

## Milk Processing System in the Hilly Terrain of Central Nepal

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### Abstract

This research was conducted in the hilly terrain of Central Nepal, where Tibetan Tamang people of Buddhist faith predominantly reside. The purpose of the research is to identify the milk processing system of the Tamang people, discuss the regional communality of the milk processing system by comparing it against the other non-Tibetan populations in the same village, and analyze the evolution and the distinctive regional characteristics of the milk processing system in the hilly terrain of Central Nepal. The characteristics of the Tamang people's milk processing system can be summarized as follows: 1) They only use the fermentation processes, 2) There are times when they add lactic fermentation starter to make sour milk and other times they do not, 3) They use a wooden tub with a stirrer to churn butter, 4) They separate butter oil from raw milk to preserve milk fat, and 5) They do not make cheese out of raw milk to preserve milk protein. Since the milk processing systems of the Tamang people are completely consistent with those of the Danuwar, Newar, and Parbate Hindu people, the milk processing system has transcended ethnic groups and has become communal to the region. As a result of comparatively analyzing the surrounding regions, it was understood that the Tibetan Tamang people's milk processing system had transformed in the hilly terrain of Central Nepal from the milk processing system used by the Tibetan pastoralists in the Tibetan highlands to the milk processing system used by the Hindu people in the Indian lowland. The hilly terrain of Central Nepal is located at about 1,000 meters above sea level and it can be said that this region is in the same milk culture area as the Indian lowland.

**Keywords:** Milk processing system; Nepal; Tamang; Changes; Regional characteristics

### Introduction

Nepal is at the nodule area of the Tibetan highland and the Indian subcontinent lowland. Nepal's climate and terrain range from the wet and temperate climate in the lowlands, located at about 100 meters above sea level, to the alpine climate in the mountain region, with mountains that are over 8,000 meters high, including the Everest, the world's tallest mountain. There are dozens of various ethnic groups living in Nepal, including the Tibetan Burmans who originated from the highlands and the Aryan Parbate Hindus (Bahun Chhetri) who originated from the lowlands [1]. Traditionally, livestock products and salt from the Tibetan highland and grains from the Indian subcontinent lowland were traded in the Nepali region [2]. Under such circumstances, a unique Nepali culture developed as the diverse ecology crossed with the diverse cultures. This paper attempts to analyze this multi-layered culture in Nepal from the perspective of the milk culture. Analyzing the complex and intertwining culture using milk processing as a cultural axis and identifying the regional characteristics that specifically developed in Nepal could present extremely valuable findings to the regional research.

There are many international and academic research conducted in Nepal, but the milk culture research in Nepal has mainly been done by the Japanese. Tokita and Hosono [3], Tokita et al. [4], Hosono and Tokita [5], Takahashi [6], and Ishida [7] widely explored Nepal and reported the integrated milk processing techniques of the Tibet from the highland, Hindu from the lowland, and Arabia from the west. However, the only study on the milk culture focusing on the region's

individual populations is in the report on the Tibetan people living over the altitude of 3,000 meters above sea level [2,8]. Hence, individual and detailed reports about the milk cultures in places other than the Nepali highland would contribute to the accumulation of more case studies.

In this study, the authors stayed in the village where majority of the residents are Tamang who are Tibetan Buddhist people, to identify the milk processing system of the Tibetan people in the hilly terrain of Central Nepal. The aim of the study was to 1) identify the Tamang people's milk processing system, 2) discuss the regional communality of the milk processing system by comparing it against the other non-Tibetan populations in the same village, and 3) analyze the evolution and the distinctive regional characteristics of the milk processing system in the hilly terrain of Central Nepal by comparative studying the surrounding populations. The study was conducted in Panchkhal Municipality, Kavrepalanchok District, Bagmati Zone, Nepal. There are various groups living in Panchkhal Municipality, including the Tamang, Danuwar, Newar, and Parbate Hindu people. Paskar Municipality is a suitable village to examine the regional communality of milk processing system because the various groups coexist with in the village.

### Materials and Methods

#### Field survey

The authors stayed with a Tamang household in Panchkhal from August 11 to August 22, 2017 for participation observation and interviews on the milk processing system of the Tamang people. The authors also conducted interviews to learn about the milk processing

system of the Danuwar, Newar, and Parbate Hindu people. The authors interviewed the Brahmins for the Parbate Hindu population. The interviews were conducted in Tamang with the Tamang people, and in Nepali with the Danuwar, Newar, and Parbate Hindu people. The authors captured the lexicons of the milk products used by each population, and then these were transcribed into English alphabet as suggested by Saegusa [9].

