



Brokering from the Farm to the Shop

Improving Connections Between Formal and Informal Actors in the Dairy Value Chain in Bhutan



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The Dairy Sector in Bhutan largely operates in informality. While the majority for farmers produce for subsistence, a semi-commercial system supported by the Government is on the rise. Informal brokers play key roles in dairy value chains to ensure that supply meets the demand, yet they are also associated with unfair pricing and price fluctuations. They are commonly considered as unnecessary usurpers of income in the value chain. The Government of Bhutan supports the development of farmer-owned processing and marketing units aiming at a 'seamless' flow of milk and dairy products from farm to shop. Only investing in the formal domain would mean missing out on the experience and strengths that informal brokers have in the chain to potentially contribute more positively to food system outcomes.

The context

Over the past two decades, the Dairy Sector in Bhutan has been going through gradual, yet fundamental changes. The population of crossbred cattle increased, and milk production went up. This contributed to reducing the huge import of dairy products: milk powder, cheese, and tetra-packed milk worth Nu. 1001.29 Million in the country, annually.

Smallholder dairy farmers fully dominate the dairy production system. The milk marketing and processing systems are relatively small-scale and part of largely informal dairy value chains. It is common for rural households to process about 90% of the milk produced into butter and soft cheese (as already noted by Wangdi et al., 2014). The group production and marketing approach was initiated by the Government after the enactment of the Cooperatives Act of Bhutan in 2009 when few informal groups existed in the early 1990s (Choden et al. 2022). This has motivated subsistence dairy farmers to produce a surplus of dairy products (milk, butter, and cottage cheese) and improve farming practices. Farmer groups, however, face difficulties in finding appropriate markets for dairy products. Many informal brokers, therefore, take up this role, absorbing a major share of the income.

Taking this into account, the Department of Livestock (DoL), in collaboration with the relevant agencies including the District Livestock Sector (DLS), prioritises the development of dairy value chain processes. For example by establishing Milk Processing Units (MPUs). This aims at a 'seamless' flow of milk from producers to the processing units, minimising the expenses incurred by the informal brokers towards an effective Dairy Sector. The question remains whether the generally negative attitude in the department towards brokers helps improve the connections in the dairy value chain.

Did you know that the dairy sector in Bhutan...

- Is mainly for subsistence yet starting to commercialise.
- Contributes to Gross National Happiness (GNH).
- Had an increase of crossbred cattle of 254% in 2021.
- Included 117,000 crossbred cows in 2021 compared to 33,000 in 2008 (NSB, 2021).
- Increased milk production by 138% between 2008 and 2021.
- Is dominated by un-organised smallholder farmers in the value chain.

Informal actors in the dairy value chain

In Bhutan, there are informal- and formal-oriented dairy value chains. Informal brokers play a role in both. A general picture of these value chains is provided below, showing the key actors on a scale from informal to formal.

Input suppliers: In the informal oriented chain, common grazing areas are often used as a source of feed, with home-mixed supplements. More commercially oriented and organised producers usually access dairy inputs from the public service delivered by the Department of Livestock (DoL) in the form of a stimulus package (CGI sheets, cement, bricks, dairy cows, barbed wire for pasture fencing, chaff cutter and other dairy processing equipment) on cost-sharing (Sherpa et al., 2016). Alongside this, DoL is also the supplier of inputs, such as breeding stocks, fodder seeds and seedlings, frozen semen, medicines, and vaccines on full subsidy. Other sources of inputs, including feed, dairy equipment and processing machinery, are available from private dairy equipment and feed sale agents, who are formal actors in the value chain.



Figure 1: Individual farmer bringing milk to collection point.

Producers: The vast majority of dairy producers are subsistence farmers. Small-scale semi-commercial or commercial dairy farming is slowly increasing, and the Government supports them by organising Dairy Farmers Groups (DFG) and Dairy Cooperatives (DC). These are meant to facilitate and provide a platform to harmonize and derive shared benefits from milk agri-business. Currently, there are 233 DFGs with 6350 members and 10 DC with 437 members spread across the country for collective action (NDDC, 2023) besides 33,934 informal smallholder dairy holders (NSB, 2022).

