.

India's poultry sector exemplifies 'Tysonisation': the introduction of a vertical integration model in which the company (originally Tyson in the US) controls all aspects of production. In practice this means that it owns each of its millions of chickens from before they hatch to the day they are slaughtered, taking on contracted farmers to do most of the work and also shoulder most of the risk if things go wrong.

This corporate concentration dynamic is playing out on a global scale now, as industrial agriculture is conducted through 'global value chains' that account for some 80% of global trade. This situation is exacerbated by the fact that WTO negotiations failed to stop large-scale farms being subsidised in the US and the EU. This has created the double challenge of unsubsidised farmers in developing countries having to compete with products from large industrial farmers elsewhere in the world, who are already operating to economies of scale and supported financially by their governments.

Given the industrial livestock sector's many negative impacts it is ironic that the livestock sector is promoting the further 'sustainable

intensification' of its operations as a solution to problems like climate change and hunger. However, a growing body of research shows that the changes proposed cannot possibly counter the predicted scale of demand for meat and dairy products. Similarly, proposals to address livestock emissions through carbon accounting or even carbon markets will fail to address the many social impacts of unsustainable livestock production, and its impacts on water, biodiversity and animal welfare.

These approaches also ignore the very essence of sustainable agriculture: maintaining the balance between producing food, crops, and pasture for grazing, and regenerating soil, preserving ecosystems, and co-existing with forests.

There are many practical alternatives already in existence, including agroecology, agroforestry, traditional pastoralist practices that enhance forest conservation, and the restoration of traditional livestock-breeding lands and farming with native breeds. This means that we can rapidly transition to ways of producing and consuming diverse and healthy foods that work for families and communities, create livelihoods and employment, and are in harmony with our environment.

Reforming livestock production and consumption has the potential to generate really significant and far-reaching benefits for us and for our planet, and with relative ease. With respect to climate change switching to healthier diets with less meat, combined with a reduction in food waste, and improvements in livestock production, could result in emissions from livestock production almost halving by 2050.

Other measures are needed as well though, to address the many other significant social, environmental, health, and animal welfare problems caused by the corporate take-over of the livestock sector.

Fiscal reforms should support sustainable livestock production and consumption. These should include redirecting subsidies and other forms of economic support to more sustainable livestock production

methods in line with the Aichi targets of the Convention on Biological Diversity. It is particularly important to eliminate perverse legal, fiscal and other incentives for commodity chains like unsustainably produced beef and animal fodder, which are major drivers of forest loss.

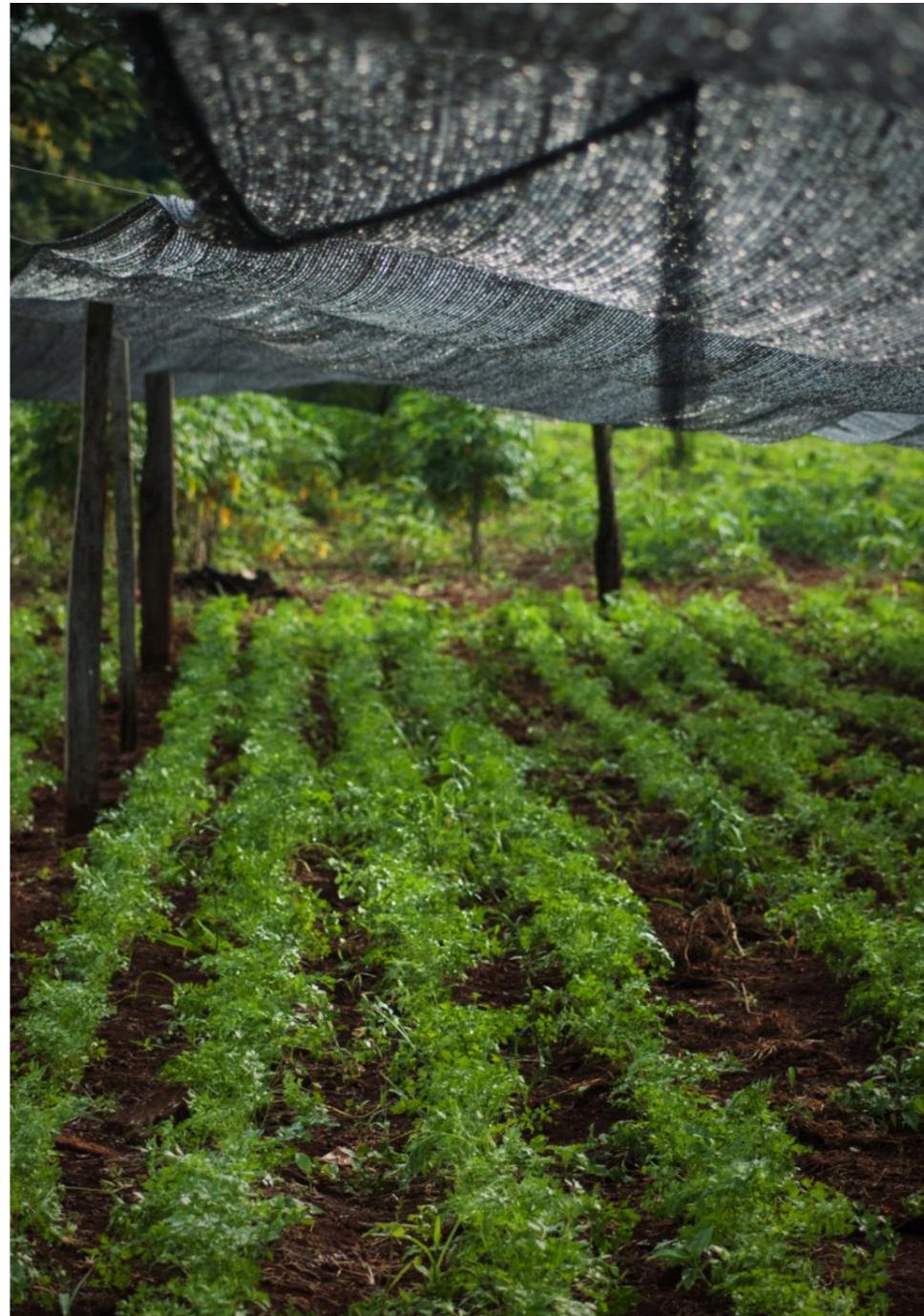
Government support for policies that build awareness and capacity in relation to sustainable livestock practices, and facilitate alternative

models of production—such as farmer cooperatives and collectives—is critical. These should uphold small farmers' rights, and provide better support for existing and new small-scale food producers, with a specific focus on gender issues.

Reforming other governance and trade practices and policies is also essential. This should include developing and implementing strict legislation prohibiting livestock practices that involve environmental pollution, weak labour standards, increasing the gender gap, land grabbing, health risks and the maltreatment of animals. CAFOs

should be prohibited, and livestock-related pollution standards, including strict regulations on the use of antibiotics, should be introduced, strengthened and/or effectively enforced.

In general, it is essential that we change the way in which soils and productive resources are being used, recovering land and traditional patterns of land management, with a view to managing agricultural and pasture land judiciously for the benefit of the whole population, distributing productive resources fairly for the primary purpose of food security, food sovereignty and sound nutrition.



Parsley is grown under netting on a small-scale farm in Paraguay. Ronnie Hall/CIC



Bos Indicus - the local Indian cow - is fast disappearing as other species are brought in. Ashlesha Khadse



Indigenous forest women of Indonesia working in a tree seedling plot. Martinus Sinani

Introduction

It has been argued that industrial livestock is a 'forgotten sector' when it comes to public awareness about its impact on climate change, [1] but one can just as easily argue that the sector's devastating impacts on forests and biodiversity, Indigenous Peoples, small-scale farmers, food security, animal welfare and public health are all equally neglected. The industrial livestock sector is getting away with murder, both literally and metaphorically.

We aim to help turn the spotlight onto this forgotten sector, showing how it is being rapidly expanded in countries across the world, even though a transformation in this sector—perhaps more than any other—could result in real and effective progress on addressing malnutrition and food security, protecting and enhancing the livelihoods of millions of millions of small producers, often female, conserving forests and biodiversity,

and mitigating and adapting to climate change. Transforming livestock production is a potential win-win-win scenario.

In this report we look at what's happening on the ground in five countries: Bolivia, Brazil, India, Paraguay, and Russia. We consider how the expansion of industrial livestock farming in these countries is being driven by the current global drive to liberalise trade and concentrate corporate power in fewer and fewer hands; and we

challenge the livestock industry's assertion that the 'sustainable intensification' of livestock production will resolve these dilemmas—research shows that the changes proposed cannot possibly address the predicted scale of demand for meat and dairy products.

Global consumption of meat and milk products

Region	Livestock (kcal/person/day)			Beef and mutton (kcal/person/day)		
	2006	2050	% Change	2006	2050	% Change
European Union	864	925	7%	80	75	-6%
Canada & USA	907	887	-2%	117	95	-19%
China	561	820	46%	41	89	116%
Brazil	606	803	33%	151	173	15%
Former Soviet Union	601	768	28%	118	156	32%
Other OECD	529	674	27%	64	84	31%
Latin America (ex. Brazil)	475	628	32%	59	86	45%
Middle East & North Africa	303	416	37%	59	86	45%
Asia (ex. China, India)	233	400	72%	24	43	79%
India	184	357	94%	8	19	138%
Sub-Saharan Africa	144	185	29%	41	51	26%
World	413	506	23%	50	65	30%

Figure 1. Source: World Resources Institute

1. Demand for meat and dairy products increasing rapidly

The livestock sector is already large. Each year, more than 60 billion animals are raised and slaughtered for human consumption. Meat and dairy production already uses 30% of the Earth's land surface and 70% of agricultural land, and accounts for

8% of the water humans use, mostly to irrigate feed crops. [2]

This is because, without effective transformative policies in place, global demand for livestock products is currently expected to increase

dramatically, by 70% by 2050, especially in developing countries, where demand for meat is spiraling. The indications are that global meat output would grow from 300 million tonnes now to 470 million tonnes by 2050. [3] According to the Food and

Agriculture Organization (FAO), the majority of this would be supplied by the growing livestock and feedstock industry. [4]

It is also estimated that cropland may have expanded by 42% by 2050 (from 2009 levels), and fertiliser use by 45%. Another 10% of the world's tropical forests may disappear as a result of a growing global desire to eat more meat. These developments, combined with increased methane emissions from livestock, could cause greenhouse gases from food production to increase by almost 80%. [5] Direct drivers of this expected trend include growing populations, the rising affluence of a growing middle class, and urbanisation. It is important to realise that the meat and dairy sector itself is a main driver as well, employing aggressive marketing strategies and lobbying policy-makers for subsidies and other policy measures that support industrialised production.

Diets have changed generally since the late 1970s, with more livestock products being consumed. [6] For instance, in India, long renowned as a country with a high percentage of vegetarians, there is a clear trend away from vegetarianism and towards meat eating: 70% of Indians now eat meat. [7] Eating beef remains controversial because of religious taboos and extremist politics but the consumption of eggs and poultry has increased dramatically. For example, between 2004-05 and 2011-12 the rate of chicken consumption jumped by 181% in urban India and 265% in rural areas. [8] India is the world's third largest producer of eggs and sixth largest producer of chicken meat. [9]

In general there are increasing numbers of 'middle class' people with more disposable income, who want to eat more meat and dairy products. A very visual explanation of this can be seen in the Brighter Green documentary, 'What's for Dinner', where marketing targets lifestyle aspirations promoting the idea that affluence and a meat-intensive diet go together. [10]

One related and important but rather overlooked factor is urbanisation. Our case study from Russia argues that urbanisation is both increasing demand for

cooked, fast and convenience foods than people in rural areas; and these foods usually incorporate more meat products. Looking again to Russia, between 2005 and 2010, the per capita consumption of all meats and meat products increased by 22% and the Russian Government has predicted that total domestic consumption will increase further to 9.9 million tons by 2020. [12]

In general small family farms are rapidly giving way to large-scale, factory farms. [13] This is particularly prevalent in the livestock industry, where millions of animals are raised in inhumane, unsanitary industrial conditions. These operations, along with the resources needed to grow the grain and oil meals (principally soybeans and corn) for livestock feed place intense pressure on the world's forests and human communities.