### Natural environment of the research site

Panchkhal Valley is located in the hilly terrain, a 3.5-hour drive and approximately 40 kilometers rectilinearly west-south-west from the capital city of Nepal, Kathmandu (Figure 1). Panchkhal Municipality opens up into the Panchkhal Valley at the altitude of 800 to 1,500 meters above sea level and covered in evergreen broadleaf forests.

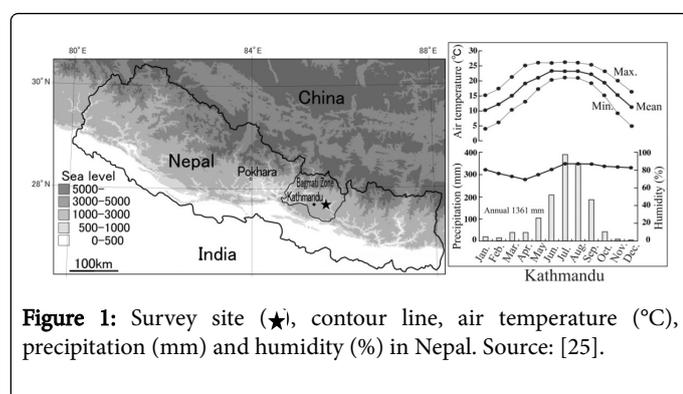


Figure 1: Survey site (★), contour line, air temperature (°C), precipitation (mm) and humidity (%) in Nepal. Source: [25].

At the altitude of about 1,300 meters above sea level, the climate in Kathmandu is mild year round, with a maximum monthly temperature of 25 in the summer and an average monthly temperature of 10°C in the winter. Panchkhal Valley, at about 800 to 1,500 meters above sea level, is expected to have nearly the same temperatures, but it can be 3 to 4°C warmer in the lower part of the valley. It rains mainly in the summer time. Kathmandu has an annual rainfall of 1,361 millimeters and it is speculated that Panchkhal Valley receives about the same amount of rainfall. The humidity is high at about 80% throughout the year. The natural environment of the research site can be characterized as humid and warm throughout the year. There is very little rain in the winter, but it is still possible to plant crops in the winter by using the abundant surface water because of the warm temperature. Hence, they are able to achieve triple-cropping due to their natural environment that provides them with a warm climate and a use of abundant water source.

### Integration of agriculture and pastoralism and ethnic composition at the research site

Panchkhal Valley is inhabited by the Tamang people, as well as the Danuwar, Newar, and Parbate Hindu people. Tamang people are Buddhists, but they also pray to the Hindu gods. Their religion consists of a mix of Buddhist and Hindu elements. The “ta” in Tamang means horse and “mang” means trader. At one time, the Tamang people lived in the Tibetan highland and engaged in trades between the Tibetan highland and the Kathmandu basin [1,10,11]. The Danuwar, Newar, and Parbate Hindu people follow the Hindu faith. These groups do not live separately in their own neighborhoods, but they live interspersed among each other in the same village.

The inhabitants grow corn on the slopes of Panchkhal Valley and rice on the flatland or at the bottom of the valley. Triple-cropping allows them to grow grains, as well as various types of beans, squash, and vegetables, such as chili peppers, pumpkins, cabbages, etc. They also grow mangos, bananas, lychees, jackfruits, and other fruits. They live in an ecology with high food productivity. The subsistence of the people in Panchkhal Valley is predominately agriculture, but they also raise livestock. They raise cows, water buffalos, goats, and chickens, but they do not raise sheep. Each household owns about two to three cows and water buffalos combined, and everyone in the household works together to manage the milking, feeding, and pasturing of these animals. The cows and water buffalos are milked twice a day, once in the morning and once at night. They are kept mainly in the barn and fed weeds from the farms and corn that the family grew and harvested. The goats are not milked, and a few of them are raised for the meat or to be sold. Like the cows and water buffalos, the goats are kept in a barn and fed weeds and corn.

## Results and Discussion

### Milk processing system of Tamang people

Raw milk is called *nai* (Figure 2). Fresh *nai* contains substances like livestock hair, so the raw milk is first strained through a cloth to filter out these substances. Raw milk is frequently drunk as milk tea or served with a rice dish at meal time.

