



Vulnerability Context and Role of Cooperatives in the Livelihood of Dairy Farming in Mizoram

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Abstract

This paper attempts to identify the vulnerability context and the role played by cooperative society for Dairy farmers in Mizoram, India. The study was conducted in Mizoram, India among 123 dairy farmers who reside around Aizawl city. The Sustainable Livelihood Framework (SLF) has been used to understand the vulnerability context of dairy farming. Dairy farming was mostly practiced by low-level income groups and the landless as well as the rural people, as the Sustainable Livelihood Framework focuses mainly on the poor as well as involving them in the processes with respecting their opinions and aiming to bring short and long term changes and it allows pointing out the various processes which influence one another, so it is applicable for studying the vulnerability context of the dairy farming. The study findings included that the dairy farmers were vulnerable to shocks, seasonality, and space. To some extent as the study was conducted in Mizoram, the non-Mizos were vulnerable with regards to culture as it is one of the processes of livelihood. The north-eastern states have shown low production of milk as compared to other states in the country and the dairy sector has substandard performance (Ralte & Chhawna, 2021). Case studies were conducted among the local co-operative society to understand their function and management, Key Informants Interview and households' interviews were conducted among 123 respondents to understand how co-operative play a role in promoting their livelihood. The study indicated that the co-operative society's rules and functions were different from one another, as the majority were the members of the co-operative society it can be concluded that co-operative society has been helpful and played an important role for the dairy farmers. The findings also include the suggestions given by the farmers for improving and sustaining their livelihood.

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Introduction

Livestock farming plays an important role in India as it has been the main source of livelihood for many people. It occupied an integral part of the Indian economy and agriculture, especially for the rural inhabitants (Sah et al., 2002). Dairy farming is regarded as suitable even to poor households as it does not require elaborate skills. However dairy farming requires good health to put in effort and hard work due to its hectic schedule. It has provided not only livelihood to the people but rich nutrient food like milk, egg, and meat. Dairy farming provides livelihood to many households in Aizawl, creating employment opportunities for about half of the population in Mizoram, India (Buragohain, 2020). Certain foods like cereals can be prepared with milk which opens other sources of income for the dairy farmers by selling those dairy products (Devaraja, 2008).

According to the Department for International Development (DFID), vulnerability context is the seasonality, trends, and shocks that have negative impact on the livelihood of the people, which cannot be controlled by people. It is important to recognize the causes which can reduce the vulnerability context that will help in developing the security of the livelihood. It is relevant especially for the poor household as they are not in a position to respond positively to challenges as they have no other sources of earning and no valuable assets during crisis.

As per the Sustainable Livelihood Framework (SLF), vulnerability means those seasonality, trends, and shocks that have negative affect on people's livelihood. Institutions and policies can increase the vulnerability chances for households as well as communities. In Mizoram, livestock farming like dairying can be considered as sustainable as it helps in maintaining the environment and manure produced by cows are helpful for crops, so dairying and agricultural activities can go hand in hand. Urbanization and westernization has increase milk demand due to its healthy and nutritious content that many people use for diet as well as for preparing different dishes. During monsoon the product of milk rises due to rain that nourishes the grass, the animals get enough grass which reduces the feed expenditure as grass is one type of feed given to cows.

Mizoram has a total cattle population of 34,803 (Malsawmdawngliana & Rahman, 2016) and 25 tonnes of milk is produced during 2016-2017 (GOM, 2017-2018). Aizawl has consumed about 30,476 liters of milk daily. The dairy farmers in Mizoram mostly depend on green fodder and concentrate mixture that is available in the market, the main challenge faced by the dairy farmers in Mizoram is a lack of nutritional feed (Rajat & Girin, 2014). This study aims to understand the vulnerability context and challenges faced by dairy farmers in Mizoram.

Overview of Literature

Dairying play a crucial role for eliminating poverty as landless and rural people mostly practiced or earns their income through dairying, as demand and marketing are adequate, so the farmers need not to worry about the market. It is one of the most common

livelihood options for the rural and landless people in India; there is coping literature on it across the developing countries. There were few studies related to vulnerability context (see Somda et al., 2005; Wood, 2015; Nkya et al., 2007) where they mentioned that there are months where fodder were not available where the farmers are vulnerable to seasonality and also due to different diseases the farmers lose their animals which makes them vulnerable to shocks. There are some studies which focus on the role of gender relations in dairy farming (see Shamsuddin et al., 2007; Mullins et al., 1996; Kristjanson et al., 2014; Singh, 2014; Selvamani, 2010). These studies find that women have higher value in family and society because of dairy farming. But they are considered disadvantage as they lack health care facilities, assets and incapable of managing work required in farming.

Methodology

The study was descriptive in nature and qualitative method was used to collect data. The present study was conducted in different localities of Aizawl, Mizoram. Stratified random sampling method was used to select villages. In the first stage, dairy farming villages in Aizawl viz., Durtlang, Sihphir, Lungdai, and Tlangnuam were selected as they are the most populated farming villages as identified by the Department of Animal Husbandry, Aizawl, Mizoram (2018). The following villages were classified as core and periphery based on their location from the heart of Aizawl city. Tlangnuam and Durtlang represents core and Sihphir and Lungdai represent periphery. Qualitative data was collected with the use of Key Informants Interview and participatory methods were used to understand the vulnerability context in the selected villages.

Results and Discussion

Profile of the Community

In the present study, the core areas were larger in population but in regards to location the periphery is better, but more resources and facilities were found in core as they are more advance and urbanized. Especially health and education facilities are of higher quality in core.

Participatory Rural Appraisal (PRA)

– Social Map

Social Mapping is conducted in all selected villages; the local inhabitants are the sources of information where the people themselves draw the map to show the locality structure and facilities they have. This map is helpful in receiving information about the census, facilities, resources and households pattern.

Social Map from different localities shows that more households were found in core due to urbanization that people shifted from rural to urban in search of jobs or to avail better facilities, so educational centre were found more in core but periphery are more occupied by those government site office as compared to core area. With reference to transportation, internal roads were found more in core due to population demand.