Nevertheless, this highly unsustainable industry continues to receive proactive support from governments, including more than US\$50 billion in subsidies in the Organisation for Economic

Growth trend in total livestock & poultry population in India

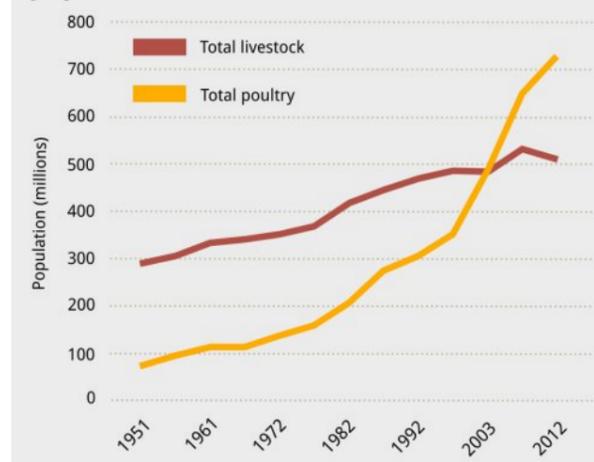


Figure 2. Source: Islam, et al. 2016ⁱⁱ

industrial livestock products, and reducing the capacity of an ageing population of small-scale food producers left behind in the countryside to produce food in a more sustainable way. This is a very significant phenomenon in Russia: between 2007 and 2012, 40% of Russian people aged between 17 and 29 were involved in internal migration. [11]

Growing urbanisation is having a marked impact on food consumption patterns. People in cities typically consume more food away from home and larger amounts of pre-

Cooperation and Development (OECD) countries alone. [14] For example, the EU's Agriculture Commission recently announced plans to allocate €15 million a year to promote meat consumption in Europe, and another €4 million to opening new markets for European beef abroad. [15]

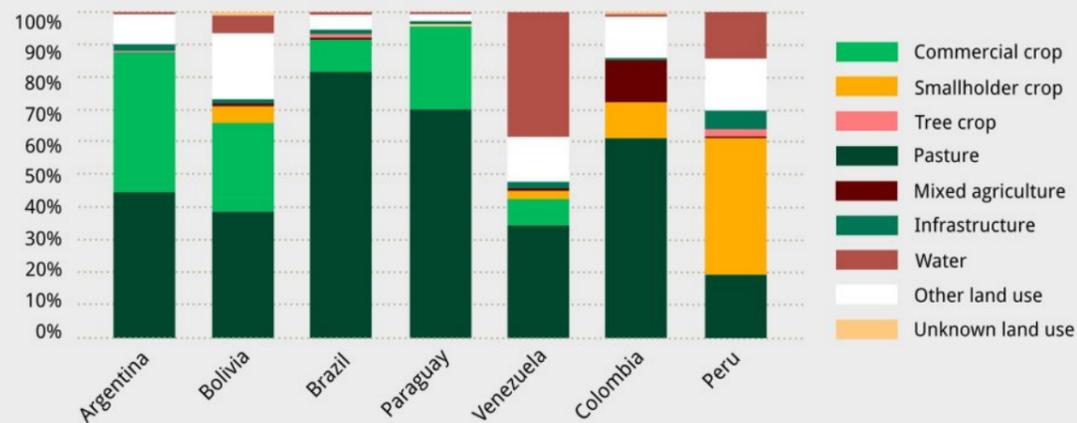
Yet further increases in meat and dairy consumption will make it ever harder to feed the world's population, as large quantities of cereals and other feed crops would be needed to feed animals rather than people.

ⁱⁱ Islam, M.M., S. Anjum, R.J. Modi, and K.N. Wadhvani. 2016. Scenario of livestock and poultry in india and their contribution to national economy. International Journal of Science, Environment and Technology , 5(3), 956-65

2. The devastating impacts of industrial livestock farming

2.1 Burning forests for beef: cattle ranching drives deforestation and biodiversity loss

Proportion of deforestation attributed to various drivers in seven South American countries, 1990-2005



Estimate of (A) proportion of total area of land-use change associated with various proximate drivers of deforestation, and (B) absolute net forest area with change associated with proximate drivers of deforestation by region, 2000-2010

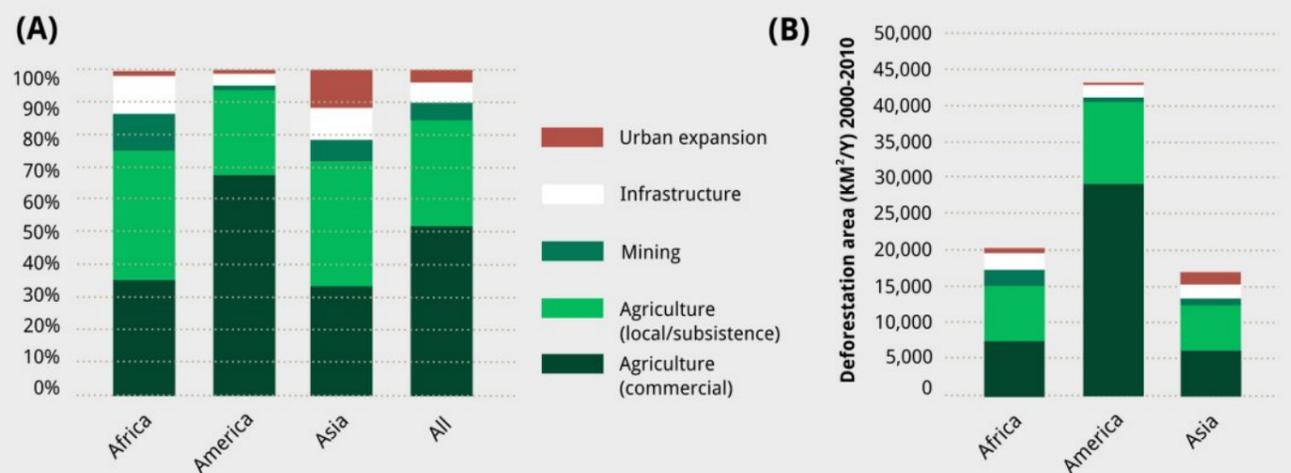


Figure 3. Source: FAO State of the World's Forests 2016

Cattle ranching is a significant driver of forest and biodiversity loss, especially in Latin America, where much of the world's deforestation takes place. The 2016 State of the World's Forests report refers to an analysis in seven South American countries which found that 71% of deforestation between 1990 and 2005 was driven by increased demand for pasture. In Brazil the figure was even higher, at 80%. [16] Clearing land to grow animal feed crops was responsible for much of the rest.

As long ago as 2006, the Food and Agriculture Organization highlighted the impacts that livestock and feedstock production has on land, water and biodiversity, which makes it all the more surprising that this issue is not already being addressed effectively and comprehensively in

fora such as the UN Convention on Biological Diversity. [17]

"The livestock sector may well be the leading player in the reduction of biodiversity, since it is the major driver of deforestation, as well as one of the leading drivers of land degradation, pollution, climate change, overfishing, sedimentation of coastal areas and facilitation of invasions by alien species. In addition, resource conflicts with pastoralists threaten species of wild predators and also protected areas close to pastures." [18]

Our case studies reveal the same strong causal links with respect to forests and biodiversity. For example, official national data in Bolivia supports the FAO analysis: the country lost an area of 8.6 million hectares of forest between

2000 and 2013, which is roughly equivalent to two Switzerlands (see Box 1). [19] Forest loss in Paraguay has been similarly devastating: In 2014, the Paraguayan Chaco, a semi-arid region in the west of the country, reported the highest deforestation rate in the world. [20] This forest loss is fueled by demand for beef and the creation of cattle ranches for investors from Brazil, Argentina and Uruguay. Paraguay's ecosystems have also been razed to make way for soybean and cattle farming. [21]

Box 1

Bolivia: Forests on fire

Every year between July and December, Bolivia is a country in flames. Grasslands, bush land, shrubbery and forests are all on fire, and this is the primary cause of deforestation in Bolivia. These fires are triggered mainly by agricultural and livestock activities. This is known in Bolivia as 'chaqueo', burning vegetation to make way for cultivation or pasture for livestock. This is an old and inexpensive practice used to transfer micronutrients to the soil, ensuring good harvests in the early years after chaqueo, and promoting pest control and livestock health (as the fire drives away snakes and flies, and ashes serve as a dewormer). However, crop yields fall off quickly and the soil loses its fertility, pushing the producer into a vicious circle, where they move to and burn another area of land to stay productive. This is resulting in severe soil erosion and desertification, as well as deforestation, and this is especially evident in Santa Cruz.

In a dry year, with high temperatures and strong winds, the fires can also spread uncontrollably, endangering the

farmers themselves, and their cattle and barns. The forest fires fill the air with soot, which leads to acute and even fatal respiratory infections, and affects the Andean glaciers.

These impacts are particularly unwarranted given the fact that Bolivia's beef production is relatively small and mainly goes to the domestic market (where per capita consumption is one of the lowest in the region). Research from CIFOR confirms that the contribution of cattle ranching to deforestation has become the most important driver of climate change in Bolivia. Between 1992 and 2004 cattle ranching was responsible for 27.4% of deforestation, but between 2000 and 2010 this figure leapt to 51.9%. This acceleration is still taking place: preliminary data shows that the figure for 2005 to 2010 has reached 60%. [22] In total Bolivia has lost 14% of its forests since the beginning of the century. [23]

2.2 Lost lands: industrial livestock farming wrecks rural communities

The expansion of industrial livestock farming has had and continues to have devastating impacts on rural communities around the world, crowding out small-scale food producers and driving land grabbing.

For example, in India household backyard poultry production—mostly

by women for their own families' consumption and for additional income—used to be ubiquitous, supporting the livelihoods of rural women and their families. Yet this model, which dominated the Indian poultry market until the 1960s, has now been almost totally replaced by a vertically integrated industrial model

based on contract farming, where farmers work under contract to large agribusiness corporations (see Box 9). [24]

The large-scale commercial sector now controls roughly 80% of total Indian poultry production and poultry meat has outpaced its two chief

competitors – beef and veal and buffalo meat. The growth in the sector can be attributed to a rapidly expanding middle class, reduced consumer prices through mass production, and a surge in domestic maize production, 50% of which is used to feed poultry.ⁱⁱⁱ This in turn means that in order to ensure

continued supplies of chicken feed, India has to bear massive import bills for maize if crops fail.

The Russian case study reports the same dynamic. Industrial food producers are causing smaller farms to go out of business by mass-producing food that can then be sold

ⁱⁱⁱ See India case study for more detail: <http://globalforestcoalition.org/whats-at-steak/>

Cattle ranching in the Chaco, Paraguay. Miguel Lovera/CIC

more cheaply. There are currently 318 large industrial food producers. The largest ones are Miratorg, Cherkizovo Group, Efko, RusAgro and Agro-Belogorie; they controlled 41% of the Russian food market in 2015.

The Russian government does provide some support to small-scale farms, but industrial farming has become big business, and is again vertically integrated, controlling all stages of the production process. It also involves larger acreage and more field equipment, two factors that small

farmers cannot afford. Thus, due to their production capacity, industrial farms are able to almost completely outcompete often more sustainably produced organic food from small-scale farms.

Land grabbing for cattle-ranching, especially from Indigenous Peoples, is a key preoccupation in Paraguay, and has a long history, due to consolidation of land by a group of large landowners during the Colorado party rule, between 1954 and 2008. The Colorado Party, especially during

the dictatorship of Gen. Alfredo Stroessner, privatised up to 75% of the country's territory, mainly for the establishment of cattle ranches. [25] Numerous testimonies from communities, peasants and Indigenous Peoples who have been impacted by the expansion of industrial livestock and feedstock production document displacement, loss of land, numerous health issues and contamination of their territories. [26] These testimonies are backed up by data from Paraguay's Agricultural Census in 2008, which shows that the

number of farms of 500 or more hectares has increased by 56% since 1991. In the same period there has been a significant reduction in the area of land occupied by small farms (of less than 100 ha). [27]

The population of Paraguay is thus increasingly vulnerable when it comes to food production, because the country's capacity to produce food for local consumption is being systematically undermined, as its territories are progressively targeted for the production of commodities for

export such as beef, and soy for animal feedstock. Agricultural exporters are also setting their sights on exports of other types of meat. In addition the State is promoting the production of 'small livestock' for export purposes, which threatens to usurp even more land and resources. This phenomenon restricts the communities' ability to maintain the traditional practices that promote the resilience of the ecosystems they traditionally manage.

