

Forum: Environmental Committee

Issue: Mitigating the environmental impact of the meat industry

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Position: Deputy President

Introduction

The rate of climate change is increasing at an alarmingly rapid rate, with average global temperatures having increased by approximately 1 degree Celsius since 1880 and being projected to warm by 2-4 degrees by the year 2100. Much of the acceleration of these changes could be attributed to its leading artificial causes such as greenhouse gas emissions through power plant utilization, agricultural activities, deforestation, etc. Out of these, agricultural activities, or meat production, account for 57% of all the greenhouse gas emissions caused by food production and have significant impacts on other causes of environmental harm.



Figure 1: A picture of a grassy farm with cows in it (LANDTHINK)

One of its main consequences is deforestation. To raise a large number of animals for meat production, farmers require a relatively huge piece of land. This often leads to the cutting down of trees and forests to make more land for their production, and more than 800 million trees in the Amazon rainforest have been cut down in the past six years to meet the demand for beef. Trees are the main absorber of one of the main greenhouse gasses, carbon dioxide, with a fully grown tree absorbing about 21 kilograms of the gas per year, and one tonne of it during its lifetime of 1000 years. Although the numbers may seem like the main problem is being solved at a relatively speedy rate, people create 40 billion tonnes of CO₂ every year, and offsetting that with just the plantation of trees may be rather difficult. Hence, a solution to the problem of agricultural land must be found for the prevention of cutting down trees for the sake of even more greenhouse gas emissions.

Additionally, raising numerous farm animals itself directly contributes to the global emission of greenhouse gasses. Farm animals are ruminant animals, which means they repeatedly chew food that has already been in the stomach once. They digest food using enteric (or related to the intestines) fermentation, and this process releases much methane and nitrous oxide. Both are extremely powerful greenhouse gasses, with methane being able to capture 27 to 30 times as much heat in the atmosphere than carbon dioxide and nitrous oxide, approximately 273 times more effective than the weaker gas over 100 years.

Other than the ramifications of deforestation and the emission of methane and nitrous oxide, farm animals also contribute to countless other causes of environmental deterioration, such as biodiversity loss, soil degradation, excessive water usage, etc.

Definition of Key Terms

Broilers

Young chickens suitable for roasting, grilling, or barbequing; chickens bred and raised specifically for meat production

Cattle

Large ruminant animals with horns and cloven hoofs, domesticated for meat or milk; synonym for cows

Climate Change

Long-term shifts in temperatures and weather patterns

Domestication

The process of taming an animal and keeping it as a pet or on a farm/the cultivation of a plant for food

Feedlot

An area or building where livestock are fed or fattened up

Greenhouse Gasses

A gas that contributes to the greenhouse effect by absorbing infrared radiation

Kyoto Protocol

An international treaty that extended the 1992 United Nations Framework Convention on Climate Change that commits state parties to reduce greenhouse gas emissions, based on the scientific consensus that global warming is occurring and that human-made CO₂ emissions are driving it

Livestock

Farm animals regarded as an asset

Meatpacking

The processes of slaughtering, processing, packaging, and distributing meat from many varieties of livestock

Non-governmental Organizations (NGO)

A nonprofit organization that operates independently of any government, typically one whose purpose is to address a social or political issue

Pasture

Land covered with grass and other low plants suitable for grazing animals, especially cattle or sheep

Porkopolis

An old nickname for the city of Cincinnati, Ohio, for its development as a famous pork-processing center in the United States

Poultry

Domestic fowl, such as chickens, turkeys, ducks, and geese

Background

Humans and Meat Domestication

Humans' history with meat consumption began a very long time ago, but it was not until 10,000 years ago that animals began to be domesticated. Domestication began in the Near East with goats and sheep. Farming livestock allowed for a more sustainable and reliable method of attaining food, and this practice also produced secondary items such as milk, wool, and labor, facilitating human life. 1000 years later, livestock domestication was brought to other parts of the world (such as China, Sub-Saharan Africa, and Europe) along with the method of domesticating pigs, and the way of producing meat consistently allowed populations to grow and civilizations to rise. However, it was not until 1493 when the first cattle were brought to North America by Christopher Columbus, and beef became a prevalent food source for many nations around the world.

