Spring 2023

Dairy & Development: An Investigation into the Economic and Sociopolitical Dynamics of Yak Cheesemaking in Nepal

Audrey Peiker
SIT Study Abroad

Dairy & Development

An investigation into the economic and sociopolitical dynamics of yak cheesemaking in Nepal

By: Audrey Peiker

SIT NPT Spring 2023

Dairy & Development:
An Investigation into the Economic and Sociopolitical Dynamics of Yak Cheesemaking in Nepal

Peiker, Audrey
Academic Director: Onians, Isabelle
Senior Faculty Advisor/Project Advisor: N/A
Middlebury College
Political Science

Asia, Nepal, Langtang National Park, Kyanjin Gompa; Gatlang; Kathmandu
Submitted in partial fulfillment of the requirements for Nepal: Tibetan and Himalayan Peoples, SIT Study Abroad, Spring 2023

Abstract

Cheesemaking in Nepal is full of love, passion, and creativity. What began as a Swiss development project in the 1950s has now grown into a full-fledged industry, providing jobs, creative outlets, and cultural expression for many. Nepal's Dairy Development Corporation owns several factories throughout the country, setting the tone for the industry by establishing the standard price for milk and process for cheesemaking. From there, privately held factories innovate and compete, bringing new products to the market and increasing wages, but also struggle with consistency and reliability. Now, Nepal's cheesemaking market is at a turning point—much of the herding population is abandoning the time-honored tradition in pursuit of economic betterment—creating a struggle between the ways of the past and the ways of the future. To explore this challenging and changing dichotomy I examine both government-owned factories and the private industry and investigate the benefits and drawbacks of each. By understanding the different models and production and struggles of herders, I strive to recognize the value tradeoffs of each method, seeking a more sustainable and equitable future for herders and cheesemakers alike.

Acknowledgements

First, I would like to thank SIT, and specifically Patty, Isabelle, and Rinzi, for giving me this opportunity to pursue my slightly random interest and for offering unwavering support during the past 4 weeks. I would also like to thank my SIT peers for providing a similar level of support and community throughout this process, and for always making me smile and laugh. Thank you to my coresearchers Sonam and Sandup for providing me with guidance and incredible access throughout my time in Gatlang and Langtang. I would also like to thank the people (and yaks) of Kyanjin Gompa, Gatlang, and Kathmandu for indulging my interest and taking time out of their busy days to help with my project. To my parents and brother thank you as well, for offering further support, excitement, and advice, no matter what hour of the night I called. Lastly, I would like to thank Ananda Tree House and their "Yak cheese available here" sign that started this all.

Contents

Introduction

Lungs burning from the long walk up and the unfamiliar thinness of the air, I step off our path. My eyes take in the confident mountains around me, sloped edges drawing my eyes down to the grass dotted with vibrant rhododendrons and several figures looking back at us. Grass crunches beneath my feet, mixing with the dirt and further announcing our arrival to our companions. It is not the people, however, that first come to greet my unfamiliar form. A baby yak gallops up to me and begins to lick my pants, barely a week old and unsteady on his new legs. The salty taste of sweat on my clothes fills this yak with joy, little legs dancing below their unsteady frame. Their excitement grows, their feet continue to tap, and their body continues to bounce with bliss. The force of their licking pushes me backward. One of the herders approaches with a white hat perched on his head and his body engulfed in a red puffer jacket to fend off the crisp air. He picks up the baby yak, teeth proudly displayed in a wide smile.

Figure 1: Animals Outside the Yak House

A month ago, as I sit in my bedroom, an idea suddenly flashes through my head. I reach down to pick up my black Northface backpack and open up my banged-up laptop. As the screen illuminates the dark room, I type “yak cheese politics Nepal” into my search bar, hoping this string of thoughts produces anything coherent. After passing

Ananda Tree House's "Yak cheese from Dolpo available here" sign each morning on my way to school, I haven't been able to get yak cheese off my mind. Something about it was mesmerizing, feeling like an embodiment of the fun and uniquely whimsical energy that drew me to Nepal. I now hoped intensely that there'd be some connection to the other facet that drew me to Nepal, the opportunity to study the political environment. Enter the first result that came onto my screen: a Nepali Times article titled "The Story of Langtang Cheese".

Now, as the herder holds this baby yak, framed by cascading mountains and thin air, I meet the man that had been the object of my obsession for the past month. Gyalbu Tamang runs the Langtang Cheese Production Center in Kyanjin Gompa, which he begins to tell me the story of. He does not, however, tell the story of a bustling high-production yak cheese factory that my brain had romanticized after so many walks to school. Rather, while he tells a story full of passion and love, he also tells a story of loss and pain, of holding out hope for a better future.

Figure 2: Gyalbu (left) preparing to meet with yak herders (right)

Cheesemaking in Kyanjin Gompa

History of Langtang Cheese Production Center

Gyalbu overflows with his love for cheese, voice glowing with joy in a way it only can when someone is truly passionate about their craft. As he talks about his profession, he seldom paints it in a negative light despite the factory's current state easily lending itself toward one. He begins by recounting details I now know well thanks to the Nepali Times article, reconfirming how the Langtang Cheese Production Center became the oldest and most famous in all of Nepal.

Nepali herders have long made a hard, jaw-breaker-like cheese called chhurpi that can be stored unrefrigerated for months at a time, a necessity for nomadic life (Yonzon and Hunter 198). Excess milk was traditionally made into churpi and butter and traded with lowland Nepalis or other Tibetans in return for wool and other goods (Cox 68). This all changed in Langtang in the early 1950s when Swiss development traveled to Langtang with support from the United Nations' Food and Agriculture Organization, intending to help herders find a use for their large surpluses of dairy in the summer months (Ghimire). One of these men was Werner Schulthess, who described his assignment as to "advise and assist in the promotion of dairy development in remote regions of the Nepal Himalayas" (Schulthess). He believed that this new method of cheesemaking would raise the nutritional quality of mountainous diets and would increase the cheesemaker's incomes and well-being (Dixit). The Swiss worked directly with villagers at the time, including Gyalbu's father, to teach them this new method of cheesemaking. To this day, cheesemakers across Nepal still follow this method almost exactly, passing the craft down from one to the next. This new cheese was much softer and more akin to cheese traditionally made in Switzerland than churpi, and as such, many Nepalis were initially resistant to this new taste and texture (Dixit). Not to be dissuaded from their mission, the Swiss gave out free samples of the cheese in Langtang to adjust Nepali pallets and grow interest in this new style of cheesemaking, meeting relative success (Dixit).

After 1964, when the Swiss felt that their mission and teaching was complete, they created and then gave the cheese factory over to the Dairy Development Corporation (DDC), a state-owned corporation striving to economically advance farming

communities, and to Gyabul's father, who continued to run the factory (Dixit). Gyalbu took over the factory from his father, making him the second generation of cheesemakers in Langtang. The cheese factory became vital to the economic success of herders, with one herder describing in 1998 that "now there is the cheese factory, and we have many chauri and yak ... life is economically better now" (McVeigh 117). The cheese factory also brought the Langtang people more into the cultural, political, educational, and economic happenings of the larger country by requiring knowledge of the Nepali language, accounting, and the country's legal and political system (Cox 68). It also lessened trade with Tibet, thereby increasing knowledge of Nepali culture in the area (Cox 68).

Now, the DDC owns 9 yak cheese factories similar to that in Langtang and supplies cheese, along with myriad other dairy products, throughout Nepal. From mid-April 2019 to mid-April 2020, the Dairy Development Corporation produced 38 tonnes of cheese and 12 tonnes of butter (Ghimire). According to Govind Rah Joshi, a DDC employee, five factories are located in the Rasuwa district, two are located in Dolakha, and one each in Ramechap and Solukhumbu. He also shared that the DDC sells about 70-80% of its cheese in Kathmandu, with most of the rest being sold directly out of the factories or in smaller cities around Nepal. The DDC maintains several sales counters, but the majority of its cheese is sold in department stores. None is exported to other countries. He also estimates that approximately half of the cheese is purchased by tourists, and half by locals.

Process of Cheesemaking

Since the Swiss's arrival, the government of Nepal has standardized the cheesemaking method across all government-owned cheese factories. While the physical factory lies in the village of Kyanjin Gompa (figure 3), Gyalbu shared that he and his cheesemakers often travel to meet the herders where they are and set up temporary factories to create cheese on the go. Milk is much heavier than cheese, making this the much more efficient method of production. Gyalbu explained that once the milk is collected, the cream is separated from the milk (figure 4). It is then placed into a large vat (figure 5) and cooked at 65 degrees Celsius. The quality of the milk at its fat

percentage is then checked, with necessary modifications following. DDC yak cheese contains 50% fat, giving it a medium bordering on hard texture. The cheese is then cooled to 35 degrees whereupon yogurt and rennet, a type of enzyme, is added to the cheese to thicken it when stirred (figure 6). After this, a special tool composed of many long strings, initially brought by the Swiss, is used to cut the cheese into very small pieces. The mixture is then continually stirred with another special tool that resembles a whisk and cooked over the fire until it reaches a smooth consistency. The mixture is next pressed into cheesecloth inside a large round mold (figure 7), removed, and rinsed in salt water. The cheese then gets transported back to the production center in Kyanjin Gompa, where it is washed with salt water and yogurt, alternating each day. Once three months have passed the process is officially complete and the cheese can be stored for up to four years in a cool dry environment.