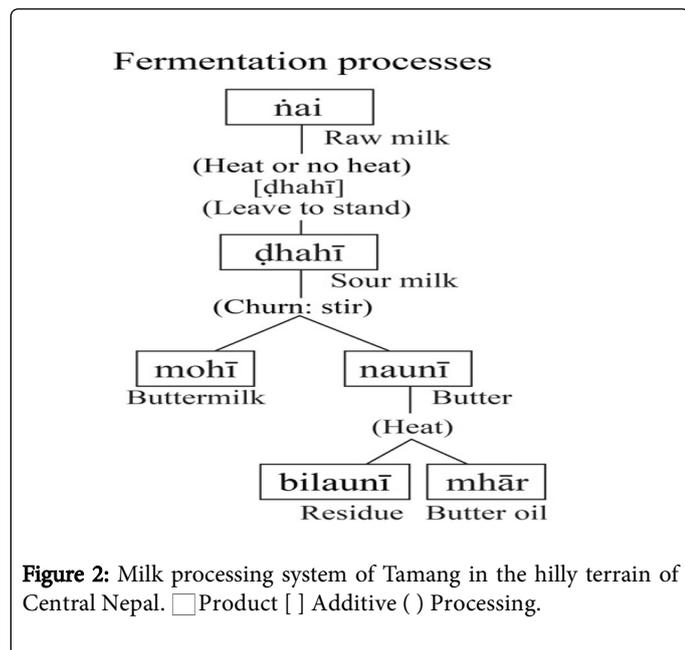
The processing of raw milk starts with pasteurizing. The raw milk is transferred to a pot and heated in a furnace using corn stalks as fuel. Even when it starts to boil, it is stirred or sometimes scooped up and dropped back in so that it can continue to heat. The pot is removed from the furnace after about 50 minutes of heating. The pasteurized milk is transferred to another container and let stand to cool.

When the temperature of the milk has become just warmer to the touch, the leftover sour milk from the previous day is added to the milk. This mixture is then left out in a room that is maintained at a temperature of about 25°C. The sour milk becomes elastic after about 24 hours. Sour milk is called *dhahi*. *Dhahi* is frequently served at meals and consumed with a rice dish.

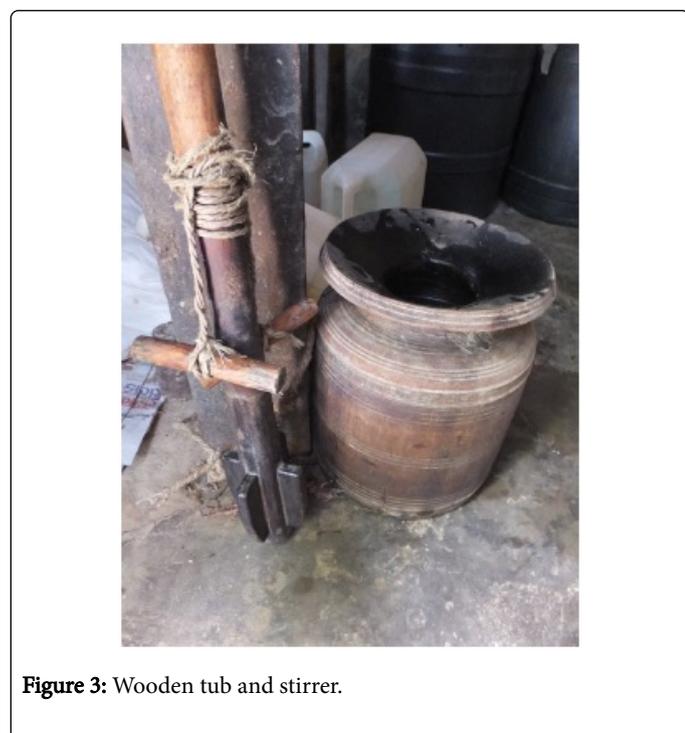
There are times when *dhahi* is made without the addition of the lactic fermentation starter. Citreae leaf is added to the pasteurized milk when lactic fermentation starter is not used. The raw milk will not turn into sour milk the next day when a Citreae leaf is used. It takes two days before the sour milk develops elasticity.

The sour milk is churned and made into butter using a wooden tub called *taiki* and a rotating stirrer called *maḍani* (Figure 3). *Taiki* is not a specialized term for churning, but refers to any container. The rotating stirrer, *maḍani* is made of wood and is about 4 centimeter wide and 77 centimeters long with 2.5 centimeter wings attached at the end of the stick in four directions. The sour milk is poured into *taiki* and then water is added until the wings at the tip of the rotating stirrer are submerged. One end of *taiki* is fixed to a pole with a string and another string is wrapped around *taiki* so that the strings can be pulled alternately with both hands (Figure 4). The butter is churned by applying the upper body weight alternately on the strings. This process takes about 30 minutes. Compared to the churning method used in Arab countries, which takes about two hours and uses a skin bag hanging from a tripod that are shaken from side to side [12], the stirring churning method that only takes 30 minutes is extremely

efficient. Butter particles float to the surface after about 30 minutes of churning.