Meatpacking and the Rise of Large-scale Meat Production

In 1662, English colonist and fur trader William Pynchon of Massachusetts opened the first meatpacking facility in New York when he put salted pork into barrels for export. (The meatpacking industry consists of the processes of slaughtering livestock, as well as processing, packaging, and distributing the meat.) He began driving cattle to Boston and packed massive numbers of pigs, encouraging other colonists from Europe to initiate their meatpacking businesses. This caused the first boom in meat consumption in North America. Afterward, in 1818, Elisha Mills started the first large-scale pork-packing plant in Cincinnati, where pigs were killed and put into barrels along with large amounts of salt to satisfy growing demands for salted pork. As Cincinnati was located near the Ohio River, it became a famous trading center. Subsequently, the construction of canals allowed a greater number of exchanges between regions through Cincinnati. One of the main goods moving through the city was pork in the form of bacon and salted pork, which had become a popular form of meat in the United States due to the animal's adaptability; deforestation began to accelerate to create farmland to feed the domesticated pigs. Due to the success of Mills' pork packing industry, many more packing plants were built in the following decades. By 1833, 85,000 pigs were getting processed in Cincinnati every year, and in 1840, the city had 48 packing plants with 1,200 workers. which earned it the name 'Porkopolis'. During the city's peak in

the early 1860s, the meat packing industry reached 2,400 workers and processed more than 450,000 pigs each year. The pork was exported all around the world and accounted for 10% of the U.S.'s exports, boosting meat consumption and production globally.



Figure 2: A drawing of people herding pigs in 'Porkopolis' (Cincinnati Magazine)

The Rise of the United States Department of Agriculture

President Abraham Lincoln created the United States Department of Agriculture in 1862 to 'provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues based on sound public policy, the best available science, and efficient management.' USDA also makes sure that meat is created and processed safely, critically inspected, and well-packaged, and this institution emphasizes the need for meat safety and understanding of food reliability. The department still has these missions to this day.

Industrial Expansion

The first cattle feedlot, an area where livestock are fed and fattened up, was used in the United States instead of a pasture in 1876, causing the initiation of modern factory farming. Feedlots provide feed (grains, alfalfa, molasses, etc.) for the animals, allowing the animals to fatten up without having to forage for food themselves. As the animals were provided healthier food at regular intervals, the meat industry was able to create more high-quality meat in a shorter amount of time to match the demands of the people. However, as feedlots can fit a large number of animals into one of them, the density of livestock is normally extremely high, which increases the pollution emitted by the animals. The practice

is also considered to waste of resources, and as a high population of animals in a tight confined area may result in some of the animals not being able to receive the care they need, this practice is also considered to be inhumane.

Concurrently in the 1870s, railroad expansion increased dramatically globally, particularly in Europe and North America. Railways became essential for effective trade and economic activity, and they allowed large numbers of livestock to be raised in one area and fed and butchered in another, reducing waste in costs and time. As railways connected to both rural and urban areas, farmers were able to send livestock from where they were raised to urban centers with a higher demand for goods like processed meat. Another invention that was significant in the boom of meat production around the world was the refrigerated railroad car. This protective transportation method made it possible for meat products that could easily rot to be transported long distances relatively quickly and without much spoiling of the food, contrasted by earlier methods which took months and lost much of the meat at the destination due to rotting.

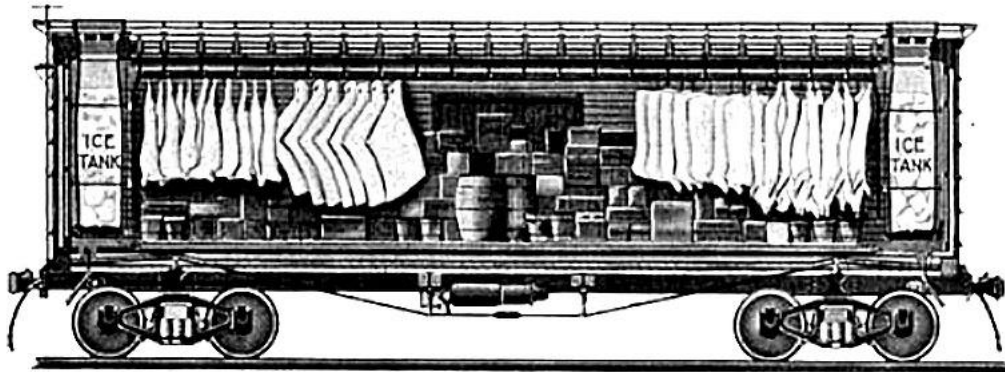


Figure 3: Art of a refrigerated railroad car (Miles Fiberglass)