Figure 3: Langtang Cheese Production Center

Figure 4: Took for Separating Cream and Fat

Figure 5: Vat to Boil Milk

Figure 6: Tool to Stir Milk

Figure 7: Cheese Mold

Herding and the DDC

As the baby yak licked me, I gazed across the wide flat pasture to see approximately seven herders all in a group together, bundled against the elements and framed by their wooden walled tarp-roofed yak house. These strong figures may have appeared insignificant to the trekkers passing by the end of the trek, eager to reach Kyanjin Gompa, and to see the yak cheese factory. In reality, these figures are incredibly important, some of the last remaining herders in the area. Yak cheese in Kyanjin Gompa, and across Nepal more generally, is almost entirely dependent on the success of herders in Nepal, who sell their milk to the factory. One cannot understand, discuss, or study yak cheese without a thorough understanding of the herders the industry is built upon.

When we stumbled upon Gyalbu on his way down the valley, he was preparing for his annual meeting with herders and the village leader. They will discuss the areas where the herders will herd this year, which will be decided by the village leader, and the price of the milk, which will be decided by the DDC. When asked about the price of the milk, herders grumbled angrily, and even Gyalbu seemed to think it wasn't sufficient. "One cup of black tea, they take it from 150 rupees, one good quality liter of milk, 110 rupees. They are not investing in the herders, to have a future they have to go make lodges," he said. The actual price of milk was further disputed during my research. One herder shared with me that she would be happy with 100 rupees, but often were only paid around 80 or 90 rupees per liter, although Gyalbu later told me they paid around 110-120 rupees per liter. During winter months when livestock cannot be milked at all, they often survive off little to no income "Before, the more yaks you owned, the richer you were," explained my co-researcher Sonam, "now it is the opposite".

Upon returning to Kathmandu, I learned there was a reason behind this confusion over the price of milk. Govind Rah Joshi, a DDC employee, shared that the price they pay for milk varies from place to place and year to year. He explained that the DDC pays a standard base price, but it gets adjusted based on the amount of fat, determined using the Gerber method, a chemical process for determining the fat content of milk. In all factories other than Kyanjin Gompa, they pay 14.5 NPR per unit of fat, which typically comes to 94.25 NPR per liter, raised from 14 NPR just a month ago. In

Kyanjin Gompa, however, they pay 16 NPR per unit of fat, raised last month from 15.5 NPR, totaling an average of 104 NPR per liter.

This differential payment system began after the 2015 earthquake, which killed over four hundred yaks and yak-hybrids and 23 of the 43 herders in Langtang (Lord 298). Govind Rah Joshi explained that representatives from the Swiss government petitioned the Nepali government to raise the price of milk in Kyanjin Gompa. He said that they wanted to support herder recovery in the area and to incentivize their herders to return to the herding lifestyle after the disaster, rather than joining the guest house businesses as so many already were. The government approved this request, and Kyanjin Gompa herders have been paid more since. The Swiss also invested 200,000 Swiss Francs in the post-earthquake revitalization of the cheese factory, making it one of the largest recovery efforts in the area (Lord 296). Govind Rah Joshi shared that regardless of the location produced, all DDC yak cheese retails for 1820 NPR.

Despite the intriguing "yak cheese" name, the milk which the DDC buys also is not true yak milk for several reasons. Yaks are male and do not produce milk, meaning there is no way to make true "yak" cheese (Paudel 139). Rather, their female counterparts, naks, produce milk and could be used to make "nak" cheese. However, maintaining yaks and naks has grown harder over time, due to climate change, food insecurity, conservation laws, outmigration, and other factors (Hellman 26-37). Thus, instead of using naks for their cheese, the DDC gathers milk from zomos, or dairying yak-cow hybrids. Sonam explained that zomos can be milked twice a day, rather than once, making them the far more practical choice. Further, zomos survive better in both higher and lower altitudes than yaks (Paudel 193). Govind Rah Joshi estimated that they draw milk from approximately 2,500 zomos for their milk production. Despite this, the DDC still markets the cheese as yak cheese, and the residents of Kyanjin Gompa almost exclusively used the term yak when referencing these animals, and thus, I will use it interchangeably with zomo throughout this paper.

The areas in which one can herd yaks are also hotly contested. This decision is largely left up to the village leader, who gets to decide which carca, or yak pasture, herders can use each year (figure 8). These carcas are spread across elevations and kilometers, varying in their available grass, land, and temporary housing shelters (Cox 68). Most are located within a day's walk of the factory (Cox 68). Beyond this, herders

recounted internal competition surrounding who could travel where, who moved in groups, and when they changed locations. They explained that moving in a group has the advantage of being easier to get the cheese factory to travel to you—often the factory would not want to travel to a far carca to make cheese if only one herder was there—but also required being depended on each other and sharing space. The herding group I met consisted of three couples living together. They shared that they had been staying together for about three months due to forest fires. They will continue to stay together as they move up towards Kyanjin Gompa and then will separate again upon arrival in the village. Multiple interviewees attributed the popularity and taste of the cheese to these grazing areas, explaining that yak milk is both nutritious and flavorful because of the area's nutritious herbs the yaks graze on. Further, carcas receive no fertilizer, making the milk organic.

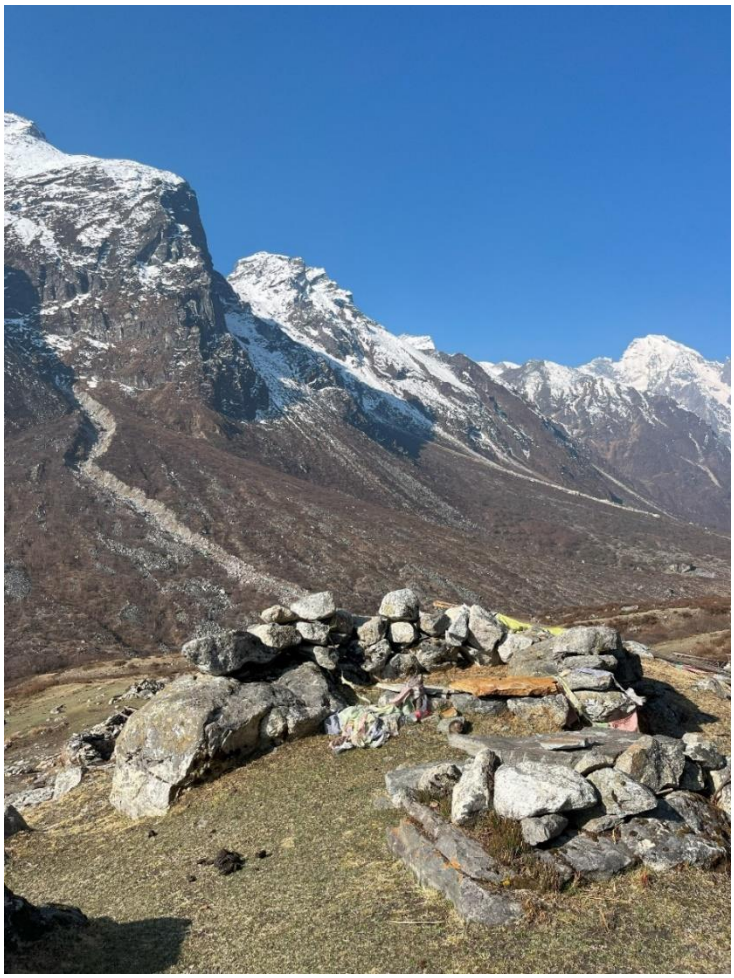

Figure 8: Yak carca with temporary dwelling

Herding and its Decline

Herding in Langtang is often spoken of as a dying art, more of a memory of what was rather than an account of what is. But, decades ago herding was alive and well; upwards of 80% of families owned livestock or were involved in herding (McVeigh 114). To live in Kyanjin Gompa was to exist within the herding community. The cheese factory was vital to this industry, with 73% of families with cattle being registered as milk producers with the factory (McVeigh 116).

"The life yak herding was simple, and even though it was hard, it was good," a villager told me, capturing an integral competent of the dialogue surrounding herding: nostalgia. Many people think of herding as a simpler time, a time when families lived together, moved as a unit, and focused only on their livestock. Thupten Lama, a town resident, shared with me that he feels Kyanjin Gompa's culture is defined by this history of agropastoralism, explaining "it's so connected, the people, the environment, and animal husbandry, they're interdependent on each other."

The yaks themselves were valued too, embodying more than just a job or way to make money, but rather, a member of the family. Gyamlu, a former herder, shared with me, with a face softened by nostalgia, that she used to love her animals like part of the family. She would be worried if they got lost or died and misses them dearly now that she's sold them in favor of opening a guest house. She shared that yaks also brought the village together, and people worked together to support their yaks. Still now, people treated yaks with love, meeting news of my research with interest and joy. Sonam shared that yaks here are given names, reflecting a level of respect more akin to a pet than profitable livestock. Some even respond to their name, further cementing their place not as livestock, but more so, as members of the family.

Figure 9: Yaks on the trek up to Kyanjin Gompa

Now, the modern push for innovation, drive, and acquisition has reached Kyanjin Gompa, leaving villagers longing for a time removed from distractions and making herding an increasingly distant memory. Villagers estimated that now 80% of residents have a guest house or live abroad, which are more profitable careers, making the town a mirror image of what was before. Before the earthquake, there were 43 herders, in 2016 there were 12, and now only 6 remain (Lord 272).