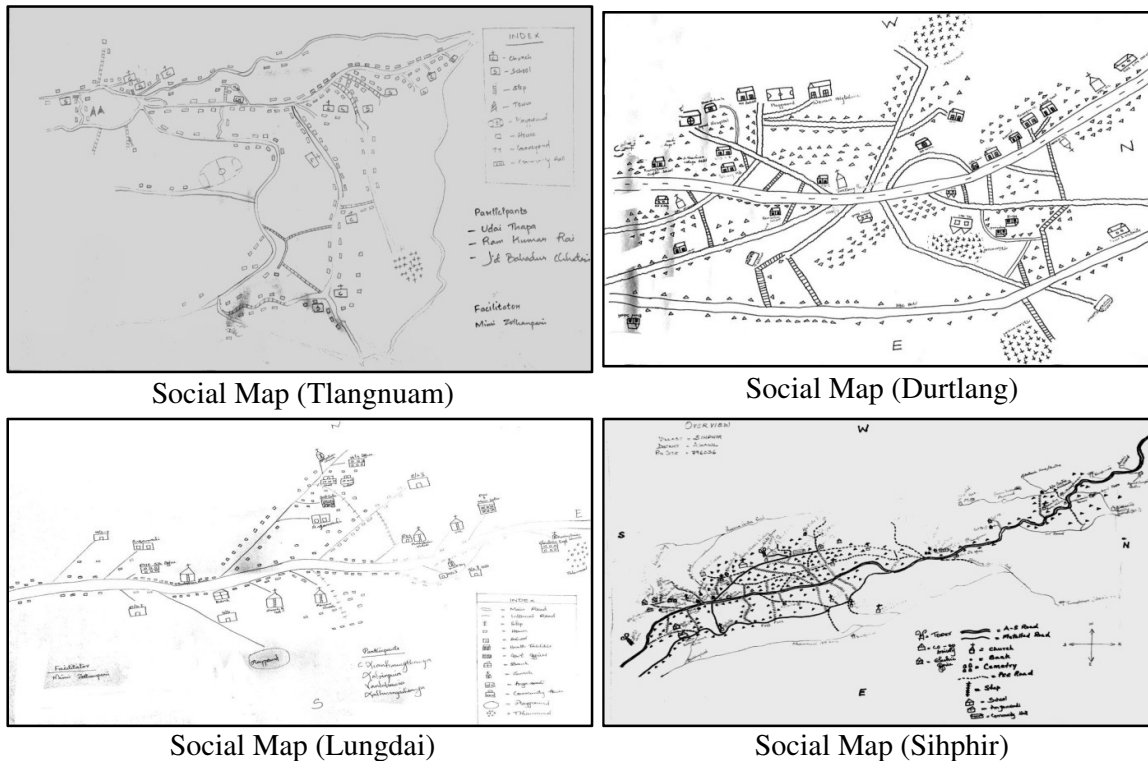


Figure 1: Social Map of Localities

– *Resource Map*

Resource map is drawn by the local people to indicate the natural resources and household's location in the locality which makes it easy to see the quality of natural resources that locality have.

From the resource map, it can be seen that the periphery was richer in natural resources and agriculture is widely practiced among the inhabitants and agriculture becomes the second most common livelihood practice by the respondents. Scarcity of green fodder was common in core areas as the land was mostly occupied by buildings. Water resources were easier for the periphery and depend on groundwater while the core areas depend on groundwater and water holes. Even though the periphery was rich in water resources, due to insufficient nearby water holes and ponds, buying water was more common among the periphery as they have no facilities for channelling water from rivers.

– *Services and Opportunities Map*

Services and Opportunities map shows resources and facilities that localities have for their daily needs, it shows the services and resources they utilize for living. The services and opportunities were different for both the areas, health care facilities, schools, churches, banks, and markets were the common services and opportunities mentioned in both areas.

The services and resources owned by core and periphery differ from one another where facilities like Village council house, Mizoram Multi-commodity Producers Coop Union (MULCO) booth, government station, and hall, playground, roads and Young Mizo Association (YMA) house are not observed in every locality. Due to different administration and resources they have the type of services and facilities they have are dissimilar among these localities.