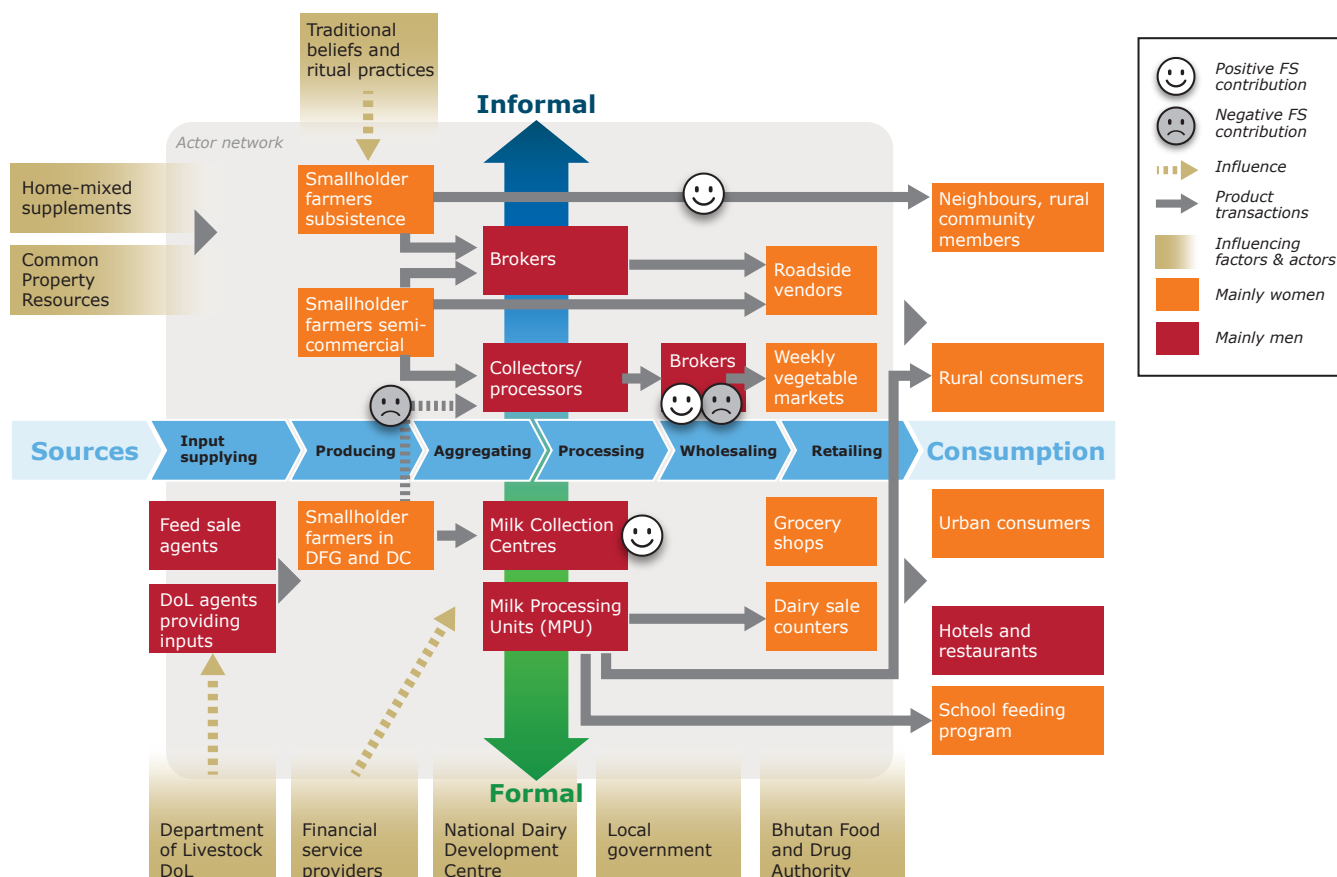


Figure 2: Dairy Bhutan actor map.

