Beyond the Pail

The Emergence of Industrialized Dairy

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With markets for dairy products in industrialized countries at a virtual saturation point, the global dairy industry has set its sights on expansion across developing countries, particularly throughout Asia. This untapped "emerging" market in the global South consists of nearly three billion new potential dairy consumers, and by 2025, these countries are expected to consume nearly twice as much milk and dairy products as they did in 1997.[1]

Due to their fast-growing populations, rising incomes, rapid urbanization, and greater exposure to Western consumer products and lifestyles, countries in South and East Asia are now a locus of attention and investment from international and domestic dairy producers.

The dairy sector in Asia now lies on the precipice of rapid formalization with the introduction of Concentrated Animal Feeding Operations (CAFOs), characterized by the lifelong, indoor confinement of hundreds or even thousands of animals in a single location.[2] Although promoted as an efficient means of producing large quantities of animal products in a short time period, CAFOs have severe environmental and other consequences.

CAFOs create high levels of waste and pollution, affecting the livelihoods of workers and surrounding communities, contaminating local soil and water supplies, and producing greenhouse gas emissions that contribute to global climate change. CAFOs also subject animals to confined spaces and numerous inhumane practices. They contribute to the rise of zoonotic diseases, negatively affecting public health. Additionally, large-scale milk producers often put local dairies out of business, affecting the livelihoods of communities in rural areas.

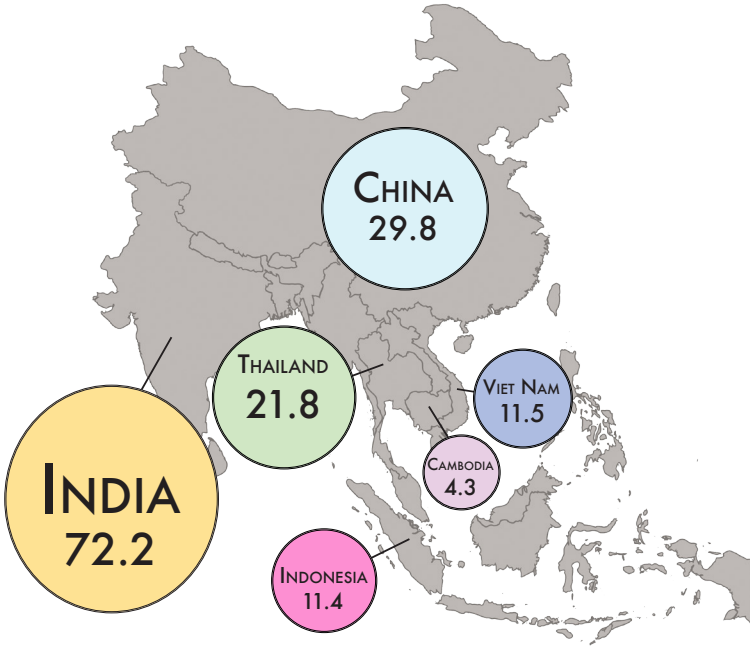
Growing Demand and Increased Production

Despite the lack of dairy products in traditional East Asian diets, Asia is now the world's highest dairy-consuming region, with 39 percent of global consumption. The bulk of this consumption is found in China, India, and Pakistan, which are also three of the top four dairy producing nations in the world.[3,4] Many regional policy-makers see the industrialized CAFO system as necessary to meet escalating demand amid intensifying pressures on natural resources like water, land, and forests.

Across Asia milk consumption and production rates are rising. In Viet Nam, an enormous dairy CAFO is being constructed that, when fully operational in 2017, will have nearly 140,000 cows and may well be the largest dairy CAFO in the world.[5] In China, the world's third largest milk producing nation, domestic production of milk is expected to triple by 2030, and the number of dairy CAFOs is increasing rapidly.[6] Cambodia, where people traditionally consumed almost no dairy, milked its first cow during the opening of the country's first dairy operation, a CAFO, in 2011; the facility is dangerously located on the edge of a national park that's a refuge for endangered species.[7]

In Thailand, governmental policies are supporting more marketing of dairy products, establishment of school milk programs, and the creation of dairy cooperatives. India now accounts for 16 percent of global milk production,[8] recently surpassing the U.S. to become the largest milk producing country in the world.[9] In Indonesia, imports of "high-yielding" international dairy cow breeds are rising, and the government wants to double the number of dairy cows by 2020.[10] Multinational corporations like Nestlé and Danone have become major players in the Indonesian dairy industry.[11]

Asian countries, consumption of milk in 2009, kg/person (FAO)[12]



The CAFO System: A Critical Review

As the dairy CAFO model is gaining a foothold in Asia, researchers and advocates in industrialized countries have begun to document the often-devastating consequences of CAFOs for the environment, climate change, animal welfare, rural economies and workers, and public and worker health.