2.3 Intensive livestock farming creates public health and animal welfare hazards

There are several health issues that arise from the intensive production of meat and feed. First, the animals are treated with hormones and antibiotics to promote growth (rather than cure illnesses). Farm Sanctuary notes that an “estimated 70 percent of the antibiotics used in the U.S. are given to farm animals for non-therapeutic purposes. Using antibiotics in this way can lead to drug-resistant bacteria; as a result, certain bacterial infections have already become or are on their way to becoming untreatable in humans. Antibiotic resistant infections kill 90,000 Americans every year.” [28]

Second, consumers ingest the meat products, which are made from animals which have been fed with

feed crops that are likely to have been sprayed with pesticides and may have been genetically modified and/or injected with hormones and antibiotics (depending on which country the exporting farm is located in, regulations vary). Consumers may also be ingesting parasites and bacteria. In some countries there is an ongoing battle demanding that producers label their products if they have used GM products and to list what hormones have been used.

Thirdly, on the production side, many communities in areas surrounding large-scale feedstock production suffer numerous illnesses. In Paraguay, where GM soy fields are sprayed with agro-toxic compounds

using low flying airplanes, the surrounding water sources and community crops are polluted, and communities may even ingest the toxins directly. Illnesses that have been attested to by communities include cancers, congenital malformations, and the unexplained deaths of domestic animals (See Box 4).

Fourthly, communities who live in the vicinity of slaughterhouses and processing plants suffer the contamination of their water supply, also exposing them to various illnesses. They may be unable to use their normal water sources for household needs or livelihoods because it is too polluted.

FAO recognises the impact that the livestock sector has on water availability and quality, and on pollution, including from animal wastes, antibiotics and hormones, fertilisers and pesticides, chemicals used in tanneries, and soil sediments from eroded pastures. FAO also observes that the livestock sector accounts for over 8% of global human water use, mostly to irrigate feedcrops. It states that the livestock sector is probably the biggest source of water pollution, contributing to “eutrophication, ‘dead’ zones in coastal areas, degradation of coral reefs, human health problems, emergence of antibiotic resistance and many others.” [29]

In Paraguay, for example, intensive poultry production involves animals living in deplorable conditions. This intensive model results in constant polluting emissions, including liquid effluents and smoke being emitted from the chimneys of incinerators. Around the Pechugón poultry plant in the city of Capiata, for example, it is almost impossible to avoid roads and sidewalks contaminated with puddles of wastewater that emit a foul smell.^{iv}

The cramped conditions of both animals and humans in these intensive farms facilitates the transmission of disease, including from animals to humans, as discussed in the box on India’s industrial poultry sector (see Box 3). “Experts believe

that the outbreak of H1N1 (swine flu) was likely caused by the overcrowding of pigs on factory farms and the storage of their waste in giant manure lagoons.” [30]

Finally, the health and wellbeing of many animals in intensive livestock farms is severely negatively impacted. Their treatment in many documented cases is inhumane and cruel. Pigs and chickens are placed in cramped cages that do not allow the animals to move or, in some cases, even lie down (see Box 2).

^{iv} For more detail see Paraguay case study: <http://globalforestcoalition.org/whats-at-steak/>

Concentrated animal feedlot operations (CAFOs): a threat to animal welfare and human health

Box 2

The CAFO model has devastating consequences for the environment and public health. For example, in the US excessive water use and groundwater pollution has been a constant issue in relation to mega-dairies. There is an increase in ammonia and nitrogen deposits in the soil, as well as microbial pollution of aquatic ecosystems, and eutrophication of streams and rivers. In India, many of the small- to medium-sized commercial cow enclosures or *tabelas* (similar to CAFOs but smaller and less regulated)—most of which are located inside cities—have absolutely no means of sewage treatment, and faeces contaminate the area around the *tabelas*.

Recent studies in various regions of India have also discovered antimicrobial residues in food animal products (such as chicken meat and milk), indicating that antibiotic use in food animal production is widespread and leading to antibiotic resistance. Antibiotics, growth boosters and hormones, anti-parasitics, urea and other chemicals have been commonly advocated in the past to boost

livestock production and supposedly get rid of infectious disease. Anti-parasitics and toxic chemicals like ivermectin, butox and even DDT have been recommended to keep ticks and fleas at bay. These are often mixed into animal feed and impact livestock products, including milk, meat and eggs.

Animal welfare activists have opposed the CAFO model, which creates stressful, unnatural environments for animals that are kept in continuous confinement and overcrowded stalls or caged conditions. Cows get hoof lesions from their inability to move and constant milking causes mastitis. Machines cause excessive milk extraction and in many cases continue to run even after milk has drained, causing excessive pain.

In Indian *tabelas* Oxytocin, even if banned nationally, is regularly used in such dairy operations to raise milk yields. Oxytocin causes the cow’s uterus to contract, mimicking intense labour-like pains for the animal. In India there is

also regular use of unprofessional artificial insemination, which ignores all care, involving the insertion of unsanitary objects into the cow’s uterus, causing immense pain. Many *tabelas* don’t have drainage and the animals are left to stand in their own faeces for months. A video by PETA showcases many such cases of unethical treatment of cows and buffaloes in India’s dairy farms (The Truth behind Milk Production - Horrors in Dairy Industry 2011). But, as pointed out by Kannaiyan Subramaniam of the South Indian Coordination Committee of Farmers Movements, “such events rarely occur in individual farmers’ homes—they treat animals as a part of their families, they love them, they have names for them and hesitate to let them go to slaughter when they are old.”

Source: India case study



Hog confinement at a CAFO. US Environmental Protection Agency/Flickr

India's industrial poultry sector: public health and animal welfare issues

On the environmental front, intensive poultry production has led to issues around waste handling and managing pests and diseases. Chicken waste—blood, manure and feathers—is a major nuisance in many parts of the country. These issues are aggravated in southern India where intensive production systems are clustered geographically. Most of the litter produced by the poultry industry is applied to agricultural land but in excess it causes environmental pollution. Chicken litter contains poisonous substances like arsenic. Moreover, air pollution is a major issue around poultry farms—intensive systems lead to the dispersal of various toxins into the air such as microbes, endotoxins and mycotoxins.

There is also the risk of infection of backyard flocks by diseases that erupt in factory farms. Even if backyard poultry are more genetically diverse, making them more resistant to disease, they can't remain immune to viruses like H5N1 avian flu for long. Such viruses circulate from factory farms to backyard flocks and then back in a more virulent form.

There are other serious public health impacts as well. A study by the Center of Science and Environment revealed the large-scale unregulated use of antibiotics as growth promoters by the poultry industry and high levels of antibiotics present in tested samples. Antibiotic

resistance is a serious public health threat and India is the starkest example globally. Antibiotics are necessary to cure infections, but widespread use of antibiotics in areas like animal farming has led to rising pathogen resistance to antibiotics. India does not currently have regulatory provisions for the use of antimicrobials in cattle, chickens, and pigs raised for domestic consumption.

The close proximity of most industrial chicken farms to India's populated cities is a serious health threat. India's first case of Avian flu was detected in Navapur, near the Gujarat border, and reports pointed to infected birds of the Venkateshwara Hatcheries, which denied involvement. It is India's biggest poultry company.

There are also serious ethical concerns with poultry factory farming in India. At least 70% of eggs come from commercial farms, many of which confine hens to barren battery cages so small that each bird has less space than an A4 size sheet of paper in which to spend her entire life. The Animal Welfare Board of India has issued an advisory to all state governments stating that battery cages should not be used and existing ones should be phased out by 2017. However this is not enforceable and does not lead to any real changes.

Indian consumers prefer live butchered chicken, rather than frozen. ©Miragik/Dreamstime.com



Peasant farmers barricade a road in Paraguay in protest at pesticide spraying on soybean crops. Hugo Hooijer/CIC



Soy, Monsanto and Cargill: Paraguayan farmers' toxic neighbours ^[31]

Paraguay has experienced an exponential increase in the area of land devoted to monocultures of soybean production on large industrial-scale farms. One can stand in the middle of the soy fields and see nothing but soya plants as far as the horizon, in all directions. The farms are mostly operated by wealthy landowners consolidated during Colorado Party rule, between 1954 and 2008, especially under the dictatorship of General Alfredo Stroessner.

The soy is mostly processed into animal feed for the livestock sector in other parts of the world, including, for example, Europe, China and Russia. Soy is currently Paraguay's main export, and the country is the fourth major exporter of soy, after the United States, Brazil and Argentina. It ranks sixth in terms of world production. Much of the soy produced is genetically modified and based on specific seed-pesticide technology packages—meaning that the crops are heavily sprayed with Monsanto's glyphosate-based herbicides, such as Round Up, and herbicides, such as Cletodim, which have to be used as weeds develop resistance to Round Up.

Rural communities still living next to these large soya monocultures are exposed to high levels of these pesticides, which are sprayed weekly and sometimes even daily right next to their homes, contaminating their food and their soil and water resources. Reported symptoms include headaches, skin problems, stomach disorders, respiratory illnesses, blurred vision, tumours, miscarriages and birth defects. Ill health can be the final straw that forces the peasant farmers to leave their lands. [32] Similar health problems related to the spraying of pesticides on soy have been reported in neighbouring Argentina as well. [33] In both countries it

seems that many agribusiness farmers spray indiscriminately, ignoring legal safety measures and regulations.

A report on Paraguay details "One of the gravest events occurred on June 23, 2014, when two girls aged three years and six months died after unusually intense session of herbicide spraying, presumably applying Round Up or generic glyphosate. The link between the spraying and the girls' deaths was impossible to determine conclusively as the authorities were reluctant to take samples expeditiously of the soil, water supply and tissue of the victims. Instead, the medical examiner claimed that rural people are often malnourished and hence are susceptible to respiratory ailments, which could be fatal." [34] An Argentinian 2014 study "concluded that there are four times more cancer cases now than there were in 1997, when GM soybeans first started to be planted in Santa Fe." [35]

In neighboring Argentina, the tragic death of a newborn baby due to spraying on soy fields near its home, led its mother, Sofia Gatica to spearhead a campaign that led to the prohibition of Monsanto's agrochemicals being used near human settlements in Argentina. Sofia was awarded the Goldman Environmental Prize in 2012 for her struggle.

Other transnational companies involved in this toxic trade include soy processing and exporting companies Cargill and ADM. For example, Cargill Paraguay has a factory that processes 900,000 tonnes of soy a year. [36, 37]

2.4 Roasting the climate: Big Livestock is a major ingredient in climate change

Unsustainable livestock production and the production of plant protein feedstocks such as soybeans are major drivers of climate change. According to FAO the global livestock sector contributes an estimated 14.5% of global greenhouse gas (GHG) emissions (an estimated 7.1 gigatonnes CO₂-eq per year for the 2005 reference period). [38]

FAO figures show that beef and cattle milk production are the worst offenders, accounting for 41% and 20% of the sector's emissions respectively. Pig meat accounts for a further 9%, buffalo milk and meat 8%, chicken meat and eggs 8%, and small ruminant milk and meat 6%. [39]

These differences are not just related to the different quantities of the various meat and dairy products being produced and consumed. Although different management practices impact on emissions rates, when emissions are considered on a 'per protein' basis, beef still has the highest average emissions intensity (an average of over 300kg CO₂-eq per kg of protein). At the other end of the

spectrum are cows' milk, chicken and pork, at less than a third of this figure (they are all below 100kg CO₂-eq per kg of protein). [40]

In terms of farming and food production processes, the main source of emissions is feed production and processing, including land use change, which accounts for 45% of emissions. [41] Animals' digestive process (enteric fermentation) is responsible for a further 39%, and manure storage and processing 10%. The remainder relates to the processing and transportation of animal products. [42]

A major livestock, forests and climate change 'hotspot' is the rearing of cattle in Latin America, where commercial agriculture accounted for almost 70% of deforestation between 2000 and 2010, and deforestation in the Amazon and the Chaco in particular is being driven by cattle ranching, soy farming and oil palm plantations. [43] Globally, deforestation to create pasture and land to grow feed crops accounts for

9% of the livestock sector's emissions, [44] but in Latin America and the Caribbean, one-third of the emissions from beef production is related to pasture expansion into forested areas. [45]

This stark situation is clearly evident on the ground, and borne out by all our case studies from Brazil, Paraguay and Bolivia.