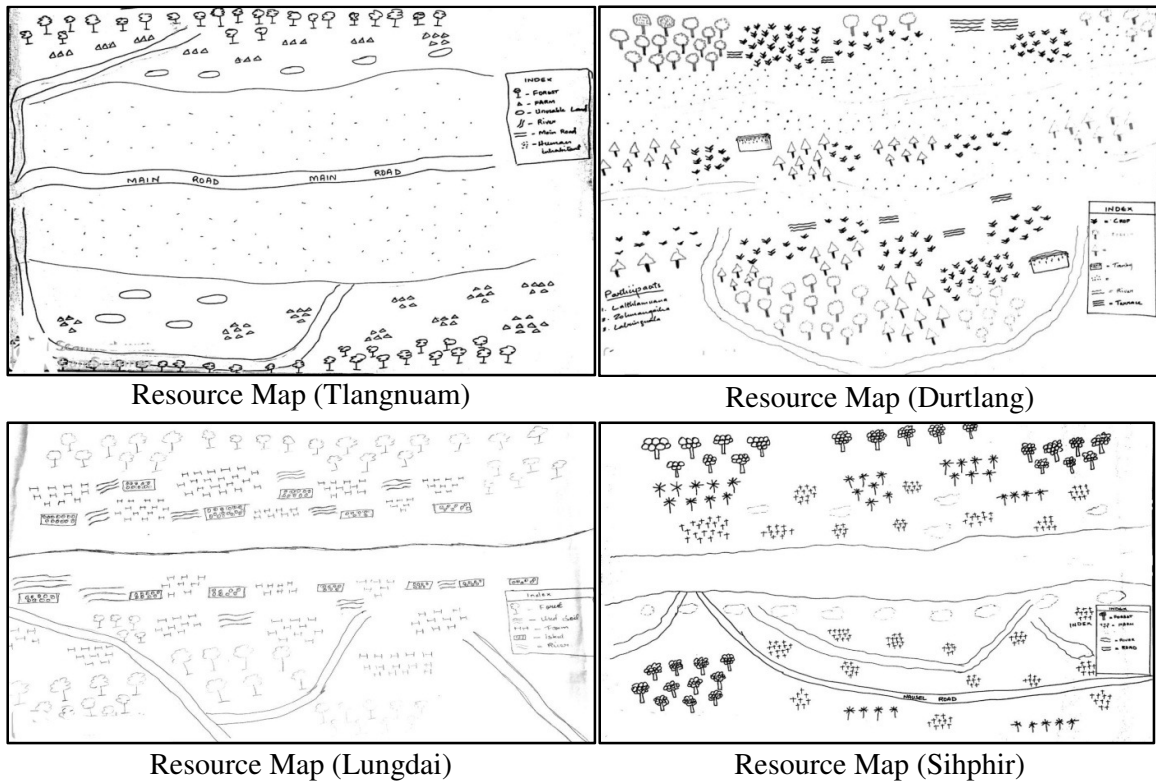


Figure 2: Resource Map of Localities

– *Seasonal Calendar*

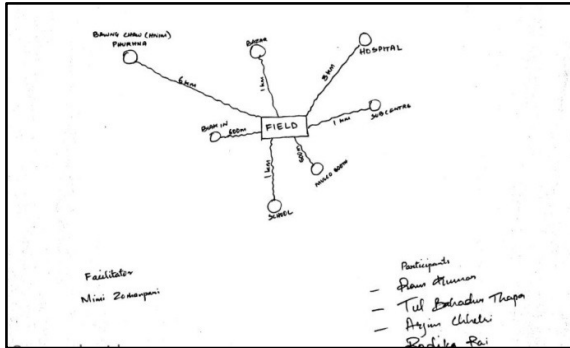
The seasonal calendar helps us to understand the changes that take place in the livelihood of the dairy farmers and helps us in understanding the vulnerability context.

Livestock production and reproduction were not affected by seasonality. Milk increases during the rainy season as feed were naturally available in abundance and water sources were also easier, this decrease expenditure for feed in addition milk is produced more where farmers benefits from farming. Availability of labourer is different where labour are available all throughout the year in periphery, the core need not to hire labour as family can take care of farms.

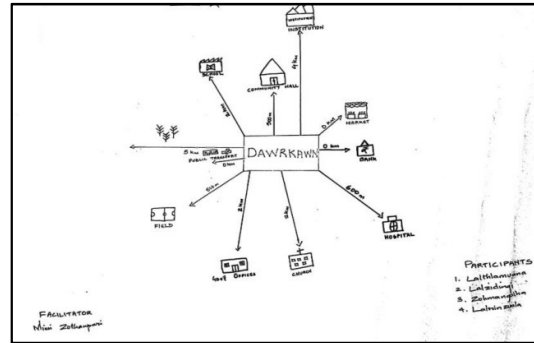
– *Daily Activities Schedule*

Daily Activities Schedule were conducted among dairy farmers with both men and women to understand activities carried out and help in understanding those who carried out more work and the time spent.

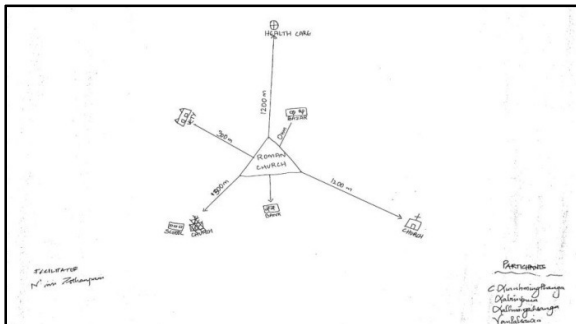
The works carried out by men in both areas were similar but their timing was different especially for Tlangnuam as they are non-Mizo and their style of living was somehow different. Meanwhile, the activities and schedule were usually the same for the woman in both areas. Women are loaded with different chore compared to men in Mizo society, so even in this study woman are found to involve more in various work.



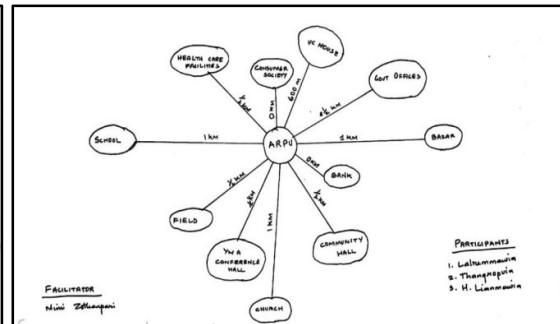
Services and Opportunities Map (Tlangnuam)



Services and Opportunities Map (Durtlang)



Services and Opportunities Map (Lungdai)



Services and Opportunities Map (Sihphir)

Figure 3: Services and Opportunities Map of Localities

MONTHS → ACTIVITIES ↓	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
LIVESTOCK	XXX	XXX	XXXX	XXX	XXX	XXX	XXXX	XXX	XXX	XXXX	XXX	XXX
MILK PRODUCTION	XXX	XXX	XXXX	XXXX	XXXX	XXX	XXX	XXX	XXX	XXXX	XXX	XXX
LOW FEED AVAILABILITY	XXX	XXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXX	XXXX	XXX	XXX
CROPS	XX	XX	XX	XXX	XXX	XXXX	XXXX	XXX	XXX	XXXX	XX	XX
INCOME ↑ EXPENDITURE ↓	↑↑ ↓↓	↑↑ ↓↓	↑↑ ↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑↑ ↓↓↓↓	↑↑↑↑ ↓↓↓↓	↑↑↑	↑↑↑	↑↑↑↑	↑↑↑	↑↑↑
DISEASE	X	XXX	X	XX	XX	XXXX	XXXX	XXXX	XXXX	X	XX	X
COMMUNITY ACTIVITY	NEW YEAR		CHRISTMAS						POSTAL DAY			KUMAY
LABOUR	-	-	-	-	-	-	-	-	-	-	-	-

Seasonal Calendar (Tlangnuam)

