

PIG FARMING AND RURAL LIVELIHOOD IN MIZORAM

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PIG FARMING AND RURAL LIVELIHOOD IN MIZORAM

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Submitted

**In partial fulfillment of the requirement of the Degree of Doctor of Philosophy in Social
Work of Mizoram University, Aizawl**

MIZORAM UNIVERSITY

MARCH 2026

CERTIFICATE

This is to certify that the thesis **“Pig farming and Rural Livelihood in Mizoram”** submitted by **Mimi Zothanpari** for the award of the degree of Doctor of Philosophy in Social Work is carried out under my guidance and incorporates the student’s bonafide research and this has not been submitted for award of any degree in this or any other University or Institution of learning.

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I **Mimi Zothanpari**, hereby declare that the subject matter of this thesis is the record of work done by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the thesis has not been submitted by me for any degree in any other University or Institute.

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CONTENT

		Page No
	Certificate	i
	Declaration	ii
	Acknowledgement	iii
	Contents	iv
	List of Tables	v
	List of Figures	ix
	List of Abbreviations	x
Chapter		
I	INTRODUCTION	1-28
II	REVIEW OF LITERATURE	29-71
III	METHODOLOGY	72-83
IV	STRUCTURAL COMPOSITION AND PATTERNS OF PIG FARMING IN RURAL MIZORAM	84-124
V	LIVELIHOOD AND LIVING CONDITIONS OF PIG FARMERS	125-164
VI	VULNERABILITY CONTEXT OF PIG FARMERS IN MIZORAM	165-202
VII	CONCLUSION	203-219
	Appendices	
	Household Interview Schedule	xi
	Interview Guide for case Study	xxi
	References	xxii
	Bibliography	
	Bio-data of the Candidate	xxxvi
	Particulars of the Candidate	xxxix

LIST OF TABLES

Table No	Name of Table	Page
4.1.1	Profile of the Respondents	86
4.1.2	Profile of Family	88
4.1.3	Household Primary Occupation	89
4.1.4	Household Secondary Occupation	90
4.2.1	Number of Pig owned	91
4.2.2 (a)	Types of Pig reared	91
4.2.2 (b)	Types of Pig reared (Mean Comparison)	92
4.2.3	Value of Pigs Owned	92
4.2.4 (a)	Purpose of pig rearing	93
4.2.4 (b)	Purpose of pig rearing (Mean Comparison)	94
4.2.5 (a)	Source of Pigs	95
4.2.5 (b)	Source of Pigs (Mean Comparison)	95
4.2.6	Source of investment	96
4.2.7 (a)	Product from pig rearing	97
4.2.7 (b)	Product from pig rearing (Mean Comparison)	97
4.2.8 (a)	Average no of piglet given for sale in the past 5 years	98
4.2.8 (b)	No of pig given for sale in a year (for the past 5 years)	99
4.2.9 (a)	Market system for product	100
4.2.9 (b)	Market system for product (Mean Comparison)	101
4.2.10 (a)	Value of pig producer	102
4.2.10 (b)	Value of Piglet	102
4.2.10 (c)	Value of Fattening Pigs	103
4.2.11 (a)	Duration of rearing Inseminator	104
4.2.11 (b)	Duration of rearing Slaughter Pig	105
4.2.11 (c)	Duration of rearing Piglet Producer	105
4.2.12 (a)	Number of pig sty	106
4.2.12 (b)	Type of Pigsty	107
4.2.12 (c)	Area of pigsty	108
4.2.12 (d)	Number of block	109
4.2.12 (e)	Source of material of Pig Sty	109

4.2.12 (f)	Frequency of cleaning pig sty	111
4.2.12 (g)	Ways of Cleaning	112
4.2.13 (a)	Number of inseminator in one block	113
4.2.13 (b)	Number of Fattening Pig in one block	113
4.2.13 (c)	Number of piglet producer in one block	114
4.2.14 (a)	Types of Food	116
4.2.14 (b)	Nature of feeding	117
4.2.14 (c)	Frequency of feeding	118
4.2.14 (d)	Source of Pig feed	119
4.2.14 (e)	Source of Fodder	120
4.2.14 (f)	Source of water	121
4.2.14 (g)	Nature of transportation of Fodder	123
4.2.14 (h)	Nature of transportation of Dry Feed	124
5.1.1 (a)	Household Assets Owned	126
5.1.1 (b)	Value of Assets Owned (Mean Comparison)	127
5.1.1 (c)	Type of Pigsty	128
5.1.1 (d)	Number of pig sty	129
5.1.1 (e)	Area of pigsty	130
5.1.2 (a)	Household Saving	131
5.1.2 (b)	Per Capita Saving	132
5.1.2 (c)	Nature of saving from pig rearing	133
5.1.2 (d)	Value of Bank Saving	134
5.1.2 (e)	Value of Insurance	135
5.1.3 (a)	Membership in Cooperative Society	136
5.1.3 (b)	Duration of Membership in Cooperative Society	136
5.1.3 (c)	Membership in SHGs	137
5.1.3 (d)	Duration of Membership in SHGs	138
5.1.3 (e)	Source of Training	139
5.1.3 (f)	Source of knowledge and Information	141
5.1.3 (g)	Government Support	142
5.1.4 (a)	Land Ownership	144
5.1.4 (b)	Value of Land for Housing	145