When herding's decline is discussed in Kyanjin Gompa, people are of two minds. On the one hand, residents lament the loss of a time-honored tradition, the loss of a way of life now thought of as simpler, and the loss of how they believe people are intended to live. Interviewees spoke of missing their days herding, sharing that they cried when they thought of the life they'd left behind. Three villagers gathered outside the monastery in Kyanjin Gompa communicated to my coresearcher that "now, they remember farming.

They used to plant crops during this time and during September and October they used to harvest, which they remember now. When they see the yaks they remember the carcas. When they go up into the carcas they remember their past childhood. Sometimes he cries and he remembers the grandparents who he stayed with when yak herding". "Without yaks, doesn't feel like the village" Gyalbu's wife shared, sadness evident in her voice. Thupten too shared that he feels a sense of sadness over the speed at which the culture is withering away, explaining that "culture is on the verge of extinction".

As I hiked through the areas surrounding Kyanjin Gompa, I also could not help but lament the loss of this way of life, though I had never experienced it. As I passed by countless yak carcas—now far more than are needed to sustain the 6 remaining herding groups—I could not shake the sense of loss. The stone buildings felt like skeletons; trash was discarded inside and makeshift roofs were gone, giving the areas an eerie feeling. Feral yaks, owned in name but not in practice besides being brought occasional salt, roamed free throughout the village and surrounding land on my walk there. Before, owning a yak was vital to a family's wealth, but now they are left to wander on their own. While some of the yak houses I had passed would be once again inhabited by herders come summer, many also would be left vacant, wood structures standing empty and alone, simply no longer needed to support the small number of remaining herders.

Figure 10: Yak house in Yak Carca

Nostalgia, however, cannot right all past wrongs, and residents of Kyanjin Gompa are not quick to dismiss the struggles of herding. Interviewees always described the difficulties of the job, recounting stories of difficult labor and living conditions, and almost no one said they'd return to herding if given the opportunity. Villagers told how yak herders must travel and care for their yaks year-round, although they only benefit from the sale of milk in the summer months, making it a trying and unrewarding profession. Herders must also move frequently with their yaks, higher in the summer for cooler weather and lower in the winter for warmer. In the winter, they also must create yak houses to keep their yaks warm and protected against the elements. The carcas they move between do have makeshift buildings—walls of stone that they place a tarp roof on upon arrival—but it is a far cry from the dependency of home one craves (figure 10). When speaking to herders, I often began my interviews by asking if they liked the job. "There was no other option," they generally responded, "it is what I do". Respondents didn't stop to consider if they possibly liked the profession—liking wasn't part of their

calculus when selecting a job. “Herding is the last option,” they told me, no hint of romanticization in sight.

This hardship also provides little monetary benefit, a far cry from making up for the difficulties of the lifestyle. “Before, there was lots of milk production so it was good…They made good livings” the group of men I spoke to by a stupa explained to me. “At that time, people were poor so less pay was sufficient. But now, the value of money is less so the rate is no longer sufficient,” they continued. They shared that in the past other jobs in the village were scarcer, making herding more attractive by way of a lack of other options. In addition to not making much money, yaks are also expensive to purchase, ranging from 50,000-60,000 rupees, according to Gyalbu. While most herders I spoke to inherited their yaks from their farming families, this cannot be ignored as a significant startup cost to enter an industry that will offer little in return. “They are not investing in the herders, to have a future they have to go make lodges,” shared Gyalbu when asked about the sustainability of milk’s current price.

The DDC is not ignorant of these struggles; rather, they seem to recognize them and sympathize with the herder’s plight. “They are very poor. If we make it more capable or invest more in the production of yak cheese, then surely the people and the places will rise. They can make more money and support the socioeconomic development of the places,” explained Govind Rah Joshi. “I think there should be some more infrastructure for yak milk farmers, technical advice, and the productivity of the herd should be made higher,” he continued. However, Govind Rah Joshi explained he personally only has the power to approve raises in milk prices, which he almost always does. However, he cannot suggest one himself, giving him little personal power.

Tourism in Langtang

When Werner Schulthess arrived in Kyanjin Gompa, he was likely met with a sea of endless yaks and yak herders unfolding before his eyes, a village dominated by agropastoralism. But, for the hundreds of trekkers arriving in Kyanjin Gompa today, the iconic Himalayan animals have almost fully given way to guest houses, which leave no hint there was ever a village devoid of tourism in its place (figure 11). Langtang is currently the third largest trekking destination in Nepal, with tourism beginning after the establishment of the National Park in 1976 (Chapagain 69). To meet this massive

demand, lodges and restaurants have rapidly increased along the trek, which ends in Kyanjin Gompa (Chapagain 74). As tourism increased, so did its profitability. This widened the income disparity between herding and tourism, causing people to gradually sell their animals in favor of building guest houses (Lord 283).

Figure 11: Guest Houses of Kyanjin Gompa

This shift was exacerbated by the 2015 earthquake, where, when many lost their entire livelihoods and were forced to economically begin anew, they chose to not rebuild as a herder. Karmu Lama, a guesthouse owner in Kyanjin Gompa, told me the story of how she had been happy owning her animals and upholding her family's history of farming until the earthquake struck. The earthquake killed many of her animals and left others missing, meaning she had very few remaining animals to herd. Further, the earthquake covered her field in rubble, making it largely impossible to farm and destroying her dairy-selling abilities. Forced to restart, she chose to not rebuild her herding life, but rather, to open a guesthouse. Guesthouses are widely thought of in

Kyanjin Gompa as the best way to make money, consisting of both an easier and more profitable lifestyle than herding, leading many to make the same choice as Karmu Lama after the earthquake. In Langtang Village in 2019, 85.4 percent of households working in tourism earned more than 40 thousand NPR monthly, contrasting the mere 104 rupees herders are paid per liter of milk (Lama vii).

Like herding, however, tourism in Kyanjin Gompa is not without its struggles. Many draw a direct and negative causal relationship between the of loss culture and the growth of tourism. Thupten Lama explained he thinks almost all of the westernization in the village was due to the influence of tourism, adding that "we used to wear chupa from sheep wool and traditional clothes from yak wool…now there is no traditional dress. Mothers in Langtang still wear traditional clothing, but not yak or sheep wool, other imported materials. We aren't wearing traditional dress are we?" Thupten ended by asking. He was right. Although I hadn't noticed it before his comment, I was sitting in a room with four guys who had grown up in Kyanjin Gompa, who had lived in yak houses themselves, and yet, their outfits were indistinguishable from that of the tourists around them. "It's really sad to see on the behalf of culture, which is fast-decreasing. I feel sad, but also I'm not helping it" he ended, longing evident on his face. Gyalmu shared that when she too feels sad when she looks around the village now because she does not see the interconnective and supportive system of neighbors she saw before. Now, she sees a village torn apart by the capitalistic drive for profit and the competition of guest houses.

Thupten and Gyalmu's dismay surrounding the growth of tourism was shared around the village. Karmu Lama shared that when she turned to the hotel business after leaving herding, it was very hard for her to get all the materials transported from Kathmandu. Now that she has her guest house, her struggle only continues. She explained that she doesn't have good connections with the other hotels or trekking agencies, making finding a reliable stream of guests to be difficult. Before, herding provided an important offset to the risks of relying too heavily on the effects of tourism (McVeigh 120). Gazing around during the interview, this disparity was evident. Humble one-story guest houses cowered in the shadows of massive four-story palaces promising fast wifi and hot showers, all for the same price as their smaller counterparts. In the medium-sized guest house that I was staying in, most of the guests who stayed there were brought by guides who were either a part of the family or their close friends.

Gyamlu echoed this sentiment, sharing that while her time yak herding had been hard work, she too struggled to maintain a steady stream of tourists and thought owning a guest house was almost just as difficult as herding had been. However, other owners told stories of prosperity and a better life since switching to herding. Sonam shared with me he was happy that his family had opened a guest house because the work was easier and more profitable.

Further, in addition to bringing in money through cheese, yaks also promote tourism and have come to be seen by tourists as representative of Nepal wilderness (Poudel et. al 48). As such, this transition from herding to tourism is not as straightforward as it may appear. While the Langtang Valley trek is also a relatively popular trek within the tourist community and brings many foreigners to Kyanjin Gompa, a chance to view yaks and a stop at Langtang Cheese Production Center is advertised as a highlight. Thus, while tourism is far more lucrative than yak herding, yak herding is a factor that continues to perpetuate the popularity of tourism in the area (Uprety).

These challenges inextricably leave questions about the economic viability of tourism going forward. While commonly seen as the smart and profitable alternative to herding, the hotel industry may not be as positive as it initially appears, making some wonder if herding truly is on its way out. Gyalbu's wife recognized the ironic cyclicity of this, sharing "if the hotel business is not going well, especially the small ones, they might become herders…in the past everyone was a herder."

The Future of the Langtang Cheese Production Center

Dependent on the success of the herders that serve it, the Langtang Cheese Production Center is acutely aware of and affected by these shifting herding dynamics. While the factory used to receive milk from over 60 herders, it now runs off a mere 6 (Uprety). Cheese shelves sat bare this year, contrasting their normal overflowing year-round stock, marking the first year the factory had completely run out of cheese before production started again for the next year. In years past, Gyalbu shared that the factory made 6,000 to 7,000 kilograms of cheese per year, but now production has drastically shrunk to 2,000 or 3,000 kilograms per year. "The yak farmers are struggling…the industry is also struggling…all are struggling, no one is doing good," Govid Raj Joshi

later told me in Kathmandu, capturing the hardships back in the mountains. “The demand is high for the yak cheese but there is no good supply of yak milk,” he continued.