In Brazil, the phenomenon is so marked that cattle breeding is a major contributor to Brazil's overall greenhouse gas emissions total, with enteric fermentation being the major part. It has been estimated that emissions from cattle raising may be responsible for half of all Brazil's greenhouse gas emissions. [46] Cattle ranching is also the main driver of current deforestation in Brazil, responsible for some 60%, according to Brazil's own estimates. [47] The grazing lands, with the addition of areas already degraded and abandoned due to this activity, now exceed 200 million hectares, almost a quarter of the country's territory. Recent expansion cycles are the main

Global emissions from cattle, milk and beef supply chains, by category of emissions

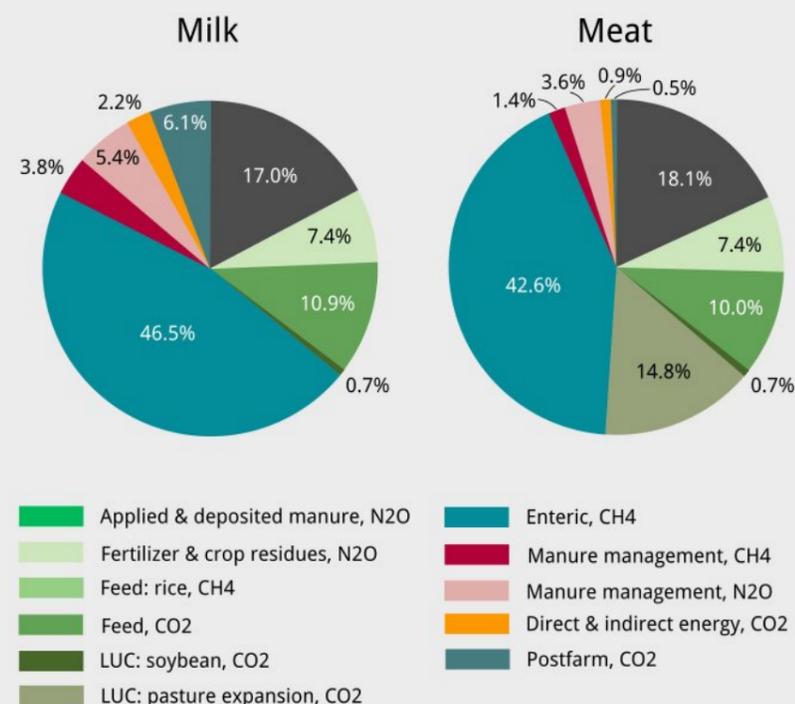
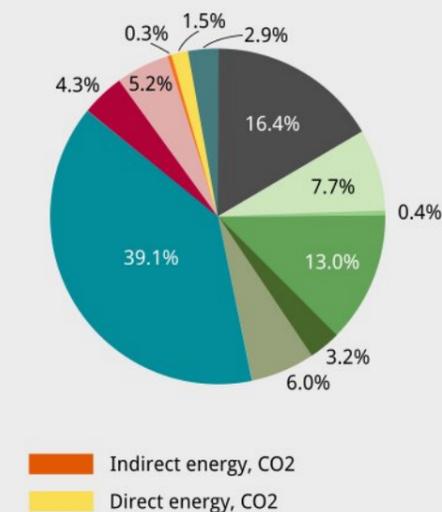


Figure 4. Source: FAO Tackling Climate Change through Livestock: A global assessment of emissions and mitigation opportunities 2013

Global emissions from livestock supply chains, by category of emissions



cause of destruction in the Amazon, and, even more so, the Cerrado.

The conversion of Paraguay's territories to cattle and soy production is similarly dramatic, and although it is a relatively small country, it joins Brazil, Chile and

Nicaragua as a group of four countries that account for over 97% of the conversion of forest to pasture in Latin America. [48] But in countries importing these same commodities—such as Russia, for example, which is now one of the world's leading importers of

genetically modified soya—the climate change impacts of national meat-based diets are barely considered in the media or in government circles. When it comes to climate change the focus is all on industry. [49]

Soybean plants in a field in Paraguay. Oliver Munnion

3. Corporate Control of Food

3.2 How free trade and free trade rules favour industrial agriculture

To peasants, small family farmers and food producers, and rural communities, agriculture is a way of life, a means of providing food for families and communities. The diverse crops they grow and the animals they breed would normally reflect the food needs of the community, taking into account what is culturally appropriate and which crops and animals flourish in that particular environment at that particular time. Agricultural practices that relate to nature and respect the biodiversity of the area—agroecological practices—have and continue to be employed by peasants, small farmers, women and communities around the world.

However, as our case studies show this way of life is not only under threat, but being forced out of existence. Industrial agriculture, as defined by the free trade model, is based on a logic that is entirely at odds with small-scale agriculture and agroecology. It is now a global industry producing commodities as cheaply as possible and on a massive scale, often to be traded internationally, in order to maximise financial profits.

As with other sectors agriculture is governed by international 'free trade' rules, which aim to maximise 'efficiency' within global trade, pushing countries to minimise

production costs and specialise in the production of certain goods and then trade with each other. This can significantly reduce people's access to a diverse range of local foods that would have been previously available, and leads to the phenomenon of entire farmlands being dedicated to cash crops such as tobacco or rubber, leaving small farmers and their communities unable to eat their produce.

"With globalization, food availability depends increasingly on international trade." FAO SOWF 2016 P21/22

In the case of agriculture, trade negotiations and rules have also resulted in a free trade system that is heavily skewed in favour of large agribusinesses, at the expense of small farmers, local food producers, many of whom are women, and hungry people everywhere.

The inclusion of agriculture in the then newly established World Trade Organization (WTO) in 1995 was a major coup for large agribusinesses. Agriculture had been exempted from world trade rules until that point precisely because it is not simply about the production of commodities. Bringing agriculture into the WTO meant that WTO members and new applicants had to negotiate to open up their agricultural markets to imports,

creating new business opportunities for companies big enough to trade internationally. However, the negotiations also failed to stop large farmers being subsidised in the US and the EU. This has created the double challenge of unsubsidised small farmers in developing countries having to compete with products produced by agribusinesses elsewhere in the world, who are also supported financially by their governments.

The entire premise of the WTO Agreement on Agriculture was that the WTO rules would make agricultural trade 'fair' by disciplining massive subsidies in the US and EU and bringing an end to dumping. However, as a South Centre report shows, not only have trade-distorting subsidies continued in the US and the EU, they have increased. [51] It is important to note that these subsidies in the US and the EU do not go to small farmers but rather to large agribusinesses that do not need the government aid, as explained in the next section.

The case studies in this report show some of the real life outcomes that these skewed free trade rules have had with respect to the livestock sector, and small-scale food producers.

Russia: free trade in food versus food security

Against the background of worldwide food price increases, the global economic crisis and recurrent droughts in some of the main agricultural regions, food security has become a key political goal of the Russian government. Defined as a far-reaching self-sufficiency in food, it was codified in the 2010 Food Security Doctrine and became the major objective of the current multi-year State Program for the Development of Agriculture, which runs until 2020. The doctrine sets specific goals for self-sufficiency ranging from 80% to 95% for grains, sugar, vegetable oil, meat, dairy and fish products.

Given the collapse of the domestic livestock herd in the 1990s, these goals are particularly ambitious with respect to meat and dairy production. Moreover, by acceding to the WTO in 2012, the Russian Federation committed to

liberalising its trade regime and accepted a set of limits ('ceilings') to its domestic farm support. It was also obliged to agree to increased market access for imports of pork in particular, which means that the domestic pork market will face increased competition.

How to modernise the cattle and dairy sectors under the conditions of WTO commitments has emerged as a major policy challenge for the Russian government. According to the current State Program, it is mainly to be achieved by concessional credits to the livestock sector, which was singled out as the largest recipient of interest subsidies in the 2013-2020 period.

For example, in Russia, it has created a conflict between Russia's WTO obligation to open its markets, and its intention to ensure food self-sufficiency, producing what it needs itself (see Box 5). A similar tension is evident in Bolivia, where the general expansion of medium- and large-scale commercial agriculture, which has driven deforestation since the 1980s, has been stimulated by Brazilian investors who have taken advantage of the low cost of land and free trade 'tariff preferences' that were established under the Andean Community (CAN) comprising Colombia, Peru, Ecuador, Venezuela and Bolivia. It is anticipated that something similar could happen in the coming years with the production of meat for export, again driven largely by investors coming from Brazil.

Ghana is another example of the way in which livestock imports can devastate domestic food production. Ghana has witnessed the decline of its poultry sector since 2000, losing many commercial poultry farms that

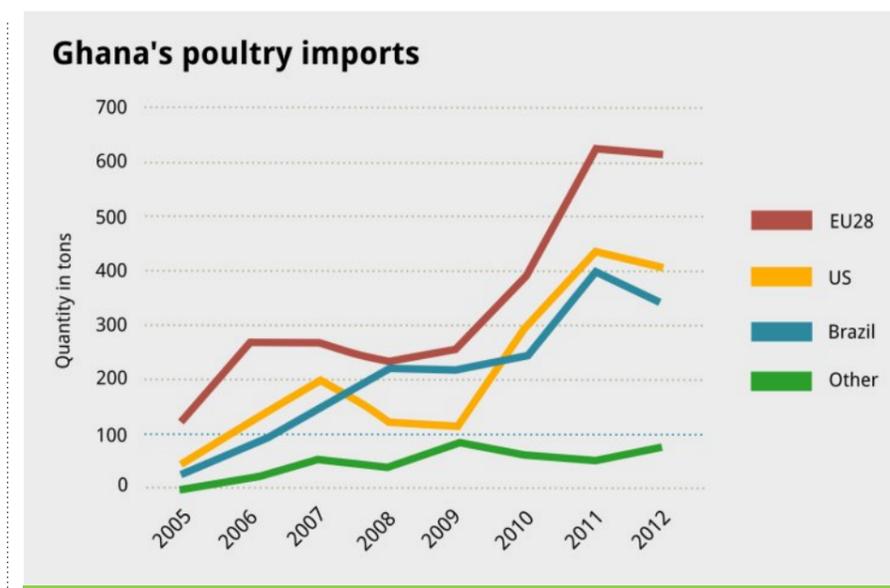


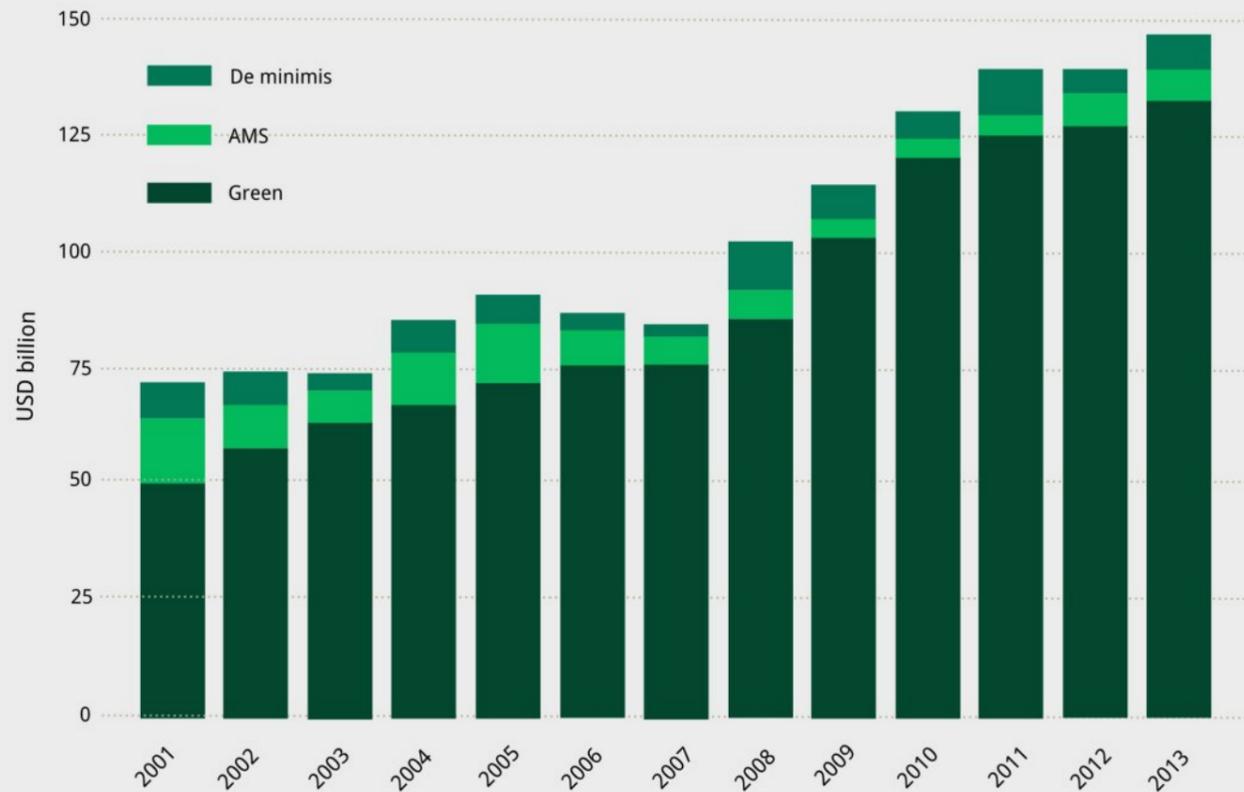
Figure 5. Source: ITC TradeMap as reported in the South Centre, Domestic Supports, forthcoming publication

were established in the late 1960s and early 1970s. [52] This has happened as imports of poultry from the EU, US and Brazil have increased. [53]