MONTHS/ACTIVITIES	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
LIVESTOCK	++++	++++	++++	++++	+++	+++	+++	++++	+++	++++	+++	++++
MILK PRODUCTION												
LABOUR		0	0	0	0	0	0	0	0	0	0	0
LOW FEED AVAILABILITY			0	0	0	0	0	0	0	0	0	0
CROPS	??		???	???	???	???	???	???	???	???	???	???
RAINFALL												
INCOME ↑ EXPENDITURE ↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓	↑↑↑ ↓↓↓
DISEASE		0	0	0	0	0	0	0	0	0	0	0
COMMUNITY SOCIAL ACTIVITY	NEW YEAR		CHRISTMAS									CHRISTMAS

Seasonal Calendar (Durtlang)

MONTHS	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
LIVESTOCK	000	000	00000000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MILK PRODUCTION	000	000	0000	0000	0000	00000	00000	00000	00000	00000	0000	0000
LABOUR	#	#	##	##	###	###	###	###	###	##	##	##
CON FEED AVAILABILITY	~	~	~	~	~	~	~	~	~	~	~	~
CROPS	~	~	~	~	~	~	~	~	~	~	~	~
RAINFALL												
DISEASE	H	HH	HH	HHH	HH	HHH	HHH	HHH	HHH	HHH	HHH	HH
INCOME & EXPENDITURE	~	~	~	~	~	~	~	~	~	~	~	~
COMMUNITY & SOCIAL ACTIVITY												

Seasonal Calendar (Lungdai)

MONTHS	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC
LIVESTOCK	~	~	~	~	~	~	~	~	~	~	~	~
MILK PRODUCTION	~	~	~	~	~	~	~	~	~	~	~	~
LABOUR			++	++	++	++	+	+	++	++	++	++
CON FEED AVAILABILITY	~	~	~	~	~	~	~	~	~	~	~	~
CROPS	~	~	~	~	~	~	~	~	~	~	~	~
RAINFALL	0	0	0	0000	0000	000000	000000	000000	000000	000	00	00
DISEASE				~					~	~		
INCOME & EXPENDITURE	~	~	~	~	~	~	~	~	~	~	~	~
COMMUNITY & SOCIAL ACTIVITY	~	~	~	~	~	~	~	~	~	~	~	~

Seasonal Calendar (Sihphir)

Figure 4: Seasonal Calendar of Localities

DAILY ACTIVITIES SCHEDULE OF TLANGNUAM (MEN)

TIME	ACTIVITIES
4:30 - 4:45 AM	ZING THAWH
4:45 - 6:00 AM	BAWNG IN CHET
6:00 - 7:30 AM	BAWNGHNOTE SAWR
7:30 AM - 12:00 PM	BAWNG CHAW PHURH
12:00 - 1:00 PM	CHAW EI / HAN DAN
1:00 - 6:00 PM	BAWNG CHAW PHURH
6:00 - 7:00 PM	CHAW EI
7:00 - 9:00 PM	LEN / INLENG KAWM
9:00 PM ONWARDS	MUT

Daily Activities of Men (Tlangnuam)

DAILY ACTIVITY SCHEDULE OF DURTLANG (MALE)

TIME	WORK
5:00 - 7:00 am	Bawng in chet
7:00 - 7:30 a.m	Bawnghnote mulco chun
7:30 - 8:30 a.m	Chawh hahdan
8:30 - 9:00 a.m	Chaw ei
9:00 - 9:30 a.m	Chaw ei khaw hahchawh
9:30 - 11:30 a.m	Bawngchaw phurh/hnathawh
11:30 - 12:30 p.m	Chun chawh
12:30 - 4:30 p.m	Hnathawh
4:30 - 6:00 p.m	Bawng in chet
6:00 - 7:00 pm	Tlai chaw ei
7:00 - 8:30 pm	T.V on, awnawl
8:30 - 5:00 p.m	MUT

Daily Activities of Men (Durtlang)

DAILY ACTIVITIES SCHEDULE OF LUNGDAIC MEN

TIME	ACTIVITIES
5:00am - 5:15am	Zing Thawh
5:15am - 6:30am	Bawng in chet
6:30am - 7:30am	Bawnghnote mulco chun
7:30am - 8:30am	Chaw ei
8:30am - 9:00am	Hahdan
9:00am - 11:00am	Bawngchaw Phurh
11:00am - 1:00pm	Bawnghnote sawr
1:00pm - 4:00pm	Bawngchaw Phurh
4:00pm - 5:00pm	Bawng in chet
5:00pm - 6:00pm	Chawh hahdan
6:00pm - 7:00pm	Chaw ei
7:00pm - 9:00pm	Inkhaon / TV on / looking news
9:00pm - ...	MUT

Daily Activities of Men (Lungdai)

Daily Activities Schedule of Sihphir (Men)

Time	Activities
4:30 am	Wake up
4:45am - 6:00am	Bawng in chet
6:00am - 8:30am	Bawng chaw phurh
8:30am - 9:00am	Chaw ei
9:00am - 10:30am	Hahdan
10:30am - 12 noon	Bawng in chet
12:00 - 1:00 pm	Chun chawh
1:00 pm - 4:00 pm	Bawng chaw phurh
4:00 pm - 4:30 pm	Hahdan
4:30 pm - 5:00 pm	Bawng in chet
5:30 pm - 6:30 pm	Chaw ei
6:30 pm - 9:00 pm	Inkhaon / TV on / looking news
9:00 pm onwards	Sleep

Daily Activities of Men (Sihphir)

DAILY ACTIVITIES OF TLANGNUAM (WOMEN)

TIME	ACTIVITIES
4:30 - 4:45 am	Shawh
4:45 - 6:00 am	Bawng in chet
6:00 - 8:00 am	Inchbung chet / Naupang school huai
8:00 - 11:00 am	Haldam / Eirawng bawl
11:00 am - 1:00 pm	Chaw ei / In thil / Vauk chaw khum
1:00 - 3:00 pm	Huan thlawh yoi
3:00 - 4:00 pm	Eirawng bawl
4:00 - 5:00 pm	Bawng in chet
5:00 - 6:00 pm	Naupang lekha ziti
6:00 - 7:00 pm	Chaw ei
7:00 - 9:00 pm	den / Inlung kawm
9:00 pm onwards	Mut

Daily Activities of Women (Tlangnuam)