Gyalbu’s wife shared with me that she feels very concerned they won’t be able to get any milk products in the future. She also worries that the cheese factory might be closed because future generations are showing no interest in herding. “Before, three generations ago, they were all yak herders. But the new generations doesn’t even come here.” With the impressive number of former herders strewn across the village, I too couldn’t help but shake this sense that a lack of herders was a significant problem for the cheese factory. With everyone echoing how hard of a job herding was, and how the only reason to do it was a lack of other options, it didn’t seem as if it would be around for much longer.

Villagers held varying levels of hope for the cheese factory, but the overall sentiment was not optimistic. Gyalbu himself told me “I think it is very sad, you know, I think it is very sad. This is, all the people, and all the new generation…tourists, when they come they visit only cheese factory, the Nepali people, they visit the cheese factory…we have no cheese factory…I will try [to keep it open] but no support from my government…not sure”. The three former herders I spoke with by the stupa said that they “would miss the cheese factory. All of the villagers love the cheese, butter, milk, and the quality is very good. Even if they can buy from other places, it tastes better here.” However, they too were relatively resigned about the factory’s fate, saying that “they don’t want it to go, but they don’t have other options”. Thupten Lama held a similar sentiment, saying that “it’s really sad to see this strain going on because I have been raised here in Langtang Valley and I have been eating this cheese since my childhood. So, yeah, it’s one thing that I cherished a lot when I was a child, to eat yak cheese. It’s a sad thing”.

Not all residents in Kyanjin Gompa, however, had lost all hope for the factory, providing a ray of hope. Some people thought that purely because the factory was owned by the government, it wouldn’t have to close and the DDC would take any steps necessary to keep it open. “It will stay. They’re going to stay, because they have a big factory and a lot of investment,” Nima Chhiring Tamang explained, echoing a common sentiment heard around the village that the government would offer sufficient support

to keep the factory open. One route to lobby the government to help the cheese factory would involve using the village leader's support. However, in my discussion with him, he did not name supporting herding and the cheese factory as a priority. He shared that the transition to tourism was "not the best change, but it's a good source of income you can get for your time. Cow herding is a lot of work, and hard work". Instead, he named water problems, community buildings, and administrative work as top priorities. Dr. Austin Lord, who researched in Langtang Village for several years, shared with me that he had a series of three meetings with the DDC and Gyalbu on the factory's behalf, advocating for increased resources for the factory, providing a glimmer of hope for the future.

Despite all the struggles the cheese factory may be facing, it is still undeniably an important cultural touchstone: the first example of Swiss foreign aid in Nepal, the oldest cheese factory in the country, and the DDC's founding factory. Not that long ago, herding and cheesemaking in Langtang were both thriving; in other areas a mere two days walk away it is alive all well. Full of passionate people working for the cause, it is not unreasonable to imagine a future where herding and cheesemaking are once again prosperous in Langtang. One cannot help but have faith in the factory upon encountering Gyalbu's smiling and passionate presence.

Chokung Bikas Community Cheese Factory

The overwhelming sense in Kyanjin Gompa was that people no longer herded for two reasons: the difficulty of the job and low earning potential. But was that truly the reason behind the decline? As I conducted my interviews, it slowly came to light that for a period of time, there was a natural experiment that had occurred with one of these variables. Around 5 or 6 years ago, a Japanese woman who the villagers referred to as A Jaa La came to Langtang to establish the Chokung Bikas Community Cheese Factory. Initially, I was perplexed. If she wanted to help the villagers, why did she have to open a new factory to do it? Why did she not instead aid the preexisting factory and help herders supply them with milk? As this question loomed in my mind, I first began my inquiry into this factory by speaking to former employees, revealing a whole world of government-private sphere competition in the yak cheese world.

Nerup, the former cheesemaker of the Chokung Bikas Community Cheese Factory, more commonly in my time just referred to as the Japanese Cheese Factory,

began by telling me how the physical cheese was made differently. He state that this cheese, known officially as caciocavallo cheese, was a much higher fat percentage, 100%, than the government cheese, which is 50%. Further, this cheese was round and stretchy, and villagers repeatedly compared it to mozzarella. While he could not specifically detail the process of making this cheese, it seemed similar to the process of making the government cheese, but possibly had different temperatures and timings, and was hung from the ceiling upon completion rather than pressed into a mold. He described how this cheese had a different taste and quality than the other cheese, proudly proclaiming that it was of much higher quality than the competitor due to process and fat percentage. "That is a different taste, committee, and size," Nerup said about the government cheese, explaining that theirs was "a different quality…it is more tasty".

Nerup explained that he believed that this cheese factory was opened apart from the existing governmental factory so that they didn't need to follow governmental rules and regulations surrounding both the price of the cheese and the milk. "We pay more money than their factory for milk," Neurp explained right off the bat in my interview, without me bringing up the subject myself. While in operation, the Chokung Bikas Community Cheese Factory sourced milk from the same herders that the government factory did, but they were able to offer more per liter of milk than their counterparts. "She came to Langtang Village more than 25 years ago and she helped the village with electricity. After that, she bought some zomos for the yak house people. After that she went to try to make a cheese factory good for the profit of the yak house people," he continued, by way of explaining why the Japanese had opted to open a new factory rather than assisting the existing one. "My private cheese factory is not comparing to the government. We have to give the good income source for the yak house people. Main point is that one, not competition for the government factory…Those people have to earn more money, the main target is that one, not competition for another people. We have to make yak house people happy," echoes Nima Chhiring Tamang, another manager of the Japanese factory.

While government factories have no choice other than to pay the price the DDC set, private factories can set whatever price they want for milk, and correspondingly set what price they'd like for their cheese. Nima Chhiring Tamang explained that they paid 130 rupees per liter of milk when the government factory paid 80-90 rupees, intending

to raise the economic status of the herders in the wake of the earthquake. However, Gyalbu later explained to me that the private factory only paid 9 rupees more per liter, and I was unable to definitively confirm either of those price points. Because of this higher milk price point, the factory operated at a loss, focusing on supporting earthquake and herding recovery post-earthquake over profit making (Lord 294).

Nerup also mentioned a second motive for investment in the private cheese factory, explaining that they also came and invested in the factory to help the Buddhists. Aside from just the cheese factory, they also gave money for the restoration of the monastery in town. Chokung means a place where a Buddhist will pray, and bikas means development, reflecting how the cheese factory was literally in the name of Buddhist development. Nima explained to me that by increasing the money to the yak herders, many of whom are Buddhist, the Japanese also helped support Buddhism and Buddhist earthquake recovery.

"We going in the yak house with the yak people and buy the milk. Then, we give training," Nerup explained to me, revealing that they used a different model for cheese production as well. Rather than just buying milk and making the cheese themselves, they taught the herders how to make the cheese and had them make it themselves, then transferred the milk to their factory for storage and sale. This was crucial as it could begin operating before the government cheese factory could post-earthquake, hoping to sustain herding in its absence (Lord 294). This was organized within the existing framework of the government cheese factory's schedules, and thus, all who I spoke to agreed it didn't lead to excessive competition. "We had a rotation. Two months, the government factory made it then after two months we did," Nima explained, noting that first the government would make cheese in the summer months and then they would follow in October and November. Neurp echoed this schedule, adding "no competition…our cheesemaking was quality".

When I walked through the village, however, there was no indication of where this cheese factory was, now largely erased from existence. My guide pointed to a humble stone building and informed me that it used to be the Japanese cheese factory, located right outside of Nerup's imposing hotel (figure 12). It was vacant, now appearing more like a storage shed than something that had, until recently, been a bustling and full factory churning out cheese. Nerup explained that the factory closed "because our

cheese are more quality and more expensive because now people are going to the more cheaper price…people are not looking for the quality, they want what is cheaper, and we are not going to sell what is cheaper."

Figure 12: Former Chokung Bikas Community Cheese Factory

Nima, however, painted a different picture of the factory's fate. He recounted that "we are not good quality of the cheese, and after we had a loss. The production is more, and the sales is less, because of the problem of the quality of the cheese. Not good quality. The people of the yak house, yak people, are not making the good quality, and

after we lost the investment," almost directly contrasting Nerup's comment that the cheese was too high of quality and that was why it had to close. He also noted, in reference to the government cheese factory, that "the cheese factory is very famous in Nepal. Langtang is number one, the most popular and good taste," echoing sentiments that I had heard from other villagers that the Chokung Bikas Community Cheese Factory's cheese simply wasn't as good as the government cheese factory's product. "The private cheese factory, the taste is also not so good, " explained my coresearcher during this interview, making it clear he preferred the government-run cheese based on taste. One government cheese factory worker summarized simply "In government, it will be cheap and tasty, and over there, they take more money".