5.1.4 (c)	Livestock Owned	146
5.1.4 (d)	Number of Livestock	146
5.1.4 (e)	Value of Livestock (Pig, Cow, Poultry, etc)	147
5.1.4 (f)	Natural Capital used for pig farming	149
5.1.5 (a)	Size of Family	150
5.1.5 (b)	Experience of Pig rearing in years	151
5.1.5 (c)	Training Attended	152
5.1.5 (d)	Number of family member working	154
5.1.5 (e)	Number of Hired labour employed	154
5.1.6	Relationship between Livelihood Assets	155
5.2.1	Monthly Household Income	156
5.2.2	Per capita Monthly Household Income	157
5.2.3	Monthly Household Expenditure	158
5.2.4	Per Capita Monthly Household Expenditure	159
5.3	Relationship between Livelihood Assets and Living Condition	162
5.4	Testing of hypothesis	164
6.1 (a)	Name of Diseases outbreak suffered	166
6.1 (b)	Other diseases outbreak suffered	167
6.1 (c)	Number of disease outbreak suffered	168
6.1 (d)	Number of other Disease	168
6.1 (e)	Number of Pigs lost due to disease	169
6.1 (f)	Value of Pig lost due to disease	170
6.1 (g)	Ways of diagnosing diseases	171
6.1 (h)	Ways of diagnosing diseases (Mean Comparison)	172
6.1 (i)	Management of disease	173
6.1 (j)	Management of diseases (Mean Comparison)	174
6.1 (k)	Method of management of disease	175
6.1 (l)	Method of management of disease (Mean Comparison)	175
6.1 (m)	Consequences of Disease	176
6.1 (n)	Consequences of Disease (Mean Comparison)	177
6.2 (a)	Challenges faced	180
6.2 (b)	Challenges Faced (Mean Comparison)	183

6.3 (a)	Coping Strategies	186
6.3 (b)	Coping Strategies (Mean Comparison)	188
6.4	Relationship between Challenges and Coping Strategies	195

LIST OF FIGURES

Sl. No.	LIST OF FIGURES	Page No.
Figure 1	Sustainable Livelihood Framework	25
Figure 2	Map of Aizawl District	77
Figure 3	Map of Kolasib District	79
Figure 4	Services and Opportunities Map of Saihapui K	158
Figure 5	Services and Opportunities Map of Rengtekawn	158
Figure 6	Services and Opportunities Map of North Chaltlang	159
Figure 7	Services and Opportunities Map of Lungdai	160
Figure 8	Services and Opportunities Map of Sialsuk	160
Figure 9	Services and Opportunities Map of Sumsuih	161
Figure 10	Services and Opportunities Map of Sihphir	162
Figure 11	Services and Opportunities Map of Muthi	163
Figure 12	Daily Activities Schedule of Saihapui K	164
Figure 13	Daily Activities Schedule of Rengtekawn	165
Figure 14	Daily Activities Schedule of North Chaltlang	166
Figure 15	Daily Activities Schedule of Lungdai	167
Figure 16	Daily Activities Schedule of Sialsuk	168
Figure 17	Daily Activities Schedule of Sumsuih	169
Figure 18	Daily Activities Schedule of Sihphir	170
Figure 19	Daily Activities Schedule of Muthi	171
Figure 20	Seasonal Diagram of Saihapui K	172
Figure 21	Seasonal Diagram of Rengtekawn	173
Figure 22	Seasonal Diagram of North Chaltlang	174
Figure 23	Seasonal Diagram of Lungdai	175
Figure 24	Seasonal Diagram of Sialsuk	176
Figure 25	Seasonal Diagram of Sumsuih	177
Figure 26	Seasonal Diagram of Sihphir	178
Figure 27	Seasonal Diagram of Muthi	179
Figure 28	Resource Map of Saihapui K	180
Figure 29	Resource Map of Rengtekawn	181
Figure 30	Resource Map of North Chaltlang	181
Figure 31	Resource Map of Lungdai	182
Figure 32	Resource Map of Sialsuk	183
Figure 33	Resource Map of Sumsuih	184
Figure 34	Resource Map of Sihphir	185
Figure 35	Resource Map of Muthi	186