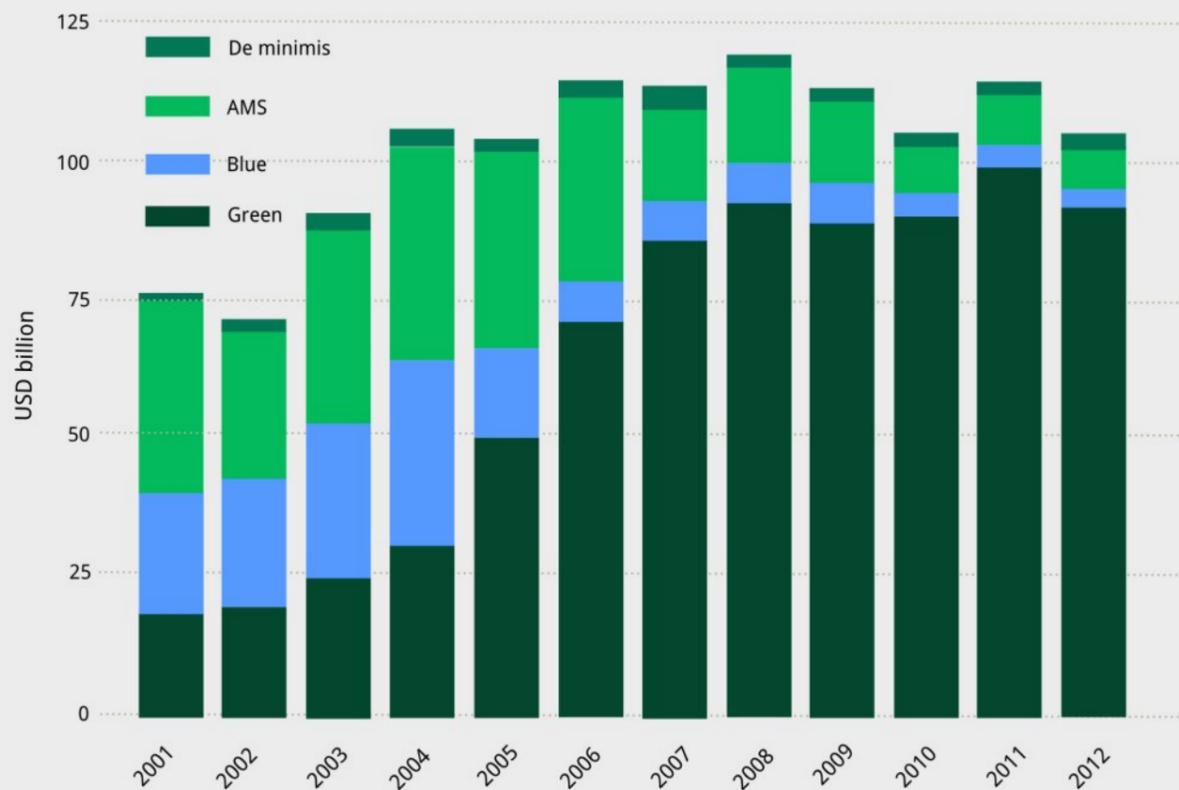
It is crucial to note that the same skewed neoliberal perspective is harming small farmers in the US and the EU as well as other countries. The agricultural subsidies in these

regions are mostly going to large agribusiness transnational corporations: "The largest farm operations, which generally are also the most profitable and wealthiest, receive most of the benefits of support systems. In the US, the largest 25 percent of farms...They receive 89 percent of all support." [54]

Composition of US domestic supports as notified to the WTO



Composition of EU subsidies, as notified to WTO



The Triangle: Industrial livestock trade between the US, China and Brazil

Looking at the global dynamics of ‘factory farming’, the United States, China, and Brazil emerge as the three biggest players in the global meat market. They form three points of a triangle. Because intensive livestock production requires large amounts of feed crops, dynamic interactions between and among the three nations around meat production also greatly influence the exploitation of natural resources used to produce crops for animal feed (principally soybeans and corn).

The US is a driver of modern industrial agriculture, in which huge capital investments and the pursuit of labour productivity have resulted in a highly intensified and mechanised food system. Today, the US is the world’s top beef producer and the second largest pork producer. In 2014, the US produced 11.1 million metric tons of beef and 10.4 million metric tons of pork, comprising 18.6% and 9.4% of world production, respectively. Within the triangle, the US exports pork, poultry, soybeans and corn to China.

A large majority of US meat is produced in highly concentrated industrial operations—factory farms—which have vast capacity. One ‘farm’ can, in the case of chickens raised for meat, confine tens of thousands to hundreds of thousands of birds in just one facility, or, for pork production, thousands of pigs. Turning farms into factories has helped the US to achieve huge agricultural yields, producing at low cost and high ‘efficiency’ with regard to time (if not energy or environmental efficiencies). This has made the country one of the world’s largest producers and exporters of both meat and feed crops.

Brazil is the world’s largest poultry meat and soybean exporter, the second largest beef exporter, and the fourth largest pork exporter. Currently, more than 40% of Brazil’s soybean harvest is crushed domestically to create soybean meal, half of which is used in the country as animal feed. Most of the rest is exported. According to long-term projections, both production and

exports of Brazilian soybean meal (the solid residue that remains after crushing the beans for soybean oil, which also is usually used as animal feed) will grow. Domestic consumption also shows an upward trend, suggesting a further expansion of the animal agriculture industry in Brazil. Within the triangle, Brazil exports beef, poultry, and soybeans to China.

In China, as the economy continues to expand, living standards for hundreds of millions of people have risen and, alongside this, the appetite for animal products has also increased. Trying to meet domestic demand, China became the world’s largest importer of soybeans, used for livestock feed, in 2000, and the top meat producer in 2009. In 2014, China produced 56.7 million metric tons of pork and 6.9 million metric tons of beef, representing 51.3% and 11.5% of world production, respectively.

This rapid growth is closely related to the country’s deliberate expansion of intensive animal farming facilities, part of an effort to catch up with the livestock production model now standard in the US and other industrialised countries. However, with restricted natural resources domestically—especially water—China is also heavily reliant on importing meat and live animals from other countries to meet consumer demand for meat.

Source: Brighter Green [50]



A Cargill soy processing facility in Paraguay. Ronnie Hall/CIC

3.2 Corporate concentration in industrial livestock farming

In the EU, the support goes to the largest 25% of farms. [55] So the big are getting wealthier, and indeed bigger spatially: the Transnational Institute report on the State of Land in Europe calculates that between 2007 and 2010 “farmers owning more than 50 hectares gained almost 7 million hectares.” [56] Indeed, it comments that land grabbing in the EU is happening “on a par with the scale and character witnessed in Africa, Asia and Latin

America.” Countries particularly impacted include Romania, Hungary, and Bulgaria in the East, and Germany, Italy and Spain. [57]

A further critical point is that the system of trade rules established by the WTO is binding and can be enforced. To ensure that member countries follow the rules, a dispute settlement mechanism was established to go hand in hand with the WTO’s 60+ agreements, including

on agriculture. Member countries can bring a case against another member country citing violations of the rules, which can result in the accused country being obliged to repeal the national or provincial law that has been challenged, or face trade sanctions.

The way in which the largest agribusiness companies have benefited from current trade and investment liberalisation dynamics and other support from governments is evident in all our case studies, which show that market share and influence are being concentrated in ever fewer and larger businesses at the expense of small-scale food producers and

the environment. Large-scale, corporate agribusinesses continue to push out small-scale livestock keepers, and governments in countries such as India, Brazil and Paraguay are actively encouraging this.

This corporate concentration dynamic is playing out on a global scale throughout industrial agriculture, especially as the big get

bigger through the conglomeration of corporations, and through international trade, where transnational company-coordinated ‘global value chains’ now account for some 80% of global trade. [58] Other livestock-related examples include the facts that:

- 83.5% of beef packing in the U.S. is controlled by four firms
- 71% of soybeans in the world go through three soybean crushing firms
- 66% of all pork is packed by four firms [59]

Similarly, a recent report shows that by 2014 the market share of the four largest firms in seeds, agrochemicals, animal pharmaceuticals and farm machinery ranged from 54-62% of global market sales. [60] As the study emphasises, this corporate concentration is a threat as it allows for a small number of corporations to dominate and decide: “Concentration within the agrifood sector likely contributes to the industrialization of food systems, furthering species and genetic losses, and decreasing both biodiversity and the nutritional qualities of industrially-bred plant and livestock breeds...agrifood sector concentration perpetuates a multimillion-dollar lobbying industry, influencing governments in shaping the nature of international foreign aid, agricultural development and multilateral trade agendas. These impacts have the potential to not only shape the agricultural sector, but the global food system as a whole.” [61]

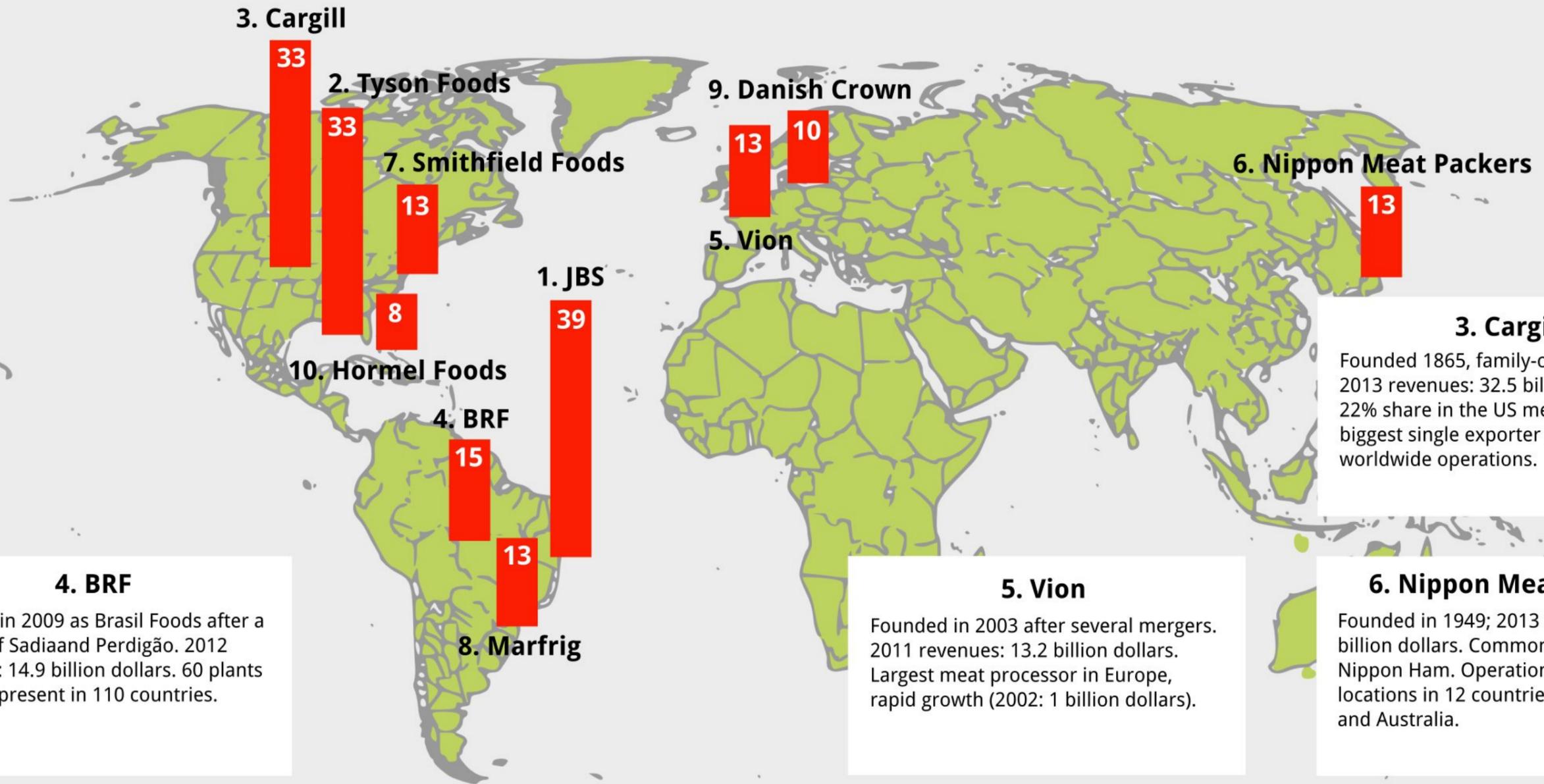


Harvesting soybeans. United Soybean Board/Flickr

The Top Ten of the international meat industry

Companies by total food sales (2011-13), billion dollars

Adapted from Meat Atlas: Facts and Figures about the animals we eat, by Heinrich Boell Foundation and Friends of the Earth Europe.