In the 1920s, poultry (animals such as chickens or hens) became the first animal to be farmed in a factory, and a new era of industrial farming began as animals were mass-produced. The idea of broilers, or chickens developed just for their meat, was created, and as the number of livestock factories increased, so did the amount of pollution emitted and waste created from growing and processing meat.

In the 1970s, the pork and beef industries followed the lead of the poultry industry and adopted factory farming methods to maximize profit and production. Animal welfare, nor the environmental

impacts, were considered in the factories, and environmental pollution deteriorated significantly during this period.

Emphasis on Environmental Impacts

The UN Food and Agriculture Organization released a report on the role of livestock in climate change in 2006, which focused the public's attention on agriculture's environmental effects.

Major Parties Involved

World Wide Fund for Nature (WWF)

WWF is a non-governmental organization (NGO) that has a mission to conserve nature and preserve biodiversity on Earth. The organization collaborates with local communities to save natural resources and wildlife residing in their natural habitats, as well as create a sustainable future in which new generations can thrive. WWF has claimed to work globally with food producers, traders, brands, governments, and other organizations to support a shift into more sustainable food systems that do not emphasize the utilization of meat so much. The NGO is currently examining the optimal tools and solutions for solving the effects meat production has on the environment, while also balancing the environmental, economic, and social aspects. Its goal for 2030 is to reduce the key impacts of animal protein by 50% per gram of protein in the US and by 20% globally. Some actions WWF has been taking are, firstly, cooperating with some of the biggest food producers in the world to encourage more sustainable production of meat. The NGO has been helping by identifying risks and initiating action for creating reliable foods for consumers, as well as engaging suppliers and buyers to advocate for this sustainable consumption in the food sector. The organization also monitors the companies' actions to make sure they are making efforts to improve sustainability and production. Another action WWF is taking is founding the Global Roundtable for Sustainable Beef, an organization created for sustainable beef production. Some goals the organization has been providing cattle with an environment in which they can thrive, reducing the net global warming impact of beef by 30%, and ensuring that beef production does not negatively impact the environment. Along with other NGOs, stakeholders, and scientists in the organization, WWF is developing methods to measure the environmental, social, and economic sustainability of beef precisely and around the globe.

United Nations Environment Programme (UNEP)

The UNEP is one of the leading authorities that focus on environmental issues. Its mission is to inspire and inform nations and their people to increase the quality of their lives without harming those of future generations. This organization has worked with the UN, governments, the private sector, and much more over the past 50 years to solve some of the most critical environmental issues on the planet. In a 2018 report, furthermore, UNEP addressed the significance of how food (significantly meat) production has an enormous impact on the environment. Although it was understood that animal-based foods produced almost double the amount of greenhouse gas emissions as plant-based foods, UNEP still had to study the methods through which most foods were getting made in factories to observe the issue from a wider perspective and understand the exact carbon footprint of each type of food. However, as meat is an important part of the diets of many people around the world, providing bountiful amounts of vitamins and protein, while also generating income for many nations around the world, it is difficult to provide a solution that simply eradicates all meat consumption. One method of ameliorating this issue that UNEP has suggested is recreating meat entirely from plants- the fundamental molecules used to create meat could be stripped down into protein, fat, water, and trace minerals, and could be rearranged with plants with very small consequences to the environment. UNEP has emphasized the direness of the meat industry situation in a statement, “Our use of animals as a food-production technology has brought us to the verge of catastrophe,” as well as “The greenhouse gas footprint of animal agriculture rivals that of every car, truck, bus, ship, airplane, and rocket ship combined.” The organization also stresses the need for urgent action in this statement, “There is no pathway to achieve the Paris climate objectives without a massive decrease in the scale of animal agriculture,” highlighting the Paris Agreement (which promises to keep global temperature increase under 2 degrees Celsius.)