LIST OF ABBREVIATIONS

AI	Artificial Insemination
ASF	African Swine Fever
CSF	Classical Swine Fever
EDEG	Entrepreneurship Development and Employment Generation
LH & DC	Livestock Health and Disease Control
LSC	Land Settlement Certificate
MRB	Mizoram Rural Bank
NABARD	National Bank for Agriculture and Rural Development
NADCP	National Animal Disease Control Programme
NE	North East
NGO	Non-Governmental Organisation
PRA	Participatory Rural Appraisal
PRRS	Porcine Reproductive and Respiratory Syndrome
SBI	State Bank of India
SHG	Self Help Group
SLF	Sustainable livelihood framework
TV	Television
UPC	United Pentecostal Church
VC	Village Council
VFA	Veterinary Field Assistant

CHAPTER I

INTRODUCTION

The present attempts to assess the livelihood and living condition of pig farmers in Mizoram and how it contributed to rural development.

The global human population is increasing resulting in the rapid growing of food demands and the agricultural sector needs to be improved and uplifted. Apart from farming, animal husbandry is the second most important sources of income for people, so they are being given concern. The Government of India has implemented schemes like National Livestock Mission, National Animal Disease Control Programme (NADCP), Livestock Health and Disease Control (LH & DC), etc. for the upliftment and development of animal husbandry. NABARD has provided loan and subsidies under National Livelihood Mission (NLM) and SBI has also given loans to people to start up pig farming. Entrepreneurship Development and Employment Generation (EDEG) is a Government scheme implemented for encouraging the pig farmers and the start-up entrepreneurs to earn more income.

Livelihood is the fundamental concern for all organisms. It is a fundamental human right. Livelihood is the fundamental requirement for human existence. Livelihood constitutes both the means and the objectives of existence. Mixed farming systems, that combine crops and livestock on the same terrain, provide the foundation of small-scale agriculture across Asia. The capabilities, assets material and social resources as well as the activities needed to keep a means of living constitute a livelihood system. A livelihood is said to be sustainable when it can withstand shocks and stresses, maintain or improve its capacities and assets both now and in the future, without endangering the base of natural resources,. Livelihood comprises not only one activity but also "complex, contextual, diverse, and dynamic strategies devised by households to fulfil their needs.

Livelihood entails the acquisition of resources necessary for existence within society, encompassing tangible assets (e.g., food reserves, valuables such as gold, jewelry, and cash savings) and resources (e.g., land, water, trees, livestock, and agricultural equipment), alongside intangible assets such as claims (i.e., appeals or demands for material, moral, or practical support) and access to opportunities (to

utilize resources, stores, services, or to obtain information, materials, technology, employment, food, or income).

Rural livelihood is the methods by which individuals in rural regions generate income, including various activities such as agriculture, fishing, animal husbandry, and non-agricultural employment, all intended to fulfil fundamental necessities and enhance their quality of life. In rural areas, the main livelihood opportunities are agriculture and related occupations. They are frequently seasonal, irregular, disorganised, informal, and economically less productive than those in urban areas.

Agriculture serves as a fundamental source of livelihood for numerous individuals worldwide, particularly in rural regions, offering income, employment, and food security. Agriculture is essential in India, especially for rural communities, many of which depend on it for their livelihoods. Agriculture is the science or practice of farming, encompassing the cultivation of crops and the rearing of livestock for human use and consumption.

Animal husbandry pertains to the rearing of livestock and the practice of selective breeding. It involves the management and care of animals to enhance their genetic traits and behaviours for profit. A significant proportion of farmers rely on animal husbandry for their sustenance. Animals are a vital resource for the rural poor, including both individuals directly involved in agricultural production and impoverished non-farm rural households that depend on local production for economical sustenance. The farming of livestock is essential for global livelihoods, considerably enhancing food security, revenue generation, and economic development, particularly for smallholder farmers and rural communities. Livestock farming encompasses the rearing of animals, including cattle, sheep, pigs, goats, and poultry, for the production of food, fibre, and other commodities, involving activities such as breeding, feeding, and raising animals.