1. JBS
 Founded in 1953; 2012 revenues 38.7 billion dollars. World's largest food processing company, leader in slaughter capacity. Recently acquired Smithfield Foods' beef business and Marfrig's poultry and pork units.

2. Tyson Foods
 Founded in 1935; 2012 revenues: 33.3 billion dollars. World's largest meat producer and second-largest processor of chicken, beef and pork.

3. Cargill
 Founded 1865, family-owned business. 2013 revenues: 32.5 billion dollars. 22% share in the US meat market, biggest single exporter in Argentina, worldwide operations.

4. BRF
 Founded in 2009 as Brasil Foods after a merger of Sadia and Perdigão. 2012 revenues: 14.9 billion dollars. 60 plants in Brazil, present in 110 countries.

5. Vion
 Founded in 2003 after several mergers. 2011 revenues: 13.2 billion dollars. Largest meat processor in Europe, rapid growth (2002: 1 billion dollars).

6. Nippon Meat Packers
 Founded in 1949; 2013 revenues: 12.8 billion dollars. Commonly known as Nippon Ham. Operations in 59 locations in 12 countries, mostly in Asia and Australia.

7. Smithfield Foods
 Founded in 1936; 2012 revenues: 13.1 billion dollars. Largest pork producer and processor in the USA. Sold to Chinese Shuanghui International Holdings Ltd, with revenue of 6.2 billion dollars in 2013.

8. Marfrig
 Founded in 2000 after several mergers. 2012 revenues: 12.8 billion dollars. Company units in 22 countries. World's fourth largest beef producer. In 2013, sold poultry and pork units to JBS.

9. Danish Crown AmbA.
 Founded in 1998 after several mergers. 2012 revenues: 10.3 billion dollars. Major subsidiaries in USA, Poland and Sweden. Europe's largest meat producer, world's biggest pork exporter.

10. Hormel Foods
 Founded in 1891; 2012 revenues: 8.2 billion dollars. 40 manufacturing and distribution facilities. Owner of "Spam", a precooked meat product; focusing on ethnic food.

Brazil: are big slaughterhouses laughing all the way to the bank?

Brazil has had a so-called 'national champions' policy for a number of years, which favours large companies. The beneficiaries are expected to advance the country's interests as they prosper. This policy has driven a process of mergers and acquisitions, not only in Brazil but also abroad. Large Brazilian conglomerates that have benefited include JBS-Friboi, Marfrig and Brasil Foods (BRF). Some of them acquired a series of foreign companies, located in different countries, with strong financial support from the federal government, which prioritised the beef sector. The National Bank for Economic and Social Development (Banco Nacional de Desenvolvimento Econômico e Social, or BNDES) acted as sponsor, direct investor and agent for mergers and acquisitions.

With respect to beef there were eleven big exporters accounting for 70% of Brazil's total exports in 2007. But by 2015 just three companies (JBS, Marfrig and Minerva) were responsible for 80% of the exports. In 2008 and 2009, while JBS and Marfrig went through a period of vigorous growth and BRF was created, seventeen other slaughterhouses went bankrupt. This has helped the three largest slaughterhouses to

increase their control over the whole meat production chain in the domestic and international spheres.

The benefits to JBS are particularly interesting. Between 2006 and 2013 its involvement in overall beef production increased from 6.5% to 27.9%. Similarly with respect to chicken, JBS and BRF now jointly account for 56% of slaughters and 70% of Brazilian exports. But JBS decided to relocate. In May 2016 JBS relocated almost 80% of its business (in terms of revenues) to Ireland, creating JBS Foods International, a company that will quote on New York's stock exchange. Ireland is considered a tax haven by numerous multinationals including Google and Apple. Thus Brazil's hoped for benefits seem unlikely to materialise.

As a result of this concentration, small cattle breeders with little structure and limited access to the market, tend to become captive to the remaining big slaughterhouses, who pay them lower prices, grabbing their profits. The concentration and possible formation of oligopolies may also imply an increase of consumer prices, at the national and global levels.

Expensive exotic breeds like the Holstein Freisian have come to dominate the dairy industry in India. Ashlesha Khadse

India: foreign players cream off mega-dairy and milk product profits

Dairy farming in India is currently dominated by marginal, small-scale, landless producers, typically owning less than five cows or buffaloes. The model that still dominates in India is that of low input/low output, with both production costs and yields being some of the lowest in the world.

However, the Indian dairy sector has gone from being a cooperative model protecting small farmers, to a trade liberalisation model of hyper competitiveness. The 1990s saw various legislative amendments to increase the growth of private dairy players, and a reduction in trade restrictions after India joined the WTO. One of the key issues for the EU in the ongoing EU-India free trade agreement negotiations is the reduction of tariffs in India's dairy sector. Given that the EU abolished its dairy quotas in 2013 resulting in a massive over production of milk there, the EU has been looking for new markets to dump its milk surplus and India is a key prospect.

In 2011, the Indian government allowed 100% foreign direct investment in food processing, including milk and milk products, and also provided several tax breaks to foreign investors. This resulted in many transnational companies entering India's previously protected milk market—especially in relation to value-added products like cheese, paneer and flavoured yogurts—to meet a growing demand from rising numbers of middle class people. Many existing local dairy processors are now being brought out as a result, by global private players like Danone, Carlyle, French Dairy Processor Le Groupe Lactalis, and Nestle.

Recently there has also been growth in mega-milk factories based on the Concentrated Animal Feeding Operation (CAFO) model, although there is a

requirement that foreign investors need to tie up with local companies in order to produce milk directly. But most of the Indian partners actually come from unrelated sectors like mining or real estate. For example, the US-based Schreiber Foods (McDonalds' main dairy supplier) has tied up with the Indian Goenka real estate and hospitality group for its so-called 'future ready' mega-dairy farm Schreiber-Dynamix, with 6,000 cows of mixed European stock. This farm supplies to Danone, Nestlé, Kentucky Fried Chicken and Starbucks.

Other examples include the Bhagyalaxmi dairy farm with its 2,500 Holstein-Friesian cows, which was India's first automated CAFO. And New Zealand-based Fronterra wanted to join IFFCO to set up a 40,000 strong CAFO, which would be India's largest ever mega-dairy, by importing more than 9,000 pregnant cows from New Zealand and Australia. However, this project was blocked by the state government in Andhra Pradesh due to public opposition.

Overall, this dairy boom in India reflects the fact that the 'organised' sector is vying to capture the massive 'unorganised' milk sector, which still accounts for 70% of the total. This hyper competitive environment has led to a situation where the major players and especially the dairy cooperatives, are now under pressure, and are constantly trying to out do each other to capture a growing market, using practices which are turning out to be harmful for the survival of small milk producers. There is therefore a key concern about the impact that the free market model dairy boom will have on the largely small milk producers of India.

India: 'Tysonisation', vertical integration and contract farming in the poultry sector

Tyson Foods in the USA is known for setting up a vertical integration model in the poultry sector in the USA. It bought up feed plants and hatcheries, contracted producers, and built processing plants. The system is such that Tyson owns each of its millions of chickens from before they hatch to the day they are slaughtered, taking on contracted farmers to do most of the work and shoulder most of the risk associated with rearing them. Now the same model has come to India.

There are three main types of poultry farms: breeder, broiler and layer farms. The first is to breed chicks, the others produce meat and eggs respectively. A number of 'integrators' exist, who combine two or all of the functions above and dominate the poultry industry. Integrators own hatcheries, feed mills, slaughter facilities, sales outlets, veterinary medicines, and brands of processed chicken.

36.7% of broiler production in India is under contract farming with integrators like those mentioned above, and 78% of these are concentrated in Southern India. Under contract farming arrangements, integrators supply day-old chicks, feed, medicines, veterinary supplements, vaccines, equipment, marketing and credit, while the farmer is expected to supply space, labour, infrastructure and water.

There is growing market concentration by a number of integrators. The main players are Venkateshwara Group hatcheries (who control 60% of the broiler market and 80% of the layer market), Suguna Poultry Farms Ltd (20% of the broiler market), CP-India (Charoen Pokphand Group), Pioneer Poultry Group, Godrej Tyson Group (a joint venture between Tyson foods USA and Godrej India), and Sky Lark group.

These companies decide the rules, and can change them at their discretion. The terms of the contract favour the integrators. Researchers have reported that most farmers do not possess copies of the contracts they have signed and that these are almost never in their local language. The contracts impose penalties on farmers in case of any infringements.

Due to high production costs in the poultry sector, contract farming is growing fast, as contracting companies supply cheap inputs. Contract farmers may actually make less profit than non-contract farmers, because the contracting companies take any efficiency-related surplus profit, but they do benefit from potentially lower but guaranteed returns when the market fluctuates. But the rise in contract farming is still a cause for concern, given the loss of power that farmers face before contracting companies.

Box 9

Hens at the Ganeshguru livestock market, Guhawati, India.
International Livestock Research Institute/Stevie Mann/Flickr

Public Private Partnerships: a major threat to sustainable livestock production by local communities

Public Private Partnerships (PPPs) and other forms of collaboration between the public and private sectors can pose significant threats to small farmers.

In particular, the financial dependencies created by PPPs can form an incentive for public institutions like governments and the UN to shy away from certain policies that might hurt the commercial interests of their partner. This creates compromising conflicts of interest for the public sector.

It is also important to note that both qualitative and quantitative measures are needed to address unsustainable consumption and production in the livestock sector.

An example of a proposed PPP includes the GEF Integrated Approaches Program on 'zero-deforestation commodities' that moves commodity production to areas occupied by small farmers, and fails to address quantity-related aspects and the social dimensions of livestock production, including food sovereignty aspects.

Box 10

3.3 False solutions: more of the same fare

When the industrial agriculture sector is challenged it typically tries to repackage its business-as-usual approach as innovative solutions with greener sounding names.

Global Value Chains

For example, the 'structural adjustment' forced on economies from the 1980s onwards, effectively continues today in the form of Global Value Chains (GVCs), in which developing countries are still forced to continue exporting their natural resources and raw materials, as part of those GVCs. The transnational corporations coordinating GVCs now account for some 80% of global trade. [62]

This situation has been facilitated by the way that the WTO's Agreement on Agriculture has been used to open up developing countries' agricultural markets, whilst allowing un-disciplined agricultural subsidies in the European Union and United States to continue (as described above). Similarly strings attached to loans from the IMF ensured that developing countries focused their industries on sectors that would give them 'comparative advantage', such as producing raw materials and providing cheap, unskilled labor.