Global Roundtable for Sustainable Beef (GRSB)

GRSB is an organization that sets goals on reducing greenhouse gas emissions, improving land use, and increasing animal welfare. It has more than 500 members working in 24 countries. The foundation also has some specific goals: firstly, provide cattle with an environment in which they could thrive through best practices. Secondly, reduce the net global warming impact of beef by 30%. Lastly, ensure the beef value chain is a net positive contributor to nature by 2030. (GRSB has not set objectives that are too precise as each region has different levels of agricultural impacts on the planet and the group wishes to accommodate for all of them.)

To reduce the carbon footprint that beef production leaves behind, GRSB plans to maximize the efficiency of cattle by taking care of cattle health and improving breeding and feeding practices. This would allow for a decrease in the number of cattle required on each piece of land, as each cow would live

longer and have healthier baby cows. The organization also hopes to build soil health and resilience against extreme weather events and invest more in efficient, renewable processing and distribution of meat. This would also result in the improvement of cattle health and decrease the mortality rate of cows, reducing the need for more cows. Additionally, environmentally friendly meat production would diminish the emission of greenhouse gasses in factories and be more time-efficient, allowing less meat to go to waste.

Currently, GRSB is focused on protecting forests, grasslands, and other ecosystems, preventing illegal deforestation, and seeking methods for producing beef without harming the natural environment.

Australia

More than 63,000 farming businesses produce beef from 43% of Australia's landmass, making the nation the second-largest beef exporter. Because raising cattle requires many resources, much of wildlife habitat and the pristine environment must be sacrificed to fulfill demands for meat: more precisely, land for growing cattle. For instance, from 2018 to 2021, 13,500 hectares of deforestation have been identified in beef cattle properties of Queensland, Australia, and this area is twice the size of Manhattan. Because of this, Australia is included in the World Wildlife Fund's list of global deforestation hotspots and is the only developed country to be on this list. Additionally, Queensland is identified as the 'deforestation front' of Australia- an area with huge concentrations of deforestation hotspots and many threatened forests. In 2019, the Wilderness Society reported that 73% of all deforestation from 2013 to 2019 was derived from reasons related to beef.

To mitigate this long-standing issue, Australia introduced a ban on broad-scale clearing of land in 2006, which allowed the country to decrease its deforestation amounts dramatically and meet its greenhouse gas emissions target for the Kyoto Protocol. Australia went from 235,000 hectares of annual clearing of land in 2006 down to 78,000 in 2010. However, after a new government that emphasized technological development took place in Queensland, the ban was broken in 2013 for the cause of 'high-value agriculture'. Consequently, there was much clearing of primary forests in Cape York (in Queensland,) which harmed many nationally endangered species. 700,000 hectares of secondary forests also had their protection removed.