DAILY ACTIVITIES SCHEDULE OF LUNGDAI (WOMEN)

TIME	ACTIVITIES
4:30am - 4:40am	Zing thawh
4:40am - 5:30am	Bawng in a chet
5:30am - 6:00am	Bawngmule MULCO a chhun
6:00am - 7:30am	Eirawngbawl
8:00am - 8:30am	Chaw ei
8:30am - 9:30am	Inchbung chet
9:30am - 11:30am	Bawng in chet
11:30am - 1:00pm	Chhun chawh
1:00pm - 4:00pm	Bawng chaw phuh / Huan sam
4:00pm - 5:00pm	Eirawngbawl
5:00pm - 6:30pm	Bawng in chet
6:30pm - 7:00pm	Chaw ei
7:00pm - 9:00pm	Inkhawm / TV EN / Inlung kawm
9:00pm - ...	Mut

Daily Activities of Women (Lungdai)

DAILY ACTIVITIES SCHEDULE OF DURLANG (FEMALE)

Time	Work
4:30 - 6:30	Bawng in a chet
6:30 - 7:00	Ei rawng bawl
7:00 - 8:00	Bawngmule MULCO a chhun
8:00 - 9:00	Chaw ei
9:00 - 12:00	Huan a hnatthawh
12:00 - 12:30	Bawng chaw phuh
12:30 - 1:00	Inchbung in
1:00 - 4:00	Hnatthawh
4:00 - 5:30	ei rawng bawl
5:30 - 6:00	Bawng in chet
6:00 - 7:00	Chaw ei
7:00 - 9:00	chawh haldam
9:00 - 4:30	Mut

Daily Activities of Women (Durlang)

DAILY ACTIVITIES SCHEDULE OF SIHPHIR (WOMAN)

TIME	ACTIVITIES
6:00am - 7:30am	BAWNGMULE MULCO A CHHUN
7:30am - 8:00am	EIRAWNGBAWL
8:00am - 8:30am	CHAW EI
8:30am - 10:00am	INCHBUNG CHET
10:30am - 12:00	BAWNG IN CHET
12:00 - 2:00pm	BAWNG CHAW PHUH / HUAN A HNAATHAWH
2:00pm - 4:00pm	INCHBUNG CHET
4:30pm - 5:30pm	BAWNG IN CHET
5:30pm - 6:00pm	EIRAWNGBAWL
6:00pm - 6:30pm	CHAW EI
6:30pm - 9:00pm	INNAWAM / TV EN / INLUNG KAWM
9:00pm - ...	MUT

Daily Activities of Women (Sihphir)

Figure 5: Daily Activities Schedule of Men and Women

Vulnerability Context

Vulnerability has been defined by the IFRC (International Federation of Red Cross and Red Crescent Societies) where natural calamities or disaster affected the livelihood of people including season, shocks and trends and they are unable to cope with these consequences. It has affected more on the poor as they have no resources to back up and they locate far from others. BPL family are found more among the respondents and dairying is the primary occupation for majority of the respondents.

Seasonality have affected the farmers, grass and water are natural resources that farmers received free of cost but dry season has led to feed especially grass and water scarcity. During this season the farmers have to spend more for expensive nutritious feed and also the product and quality of milk decreases when there is not enough feed supply

Shocks that include disease and death of cows make the farmer's livelihood vulnerable as they have lost their main source of income without receiving compensation. Death, sickness and non-remunerative price of milk are the major challenges faced by the farmers. Also, insurance was not there to claim their loss.

Space is vulnerability found among the farmers as most of the farmers are located in the peripheral and outskirts of the locality, they have problems in transportation of feed and the product. Especially Tlangnuam locality has to walk long distance to distribute their product. Also, most of the farmers in this area are landless and they hardly increase financial and physical assets compared to other study area as other localities make use of manure for agriculture and selling manure to earn secondary sources of income.

Case Studies

Case studies were conducted among the co-operative society within the study area. From the data collected it was understood that different co-operatives have different functioning and management of the society. There was more than one co-operative society in the locality, so one each of the co-operative society from each sample village was studied.

– Durtlang Co-operative Society

Durtlang Leitan Ramthar Cooperative Society have 4 MULCO booths and 20 dairy farmers, they parted from Durtlang North Co-operative society in the year 2013 due to the increased in number of dairy farmers in the area. The Society members has contributed Rs 10/- yearly for membership fee and Rs 500/- to reserve their membership which can be claim when they are no more member in the society. This contribution was deposit in the bank and the profit has been distributed among them. It is not necessary for the members to always supply milk to the society but they have to supply around 320 litres in a year.

These co-operative society members usually supplied 400-420 liters of milk daily and the highest market rate for milk during the study was Rs 46/- and the lowest was Rs 41/-. The main benefits received from MULCO were easy marketing of milk and providing medical assistance and service like Veterinary Field Assistant (VFA) and Doctor but they were unable to visit the farms during sickness. So, the farmers spend around Rs 200 - Rs700 per doctor visit. Thenzawl veterinary Department has provided fodder but the quantity is lesser as compared to private supply.

The cooperative society had given condolences in terms of death of cows, mostly Rs 5000/- was given to show consolidation and also Rs 5000/- is given to family in case of death of main farmers. The condolence money is from the extra milk prices which mean when some farmers did not meet the average milk price the remaining money to be given to the farmers will go into the cooperative fund. Insurance scheme were provided by National Insurance Company in collaboration with MULCO but the farmers could not claim all the insurance even after the scheme had ended.

High cost of feed, low milk prices and late payment of bill are the challenges faced, feed especially wheat grain is costly that results in loss rather than profits for the farmers. Due to the low rate of milk in MULCO, some members had sold their product to private shops or individual houses. Labour cost is overpricing for the farmers which also create problems for them.

The dairy farmers suggested increasing milk price to sustain the livelihood, also concern authority to take action that scheme for dairy farming should reach the farmers.

– *Sihphir Arpu Co-operative Society*

In Sihphir, there were 3 MULCO booths and Sihphir Arpu Society was taken for the case study. It was established in 2005 and they have registration in the year 2006, they separated from Sihphir Society due to the increased in number of dairy farmers in the society.