Processor/Packagers: The individual dairy farmers themselves are the primary producers of milk, butter, and cheese, yet collective processing arrangements are on the rise. Most group members supply raw milk to Milk Processing Units (MPUs) for processing into butter and cheese, with the payment for milk on a monthly basis and an average farm gate price of Nu.¹ 38 per litre. The farm gate price of butter and cottage cheese ranges from Nu. 400–450/kg and Nu. 40–45/ball of about 150–200 gm, respectively. The MPUs are mostly operated by dairy farmer groups/cooperatives and a few by private individuals. The farmer groups process the milk into butter and cheese; sometimes yoghurt, panner and ice cream for sale in the local and school feeding programs and to the urban market. Some group members also sell raw milk to local consumers.



Figure 3: Cottage cheese processing at Milk Processing Unit (MPU).



Figure 4: Cream separating at Milk Processing Unit (MPU).



Figure 5: Broker collecting milk from group members.

Brokers (aggregators and traders) are key in the dairy business. They collect liquid milk from dairy farmers or groups, and transport to urban towns for sale to other traders or retailers. Some also process the milk before selling. The raw milk is sold to the brokers at varying prices ranging from Nu. 45–55 per litre. The brokers sell the products with profit margin adding transportation cost over and above the price paid to milk producers group. The brokers are paid about Nu. 60 per litre of raw milk in the town. They are often referred to as usurpers who are perceived to exploit farmers. Dairy farmers appreciate the role of brokers in the dairy value chain, the engagement of brokers assures farmers in marketing their raw milk and dairy products, which otherwise is difficult for farmers to explore markets.

Retailers: Dairy product sale counters and grocery shops are considered formal retail outlets in the absence of a formal market for liquid milk and dairy products in the main towns. The retailers collect the milk and dairy products from the brokers on a daily or weekly basis and maintain records of the collections. Brokers are paid for the products on weekly or bi-monthly basis. Brokers further pay to the farmers monthly. The price of milk and dairy products varies and escalates to Nu. 80/litre in major town and butter and cheese are sold at Nu. 550/kg to Nu. 60/ball, respectively.



Figure 6: Marketing dairy products at sale counters.

¹ Nu. = Ngultrum (Bhutanese currency), 1 USD = Nu. 82

Consumers: Most urban consumers have access to dairy products from retail outlets (grocery shops and dairy sale counters) in the towns. Some consumers also have direct access to milk and dairy products either from the producers or from the MPUs. The consumers can purchase at a reasonable price when directly purchased from producers/MPUs than from the retail outlets in terms of quality and price which is charged higher at retail outlets. Conversely, rural consumers have access to dairy products from the neighbours within the village or buy them from the weekly vegetable markets where farmers bring dairy products for sale.



Figure 7: Sale of raw milk at sale counters.

Supporters of dairy value chain

The various supporters in the dairy value chain comprised Government, state-owned enterprises (SOEs) and private agencies. The DoL and its implementing agencies (District Livestock sector, National Dairy Development Centre, National Cattle Breeding Centre, National Centre for Animal Health, National Centre for Animal Nutrition) are the lead government agency that caters to inputs and services support throughout the chain. Alongside this, the support and involvement of the Department of Agricultural Marketing and Cooperatives, Bhutan Food and Drug Authority and Bhutan Livestock Development Corporation are involved in organising farmers' group and cooperatives, marketing, and quality control of the dairy products from production to consumption. Financial institutions, such as the Bhutan Development Bank Limited, provide short-term and medium-term loans to dairy farmers.

As shown in the figure below, informal brokers play a role both in the formal and the informal-oriented dairy value chain. Annex 1 provides examples of the prices of products in the value chain.