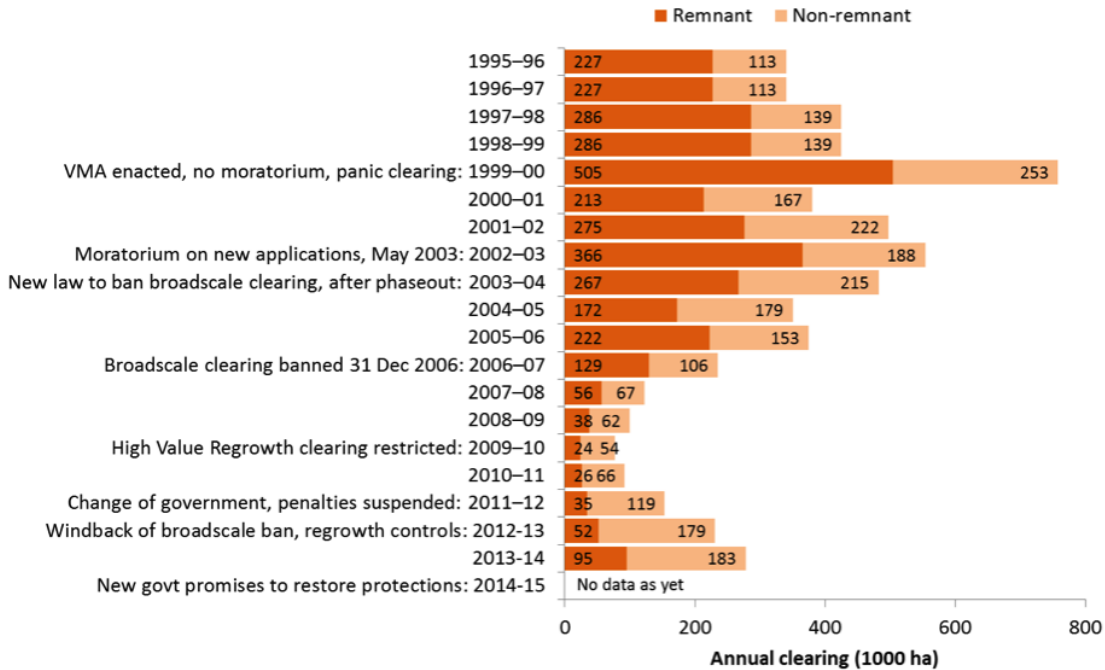


Figure 4: A graph depicting the annual clearing of land in Australia (Springer)

Another law was passed in 2018, again calling for a decrease in land clearing, as well as strengthened legislation to prevent ‘unsustainable’ clearing. Since then, 349,000 hectares were cleared in the 2020-2021 period, which is a 49% decline from 2018-2019. Although many farmers protested outside parliament when the law was passed, claiming the new restrictions would harm the agriculture industry, many environmental groups welcomed the significant change in the law, underlining the increased protection towards endangered wildlife and flora this would give.

Previous Attempts to Resolve the Issue

Over the years, many different laws have been created all over the world to decrease the enormous environmental impact the meat industry has on Earth. Some have worked significantly well, while others were relatively ineffective. Even in the current era, more efforts and regulations are made every year to reduce the detrimental footprint meat has on the environment.

For example, the EU Regulation on deforestation-free products was adopted on June 29 2023 to curb the EU market’s effects on global deforestation. This regulation ensures that, just like in the name, many crucial goods in the EU market will no longer contribute to deforestation and forest degradation anywhere in the world, consequently decreasing the emission of greenhouse gasses and reducing climate

change and biodiversity loss as a whole. It is predicted that this policy will decrease global deforestation as the EU is a major economy and a large buyer of the key products mentioned in the regulation above. As this law comes into action, all relevant EU companies must examine and conduct extensive diligence on the products they put on the EU market such as cattle and other products to make sure they do not come from deforestation or breaching of local environmental or social laws. The law also makes it so that products that do not follow these rules are prohibited from being sold.

Possible Solutions

Because the level of agricultural advancement and environmental impact is different in all countries, there cannot be an all-encompassing solution that could solve this global issue at once. However, there are a few methods that may be able to mitigate the issue from different stages.

Firstly, each country could have companies that work for the agricultural sector or sell meat-related products to report their environmental footprint every year. Through this, companies may be able to independently share whether or not they were able to grow livestock sustainably and healthily, as well as if they were able to emit the minimum greenhouse gasses possible. This will also create an impetus for companies that may not have been producing meat with concern for the environment nor the society to plan out the environmental impacts of their actions (such as growing too many animals and releasing excessive methane gas into the atmosphere or burning nonrenewable resources as fuel for meat processing factories) may cause, and consequently improve the overall state of environmental ramifications caused by livestock growth and meat production.

Secondly, governments of member states could increase investment in research on plant-based meat. This type of meat is not created from actual livestock, but instead genetically modified from plants, which means if plant-based meat becomes globally prevalent, neither farmland nor the number of livestock need to be increased to fulfill the ever-increasing people's demands for meat. As plant-based meat does not require animals to be grown in a large area of land before being moved to factories to get processed, it is more resource-efficient, as the meat could be created from sources that wouldn't require much space, nor emit as many toxic gasses.

Last but not least, more countries could alert the citizens of the environmental ramifications raising excessive numbers of livestock could bring. Without the citizens' support and approval, no member state would be able to achieve perfect eradication of pollution or deforestation, as people

wouldn't understand what is wrong with their actions and persistently utilize the environment for economic gains. Therefore, it is important to inform the public about the significance of mitigating environmental impacts of livestock.

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