The members usually give 360-400 liters daily. The highest milk rate during the study was Rs 50/- and the lowest was Rs 44/-. Among the regular milk supplier some members have loss instead of profit. Veterinary Field Assistant (VFA) was provided for livestock farmers and they can also approach veterinary doctor from MULCO office.

The main challenges faced by the members were the high cost of feed and low prices of milk, these findings were similar to (Das, 1993). New Land Use Policy (NLUP) was one of the main sources of cows for the farmers although those cattle came with FMD disease that results in death and sickness. Their challenges include late payment of the milk bills which proved to be a serious problem for them as they need for buying feed and medicine for the cattle and pay the labor fee, these findings were in contrast with (Mistry, 1996).

The cooperative society manage bank account and different contribution made by society members are credited and the society members received milk bill from the society bank account and they refill after receiving the bill from MULCO. Also, loan was provided from the bank account and time was not fixed to pay the loan.

The society has ordered feed from Silchar, where they have two agents. An additional charge of Rs 10/- was charged per bag which was used for management of the society. Insurance was done by farmers but they were unable to claim all the insurance and received only half of it. As a result, none of the dairy farmers did insurance for the cows again.

Condolence was given to members before FMD incident but due to this incident they were not able to provide condolence to everyone. But in case a farmer loss a good number of cows they had given Rs 10000/- for condolence to recover from their loss.

So far they had not received any kind of assistance from government and manage their challenges by themselves.

– *Lungdai Co-operative Society*

There are 2 MULCO booths in Lungdai locality; the society studies was established in the year 1998, there were 26 members meanwhile about 19 members actively submit milk to the society, 490-530 liters is the average milk supply by the members per day. The highest milk rate during the study was Rs 58/- and the lowest rate was Rs 34/-. The society had given Rs 1000/- to members who lost their cows.

Due to good functioning of the society the cooperative society had received aid to reform MULCO booth from Register Cooperative Society (RCS) under ICDS, and also financial aid of 21 lakh for construction of cooperative society.

The society members had contributed Rs 20/- every month for the management of the society, they order feed from Silchar as a society which was beneficial for the members of the cooperative society as they did not need to spend energy, time and money for transportation in buying the feed.

MULCO has provided one Veterinary Field Assistant (VFA) but they usually call private doctors from the veterinary department. In the past, feeds were purchased at subsidised prices, but it had ended. The society members have been making use of MULCO for marketing as there was a regular marketing channel.

The major challenges faced by the dairy farmers in Lungdai include low prices of milk, high cost of feed, and irregular supply of feed. The concerned authority may take action to improve the supply of feed so that the problems faced by the farmers may be reduced. Also, there is a need for consistency in milk prices as well as increase in the milk price. MULCO has been the responsible agency for this as they are the main agency, if the prices of milk are increased in MULCO the informal market will also have to increase the prices to match the price of milk set by MULCO, and the dairy farmers can have a sustainable livelihood.

– *Tlangnuam Co-operative Society*

Tlangnuam Cooperative society has 27 members where 24 members are active members, who regularly supply milk to the society. It was established in the year 1984. The highest milk rate during the study was Rs 50/- and the lowest rate was Rs 30/-. Even in Tlangnuam cooperative society, there is a huge gap between the qualities of milk of different farmers. This is because of the feed given and the health of the cows.

MULCO has provided one Veterinary Field Assistant (VFA) to share with Aibawk locality but the dairy farmers usually called doctors from the veterinary department because they prefer private doctors as they usually did better than the VFA from

MULCO. The society members usually buy feed from the private shop as an individual family; the dairy farmers were located separately from one another and it was difficult to collaborate and purchase feed together, also they were not all of the same tribe which may cause a problem between them.

The society did not provide any kind of condolence to the members who had lost their cows. The society takes the extra milk bill for managing the society so the members need not give monthly contributions for the functioning of the society.

The main challenges faced include late payment of milk bills, sickness of cows, and landlessness. Due to being landless, the dairy farmers could not improve their economic condition as they have no place to start a secondary source of income like agriculture which is a suitable livelihood with dairy farming, the dairy farmers had to give the manure to the landowners which can be used for fertilizing the crops and also can be sold for earning extra income.

Functions of Cooperatives

The functioning of the cooperatives in the present study is studied by assessment of quantitative aspect by exploring certain variables viz., membership in cooperatives, duration of membership, frequency of milk supplied, number of litres supplied per day, reasons for membership, and benefits received as a member of MULCO.

Almost all (91.1%) of the respondents were members of the cooperative and only 8.9% were not members, more than a tenth (12.8%) from the periphery and 2.2% from the core were not members. There were more non-members from the periphery as compared to the core due to the fact that dairy farmers from the periphery feel that cooperative was not profitable as the rate of milk was fluctuating and lower than the unorganized sector.

The majority of the respondents have been members for 13-24 years (43%). It was followed by 36% who had been members for 3-13 years. Few of the respondents (19.5%) were new members of the cooperative society (3 or less than three years), and 16.3% had been members of a cooperative society for more than 24 years. The finding was relatable to the finding of (Narmatha et al., 2017) where the majority were having high dairy farming experience. Generally, the respondents from the core area of study have been members of the cooperative for a longer period.

A large portion (80.5%) of the respondents always supplied their milk product to cooperatives, more than a tenth (15.4%) never supply, very few 3.3% sometimes supplied, and 0.8% mostly supplied to cooperatives. The number of 'always' supplied to cooperatives was more in the periphery (83.3%) than the core (75.6%), there were no respondents from the periphery who 'mostly' and 'sometimes' supplied to cooperatives. In some area, the cooperative society make rules that the members must supply milk to the society only, while in some society it was not compulsory to supply the milk to a cooperative society.