Today, in the global meat industry, these Global Value Chains perpetuate the use of cheap, unskilled labor and the production of raw materials by developing countries, while the high value capture end of the chain stays with the industrialised countries and larger agri-businesses, who also benefit from the extensive subsidies provided to them by their governments and others seeking their involvement and investment. One stark example is detailed in the Paraguay case study, where the people of Paraguay are exporting food but unable to buy it themselves: "Paraguay records almost 40% of its population as poor, and almost 20 per cent as extremely poor. That is to say that about 1.6 million people do not meet their food needs."^v

The myth of co-existence

One of the most prevalent approaches that is being propagated in various platforms and fora, is the assumption that the intensive agri-business model and small-scale farming can co-exist. To co-

exist, though, implies a harmonious living together of different beings or approaches. This proposal—that completely opposing methods of agriculture can 'co-exist'—is not new, it has been pushed by the biotechnology sector for quite some time. [63] Proponents of genetic modification (GM) proposed the co-existence of GM technology alongside traditional small farmer techniques of saving seeds and other ecological practices. But this is impossible in reality. GM technology has been proven to be invasive and detrimental to organic, traditional crops in neighbouring fields. It is also completely contradictory as GM technology mandates patents and terminator technology in seeds, forcing farmers to buy new seeds each season, whereas peasants use seeds they have saved and passed on for generations.

It is the same for the meat industry. Small-scale farmers raising a small number of animals within an agroecological context cannot co-exist beside hectares and hectares of GM soy feedstock or feedlots crammed with animals injected regularly with antibiotics. As described above these practices contaminate surrounding farms and create public health crises. Furthermore, as can also be seen in the illustrated case studies, smaller farms are routinely taken over by larger ones, especially since they cannot compete with them, and some farmers and communities are even forcibly removed from their lands.

In the cut-throat race for profits in the livestock sector, there is no such thing as peaceful co-existence between industrial and small-scale farming.

'Sustainable intensification'

Another recently proposed false solution is 'sustainable intensification'. This comes from the relatively new approach called 'Climate-smart agriculture' (CSA).

As defined by FAO, "CSA is an approach that helps to guide actions needed to transform and reorient agricultural systems to effectively support development and ensure food security in a changing climate. CSA aims to tackle three



main objectives: sustainably increasing agricultural productivity and incomes; adapting and building resilience to climate change; and reducing and/or removing greenhouse gas emissions, where possible." [64]

In simpler terms, CSA aims to produce more food on less land, while being climate change resistant and able to sequester and store carbon—sustainable intensification. However, there is a growing body of research showing that sustainable intensification cannot be 'the' solution, as it will be unable to address the scale of change required if current predictions about increases in demand for meat and dairy hold true. A change in diet and reduced demand for livestock products will still be absolutely essential in terms of reducing greenhouse gas emissions by the amount required to keep climate change within tolerable limits. [65, 66, 67]

In fact CSA is a very loosely designed concept that includes genetic modification, the use of synthetic fertilisers, and intensive livestock farming, but excludes ideas about reducing food over-consumption, or changing our model of food production. [68]

CSA also claims to include all models of agriculture but lacks any social or environmental safeguards and fails to prioritise farmers' voices, knowledge and rights as key to facing and mitigating our climate challenges. It therefore threatens to undermine agroecological approaches as defined by practitioners, while endangering the future development and upscaling of such approaches. [69]

Including livestock in carbon markets

As civil society organisations observe [70] CSA can also be used to greenwash harmful industrial agricultural practices, as well as establishing soil carbon offsetting. [71] In fact, a study states that the whole proposal of CSA was developed around the possibility of developing carbon offsetting much like REDD and REDD+ but for a soil carbon market. [72]

Even the FAO has developed a carbon accounting methodology, based on the sustainable grassland management practices, that has been validated under the Verified Carbon Standard. This innovation supposedly reduces the costs associated with measurement and verification and is intended to facilitate access to carbon markets. While it has been developed with a particular project in mind, the idea is that the new methodology of grassland carbon accounting will be applicable to other grazing projects. [73]

Using carbon markets to deal with the emissions created by the industrial livestock sector is not the solution. We have seen from past examples, that market mechanisms in the land use sector trigger perverse incentives. Payments are made on the basis of the additionality of emission reductions, and since countries set their reference levels themselves, this incentivises an overestimation of additionality and a tendency to set reference levels disproportionately high. [74]

Despite these failings, CSA and sustainable intensification are very much the dish of the day in international negotiations relating to food, farming and climate change. This is bad news. 'Climate Smart Agriculture' may sound green, but it is a politically-motivated term. Agribusiness corporations that promote synthetic fertilisers, industrial meat production and large-scale industrial agriculture—all of which are widely recognised as contributing to climate change and undermining the resilience of farming systems—can and do call themselves 'Climate Smart'. For example, a new 'CSA working group' includes livestock sector-related agribusiness and food companies Monsanto, Yara International, Tyson Foods and Unilever. [75] Dairy giant Danone is also a member of the Global Alliance for Climate-Smart Agriculture (GACSA). [76]

^v See Paraguay case study: <http://globalforestcoalition.org/whats-at-steak/>

4. Small-scale and sustainable: an alternative menu for food and farming

We need to transition away from industrial livestock and animal feed production and halt its devastating impacts on forests, biodiversity, Indigenous Peoples, rural communities and rural and urban food consumers. This needs to be done through holistic, non-market based approaches that also take into account the needs of ecosystems, biodiversity and our climate.

Numerous proposals for alternatives are on the table: from agroecological ways of farming to supporting more community, small-scale, family farming that supports and promotes the health and well-being of the community, the environment and the animals themselves. Most importantly, recognition of and support for peasant and small-scale agriculture is an urgent priority. Pushing for false solutions such as sustainable intensification and carbon markets to determine food and agricultural policies must be resisted.

Contrary to the pro-free trade argument that what small farmers need is more market access, what they really need is political and financial support. Today, even with just a quarter of the world's farmland, small farmers are still able to produce most of the world's food. [77] Imagine then, if the small farmers of the world had more land,

better access to resources, and real and effective support from governments and intergovernmental bodies and policy-makers?

Small farmers and community based-farming relate to nature and maintain biodiversity, rather than

devastating it. Traditional farming, pastoralists and small farmers recognise the importance of maintaining a balance between the land, water, forests and biodiversity.

Woman cattle farmer in El Salvador. Jason Taylor for Friends of the Earth International/CIC



Organic fruit and vegetables being produced on a small farm in an urban area, Canary Islands. Ronnie Hall/CIC



Agroecology as the way to food sovereignty and cooling the planet

Empirical and scientific evidence have consistently supported the growing consensus that agroecologically diverse farming is not only more productive, but also brings a host of ecological and social benefits. [78] This also applies to forms of sustainable livestock breeding where the health and well-being of the animals are attended to, as well as those of the farmers.

Here, it is insightful to list and consider the six principles of food sovereignty as developed by social movements around the world, led by the world's largest peasants' movement, La Via Campesina. They can be applied to the livestock and feedstock industry to develop alternatives that move us forward:

1. Food Sovereignty focuses on food for the people

This is a completely different mindset and logic from that of industrial agriculture that focuses on

growing crops or livestock for the market. The focus of turning entire countries to just producers of soy to supply the livestock market with feed, leaves people in hunger. Cash crops, as they are called, are promoted because this is the supposed comparative advantage of the country, and these are the products needed by the free market. Food sovereignty on the other hand, thinks first of the communities and prioritises growing food to feed them.

2. Food Sovereignty values food producers

In an industrial agricultural system, particularly in the livestock and feedstock industry, very little value is placed on the workers. The workers' health is placed in constant peril as they are exposed to toxic pesticides and diseases from animals that are crammed into tight spaces.

3. Food Sovereignty values local food systems

Again, this is in contrast to an industrial agricultural system that prioritises international markets. In a localised food system, it is the communities' food needs that are first addressed. This breaks away from the perpetuation of the global value chains where the small and poor are kept in the low value end of the chain such as production of raw materials or monoculture crops and plantations.

4. Food Sovereignty returns control to the people

Seeds are the best example of this. Some communities have saved and passed on seeds and knowledge for several generations but are suddenly criminalised because transnational corporations were able to patent and gain intellectual property over these seeds. It is the same with the livestock industry as now, only a handful of corporations control the few breeds that are used. [79]

5. Food sovereignty builds and values knowledge and skills

With food sovereignty no-one is at the 'low value end' of a chain, because everyone is valuable. Peasants and communities' traditional knowledge that has been passed on for generations is valued and respected.

6. Food sovereignty relates and works with nature

We are all part of nature. The health of Mother Earth and our health are one. This way of farming and raising animals, does so with respect to the land, water, forests and biodiversity as a whole.

Small farmers attest to the health and well-being of animals when they are kept in small numbers and given ample amount of land, with space to roam and graze.

Livestock is an integral part of peasant families in India. Ashlesha Khadse



Life as a small farmer raising livestock and practicing agroecology



Marielle and her goats. Lofoten gårdsysteri

Marielle de Roos is a member of the Norwegian Farmers and Smallholders Union, and a representative in the European Coordination of La Via Campesina. Born in the Netherlands, Marielle pursued a degree in rural development, which took her to development and agricultural projects in the Philippines and West Africa. An idealist, she had in mind that she wanted to make her own contribution to making a different world possible. In the course of that work, she and her partner decided to try a path of learning more practical skills and had the opportunity to work on a farm, learning to become small farmers. This experience inspired Marielle as she found that it was, for her, a more direct way of contributing to building alternatives and being in solidarity with small farmers in other countries, including in developing countries, and supporting small farmers' production of food in Europe.

Marielle and her partner produce organic milk from goats, making cheese, selling milk, and growing vegetables, potatoes and cereals. Working on a local level as members of the Norwegian small farmers and smallholders union (NBS), Marielle emphasised that they purposely chose agroecological methods and organic

production, as a way of both promoting agroecology and showing their opposition to importing soy from industrial farms in Brazil that harms the environment, climate and the people. This is their way of being in solidarity with the small farmers in the South.

On a local level, their farm has partnered with local schools and has programmes to teach young

children about agroecology. The children come to learn about the farm, they plant their own vegetables and they come back to harvest them. They also have a programme for differently abled children who do not do well in classroom settings but have been shown to flourish in learning practical skills relating to farming and growing produce.

Today, Marielle is involved in the international level in La Via Campesina as a representative in the European Coordination of La Via Campesina (ECVC) and she focuses her work on the issues of the struggle against free trade agreements and the promotion of agroecology as an alternative. She explains that small farmers everywhere, even in Europe, are threatened by the growing expansion of corporations in the food industry and how institutions such as the WTO aid their growth. "This is a real threat but our power is to show that there are alternatives—that there is a different way of growing, producing and relating with nature—that agroecology works and it is the way forward."

Box 11

Making hay in the mountain pastures around Marielle's farm. Lofoten gårdsysteri

5. Case study summaries

The full length versions of the country case studies and associated references can be accessed at: <http://globalforestcoalition.org/whats-at-steak/>

Fire and Livestock in Bolivia

by Pablo Solón and Jose Carlos Solón, Fundación Solón, Bolivia

Since the 1980s, Bolivia has suffered significant deforestation due to the expansion of medium and large-scale commercial agriculture. The widespread practice of 'chaqueo', a burning technique used to prepare land for agricultural use and cattle grazing, is primarily to blame.

There are three main factors that contribute to the abundant use of chaqueo. First, it's a simple, old, and inexpensive practice that adds micronutrients into the soil, destroys pests, and increases short-term land yields. Second, cattle ranchers are required to 'demonstrate' the use of their land especially during periods of land reclamation, which is easy

and cheap to do using the chaqueo method. Third, in recent years Bolivia's central government has called for the expansion of agricultural/livestock production for export at all costs.

Livestock development, in particular, has influenced chaqueo application and deforestation. Most of the burnt areas in the country are located in areas of livestock production. In addition, fires that occur in production forests, forest reserves, and protected areas are the result of livestock activities, either directly or by accident.

Although alternative processes to chaqueo have been proposed, they failed to create substantial change because they were incomplete, implemented inconsistently, or received inconsistent funding. In order to decrease the use of chaqueo and prevent future deforestation, sustainable forms of agricultural applications, such as rotational grazing, must be taught and promoted. As well, stricter regulations, increased funding, and more effective institutional and social control mechanisms must be put in place to promote changes in patterns of both land use and consumption.

Brazilian Beef Industry

by Sergio Schlesinger, consultant for FASE Brasil

As the second largest beef producer and exporter in the world, Brazil is a huge player in the global beef industry, and ranks highly with regard to pork and poultry as well. In recent years, the Brazilian national government chose to consolidate and internationalise the beef sector through the Productive Development Policy (PDP). Federal investments in companies like JBS-Friboi, Marfrig, and Brasil Foods have allowed them to expand their market size and power significantly, but not without

effects upon Brazil's environment and people.