Environmental Impact

CAFOs are a major contributor to climate change, waste, pollution, resource depletion, and other environmental issues. The global livestock sector is estimated to make up 14.5 percent of human-induced greenhouse gas emissions (GHGs).[13]

The world's dairy cattle account for emissions of 1.4 gigatonnes of carbon dioxide equivalent a year—or 20 percent of the livestock sector's total GHGs.[14] A dairy CAFO with 2,500 cows creates as much waste as a city of 400,000 people,[15] much of which is often untreated and leaches into local water supplies, degrading marine ecosystems and contaminating potable water.

CAFO dairy cows are also resource-intensive, requiring about 15 more liters of water and significantly extra feed grain compared to grazing cows.[16] It takes 31 liters of water to produce one gram of milk, 50 percent more water than is required per gram of pulse (legume) protein—the traditional source of dietary protein in many Asian countries. [17] In addition, almost half (43 percent) of global grain produced is allocated to livestock feed,[18] using land that arguably could be farmed more efficiently and equitably to grow high-protein plant foods suitable for human consumption.

Industrialized dairies also rely on product packaging, often single-serve varieties. Although Tetra Pak cartons, the major form of dairy packaging in Asia, are recyclable, they require specialized recycling technology that is largely unavailable.

Animal Welfare

Dairy (and all) CAFOs create a stressful environment for the animals, which leads to high rates of hoof lesions, lameness, infections, and stomach ulcers among cows used in dairy production.[19,20] Non-indigenous cows, such as the Holstein-Friesian breed, are imported to Asia from New Zealand, Australia, and Uruguay because of their high milk yields, but are not adapted to the high-temperature climates and face heat–induced stress.[21] Slaughter also awaits all dairy cows—male calves often at a young age and others when their productivity decreases.

Public and Worker Health

CAFOs present a number of public health concerns. Cow manure contains pathogens responsible for more than 90 percent of food and waterborne diseases,[22] and improper dumping methods and its use as fertilizer can lead to water contamination. Animals in industrial agricultural operations are regularly fed antibiotics and growth hormones, which can also enter aquifers and contaminate potable water.

The use of antibiotics in CAFOs is a major contributor to the development of antibiotic resistant bacteria,[23,24,25] a serious public health risk. A recent assessment in China conducted at pig CAFOs found 149 unique antibiotic resistant genes in manure being processed for disposal on land.[26] Additionally, recent decades have seen an unprecedented global rise in zoonotic diseases: infectious diseases transmitted from animals to humans,[27] correlating with a rise in the number of CAFOs.

CAFO working conditions place employees at risk of occupational hazards unseen in traditional farming. Workers are exposed to emissions of ammonia, hydrogen sulfide, and methane, leading to the development of respiratory diseases.[28,29] Large herds of confined animals also pose risks of physical injury.[30]

Policy Recommendations

Dairy corporations are encouraging adoption of the CAFO system in the global South with claims of economic gain, agricultural modernization, and improved food systems. Wider use of the CAFO model in Asia, joined to an ever-expanding supply of dairy products, guarantees the opposite: pollution, animal welfare violations, increased emissions, and threats to public and worker health, among other concerns.

In India, China, and Southeast Asia, policy-makers, civil society, and private sector investors have a chance to interrupt this cycle and create more sustainable, equitable, and humane food and agriculture systems:

- Governments and industry should prioritize less resource-intensive agricultural practices, including cultivation of diverse and nutritious foods for direct human consumption.
- Governments should eliminate land giveaways, subsidies, special economic zones, and tax incentives for large-scale dairy operations. Governments should provide incentives to promote cultivation of and equitable access to less resource-intensive, plant-based foods.
- Governments should impose taxes, fines, or other sanctions on CAFO pollution, such as excessive animal waste, carcasses, odors, land degradation, water contamination, and biodiversity loss.
- Governments should eliminate dairy industry-created school nutritional programs and public nutrition guidelines, in addition to corporate marketing campaigns asserting the nutritional necessity of dairy consumption. They should also prohibit misleading marketing strategies that include depictions of free- range or content animals.
- Governments should prohibit the importation and breeding of cows not adapted to the high-heat climates of China, India, and Southeast Asia.
- Governments should impose taxes or fines for excessive packaging and mandate producer recycling.

Endnotes

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