Table 1: Role of Cooperatives

Sl. No		Location		Total N = 123
		Core n = 45	Periphery n = 78	
I	Membership in Society			
	No	1 (2.2)	10 (12.8)	11 (8.9)
	Yes	44 (97.8)	68 (87.2)	112 (91.1)
II	Duration of Membership			
	<= 3.69	4 (8.9)	20 (25.6)	24 (19.5)
	3.70 - 13.98	14 (31.1)	22 (28.2)	36 (29.3)
	13.99 - 24.28	17 (37.8)	26 (33.3)	43 (35.0)
	24.29+	10 (22.2)	10 (12.8)	20 (16.3)
III	Frequency of milk supplied to MULCO			
	Always	34 (75.6)	65 (83.3)	99 (80.5)
	Mostly	1 (2.2)	0 (0.0)	1 (0.8)
	Sometimes	4 (8.9)	0 (0.0)	4 (3.3)
	Never	6 (13.3)	13 (16.7)	19 (15.4)
IV	Daily Milk Supply to MULCO			
	<= 1	6 (13.3)	13 (16.7)	19 (15.4)
	2 – 22	28 (62.2)	27 (34.6)	55 (44.7)
	23 – 43	11 (24.4)	26 (33.3)	37 (30.1)
	44+	0 (0.0)	12 (15.4)	12 (9.8)
V	Reason for Membership			
	Easy marketing	27 (60.0)	46 (59.0)	73 (59.3)
	For security	12 (26.7)	9 (11.5)	21 (17.1)
	Access to Feed	2 (4.4)	18 (23.1)	20 (16.3)
	Subsidy	6 (13.3)	13 (16.7)	19 (15.4)
	Registered by others with his	7 (15.6)	1 (1.3)	8 (6.5)
	Loan	1 (2.2)	4 (5.1)	5 (4.1)

	Regular Payment	0 (0.0)	3 (3.8)	3 (2.4)
VI	Benefits of MULCO Membership			
	Received price of milk regularly	23 (51.1)	59 (75.6)	82 (66.7)
	Easy marketing	34 (75.6)	66 (84.6)	100 (81.3)
	Buying food in a lower price	9 (20.0)	33 (42.3)	42 (34.1)
	Buying medicine in a lower price	3 (6.7)	0 (0.0)	3 (2.4)
	None	4 (8.9)	2 (2.6)	6 (4.9)

Source: Computed (Figures in parenthesis are percentages)

Generally, 2-22 liters were supplied by most (44.7%) of the dairy farmers in a day, secondly, 23-43 liters were supplied by 30.1% of the dairy farmers, 15.4% supplied 1 liter daily and 9.8% of the dairy farmers supplied 44 liters and above daily. Only the periphery has respondents who supplied 44 liters and above daily and none of the respondents from the core area has supplied this much milk per day. Also, there were more numbers of respondents from the periphery (16.7%) who supplied 1 liter daily to cooperatives and there are 13.3% respondents from the core.

As mentioned above almost all of the respondents were members of cooperatives, the reasons for membership are given in table 2. More than half of the respondents (59.3%) were members due to easy marketing in cooperatives, second reasons include security (17.1%), less than a fifth (16.3%) had access to feed, people who register because of subsidy was 15.4%, in some area registering in cooperatives was compulsory and there were 6.5% who were members due to compulsory registration, very few of them were members because of easy access loan borrowing and regular bill payment i.e. 4.1% and 2.4% respectively. Easy marketing was the main reason for membership for both areas, the second reason for membership in the periphery was access to feed (23.1%) and core area security (26.7%) was the second reason. None of the respondents from the core area were members due to regular bill payments. The benefits received from MULCO are divided into five groups. Larger numbers (81.3%) of respondents benefit from easy marketing from MULCO, 66.7% of respondents are the beneficiaries of receiving milk bills on time, 34.1% benefit from buying feed at a lower price, a small number, 2.4% of them bought medicine at a lower price, 4.9% respondents did not receive any benefits from MULCO. None of the respondents from the periphery has received the benefits of buying medicine at a lower price; more numbers of respondents from the core area (8.9%) received no benefits as compared to the periphery (2.6%).

Comparison of Dairy Cooperatives Society in the Study Area

Dairy cooperatives were having their own rules and regulation which were outlined by the members or leaders of the cooperatives society. Different Cooperatives listed in the

present study viz., Durtlang Cooperative Society, Lungdai Cooperative Society, Sihphir Arpu Co-operative Society, and Tlangnuam Co-operative Society are compared to understand the significance and role played by cooperatives in the development of dairy farming in Mizoram. These cooperatives were compared on certain functioning viz., Number of MULCO Booths, Source of Feed, Number of milk supplied in a day, Highest Milk Rate, Lowest Milk Rate, Number of Doctor/VFA and Welfare of members. (See Table No 2).

Table 2: Cooperative Societies

Sl. No	Characteristics	Name of the Cooperatives			
		Core		Periphery	
		Durtlang	Tlangnuam	Sihphir	Lungdai
1	Number of MULCO Booths	4	2	3	2
2	Source of Feed	Silchar	Private Shop	Silchar	Silchar
3	Number of milk supplied in a day	400-420	150-250	360-400	490-530
4	Highest Milk Rate	46	50	50	58
5	Lowest Milk Rate	41	30	44	34
6	Number of Doctor/VFA	2	1	1	1
7	Condolences	Yes	None	None	Yes
8	Monthly Fee	None	None	None	Yes

Source: Computed

The number of booths was different in different areas and localities and depends on the area of location and the number of dairy farmers. Durtlang was the most populated area among them and so more booths were found. Most of the cooperative societies had Silchar for the source of feed as they usually order as a society while Tlangnuam bought feed from the private shop run by them and other shop nearby.

The supply of milk was different for each cooperative due to the difference in number of cows owned in the localities. The quality of milk was different in each cooperative society because of the feed given to the cows; Lungdai has the highest milk quality, which may be due to the management and availability of feed for cows as they were the most peripheral area rich in natural resources such as fodder, water, etc.

The number of doctors and VFA did not differ much. Durtlang had two doctors because more numbers of dairy farmers were located and there were more MULCO booths. Welfare activity like condolences refers to the aid given to the dairy farmers in case of the death of cows. Tlangnuam cooperatives society did not give condolences to the farmers and Sihphir only gives in special cases that are when the dairy farmers lost more than 5 or above cattle at once. The monthly fee was contributed only by Lungdai cooperative society members, while the other cooperative societies take extra feed prices or extra milk prices from the members who did not meet the average milk quality.