The butter particles are scooped up by hand and set aside in another container. Butter is called *nauni* and buttermilk is called *mohi*. Butter is not used in cooking or have any role in the Tamang people’s diet. Buttermilk is not processed into cheese, but it is drunk along with dishes made of corn flour paste.



Butter is not rinsed, but it is immediately heated to make butter oil. Butter melts immediately and will start to bubble when it is heated. A clear, liquid butter oil is formed when the bubbling stops. Butter oil is called *mhar* and the dark brown burnt residue on the bottom of the pot is called *bilauni* (Figure 5). *Bilauni* is eaten as is or fed to the livestock. It is fatty, flavorful, and delicious. Butter oil is transferred into a bottle or other containers. It solidifies when it cools. The color of the butter oil is white when made from a water buffalo milk, and yellow when made from cow milk. It is said that butter oil can keep for several years at room temperature. It has become a valuable seasoning used to flavor dishes.

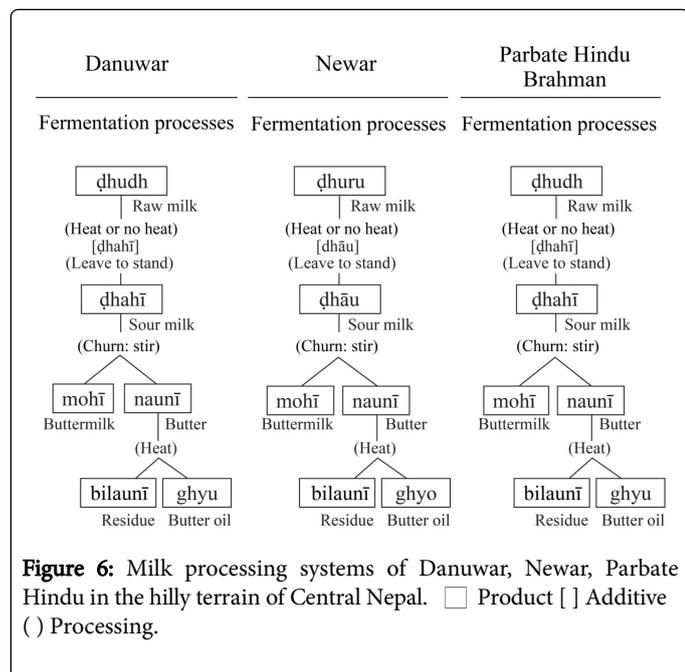


Tamang people use the fermentation processes (Fermentation processes is one of the models used to categorize and organize the world’s milk processing techniques suggested by Nakao [24]. Nakao categorized the world’s milk processing techniques into the following four types: 1) Fermentation processes, which start out by making sour milk from raw milk, 2) Cream separation processes, which start out by

separating cream from raw milk, 3). Additive coagulation processes, which involve adding a coagulant to raw milk to make cheese, and 4) Heat condensation processes, which are based on heating and condensing raw milk.) as described, which involve separating milk fat by first making sour milk from raw milk, and then processing sour milk into butter and then from butter to butter oil. Milk products are not a staple in Tamang people's meals, but they do play a large part in their food culture, because they enjoy consuming raw milk, sour milk, butter oil, and buttermilk, and these are ingredients that make their meals more delicious and fulfilling.

### Milk processing systems of Danuwar, Newar, and Parbate Hindu people

As shown in Figure 6, the milk processing systems of the Danuwar, Newar, and Parbate Hindu people are completely consistent with that of the Tamang people. In summary, 1) they only use the fermentation processes, 2) they sometimes add lactic fermentation starter when making sour milk and they sometimes do not, 3) they use a wooden tub and a stirrer when churning, 4) they separate butter oil from raw milk to preserve milk fat, and 5) however, they do not make cheese out of raw milk to preserve milk protein. It is understood that the milk processing system used in Panchkhal Municipality has transcended ethnic groups, and that it is communal to the region. This characteristic of the milk processing technique transcending the framework of ethnic groups and shared in a region has also been confirmed in Iran [13].



**Figure 6:** Milk processing systems of Danuwar, Newar, Parbate Hindu in the hilly terrain of Central Nepal. □ Product [ ] Additive ( ) Processing.