There have been a number of concerns about the Brazilian government's formalised investment in the beef industry. Firstly, the PDP monies did not require companies to remain invested in Brazil, allowing them to take the investments and move their operations to other countries, which is exactly what JBS did recently. It is also unclear why certain companies were backed

while others were not (and many went bankrupt during the same period). The fact that some of the chosen PDP companies made significant political contributions has also been cause for investigation.

The human cost for Brazil is tragic too. Slave-like working conditions abound in Brazilian bovine stockbreeding, and in the wake of the PDP, this has only worsened. Labour accidents, poor working conditions, and substandard pay are

the worst among Brazil's three largest, PDP-backed slaughterhouses.

Finally, the impact on the environment has been immense. Bovine stockbreeding is responsible

for a staggering percentage of total greenhouse gas emissions in Brazil. There are more cattle than people in Brazil following the PDP expansion, and grazing lands, including areas already degraded and abandoned, exceed almost a quarter of the

country's territory. Overall, the PDP in Brazil has resulted in a few companies winning, and nearly everyone else losing.

live near poultry and beef factories. Waste, including liquid effluents, solids, and gas-filled smoke harm the health of those in surrounding communities, particularly children and the elderly. Furthermore, animal cruelty is prevalent in Paraguay's agricultural industry, with very little government oversight occurring. Official plans supposed to address land tenure are beset with engrained problems, covering up a

legal chaos that has been going on for decades.

Unless change happens at every level, and soon, the consequences for the majority of Paraguay's population could be dire. Long-lasting disputes surrounding land ownership must be resolved so that Paraguay's citizens can be allowed to use patterns of traditional management or other sustainable

management to create crops for domestic consumption. The agricultural capacity of the majority of the soils of the country can easily produce enough food to affordably feed Paraguay's population while still maintaining an exportable surplus. Without dialing back big agri-business in Paraguay, the human and environmental cost of agriculture there will only increase.

India, Unsustainable Livestock Production

by Ashlesha Khadse, Amrita Bhoomi Agroecology Centre, La Via Campesina's Agroecology school in South Asia

As Indian agriculture responds to growing national and global demand for meat and dairy products, profound changes are taking place in India's livestock sector. Whereas India has customarily been a country where farmers have integrated livestock into their farming and used sustainable practices, there is now a growing push towards free trade, privatisation, industrialisation and hyper-competitiveness that is eroding sustainable practices. This report examines India's dairy and poultry sectors in particular and provides key recommendations for policy makers.

In both the dairy and poultry sectors, the favouring of western, non-native bovine and poultry

species has resulted in the import of animals that require more water, antibiotics, and care than their native counterparts. As well, the pressure to increase production and decrease unit costs are driving local family dairy and poultry farms into debt or out of the market. Farms are being pressured to utilise livestock production practices that raise many health and ethical concerns. Overuse of antibiotics for livestock species and improper disposal of animal waste are increasing the spread of dangerous diseases into the air and water supplies threatening both livestock and human populations. Farmers are also suffering under the new systems of production that force costs and risks onto farmers.

In order to reduce the negative impacts of India's increasingly globalised livestock market, oversight at the state and national level is needed. Policies to support the cultivation of local bovine and poultry breeds, support local/rural producers, and remove agriculture from large-scale trade agreements are required. Additionally, antibiotic use needs to be more closely regulated, farmer's rights need to be upheld in the face of global market pressures, and pollution control standards must be set. Without these changes, India's livestock industry will continue to threaten the health of people, animals, and the environment.

Russia Analytical Report

by Svetlana Abramovich, Friends of Siberian Forests, Russia

In Russia, traditional livestock sectors, including pastoralism and small-scale farming, are important to the livelihoods of rural populations as well as national food sovereignty. As has been the trend worldwide, women are often responsible for and dependent upon small-scale farming. These ventures are often far more sustainable and ecologically sound than large-scale operations, and rely more on creative agricultural solutions that leverage regional resources and respond to local factors.

Although Russian consumption of meat and dairy products has been increasing at a slower rate than most industrialised countries, overall consumption has still increased as a

result of strong government support and rising domestic demand. However international trade agreements mean that Russia is having to open up livestock sectors to international trade, especially pork, and large-scale agricultural ventures are rapidly increasing their share of the market. Urbanisation alters patterns of food consumption, which may influence demand for livestock products. People in cities typically consume more food away from home and larger amounts of meat-based pre-cooked, fast and convenience foods than do people in rural areas.

The negative environmental and social impacts of these new consumption and production

patterns are vast, and include reduced biodiversity, decreased soil diversity, groundwater pollution, and air quality degradation. As such, it is crucial to support small-scale operations moving forward. Valuable support activities include providing written resources and training for farmers around regulations and food safety, facilitating communication between the government and small farms, providing opportunities for farms to access innovation, assisting with marketing and distribution, and facilitating small-scale producers to organise.

Livestock Development in Paraguay

by Ines Franceschelli and Miguel Lovera, Heñói Jey, Paraguay

Paraguay is a nation currently facing extreme food vulnerability. The economy of Paraguay is based on export-oriented agricultural production, with soybean and livestock comprising 70% of the export earnings. Business conglomerates own most of the agriculturally productive land in Paraguay and foreign tenure is an

increasing phenomenon. This leaves over 60% of citizens landless, powerless, and living in poverty or extreme poverty, and the majority now living in urban rather than rural areas. This situation, in concert with the fact that most of the food eaten by citizens is imported, has resulted in over 1.6 million Paraguayans unable to afford to meet their daily nutrition needs.

With so much of Paraguay's power and economic prowess locked into big agri-business, there has been little focus placed on counteracting or preventing the environmental consequences of large-scale agricultural production. The environmental consequences of this model of production disproportionately affect poor Paraguayans, especially those who

Conclusions and Recommendations

The global industrial livestock industry is a major contributor to forest and biodiversity loss and to climate change, as well as posing a threat to the world's small-scale food producers, and the availability of healthy and nutritious food for all. Yet as a sector it has so far received very little attention. Meanwhile the growth of the sector and corporate concentration within it is being proactively encouraged by both national governments and multilateral institutions, in spite of all its damaging impacts.

The global industrial livestock industry is a major contributor to forest and biodiversity loss and to climate change, as well as posing a threat to the world's small-scale food producers, and the availability of healthy and nutritious food for all. Yet as a sector it has so far received very little attention. Meanwhile the growth of the sector and corporate concentration within it is being proactively encouraged by both national governments and multilateral institutions, in spite of all its damaging impacts.

This report aims to expose not only the myriad ways in which the industrial livestock sector is impacting our lives and environment, but to argue that—precisely because it does cause so many problems—it is also an ideal focus for national climate and biodiversity policy makers. **Put simply, changing the way we produce meat and dairy products, and how much of them we eat, could have far-reaching win-win impacts, for people, for forests and biodiversity, for animals and for our climate.**

Take **modifying diets** for example. It is true that issues relating to diet can be controversial, and need to be

handled sensitively. But compared with other options, reforming livestock production and consumption has the potential to generate really significant and far-reaching benefits for us and for our planet, with relative ease—especially when one takes into account the fact that the average efficiency of livestock is staggeringly small—less than 3% of energy is retained in the conversion from plants to meat. [80]

A recent study from researchers at Cambridge University found that switching to healthier diets with less meat, combined with a 50% reduction in food waste, and improvements in livestock production, could result in emissions from livestock production almost halving by 2050 (when compared with 2009 levels). [81] The dietary changes proposed are moderate as well: the researchers still assumed that people would be eating a portion of poultry every day, plus two 85g portions of red meat and five eggs per week. The researchers point out that cutting food waste and moderating meat consumption are essential 'no regrets' options, compared with the prospect of completely decarbonising the energy and industry sectors. [82] This approach still allows for

improvements in protein intake for people whose diet is insufficient.

Improvements in diets could go further. Encouraging people to **reduce or stop consuming industrially produced beef** is especially important, given cattle and soy farming's particularly deleterious impact on forests, biodiversity and climate change. Beef accounts for 41% of the livestock sector's greenhouse gas emissions and is three times as 'emissions intense' as chicken and pork. [83] The promotion of **balanced diets**, that contain less meat and dairy, and more pulses, fruit and vegetables, is also important for human health, as it would reduce meat-related illnesses like heart disease.

Improvements in food education are important in order to encourage healthier eating habits.

However, changing our diets is not enough, because the corporate take-over of the poultry and pork sectors is also associated with significant social, environmental, health, and animal welfare problems that need to be addressed.

Fiscal reforms that support sustainable forms and levels of livestock production and



Sustainable livestock farming in Latin America. Eduardo Amorin

Box 12

Food sovereignty

Food sovereignty, as defined by farmer's organisations, is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations.

<https://nyeleni.org/>

Box 13

India: call for economic measures to support small-scale food producers

Our case study from India, written by Ashlesha Khadse from La Via Campesina's Agroecology school in South Asia, includes some sector-specific recommendations that other governments might also usefully consider. For example, in relation the dairy sector, it calls on the Indian government to regulate sales prices and take action to stop price wars between private players and cooperatives, and provide minimum support prices and state procurement guarantees for dairy products, in order to protect the livelihoods of millions of small farmers across

the country. It also asks the government to re-emphasise and promote more backyard rearing of local poultry varieties, especially by women, as a means of enhancing family nutrition and women's incomes. It demands that foreign direct investment in agriculture be prohibited and that agriculture should be removed from the World Trade Organization and bilateral free trade agreements such as that between the EU and India.

consumption would also be relatively easy to implement. These should include redirecting subsidies and other forms of economic support for unsustainable livestock production, to support more sustainable livestock production methods in line with the Aichi targets of the Convention on Biological Diversity. It is particularly important to eliminate perverse legal, fiscal and other incentives for commodity chains like unsustainably produced beef and animal fodder, which are major drivers of forest loss.

Sustainable livestock practices can be based on agroecology, agroforestry, traditional pastoralist practices, including practices that enhance forest conservation, and the restoration of livestock-breeding lands through the application of traditional knowledge. They include conserving and using native breeds of animals, diversifying production and rotation grazing. Governments should also promote the use of better quality non-GMO feed, and feed balancing practices that lower enteric and manure emissions.

In general it is essential that we change the way in which soils and productive resources are being used, recovering land and traditional patterns of land management, with a view to managing the land judiciously for the benefit of the whole population, distributing productive resources fairly. Food security and food sovereignty, and the conservation of the soils and ecosystems that sustain food production and livelihoods, are paramount.

Government support for policies that **build awareness and capacity in relation to sustainable livestock**

practices, and facilitate alternative models of production—such as farmer cooperatives and collectives in India—is critical. These should be bottom-up and gender sensitive, uphold small farmers' rights, and provide better support for existing and new small-scale food producers. Corporate control and concentration should be addressed and current progress in the UN for a legally binding treaty holding transnational corporations accountable for human rights abuses should also be supported to prevent further corporate impunity. [84]

Recognising the importance of the role women play in small-scale farming and their valuable contributions in feeding and caring for their family members, and in preserving native seeds and caring for a diversity of animal species. Projects, programmes, and policies should always take into consideration the gender aspects of livestock and feedstock farming in order to support women's important traditional knowledge and role in this area, rather than undermining it, as industrial agriculture does.

Further gender disaggregated data on women's involvement in both intensive and extensive livestock and feedstock farming should be looked at, to analyse, for example, women's labour rights violations in the poultry industry, and related issues around this industry, which have not been studied in depth. This would help to identify opportunities for empowerment, where women are not exploited and their roles are valued properly.

Reforming other governance and trade practices and policies is essential. This should include developing and implementing strict legislation prohibiting livestock practices that involve environmental pollution, weak labour standards, land grabbing, health risks and the maltreatment of animals. In particular, the development of Concentrated Animal Feedlot Operations (CAFOs), which are proving so damaging for rural small-scale food producers, public health and animal welfare, should be prohibited. In addition, livestock-related pollution standards should be introduced and effectively implemented, and there should be strict regulation of the use of antibiotics. There should also be a ban on the use of GM soy and the toxic pesticides that come with it.

A review of international trade agreements should be undertaken and the call for agriculture to be taken out of the WTO should be supported. Free trade rules have been shown to be unfair and have detrimental consequences on small farmers and small-scale producers both in the North and the South.

Internationally, it is critical that governments move to halt negotiations on bilateral and multilateral trade agreements, including because of the way in which they work to weaken national standards related to the livestock sector. Governments should stop prioritising increased exports of industrially produced commodities such as beef, chicken and soya products, over and above local production for local consumption; and intergovernmental agencies should not promote these as national priorities either.

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