Conclusion

Dairy farmers were vulnerable to seasonality as the dry season has brought scarcity of natural resources. During the dry season, some dairy farmers had to buy grass and water

which decreased their profit or income. Even though the concentrated feed provides a high quality of milk but it was of high prices in which the farmers often faced scarcity of feed and water. Dairy farmers were vulnerable to shocks like death and sickness of cows and it had been the major challenges faced. Dairy farmers have to start or manage with their capital and had no benefits on their livelihood as there was no proper insurance for cows which results in insecurity of livelihood.

Vulnerability includes the location of the farms and the residence of the dairy farmers. As dairy farms often have smells they are often located in the far places from the locality. Due to the long distances of dairy farms, the dairy farmers had to spend more energy, time, and finance for taking feed and carrying milk. Most of the dairy farmers in Tlangnuam were located in the peripheral areas of the locality and were more vulnerable to space as transportation for feed and milk was more than in other localities. They were mostly non-Mizo and were landless, more vulnerable to physical assets.

Therefore, to some extent, seasonality acts as both a buffer and a source of vulnerability for dairy farmers. Culture as one of the processes of livelihood causes the vulnerability of non-Mizo dairy farmers wherein they were excluded from access to certain livelihood assets. Institutions like Co-operative Societies also act as a safety net for the dairy farmers but cannot be safety nets in times of shock.

Majority of Dairy farming in Mizoram is operated in and around Dairy Cooperative Society. The dependency on Cooperative is high as the vulnerability context indicated that it is difficult to survive alone especially for small farmers. The memberships were more than a decade long in some cooperatives. The dependency on Dairy Cooperative among dairy farmers is more among dairy farmers who belong to peripheral area.

The role of Dairy cooperatives is significant among Dairy farmers as it ensures marketing of milk and a reasonable pricing of milk. MULCO Cooperative Society was the main marketing channel for dairy farmers. Dairy Cooperatives also function as insurance as welfare measures are taken in times of loss of cow and other challenges. Most Dairy farmers get supply of fodder from outside through a cooperative which is preferred due to low cost supply. The other source of fodder is from forest but the quality of milk is not satisfactory which is also not available all year.

The challenges faced by dairy farmers were mainly lack of insurance in times of calamities and disease which is prevalent because Mizoram have border line with two country and several states. The rise in price of fodder creates dependency on fodder from forest which impact the quality of milk produced. Moreover the price of milk supplied to MULCO is not regular which impact dairy farmers in buying of fodder and other expenditure.

The government support was not adequate and quality services are not good enough to develop Dairy farming and sustain livelihood. So Cooperative fills those gaps and act as a

supporter to sustain livelihood through dairy farming in Mizoram. There is a need to strengthen cooperative and their functioning needs to be systematised.

References

- Buragohain, R. (2020). An Appraisal of the Dairy Farming Practices and Feeding System in Mizoram. *Engineering and Scientific International Journal*, 07(02), 46–48. <https://doi.org/10.30726/esij/v7.i2.2020.72009>
- Devaraja, B. (2008). *Impact of Dairy on Small and Marginal Farmers in Karnataka. A Case Study of Chitradurga*. Kuvempu University.
- Kristjanson, P., Waters-bayer, A., Johnson, N., Tipilda, A., Njuki, J., Baltenweck, I., Grace, D., & Macmillan, S. (2014). *Livestock and Women ' s Livelihoods*. <https://doi.org/10.1007/978-94-017-8616-4>
- Malsawmdawngliana, R., & Rahman, S. (2016). Management practices followed by the dairy farmers of Mizoram , India. *Journal of Livestock Science*, 220–225.
- Mullins, G., Wahome, L., Tsangari, P., & Maarse, L. (1996). Impacts of intensive dairy production on smallholder farm women in coastal Kenya. *Human Ecology*, 24(2), 231–253. <https://doi.org/10.1007/BF02169128>
- Nkya, R., Kessy, B. M., Lyimo, Z. C., Msangi, B. S. J., Turuka, F., & Mtenga, K. (2007). Constraints on smallholder market oriented dairy systems in the north eastern coastal region of Tanzania. *Tropical Animal Health and Production*, 39(8), 627–636. <https://doi.org/10.1007/s11250-007-9059-4>
- Rajat, B., & Girin, K. (2014). Hill Agriculture. *Journal of Hill Agriculture*, 5(2), 122–127. <https://doi.org/10.5958/2230-7338>
- Ralte, L., & Chhawna, V. (2021). Milk Production and its Marketing in Mizoram- Findings from Aizawl District. *Economic Affairs*, 66(5), 46852. <https://doi.org/10.46852/0424-2513.4.2021.26>
- Sah, U., Kumar, S., & Fulzele, R. M. (2002). Perceived Needs of Dairy Farmers and Farm Women ~Elated To Improved Dairy Farming in India-An Overview. *Agric. Rev.*, 23(1), 65–70. www.IndianJournals.com
- Selvamani, P. (2010). *Social Change and Economic Development of Rural Women Through Dairy Co-Operatives: A Case study* (Issue June). The Gandhigram Rural Institute-Deemed University.

- Shamsuddin, M., Alam, M. M., Hossein, M. S., Goodger, W. J., Bari, F. Y., Ahmed, T. U., Hossain, M. M., & Khan, A. H. M. S. I. (2007). Participatory rural appraisal to identify needs and prospects of market-oriented dairy industries in Bangladesh. *Tropical Animal Health and Production*, 39(8), 567–581. <https://doi.org/10.1007/s11250-007-9062-9>
- Singh, S. B. (2014). *Dairy co-operatives as a tool for rural development and women empowerment in dangs*. Center for Studies in Rural Management.
- Somda, J., Kamuanga, M., & Tollens, E. (2005). *Characteristics and economic viability of milk production in the smallholder farming systems in The Gambia* (Vol. 85). <https://doi.org/10.1016/j.agsy.2004.07.011>
- Wood, P. D. P. (2015). A note on seasonal fluctuations in milk production. *Animal Production*, 15(September 2010), 89–92. <https://doi.org/10.1017/S0003356100011260>