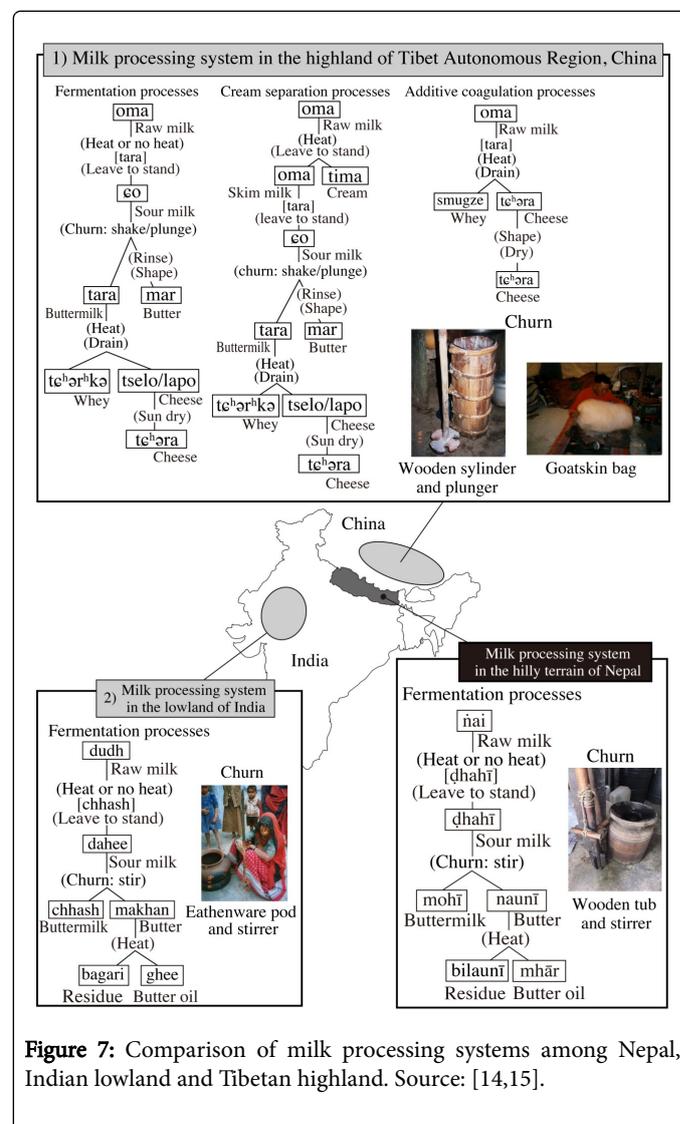
The words used for the milk products are also very similar between various groups. The word for raw milk is *dhudh* in Danuwar and Parbate Hindi, which is similar to *dhuru* in Newar, but these words appear to have a different root word than the Tamang word for raw milk, *nai*. Butter oil is called *ghyu* in Danuwar and Parbate Hindi and *ghyo* in Newar, both of which are not similar to *mhar* in Tamang. Sour milk, however, is called *dhahi* in Danuwar and Parbate Hindi and *dhau* in Newar, which are also the same or similar to *dhahi* in Tamang. Butter is called *nauni*, buttermilk is called *mohi* and the residual burnt butter is called *bilauni* in the Tamang, Danuwar, Newar, and Parbate

Hindi languages. Even the lexicons have transcended the framework of linguistic genealogy and shared in the region.

### Regional characteristic of the hilly terrain of Central Nepal

Having understood the milk processing system in the hilly terrain of Central Nepal, this paper will compare it with the milk processing system from the surrounding regions and discuss the evolution and regional characteristics of the milk processing system in the hilly terrain of Central Nepal.

**Milk processing system in Tibetan highland:** The Tamang are Tibetan people who once practiced pastoralism on the Tibetan highland [1,10,11]. This means that the Tamang people originally used the milk processing system found in the Tibetan highland. Figure 7 shows the milk processing systems used by Nepal's neighboring region, Tibet Autonomous Region, China, as the case study of the Tibetan people [14]. Fermentation processes, cream separation processes, and additive coagulation processes are used in Tibet Autonomous Region.



**Figure 7:** Comparison of milk processing systems among Nepal, Indian lowland and Tibetan highland. Source: [14,15].

In the fermentation processes, raw milk called *oma* is heated before a small amount of buttermilk is added as a lactic fermentation starter.

It is completely covered with a cloth to keep warm and left out for about two to three hours. The first step in the process is to make sour milk called *εo*. Some households make *εo* without pasteurizing raw milk. Sour milk *εo* is churned into butter using tools, such as a wooden cylinder with a plunger or a goatskin bag. The cylinder is made of wooden planks and measures approximately 90 centimeters in height and 20 centimeters in diameter. The plunger is about 100 centimeters long and has a 16 centimeter diameter disk attached at the end of it. The disk has four 2 centimeter slits cut into it in all directions. The goatskin bag is about 80 centimeters long, 30 centimeters wide and 30 centimeters thick. It comes with an opening through which the sour milk is poured.