When I spoke to Gyalbu about this competing cheese factory, he echoed the sentiment that Nerup may have been viewing the cheese factory through rose-colored glasses. Immediately, Gyalbu brought up how unfriendly and hostile the Japanese cheese professionals had been. "When they prepared the cheese…they didn't share anything, they didn't give any recipes to the government cheese owner because if they know then [we would] also make it." "They don't think about the villagers and people, they only think about 5-6 people, their family only. They take only profit with their family members only. They don't want to do partner with government, they want more and more profit…she doesn't think about other villagers" he continued, suggesting that perhaps their motives weren't as purely herder-oriented as they had initially appeared.

Not only did he think their motives weren't pure because they weren't sharing the profit, but he also took issue with the overall sustainability of their business model. Private factories, he explained, are less reliable for herders. "The Japanese cheese factory didn't think about long term, they only thought about short term. If they pay more, they last only for a few years and it totally stops. It will be very hard for yak owners, because if they don't take milk it will be difficult," he shared. The government factory, in contrast, offers a sense of reliability that the private factories cannot. The herders can be assured they'll be paid their full and promised salary, and he, in turn, can also appreciate that reliability. Back in Kathmandu Govind Raj Joshi confirmed this, sharing that private factories have a reputation for not always delivering on the payment they promised. "They collect the milk from the farmers but they don't pay the farmers,"

he shared, contrasting that "the DDC is a government body industry so the DDC cannot think like that."

When I asked around in the village, no one in the village seemed too sad at the factory's closing, even former employees. There simply wasn't the same love or passion behind this cheese factory or within the villagers for this product that there was for the government center. It wasn't even until day three of my time in the village, despite most of the villagers being aware of the purpose of my research, that anyone mentioned to me there had been a second factory. And, as many cheesemakers echoed to me, good cheese is all about passion.

However, back in Kathmandu, I also began to wonder if the picture painted of the cheese factory in the mountains was a little harsh and biased by those I'd been able to speak to. Lord's recount of the subject made it seem much more focused on post-earthquake herding recovery, rather than harsh competition and desire for profit. Further, perhaps it had not closed due to a poor-quality product like villagers shared, but rather, perhaps slowly left upon the government center's re-establishment and herders could return to normal. However, I was unable to contact the donors, and thus I cannot confirm.

Other Mountainous Regions

Gatlang Cheese Production Center

"Are you trekking?" a villager would ask me. "No, I'm studying yak cheese!" I would respond, voice rising with a smile. "Here? Why? The cheese factory is closed!" they would generally follow up with curious confusion. "I know, but I hope to talk to people anyway!" I'd answer, hoping I sounded like I knew what I was doing enough to stop the questioning there. Time after time I'd have this conversation as I tried to ignore the doubt creeping in about my research site choice. While I'd learned a lot from the herders and spoke to Gyalbu, the cheese factory was not in production, and herder was appearing more of a distant memory than a fruitful research subject. I had also received advice before departure that herding and cheese in Kyanjin Gompa are in decline, and visiting another factory would be beneficial. But, I'd dreamed so long of traveling to this specific cheese factory, where it all started, so initially I shrugged off this advice in the name of following my heart—a choice that now felt a bit rash. Again, I tried to ignore my

doubts and press on, excited about the potential to report on the dynamics of tourism and herding.

But, on the second or third day, I could not ignore my, and other villagers, doubts any longer. My coresearchers sat me down in our guest house and presented me with a map of Langtang. They pointed out two potential options of other cheese factories in the area, telling me that I simply had to pick one to go to and see cheese in production. With their encouragement, I could see how visiting another factory-made sense. Here, I'd already spoken to all the herders, Gyalbu had left for Kathmandu, and felt like I could cover the rest of the town much quicker than the 10 days I had initially planned. And so, my coresearcher and I began making plans to visit the government factory in Gatlang, as it could be reached on a bus whereas the other option required a significant amount of trekking.

As my bus bounced up to Gatlang, no sea of guest housing waited to meet our every need like it had in Kyanjin Gompa. The bus—the only way to reach the village, no more tourist Jeeps or luxury transit—dropped us and the two other tourists unceremoniously off in front of a humble guest house, the only option to be seen. As we walked to our rooms in the pouring rain, we discovered that the power was completely out, and would continue to be out throughout our stay.

The next morning we woke up bright and early to observe as much of a full day at the factory as we could and set out on the 40-minute uphill walk towards the factory above the village. As we walked in the large front door of the stone building, bearing a "Cheese Production Center, Gatlang Rasuwa" sign, an image opposite to that in Kyanjin Gompa met our eyes (figure 13). A friendly warm fire crackled beneath a boiling vat of milk, shiny machinery whirred in the corner to separate fat from milk, Nepali music blared through a speaker, and several men were hard at work. In the heat of production, churning out cheese day after day, the Gatlang factory defied all images I'd seen previously.

Figure 13: Outside of the Gatlang Cheese Production Center

Over the next several hours, I was able to observe the process I had only heard about in Kyanjin Gompa, watching the cheese take shape before my eyes. During this point in the year, they made around 28 kilos of cheese per day, but their output would fluctuate throughout the next 7 months of production. Here, they follow the same process to make the same type of cheese as the Kyanjin Gompa factory, per DDC regulation. First, the big loud machine that caught my eye upon entering spun and split the milk into cream and milk (figure 14), after which the milk is taken and placed in a water bath for storage. From there, the milk is boiled and cooked at 65 degrees Celsius (figure 15). After that, they place it back into the water bath to cool it to 35 degrees (figure 16).

Figure 14: Splitting the Milk and Cream

Figure 15: Milk being Boiled in Water

Figure 16: Milk Being Cooled in Water Bath

Next, they remove it from the water bath and add rennet, the culture, and yogurt culture, in an intricate process that involved passing the culture back and forth between several containers several times and then tasting to ensure success (figure 17).

Figure 17: Rennet Being Added to Milk

The milk was then cooked again until it became thick and gelatinous, resembling thick Greek yogurt (figure 18). The cheesemakers then took a long tool composed of many metal wires, calling to mind images of a harp, to break up the solid mass (figure 19). After stirring until the mixture was very broken up, now more akin to cottage cheese, the workers switched tools to a large whisk-like stirrer (figure 20). As the cheesemaker perched himself on the counter, he explained that they would whisk the cheese for half an hour, until it reached a smooth consistency. At this point, he explained, it should be about 59 degrees Celsius. The cheese then gets placed into a mold with cheesecloth and pressed with stone. After it has time to solidify, they use

another tool to remove it from the mold and place it into their storage room, where it gets washed with salt water and then must sit for 3 months.



Figure 18: Solidified Milk *Figure 19: Breaking up Milk* *Figure 20: Milk Being Whisked*

While this cheese process continued like a well-oiled machine in the background, a steady stream of herders came and went to deliver milk. The herders would approach the factory, then remove their milk containers, often what looked like empty Mountain Dew bottles, from their back carriers, and place their milk into a metal bucket for weighing. While the milk was weighed, another employee would come and scoop a bit up into a small round spoon with a long handle and place it over a fire. This was to check it wasn't curdled—if it boiled, the milk was accepted. Along with the cheese factory's liveliness contrasting the image of Kyanjin Gompa, this plethora of herders also was starkly different. Kyanjin Gompa has 6 herding groups total, and I felt in my short morning visit to the cheese factory the number just visiting the factory that day surpassed that number. I soon learned my initial instincts were correct when a worker explained to me a total of 28 farmers sell this factory milk.

"In Langtang, because of tourism, all the people are engaged in tourism. In here, they don't have tourism option. Tourists here will pay less," explained my co-researcher. "If people run a hotel, then they will only be busy for six months. If they run cow farm, then it will be 12 months. In cow farm, there is a lot of money. In hotel, only if guests

come will get money," he continued echoing a thought rattling around in my brain too. Here, the herders were so much more plentiful, possibly because they simply didn't have other options. The one guest house we stayed at in town wasn't even full, a sure sign the village couldn't support further tourist infrastructure. Gatlang's tourist market was a far cry from that of Langtang, in no way making it nearly as viable of a career here as there. As such, despite the fact herders are paid less per unit of fat than their counterparts in Kyanjin Gompa, here, the money made by herders is thought of as sufficient. Yet, only miles away in Kyanjin Gompa, herders chose to leave the only way of life they have ever known, forced by economic necessity.

As I began to speak with herders, this suspicion was only confirmed. Rajiv Lama, a herder selling milk to the factory, informed me he just started herding this year due to the economic potential. "Before, he used to do house furniture and make house. Later on, her realized in house making he realized he didn't get enough money so he started farming," explained my coresearcher, revealing an opposite economic profile to that of herders in Kyanjin Gompa. Here, herding is viewed as a profitable option, made better by the lack of other choices. While the herder also noted that he wasn't sure yet if his transition had been economically fruitful and he found the work much harder, this concept was still so foreign to all I had been told before.

A second herder I spoke to also revealed a recent entry into the herding space. While he had always been involved in herding and agriculture, he only recently made the switch from yak to zomos because it would allow him to sell milk to the Gatlang cheese factory, thus presenting a more economically viable career, again presenting an image of herding-based economic development that was absent in Kyanjin Gompa. "They don't like it, but also they are happy because they have to fulfill their needs. They have other children, for them the work is good," explained one of the cheesemakers, again echoing that while herding wasn't perfect, because of the limited alternate economic opportunities, here it was a growing and desirable industry.

As I continued to watch the process, further comparisons with the Kyanjin Gompa revealed themselves. Here too, the government cheese factory faces challenges from the private cheese industry. I was previously amazed to learn there were 28 herders selling milk, but my shock increased two-fold when I learned that, until recently, they had bought milk from 49. Now, however, they have lost almost half of

their herders to a private cheese factory that opened in the area. This cheese factory manufactures churpi for export to the US for sale as dog treats, a new and growing Nepali export market.