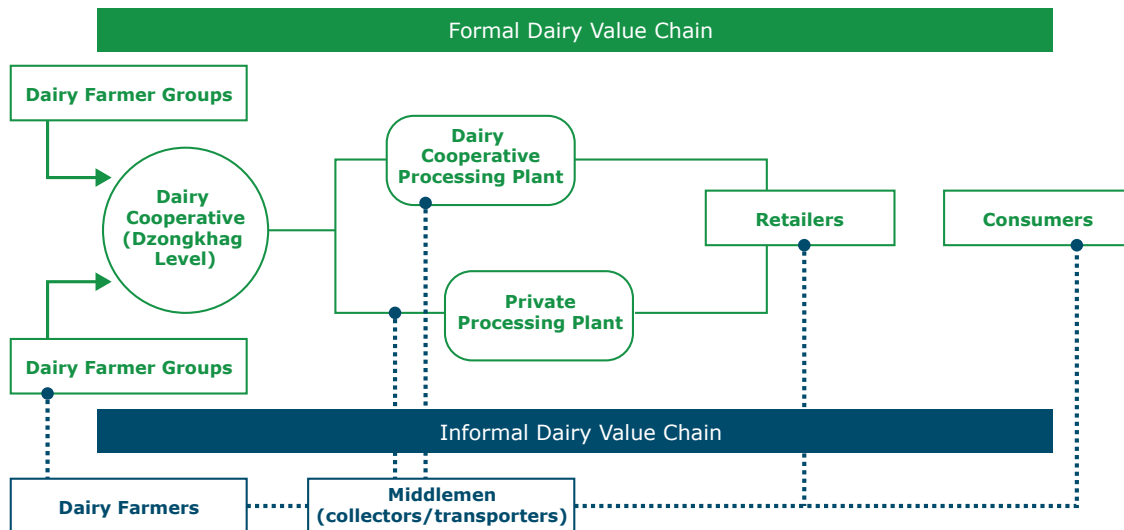


Figure 8: Interconnection between the formal and informal oriented dairy value chains.

Contributions to food system outcomes

Bhutan's philosophy of Gross National Happiness (GNH) was ahead of its time in acknowledging four dimensions of sustainability: good governance, environmental integrity, economic resilience and social well-being² (Samdup, 2018). The efforts to support the dairy value chain, including crossbreeding, are guided by the GNH pillar for 'sustainable and equitable socio-economic development' and the Food and Nutrition Security policy objectives of the Government.

In general, the dairy value chain contributes to multiple food system outcomes. The support by the Government of Bhutan to organise and commercialise the value chain. For example, contribute to **environmental outcomes** by reducing grazing pressure on common property resources. In terms of **socio-economic outcomes**, it provides self-employment opportunities with reliable and regular income sources for rural women and men (Samdup, 2018). Dairy value chain development also reduces the huge dependency on imported dairy products and has **nutritional** benefits for millions of people.

The contribution of informal actors towards these outcomes is often not recognised. With a major focus on commercialisation, the essential contribution of many subsistence farmers producing and processing milk at a small scale for food and nutritional security in the country is easily forgotten (NDDC, 2024). Reasoning from the wellbeing of farmers, informal brokers are often portrayed as unnecessary actors who take a disproportionate share of the value in the chain. In the dairy trading system, however, the informal brokers play important roles, ensuring the variety of dairy products reaches several actors in the chain towards the consumer. Irrespective of the share they take in the income from dairy, they contribute to the food system outcomes as much as formal actors in the value chain.

What if?

The semi-commercial smallholder-based dairy value chain in Bhutan relies on both formal and informal actors as described above. What if more efforts would be invested in 'bypassing middlemen' – as brokers are often referred to? Would the members of dairy groups and cooperatives take over the entrepreneurial roles that brokers are currently fulfilling by linking actors, transporting, setting prices, taking risks and flexibly adapting to changes in the supply and markets? Without brokers, the efforts to support commercialisation may lack the essential marketing component.

What if brokers would be engaged more positively in the dairy value chain development, instead of bypassing them? Meaningful engagement of brokers in the value chain development process may create a more transparent pricing system and value the roles brokers play in the value chain. In this context, there should be an enabling policy from the Government to efficiently engage the brokers for a 'win-win' situation.

What if all subsistence farmers were encouraged and supported to adopt commercial dairy farming? This may lead to a reduction in the country's dependency on imported dairy products. It may however also lead to a trade-off with the food and nutritional security in the country: the traditional processing of milk may be abandoned, and products currently used for feeding the family may be diverted for commercial purposes.