Sour milk is churned up and down when using a cylinder with a plunger or shaken side to side when using a goatskin bag. After about one to three hours of churning, solid butter particles and liquid buttermilk start to separate. Butter is called *mar* and buttermilk is called *tara*. When the butter particles have fully formed and churning is completed, the butter particles are scooped up by hand when using a wooden cylinder and a plunger. When using a skin bag, the buttermilk is poured out into a large cauldron while trying to leave the butter particles inside the skin bag. Once the butter has been separated, it is rinsed and kneaded in cold water for about four to five minutes. It is then formed into a ball. The size of the ball depends on each household. Butter is not salted. It is left to dry out for a few days and then stored for the winter in a wooden box, a yak's stomach, or a leather pouch. The butter is never processed into butter oil in the Autonomous Region of Tibet in the Tibetan highland. At the altitude of 3,000 meters or more above sea level, Tibetan highland is cold with an average monthly temperature of less than 20°C even in the summer. The final form of milk fat separation is butter, because the cold climate makes long-term storage of butter possible. To make cheese, the buttermilk called *tara* is immediately heated to boiling right after the butter is churned. After it has come to a boil, it is removed from heat and left out for about an hour or two until the buttermilk has cooled. Then, it is poured through a cloth or a sieve woven out of wood to separate the liquid whey and the milk protein that has curdled from thermal denaturation. The cheese formed here is called *tse* or *lapo*. This drained cheese is then crumbled into small pieces by hand to make long-lasting, sun-dried cheese called *te<sup>h</sup>əra*. The whey, called *te<sup>h</sup>ə<sup>r</sup>kə*, is never drunk by humans or used to make another product; it is either thrown out or given to livestock.

The cream separation processes involve immediately heating freshly obtained raw milk and then leaving it out for several hours until it cools. A 1 to 3 centimeter layer of cream that floats to the surface is called *tima*. This cream is collected and eaten by mixing with rice or *htsampa* (*Htsampa* refers to roasted barley flour. The Tibetan people mix cheese, butter, or butter tea in *htsampa* and use their fingers to knead it into a ball for consumption. It is a staple for the Tibetan people) or spreading on flat unleavened bread. It is not used to process into butter or butter oil. Skim milk is left once the cream is taken from the raw milk. Skim milk is called *oma*, just like the word for raw milk. The series of milk processing techniques used after obtaining the skim milk is exactly the same as the series of techniques used in the fermentation processes. This is because the cream separation processes developed from the fermentation processes under the cold ecology of the Tibetan highland [14].

The additive coagulation processes utilize sour milk called *tara* that has sufficiently undergone fermentation as the coagulant. *Tara* is added to raw milk and then boiled by heating. It is strained through a cloth

when the milk protein curdles and floats to the surface. The cheese left in the cloth is called *te<sup>h</sup>əra* and the whey is called *smugze*. The cheese is left in the cloth and is pressed under a weight to be drained some more. When the cheese has been sufficiently drained, it is formed into various shapes or cut into narrow strips of about 13 centimeters long by 2.5 centimeters wide by 1 centimeter thick, or as much as 3 meters long. After shaping the cheese, the pieces are hung on a string and dried in the shade or laid out on the ground to dry out in the sun.