As with Kyanjin Gompa, however, the private cheese factory did not seem too bothered by the introduction of this competing factory, despite it taking nearly half of their clients. “Private cheese factory make his work easy because the more milk the more work. Before, there was more milk and he had more work, now less milk less work” Chhetra Bahamdur Tamang, the owner of the cheese factory explained to me. Govind Raj Joshi seemed to agree with the sentiment, sharing that the DDC’s main goal is development, not increasing profit or production. Thus, he said that the DDC overall is not very concerned over the introduction of competing factories.

Despite this, here there was a higher sense of competition between the two factories than there had been in Kyanjin Gompa. “Private is trying to do better than government and government is also competing,” Cheertra explained, contrasting Gyalbu’s statement that there was no competition in Kyanjin Gompa. In reference to herders, he explained that “now very less because all are gone to private”. While in Kyanjin Gompa the two factories seemed to divide up the year so they didn’t produce cheese at the time, here they are in direct competition. Further, there was also economic competition, with the private factory paying slightly more for their milk, as had been the case with the private Japanese factory. “When the government will increase their price of milk at that time private will increase one rupees more than government, ” explained the factory workers.

Again drawing similarities to Kyanjin Gompa, it seemed some of this lack of concern was due to a belief that the private factory was superior due to reliability and predictability. “Because this is the government, it will be long lasting and can’t be closed anytime. The private if he faces, loss, then he will close the factory and move on,” a factory worker explained to me. In Gatlang, it was evident there was also a level of trust in the durability of government factories that was absent within the private market, which keep herders coming back year after year despite being paid less per liter for their milk than they would be if they sold to the private factory. Further, this factory seemed to have a reputation for being exact when the private factory had a history of making mistakes. “Private have done lots of mistakes in their bill…here they can’t do that

because it is the government and the government will fix. In private they will do according to the owner, what the owner says…here they give exact money. That is why the farmers are happy," one cheesemaker told me, reflecting that they offer a more reliable source of income. Speaking with the herders, I confirmed that this detail was in fact what kept them coming back. "In private, there is very risky, not long lasting. Here, it will be long lasting and durable. In private, if you give milk then at the end if you give milk continuously at the end the milk the owner may not give, it is very difficult. In here, the government will give," Rajiv explained when asked why he chose to sell his milk here and not to the government factory.

While at this factory, I also took the opportunity to purchase an entire kilogram of cheese, straight from the source. As I carried the cheese the 40 minutes back to Gatlang, I was so excited to be able to give it out as samples at my presentation. This will be so great, I figured. I'll be able to talk about yak cheese, then offer a sample from the very factory I went to, how perfect! Now, however, in Kathmandu, I've learned an important lesson. Unless you're aiming to turn your cheese into the moldy blue cheese variety, yak cheese needs to be refrigerated.

Independent Cheese Sellers

While I spent much of my ISP studying large-scale yak cheese production centers, much of the cheese production in Nepal, much of it also operates on a smaller-localized scale. While in Yolmo, I observed several individual farmers making and selling yak cheese within their smaller community, greatly contrasting the image I would later find in Langtang, Gatlang, and Kathmandu.

Upon arrival in Yolmo, my eyes gaze across the dry Himalayan landscape, passing over the tired brush and weathered trees. They land on an oasis from the sea of shrubbery in the form of a bright blue tarp that has been fashioned into a dome-like structure (figure 21). Smoke rises from the makeshift chimney, disappearing into the sky. Upon approach, several animals make their presence known, grunting and gesturing in a way that sends my nerves jumping but goes unnoticed by my local companions. A man and woman emerge from the tent, followed closely by a small child wearing a bell who hides behind their larger frames.

Figure 21: Finjo's Temporary Shelter Outside of Tarkeygang With Animals Outside

My companions and I greet the family and explain our purpose in being there as the animals continue to examine our unfamiliar bodies and then eventually lose interest in our presence. The man tells us his name is Finjo Sherpa. He begins to share that he is a nomadic herder who has been living in this structure for the past two weeks and that he plans to leave tomorrow. He reveals the animals surrounding us are only a small part of those he owns, the rest are grazing within a few hours away. In total, he owns 22 zomos, around 20 rams, and a handful of sheep. In front of a beautiful landscape of varied shrubbery, he explains that he follows wherever green grass grows and that this quest is what brought him to this particular shelter at this time. Although he does not own this land, he also doesn't have to pay for grazing rights here because this is where he is from. If he were to go over the hill, his residency would lose its power and he would have to pay for grazing rights. Within this region, he can stay anywhere, because here people know that he is friendly, meaning that his stay in the bright blue tarp shelter is

also free of charge. His zomos have never gone to anyone else's land, and while he shared that he considers himself to be responsible for monitoring the village for criminal activity, he also shared that he has never seen any and likely would not report it to the authorities if he did.

This monetary and legal arrangement varies from others I've encountered during my time in Yolmo. A zomo owner in Melamchigang shared that her zomo can only graze in the village on the land that she owns, and that must stay within agreed-upon boundaries. If her zomos leave their area, she will have to pay a fine based on the amount of land that they destroy. Because of this, and because villagers do not like the presence of zomos in their village, she lets most of her zomos graze on land above Melamchigang. They wander until the trees stop, and every 15 days she brings them salt. This too, however, is not free. Unlike Finjo, she must pay a price to the land's owner, and while she did not share the current cost she noted that previously it costs 4 kilos of ghee.

After we cover these basics, our hosts kindly invite us inside their home to have some tea and to see the cheesemaking process. As I pass through the entranceway, my eyes instantly grow damp from the thick dark smoke curling its way through the air and into my eyes. A pot sits above a fire in the tent's center, providing both a metaphorical and physical center to his home and giving me a warm glow of welcome in my chest. Nomadic herding may be on the decline in Nepal, but here, in this warm smoke-filled hut with a family kindly shepherding us in, it feels alive (Pokharel 113). We sit around the fire, air tinted blue as the light filters through the tarp.

It is now that Finjo begins to describe the true aspect of my desire, the process of making cheese and other dairy products from the milk he collects. Finjo makes both ghee and churpi, a hard cheese, which he sells in the close villages to provide an income. To make the ghee, he milks the zomos and then stores that milk for three days. After that, he uses a hand churner to change it into ghee, which he lets us try (figure 22). Spinning the milk is fun for the few minutes I try it—but the splashing milk and already tired arms give me the sense this is hard work one would tire of quickly. Finjo works much quicker and with adept hands. He learned how to make ghee and cheese from villagers, moving with the skill of an expert. He too, however, notes how labor-intensive

this process is, saying that he wishes to buy an automated machine so he doesn't need to hand churn it all.


Figure 22: Cheesemaking Process in Finjo's House

This action conjures reflections of several days ago in Melamchigang when were welcomed into a similarly smoke-filled room by another kind couple to observe their cheesemaking process. While they were using cow's milk rather than zomo milk, much of the process was the same. As we sipped samples of their freshly made loose and creamy yogurt from mugs, they explained how they first boil the milk to separate milk and fat. Currently, their cow produces about 5 liters of milk in the morning and 5 liters at night, but this is significantly less than in the summer months. They then separate the curds from the milk, dry the curds, and reuse the leftover watery milk product for the cows (figure 23). The strained curds (serpi) are then made into churpi, creating the well-known hard Nepali cheese. They seem to use all products and byproducts of this process, nothing is wasted. They only sell their ghee, which goes at a rate of 1,250 Nepali rupees for 1 kilo. They also noted that they must continue to breed their cow periodically, as it only produces milk for two years after having a calf. They only retain

one cow as it is sufficient for their dairy needs, so they either sell or give away their calves.

Figure 23: Separating the Curds After Boiling the Milk

Cheese and dairy production is not the only way livestock owners make money in Yolmo. Many make money from breeding and then selling their animals once they reach a sufficient age. Others spoke about selling their animal's labor by having them plow and carry things, but rural infrastructure development has made this less profitable.

Finjo brings my mind back to the current moment by offering a bowl of what appears to be loose cheese curds. This offering, and the movement into their home, provides an act of kindness that seems to open up the conversation to the more personal. Finjo shares that he loves his work—he has been doing it for 20 years and considers the animals to be like people. He quickly draws the distinction, however, that while he loves his work, he is not proud of it. The animals that he owns attack less than

many other animal species, and he has the privilege to live in a hut while he works when other types of herders cannot. He says this makes his job very easy, and to him, respectability comes from difficulty. As such, while he enjoys his job, he emphasizes that he is not proud of it. To be proud, he would need to face greater difficulty. Despite this proclamation, he later shares that zomo have been known to act aggressively to protect the person that milks them, and recently other zomos have attacked people. He insists, however, that his are kind and have never attacked people.

As the fire roars before us and the animals rumble about outside the flimsy shelter, Finjo continues to share more details about herding. If his animals fall sick, he brings them to a local shaman. Sometimes he suspects that black magic makes them sick, but other times he recognizes that their sickness is likely due to consuming too many medicinal plants. With a mischievous smile on his face, he explains that if they get better, he believes in the power of shamans. If they are not helped, however, he does not believe shamanism is real. My second interviewee in Melamchigang shared that an NGO ensures some people's livestock for health, and even gifts some people livestock, but we could not find anyone who had benefitted from this NGO work or could speak more about its impact.