² The GNH concept is operationalised through subdividing the four pillars of GNH into nine domains: psychological well-being, standard of living, governance, health, education, community vitality, cultural diversity, time use and ecological diversity. These nine domains are equally weighted; they are considered equally valid for happiness (Ura et al. 2015). Within the nine domains, there are 33 indicators in total (CBS 2016).

Challenges and opportunities

There are various hurdles for more positive contributions of the dairy sector to socio-economic, environmental and food and nutrition security food system outcomes. Dairy production is already changing fundamentally in Bhutan, yet the milk supply in terms of quantity and quality is inconsistent. The sector offers employment in terms of processing, transportation and retailing, and increases the income of smallholder farmers. The economic potential however cannot be unlocked without enhancing the capacities of smallholder subsistence dairy farmers and traditional production systems. Risks of compromising nutritional security in rural areas, as well as environmental health, make the commercialisation efforts more complex.

The **subsistence and traditional nature** of production involve many small and medium dairy farmers, which makes it complex. The knowledge and practice of modern and hygienic milking techniques is limited, and good dairy farming practices are not sufficiently backed up by quality control measures. Milk collection and testing facilities do not rule out inferior quality and adulterated milk supplied by farmers. Milk adulteration mainly happens when the farmers add water (ranging from 10–15%) to fresh milk before selling. Without cooling equipment, the mixing of evening milk with morning milk deteriorates the quality. Without the proper cold chain facilities and with prolonged time in milk collection, the quality of milk received at the collection centres is usually poor.

The production and supply of quality **feeds and feeding plans** for dairy animals are also constrained by the inflated cost of feed as a result of importing feed ingredients and dependency on these.

The Government emphasises **breed improvement** by introducing Artificial Insemination (AI). Yet, most farmers resort to rearing local cattle breeds due to the terrain topography of the country and the difficulty of reaching the AI services to the remote areas which results to low production. In addition, **inadequate land** for the expansion of dairy farms also constrains farmers from up-scale dairy production. Quality-based milk grading systems for the sale of quality milk are still very limited. Farmers and the entire chain depend on informal brokers imposing arbitrary prices.

With **marketing channels** mainly handled by informal brokers and traders, prices of milk and dairy products fluctuate, and markets are not reliable. The price of raw milk and dairy products varies between the DFGs in different districts and there is no pricing mechanism the actors can rely on. Without an organised dairy value chain in place, farmers accept the unfair prices proposed by the brokers resulting in low incomes of farmers and reluctance to invest in better quality. Generally, informal brokers are seen as a nuisance. Programmes implicitly aim to bypass them, while the value chain cannot (yet) do without them.

On the other hand, the dairy **value chain development efforts by the Government** of Bhutan provide many opportunities. The already functioning Milk Collection Centres (MCCs)/ MPUs are supported also to set a good example for other market players to replicate.

What can be done in the sector?

Owing to the difficult terrain and the 'micro' nature of operation in the smallholder dairy farming system in Bhutan, the organisation of district-level unions and federations at regional- or national level has not even been considered. The Government support in the establishment of dairy groups and cooperatives in production, processing and marketing can encourage farmers to take up more functions in the value chain which are now mostly carried out by brokers. Not all farmer collectives however aspire to take up brokering themselves. To enhance the contribution of the dairy value chain to the wider food system, pathways in the formal, as well as the informal domain are therefore needed:

Pathways in the formal domain

One pathway already practiced by the Government is developing an enabling environment and enhancing product quality, system efficiency and productivity. Suggested focus areas are:

- 1. Ensure that inputs and services to dairy farmers are uninterrupted and seamless** for reliable access to: i) veterinary services and inputs (vaccine, drugs, and breeding stock/AI service facilities, shelter); ii) fodder and feed, but also fodder seeds for pasture and fodder development; iii) Policy and regulatory support services including market and trade regulation; iv) Technical assistance to meet the requirements of the Bhutan Food and Drug Authority; v) Animal welfare including appropriate management of calves, breeding bulls and breeding practices, pregnant cows, non-productive and non-descriptive animals, scrub bulls and transportation of animals.
- 2. Enhance coordination and monitoring** so that better quality milk channelled to processing centres can be attributed to improved services and capacity development at farm level. For sustainability, the price of the services needs to be somehow reflected in the increased milk quality.
- 3. Production enhancement:** provision of support and subsidies for farmers as a cost-sharing mechanism with the Government to enable them to: i) adopt innovative technologies and improved management through optimizing feeding and breeding resources use through improved extension services. ii) Increase the number of quality stocks with farmers through breed intensification and use of reproductive biotechnologies, such as sex-sorted semen with effective AI services delivery³. iii) Strengthen skills for good farming practices and clean milk production with the introduction of a quality-based milk grading and pricing system to improve the value and competitiveness and marketability of products.
- 4. By setting an appropriate pricing policy** for the dairy products at the source and the retail market will reduce the existing system of high profit earned by the brokers in the process of the value chain.
- 5. Learn and adopt from international experiences**, such as Fontera Dairy Company in New Zealand, and ANAND Model, India.

³ This can be mitigated through the Elite Heifer Breeders Scheme (EHBS) piloting in a few districts.

Pathways in the informal domain

Only investing in the formal domain would mean missing out on opportunities and strengths already available in the informal domain. Possible ways forward in the informal domain are:

- 1. Re-organising processing and transport:** individual farmers and farmer groups in remote areas who rely on private transporters (acting as brokers) to sell group products could be supported in various ways:
- *Without brokers:* Group savings could be enhanced so that groups can take more control of the processing and transport of milk. If collective capital can be built up, this can be used to arrange milk collection and chilling at centrally located centres. Processing hygienically into diversified dairy products for marketing as chilled liquid milk can also be organised, following examples of several dairy milk marketing groups. For example, at Orong, Wooling, Deothang, Gomdar communities, where the group representatives supply chilled milk to market outlet in Samdrup Jongkhar district without engaging informal brokers.
 - *With brokers:* Farmers and groups who do not aspire to take over the transportation and processing roles of brokers can be supported to strengthen their negotiation position to meaningfully engage with brokers. For example, the Dairy Groups in Darla community engage two or more brokers to market milk for sale in Thimphu city.
 - *With companies:* encourage participation of farmers in centralised processing factories, such as Kofuku International Limited (KIL) in Tashigang district that produces processed cheese to meet the internal consumers' demand and substitute import. This is in line with experiences in other parts of the world, in which a dairy company facilitates the supply chain enabling farmers to sell products at reasonable prices through contract agreements. This can lead to reliable and fair pricing for farmers, especially if combined with company corporate social responsibility for providing required inputs like feed at a reasonable price.