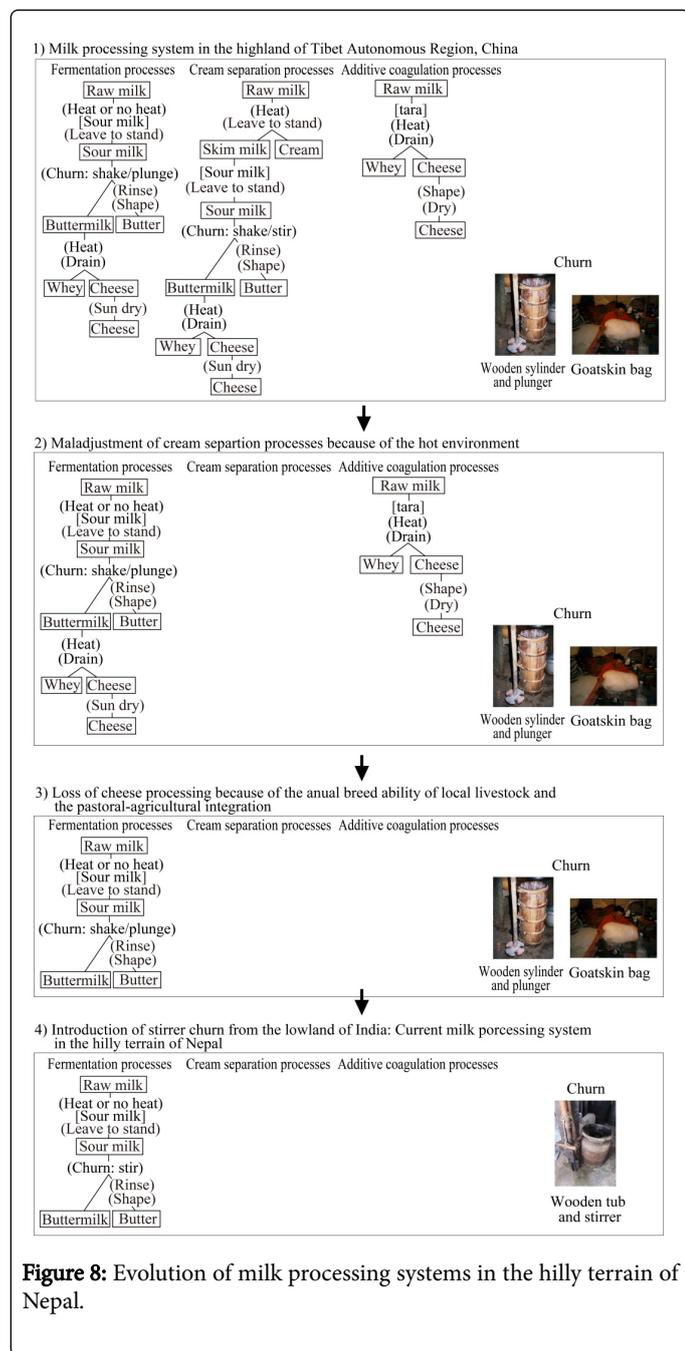
**Milk processing system in Indian lowland:** Figure 7 shows the milk processing system in the arid region of western India, as a case study of the lowland [15], which is located at a lower altitude than the hilly terrain of Central Nepal. The pastoralists from the arid region of the Indian lowland only use the fermentation processes. Raw milk is called *dudh*. First, raw milk is pasteurized and then processed into sour milk called *dahee* by adding lactic fermentation starter and leaving it overnight or for a whole day. Buttermilk or the sour milk saved from previously is used as a starter. Generally, the raw milk is pasteurized before the starter is added to make sour milk, but there are some cases when the starter is added without pasteurizing the milk first. Sour milk called *dahee* is churned in a clay pot with a stirrer to make butter called *makhan*. The churning time depends on the amount of *dahee* and ranges roughly from 15 minutes to 1.5 hours. When churning is completed, the pastoralists scoop the butter out of the pot with their hands. They never eat this butter, *makhan*, as it is. They put it in a pot without rinsing and heat it to make butter oil called *ghee*.

Butter oil is the final form of milk fat separation in India, where it is so hot that the average monthly temperature during the day in the summer is over 30°C. Butter oil keeps extremely well and it is said that it will keep for several years even at room temperature. The buttermilk that is left after the butter is collected is called *chhash*. This buttermilk is salted and drunk or added to curry, but it is never processed further to be made into cheese. The pastoralists from the Indian lowland do not make any cheese and do not use the techniques to separate and preserve milk protein.

**Evolution of milk processing techniques in the hilly terrain of Central Nepal:** It is very likely that the Tamang people utilized the milk processing techniques used in the present day Autonomous Region of Tibet back when they used to practice pastoralism in the Tibetan highland. In other words, they utilized fermentation processes, cream separation processes, and additive coagulation processes (Figure 8). Currently, the only milk processing technique they utilize in the hilly terrain of Central Nepal located at about 1,000 meters above sea level is the fermentation processes (Figures 2 and 8). Furthermore, their fermentation processes lack the separation and preservation of milk protein. This means that the Tamang people descended from the Tibetan highland to the hilly terrain of Central Nepal and stopped utilizing the cream separation processes and the additive coagulation processes. Additionally, they stopped separating and preserving milk protein from raw milk. As the precondition that 1) the Tamang people spent their life with animals in the Tibetan highland in the past, 2) they utilized the milk processing techniques used in the present day Autonomous Region of Tibet back, and 3) they descended from the Tibetan highland to the hilly terrain of Central Nepal, the paper will discuss the evolution of their milk processing system in the hilly terrain of Central Nepal.

The reason why the cream separation processes had been dropped could be due to the high temperature in the hilly terrain of Central Nepal, located just less than 1,000 meters above sea level. In the summer time, the highest temperature of the month during the day is

above 25. If raw milk is left out under such hot condition, it would start fermenting and congeal into a gel, inhibiting cream from floating to the top. With this kind of heat, it was inevitable that the cream separation processes disappeared from the Tamang people's lives once they descended into the hilly terrain of Central Nepal (Figure 8(2)).