As the smoke continues to wrap around me, mixing with laughs as we continually attempt to churn ghee with our feeble arms, the faint growth of darkness outside begs our attention. We realize it has begun to grow late and we must return to Tarkeygang. We thank our hosts and make out way back out into the fresh air. More of Finjo's animals have returned to the house for the night, and scampering goats rush over to greet us. We take our picture with our hosts and thank them again, then begin to make our way back to town. I am filled with awe at both their kindness and their resilience. Although Finjo may not think his profession is respectable, I strongly admire the strength, resilience, and dedication it takes to uphold his profession each day—and the delicious cheese that he creates.

While much of what I encountered in this visit matches the images I saw at the larger production factories—the makeshift yak houses, the milk boiling over an open fire, the smoke filling my blinking eyes—there is a noticeable lack of organized infrastructure. While many working for larger factories spoke about the reliability of salaries, the fixed prices they were paid, and the economic viability of their livestock,

here that calculated analysis was lessened. Rather, the herders here simply cared for the animals they had, collected the milk they produced, and then sold it for the price they could get. This also lessened the sense of competition—none of the herders mentioned the others, and none seemed to have significant interaction with other herders and cheesemakers. Yolmo herders did seem to share the sentiment of doing this job simply because it was what they had always done, rather than because they liked it or had made an active choice to continue it, emphasizing the lack of economic autonomy the profession provides. However, the craft, lifestyle, struggles, and passions remain consistent, a decades-old trade unchanged across many.

Cheesemaking in Kathmandu

Himalayan French Cheese

The craft, passion, and love of cheese does not stop in the mountains; far from it, Kathmandu is bursting with yak cheese. As I walk through Thamel, blaring horns assaulting my now mountain accustomed ears, English, which now feels almost as foreign as Nepali, meets my ears. My eyes meet signs similar to that which started this whole journey, advertising the sale of yak cheese inside, bringing the mountainous craft down to the hustle and bustle of the city. I fight my way through the maze of streets, dodging bikes and large tour groups, and pop my head into store after store, asking where they source their yak cheese. Time after time, I get the same answer and not the one I initially expected. Despite just seeing two massive DDC production factories in the mountains, Himalayan French Cheese is the only answer I receive. In Thamel, one might not even know the government produced cheese, government work run out of town by the private industry.

Before embarking on my journey to Langtang, I reached out to the owner of Himalayan French Cheese, Francios. Early one Thursday morning, I took a taxi over to his pizza store and office at Emilio's Pizza, eager to learn more about the cheese I was about to spend a month investigating. Francois explained to me that he came to Kathmandu 16 years ago to begin making cheese. He too, like the DDC, makes yak cheese only in name. In reality, he too uses zomos, explaining that the only pure yaks left in Nepal live in Humla, Dolpa, and Langtang. He calls their milk the "gold white of

the Himalayas" and says it has the "taste of a region," flavored by the specific grass and herbs that the cows in this area graze on.

His factory is in Serding, Ramechhap at 3,300 meters high. At the beginning and end of the season, he has the farmers transport the milk up to the factory, and in the middle of the season, they transport it down. He chose that region partly due to the history of the region explaining he bought the cheese factory from a previous owner, adding "it's really a tradition. I tried to set up another one…and it's not a tradition…and so I only got two herders." Francois thus adds another explanation, beyond economic alternatives to explain the differing success of yak cheese factories: tradition.

Despite being a private factory, Francois also spoke to the influence of DDC factories on his work. "They've increased the price several times in a row, me I always have to follow and pay more, I always have to compete with them," he explained. "For me it is ok, I am a premium product," he added, saying that he can simply increase the price of his cheese when he needs to increase the price of his milk, but noted that for others, "I think it has got quite expensive". Francois sells his yak tome cheese for 2,300 rupees per kilogram at the Le Sherpa farmers market, which I found to be the most comparable to the taste of the DDC cheese.

Francois also didn't seem to share the same struggles present in Kyanjin Gompa with maintaining herders. He works with 12 herders and explained that "because I am in an area that I have been in for about 7 years, 8 years, [herders] are coming back. We pay very well…I don't have the details but the herders get paid between $3 and $8 thousand a year, it's good money in Nepal. Of course a very hard life, but it is actually very decent money because we pay well. The government has been increasing [the milk price]…they've increased the price several times in a row. I always have to follow and pay more; I always have to compete with them," showing a similar pattern to that observed in the other private factories. Across all factories, the DDC's price-setting influence cannot be ignored in its deterministic power.

Interestingly, Francois explained a slightly different payment method that I had heard before, although he said it was the standard established by the Swiss. "The Swiss have left behind a system that is not really for small entrepreneurs like us, which is basically every January we meet all the herders and we give them a yearly advance. I think the Swiss did that because they thought that was the best way for the herders to

buy their rations for the year, more yaks for the year," he detailed. This upfront payment system, when combined with the tradition of cheesemaking in the area, seems to point to a sense of security within Francois's private factory that was absent from other members of the private market. Herders' main problem with private cheese factories seemed to have been the lack of reliability but, by buying a preexisting factory and then maintaining it for many years and paying upfront, Francois seems to have escaped the volatility that presents issues for many other private factories.

After my trip to Langtang, I find myself at the Le Sherpa farmer's market, observing this dynamic in action. As I walk in, a sprawling market in Kathmandu selling everything from crafts to traditional Nepali food to French pasties and other international delicacies meets my eyes. Here, I feel I can take a deep breath in this calm oasis away from the hustle and bustle of the busy city. Nestled in the back, past a flower shop, several booths of pasties, a bagel stand, and a sea of tables for happy patrons to enjoy their delicacies is the Himalayan French Cheese booth (figure 24). Here, Francois sells his five different kinds of yak cheese. When I approached the cheese-filled glass case and was offered samples by the excited salesperson, I was shocked by the array of options. Both factories I visited in Langtang had been making the same type of cheese since the 1950s, which had a very basic flavor profile that I thought tasted almost just like standard cow cheese. Francois on the other hand had managed to create 5 different types, some of which I sampled and all of which tasted extremely distinct, as well as distinctly more "yak". There was no mistaking any of these for cow cheese, they all tasted unique and distinctive, unlike cheese I had eaten before.

Figure 24: Himalayan French Cheese Booth at the Le Sherpa Farmers Market

Clearly, this distinct flavor appealed to many others as well. The booth was extremely popular, and throughout the entire time I spent at the market it wasn't seen without at least a person or two waiting in line to buy and try cheese. While employees in both Kyanjin Gompa and Gatlang had said their biggest purchasers were Nepali tourists, these shoppers were distinctly international. Tourist fascination with yak cheese wasn't just limited to this market either. Throughout my time in Thamel, I found tourists, myself included, were wowed by the idea of yak cheese. On one trip I took to the French Creperie, a French crepe-style restaurant in Thamel that served a lot of yak cheese, I overheard a lengthy conversation between a group of 6 American tourists who were amazed by the idea of yak cheese after seeing it on the menu. They were astounded by the novelty, googling the subject to learn more. They even decided they wanted to purchase some to take back to the US, whereupon I interrupted the conversation to direct them to the DDC distribution facility that was nearby and they excitedly said they'd go right after their lunch.

While Francois does seem to have a lot of control over the yak cheese market in Kathmandu, it is still not without problems. One bakery in Thamel explained to me that they source their cheese from Himalayan French Cheese, but often face issues getting a steady supply for their shop. Despite this, they chose to stay with Himalayan French Cheese rather than using the government's cheese because they guessed that the private factory paid more to herders and offered more economic opportunities to herders than the government would. Further, Antoine, the owner of Vino Bistro, a wine bar in Kathmandu that both serves and sells Himalayan French cheese noted that he faces issues with receiving a consistent quality of cheese. Antoine explained that "according to the batch, you get very high quality, exactly what I want, and another batch is a little bit dry, not so interesting…So many people say 'oh last time I tried it, it was so good but this time, it's a different taste'. Consistency is the key to quality". Despite this, Antoine still noted that he preferred Francois's cheese to that of the government, explaining "Francois, he knows about French way, how to make cheese, so everything is better. The skin is better, the inside is better, it's more French tasting…what I notice from government, you won't get the animal taste. I cannot recognize if it is from cow or yak". The French Creperie also uses Francois's cheese, explaining that they chose to source it from him because they know Francois personally.

While Francois's cheese has now grown far beyond the basic recipe established by the Swiss so many years ago, he still acknowledges and is thankful for their part in bringing cheese to Nepal. "Because of this Swiss influence and impulse in the 50s, I don't know how much, thousands or hundreds of thousands the DDC makes each year, all that is consumed locally. They set up something amazing," he shared, a thankful smile on his face.

Mukporong Himal Yak Cheese Dairy Farm

Sitting at one of the tables I love so much, surrounded by Ananda Tree House Café's green walls and under their warm light, I know there is one aspect of yak cheese I've previously left uninvestigated that I need to learn more about—the yak cheese from Dolpo that had started it all. I stand up and walk across the café, pick up the prepacked yak cheese they have for sale in the corner, and bring it back to my table (figure 25). Back at the table, I am excited to glean every piece of information that I can from the

packaging. Both the name of the cheese production company and the charity it benefits draw blanks on Google, and the phone number written on the back is out of service. From the little I can glean on the internet, it seems as if this factory is part of a charity that reinvested profits back into the village, which piques my interest.