2. Enhancing marketing and market linkages:

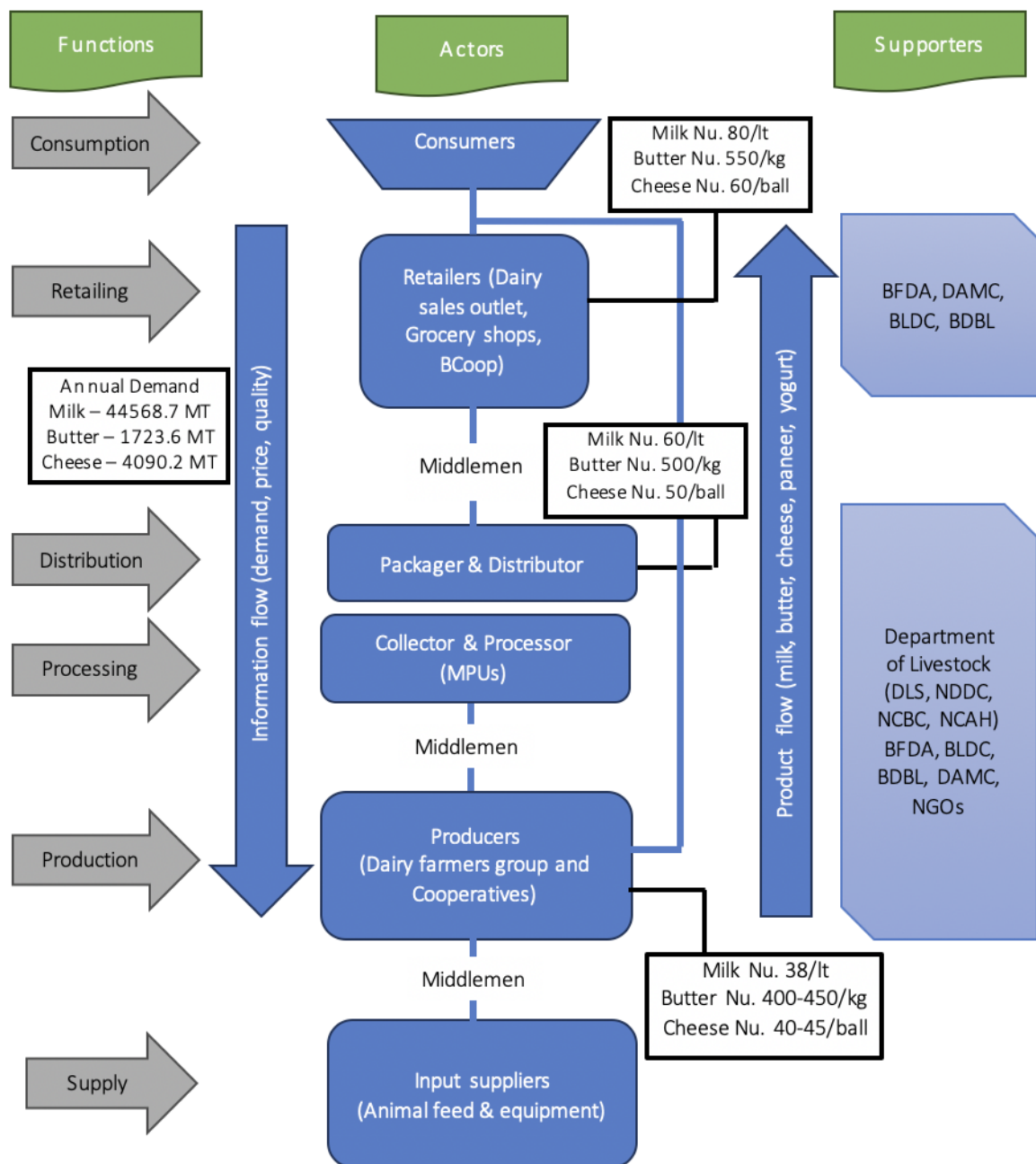
- Develop and / or strengthen multi-stakeholder partnerships in dairy value chains to strengthen informal-formal linkages among the stakeholders. Considering that brokers currently play key roles in the dairy value chain process, they cannot be simply ignored or cut out. Capacity strengthening and collaboration efforts can improve the terms based on which farmers and other actors deal with brokers, levelling the playing field. Experienced brokers are well placed to advise farmer groups who want to take up marketing roles and farmer groups may be well placed to continue using the services of brokers based on better terms.
- Apart from formal policy interventions, relevant agencies, such as the Department of Agricultural Marketing and Co-operatives (DAMC), could strengthen marketing and business skills (market information, market intelligence, business incubation hub) through technical and business-oriented training. Business networks could also be developed with digital platforms and e-commerce⁴.

⁴ For example: The Nubi Dairy Group use social media for advertisement availability of dairy products with supported by DLS Trongsa.

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Annex 1: Prices in the formally oriented dairy value chain



BFDA = Bhutan Food and Drug Authority, DAMC = Department of Agricultural Marketing and Cooperatives, BLDC = Bhutan Livestock Development Corporation, BDBL = Bhutan Development Bank Limited, DLS = District Livestock Sector, NDDC = National Dairy Development Center, NCBC = National Cattle Breeding Center, NCAH = National Center for Animal Health

Figure 9. Dairy value chain mapping in Bhutan.



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