**Figure 8:** Evolution of milk processing systems in the hilly terrain of Nepal.

The reason why the cream separation processes had been dropped could be due to the high temperature in the hilly terrain of Central Nepal, located just less than 1,000 meters above sea level. In the summer time, the highest temperature of the month during the day is above 25. If raw milk is left out under such hot condition, it would start fermenting and congeal into a gel, inhibiting cream from floating to the top. With this kind of heat, it was inevitable that the cream

separation processes disappeared from the Tamang people's lives once they descended into the hilly terrain of Central Nepal (Figure 8(2)).

The additive coagulation processes use some form of coagulant to curdle raw milk to make cheese. The Tamang people from the hilly terrain of central Nepal had never utilized cheese making techniques. In other words, there was no need to make cheese in this region and so the additive coagulation processes were dropped from their milk processing system. This also means that the cheese making techniques disappeared from the fermentation processes (Figure 8(3)). The factor that brought about these changes was the needlessness to make cheese in the hilly terrain of Central Nepal. The churns of wooden cylinder with plunger or skin bag were replaced with the wooden tub with stirrer (Figure 8(4)). This change was influenced by the clay pot and the stirrer from the Indian lowland. This must have been an easy transition as the wooden tub with stirrer is much more efficient in making butter than the wooden cylinder with plunger or skin bag. The series of abovementioned changes led to the pastoralists' adaptation of the present day milk processing system in the hilly terrain of Central Nepal.

The fermentation processes without cheese making is completely in accordance with the milk processing techniques practiced by the pastoralists in Indian lowland (Figure 7). It means that the Tibetan Tamang people's milk processing system changed from the one used by the Tibetan pastoralists from the Tibetan highland to the one used by the Hindu people of the India lowland. The viewpoint from the milk processing technique reveals that the hilly terrain of Central Nepal, at 1,000 meters above sea level, is in the same milk culture area as the Indian lowland. The case study in the hilly terrain of Central Nepal indicated that a milk processing system changes and adapts to a region as it spreads rather than retained by the ethnic group with which it spreads.

Reasons why milk protein is not preserved in the hilly terrain of Central Nepal: This paper will now discuss how the separation and preservation of milk protein as cheese disappeared from the milk processing system in the hilly terrain of Central Nepal. The first consideration is that cows and water buffalos are raised as milking animals in the hilly terrain of Central Nepal. Cows and water buffalos raised in the region are not seasonally breeding animals and calving is possible at any season. This means that raw milk is available throughout the year. With a constant supply of raw milk, there is no pressing need to process raw milk for the sake of preservation. In fact, there are some camel pastoralists who only drink raw milk and do not process the raw milk at all [16], because camel is another example of an animal that can be milked throughout the year. Sheep and goats have drop-off months when it comes to milking. In this case, the pastoralists need to process and preserve milk while milking is possible, because they cannot obtain milk year round. This is what is at the core of the milk processing techniques [17]. The people in the hilly terrain of Central Nepal can drink buttermilk and obtain milk protein throughout the year, so they do not have to separate and preserve milk protein from raw milk. One of the reasons why the separation and preservation of milk protein were not developed in the hilly terrain of Central Nepal is thought to be because the cows and water buffalos raised in this region do not breed seasonally and they can provide a constant supply of raw milk throughout the year.

The next consideration is that the hilly terrain of Central Nepal consists of farmlands that grow various types of beans and grains. The pastoralists' cooking is based on dishes using these various beans and grains. Tamang people's meal is called dal kan (*Dal* refers to bean

dishes and *kan* refers to rice dishes. It is the equivalent of *dal bhat* in Nepali), which is basically made up of rice and stewed bean soup. It is not an exaggeration to say that the Tamang people eat this meal year round. Rice and beans have a very important place in their diet. In fact, it has been reported that majority of their caloric and protein needs are met with this meal of rice and stewed beans [18-21]. One of the characteristics of the region is the ecology that allows the people in the hilly terrain of Central Nepal to obtain sufficient calories and proteins from the agricultural products like beans and grains throughout the year. In the Indian subcontinent, the overlap of agriculture and pastoralism created a compound agri-pastoral society that supported their subsistence and Hinduism [22-25]. Like the Indian subcontinent, the subsistence in the hilly terrain of Central Nepal is also established by the overlap of agriculture and pastoralism. The second reason why the separation and preservation of milk protein did not develop in the hilly terrain of Central Nepal is the pastoralists' ability to grow variety of crops, including beans and grains, while also raising livestock. Hence, they are able to obtain sufficient amount of calories and proteins from the crops at any time, not from cheese.

The hilly terrain of Central Nepal is hot, humid, and abundant in rainfall. Here, pastoralism and agriculture are integrated to provide both agricultural and animal products. It can be said that it is the region's characteristics of "heat environment" and "integrated agriculture and pastoralism" that changed and developed the milk culture to be suited for the hilly terrain of Central Nepal.

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