Figure 25: Mukporong Himal Yak Cheese Dairy Farm at Ananda Tree House Café

After some further investigation, I speak with Phurba Thinley, the owner of Ananda Tree House, Phuntsok, a Mukporong Himal cheese distributor and seller, and Yeshi, an employee fin Dolpo, to hear more about the production center. Yeshi informs me that this factory began production in 2017 to "use the local resources of upper Dolpo and establish an entrepreneurial eco system to better the life of farmers economically". All three share that while the factory was established with international, including Swiss, assistance, the rural municipality now owns it, but it is not involved with the DDC, making an interesting case study of a cheese factory somewhere between the public and private sphere. I was incredibly excited to learn that, while some zomo milk is included to meet their daily requirement, they also use a large amount of pure nak milk, making this cheese the closest my project ever got to true yak cheese.

Like in Gatlang, cheese production at the Mukporong Himal Yak Cheese Dairy Farm is increasing. Yeshi shared that "with the establishment of the cheese factory, herders are raising and the locals are slowly understanding the advantage of the factory…our production of the cheese increasing every year" noting that they currently have 37 herders providing milk, marking the highest number of suppliers of any of the factories that I spoke with. They pay 150 RS per liter of milk to their farmers, marking the highest milk price I'd encountered. While Yeshi did not expand on how, and limited connection issues made it difficult to follow up, he shared that "the price of DDC and other factories had a lot of impact in our project". Their cheese is by far the highest price point for the completed cheese as well, coming in at 3,200 Rs per kg, but they also are the only factory that reinvested the profits to support the village. Phurba Thinley estimated they were able to provide up to 50,000 RS per household they supported, making a substantial economic impact.

While they may not face the issue of milk supply, Yeshi also shared that they are facing issues on the sales end. "Cheesemaking is a very hard responsible job, so we are still figuring out a way to make good profits out of products…We are still struggling with the stable market for our product". Phuntsok shared that initially, they started selling only out of their factory in Dolpo and at the Hyatt Regency in Boudha, but now they sell to multiple different hotels, organic markets, and out of their store in Boudha. While their price point is far above that of other cheese producers, their target markets and distribution centers generally offer premium products, meaning the yak cheese likely markets well to the demographics that shop there. Transport of the milk presents an additional struggle. In previous years they transported by mules, but last year they brought cheese to Kathmandu using a helicopter. These transport problems also extend to herders, and they have a GoFundMe set up online to raise money to purchase a mountain bike for the transport of milk in Dolpo. Yeshi also described struggling with understanding and awareness of the project in the village, sharing that it was "difficult to make them understand and also fit our project into the community".

Despite the struggles, I cannot help but feel a fondness for this cheese and its sellers. All employees I spoke to seemed to share a love for both the cheesemaking process and the herders they benefitted from. Ananda Tree House café's passion for advancing Doplo's economic situation is clear, and their love for yak cheese kickstarted

my own. Their lattes, cakes, and hospitality, all while great, are far from the best thing they offer to Kathmandu.

Conclusion

Sitting in Vino Bistro with a yak cheese sampler plate, I sink my teeth into all the different types of yak cheese, in awe of how different, unique, and delicious they all were. Similarly, I was surprised throughout the ISP by the variety, complexity, and differences between different players in the yak cheese market. Kyanjin Gompa tells a story of tradition slipping away to modernity, but not without love left behind. Herders too tell a dichotomy of a simpler way of life, yet one also riddled with challenges and struggles. Thriving in some places yet nearly gone in others, herding is largely dependent on the will of larger economic forces, left with little autonomy to control their fate. Private factories are on the surface a utopia, able to pay herders more for their hard labor. But, upon digging deeper, face their own struggles of consistency and reliability, leaving one wonder what business model is the most ethical and sustainable for the communities.

While yak cheese production may wax and wane from place to place and time to time, the love that ties the industry together remains constant. Whether honored through tradition or innovation, all those who I met that crafted cheese did it filled with joy. Ultimately, food is a way to share passion, to preserve culture. Throughout Nepal, yak cheese production preserves a history of herding, a nomadic way of life, and an agricultural past. Simultaneously, it looks towards a future of innovation, cultural blending, and economic development, both a symbol of what once was and what can be.

Appendices

Methodology

Throughout this paper, I employed mostly interviews and participant observation. Interviews were crucial to gain an understanding of local perspectives and opinions and to gain facts and information. These were strong in that I gained a deep understanding of thoughts, feelings, and opinions on the topics I researched. Further, in Kyanjin Gompa, they were especially important to gain information about the cheese factory, as it was not in production at the time. However, they sometimes produced conflicting or seemly unreliable information, limiting their validity. Further, some interviews were translated with the help of my coresearchers which also presented occasional struggles, but also greatly increased the sources that I could speak with. I also employed participant observation, both at the Gatlang Cheese Factory and at various points in Kathmandu. This method was strong in that it gave me a really deep understanding of the process and experiences but was limited in that it was largely guided by only my experience, thoughts, and opinions. Another limitation of this method was because the factory in Kyanjin Gompa was closed, I could not employ it there.

Glossary

Bikas: Development

Carca: Pasture

Chokung: A place where Buddhists pray

Chupa: Traditional Tibetan dress

Churpi: Traditional hard yak cheese

DDC: Dairy Development Corporation, Government owned cheese making oversight organization

Rennet: Enzyme that thickens and separates cheese

Serpi: Strained curds

Zomo: Dairying yak-cow hybrid

Works Cited

Chapagain, Prem Sagar. “Tourism Development and Energy Consumption Pattern in Langtang Valley of Nepal Himalayas.” *Journal of Development and Administrative Studies*.

Cox, Tom. “Herding and Socio-Economic Change Among Langtang Tibetans.” CNAS Journal, vol. 12, no. 3, Aug. 1985.

Dixit, Kunda. *The Story of Langtang Cheese*. Nepali Times, 18 July 2020, https://nepalitimes.com/here-now/the-story-of-langtang-cheese.

Ghimire, Balram. Yak Cheese and Butter Production on the Rise in Rasuwa. https://kathmandupost.com/29/2020/01/12/yak-cheese-and-butter-production-on-the-rise-in-rasuwa. Accessed 7 Apr. 2023.

Lama, Nirdesh Bal. Economic Dimension of Tourism in Langtang Village. Department of Rural Development, 2019. elibrary.tucl.edu.np, https://elibrary.tucl.edu.np/handle/123456789/2212.

Lorde, Austin. “Vital Uncertainties: Disaster, Afterlives, and Change in the Langtang Valley.” *Cornell University Department of Anthropology*, Dec. 2022.

McVeigh, Colleen. “Himalayan Herding is Alive and Well: The Economics of Pastoralism In The Langtang Valley.” Nomadic Peoples, vol. 8, no. 2, 2004, pp. 107–24. JSTOR, http://www.jstor.org/stable/43123727. Accessed 9 May 2023.

Paudel, Lok Nath, and Dinesh Prasad Parajuli. "Yak husbandry and rangeland management in Nepal." Yak on the Move (2016): 137.

Pokharel, Binod. “Adaptation and Identity of Yolmo.” *Occasional Papers*.

Poudel, Jiban Mani, et al. “Moving Yak Herds towards Tourism: A Linkage between Yak and Eco- Tourism in the High Mountains of East on Nepal.” *Journal of Tourism*

and Himalayan Adventures, vol. 4, no. 1, July 2022, pp. 46–62. Yak herding and Yak-tourism, *www.nepjol.info*, https://doi.org/10.3126/jtha.v4i1.46301.

Schulthess, Werner. Personal Experiences with the Promotion of Milk Processing in Developing Countries. https://www.fao.org/3/X5661E/x5661e0p.htm. Accessed 29 Apr. 2023.

Uprety, Aastha. "Cheesemaking in Nepal Under Threat Unless Pastoralist Traditions Are Revived." *State of the Planet*, 12 Aug. 2020, https://news.climate.columbia.edu/2020/08/12/cheesemaking-nepal-pastoralist-traditions/.

Yonzon, Pralad B., and Malcolm L. Hunter. "Cheese, Tourists, and Red Pandas in the Nepal Himalayas." *Conservation Biology*, vol. 5, no. 2, 1991, pp. 196–202. *JSTOR*, https://www.jstor.org/stable/2386193.

Suggestions for Future Research

For future students interested in studying yak cheese, I would recommend traveling to the Mukporong Himal Yak Cheese Dairy Farm. From the little I learned, it seemed like a unique and commendable business model that would be really interesting to dig into. I would also recommend visiting the Himalayan French Cheese production center, as it seems to be the dominant private yak cheese center. In both of these places, it would be extremely interesting to speak with the herders, as I only got to hear from the business owner's perspective. It would be very interesting to see if their experiences live up to the business owner's positive portrayals. More broadly, I would suggest returning to all the areas I mentioned to speak to the herders to investigate how their perspective matches other's thoughts and my hypotheses, as I was only able to speak to a few herders. Lastly, I would suggest looking into the churpi dog treat export market. This is a significant market and has a large impact on yak cheese in Nepal, but I ran out of time to explore it further. I'd be happy to speak with future students about it and can be contacted at apeiker@middlebury.edu.

Figure 24: Spotting my First Zomo in Yolmo