Pig farming, also known as pig husbandry or swine farming, is the practice of raising and breeding domestic pigs primarily for meat production, known as pork. As a branch of livestock farming, it involves various practices to manage pig health, feeding, breeding, and housing, all aimed at optimizing growth, reproduction, and

meat quality. Pigs were also a significant source of edible fat and protein, and their bristles were fully utilised to make brushes (Chen et al., 2024). It does not require high level educational qualification so it is also common in rural areas. Pig farming is an important livelihood option for poverty alleviation as it provides employment and income for the people (Ghimire, 2004).

Pig farming as a commercial enterprise for self-employment as well as piglets' production is crucial for uplifting socio economic status of people (Rasbongshi et al., 2019). So, majority of the farmers engaged in the commercial pig farming (H D Kumar et al., 2014), the socially higher-class groups of people are doing pig farming in commercial scale to earn higher level of income (Ghimire, 2004). Pig production in Assam is invariably a small-scale, backyard, marketed-oriented enterprise to generate income (Shyam et al., 2016). In India, pigs are reared in traditional small-scale subsistence-driven production systems (Chauhan, Patel, Maurya, Kumar, et al., 2016).

Pigs are commonly raised on farms due to their ability to convert feed efficiently into body weight, their relatively fast growth rates, and the high market demand for pork products. A vital source of meat and by-products for human use, pig farming is an important part of the worldwide livestock economy. Pig farming, like any other agricultural enterprise, is fraught with difficulties that could jeopardise environmental sustainability, animal welfare, and productivity (Doley et al., 2024).

Pig farming is an integral part of the livestock industry, serving as a key source of livelihood, nutrition, and economic stability for rural and urban communities worldwide. As early as 5000 BC, one of the earliest animal agricultural practices was the cultivation of pigs. It is said to have been domesticated from the wild boar in China or the Near East. Although pigs were mostly utilised for food, people also used their bones for tools and weapons, their bristles for brushes, and their hides for shoes and shields. Pigs play a variety of responsibilities in the human economy. Their omnivorous nature allows them to consume human waste, keeping communities clean; their sensitive noses lead them to truffles, an underground fungus that people greatly enjoy; and their eating activity, which involves seeking for roots, churns the ground and facilitates ploughing (Barry et al., 2015).

Pig farming is popular in many parts of the world, including Asia, Europe, and North America, due to pork's role as a major source of dietary protein and the industry's relatively high profitability. For educated rural youngsters, commercial piggery has become a viable and job-generating enterprise (H Dileep Kumar et al., 2018). Pigs provided opportunities for growth by empowering women and lowering unemployment or over-reliance on social grants, as the majority of farmers were unemployed (Madzimore et al., 2014).

Known for its efficient feed-to-meat conversion ratio, pig farming is particularly valuable in regions where agricultural land is limited, as pigs require less space and fewer resources compared to other livestock. The sector plays a crucial role in addressing food security by providing a reliable source of protein through pork, which is one of the most widely consumed meats globally. A significant portion of agricultural output and industry comes from the livestock sector. The benefits of raising pigs include their rapid development rate, which is only marginally outpaced by the best, well-managed broilers, and their prolificacy, which is unmatched by any other animal species save birds. Pigs also yield higher returns per unit of inputs than the majority of other animals and are highly efficient at turning their ingested feed into quality body meat. Their flesh is also of good quality, being delicate and rich in protein and B vitamins (Osagie & Osabuohien, 2021).

Strategies for ecological consumption, clean production, sustainable development, waste regeneration and reuse, and the alignment of social justice, environmental quality, and economic well-being are all part of the circular economy. Finding and creating alternatives to reduce adverse environmental effects is the goal of sustainable development. Unsustainable production and consumption patterns are the root source of these effects. A key component of the circular economy process is the transformation of culture and politics. In the context of pig farming, the circular economy improves waste treatment and utilisation and enables its conversion into energy, fuel, and fertiliser (Secco et al., 2020).

Pig farming has great potential to boost income and employment, especially for small and marginal farmers. Pigs have high reproductive and growth rates, offering farmers, even those with limited land, an exciting opportunity. Pig farming requires a small capital investment and uses local feed, lowering operating costs.

Pigs also provide a steady supply of meat, which is in high demand in many markets, generating income. Farmers, especially in rural or tribal areas, can increase employment, economic stability, and family nutrition by expanding pig farming. Pig farming could boost feed production, veterinary services, meat processing, and marketing. Strong market connections are needed to ensure this sector's success. These connections help farmers get fair prices, better veterinary and breeding services, and sustainable pig farming growth.

The increasing demand of pork has open up a great opportunity for pig farmers, due to increase in consumption and more ways for preparing the meat the commercial pig farming has become a great opportunity to earn income not only for landless and uneducated but also educated and those who have sources of income started doing pig farming.

Pig farming has become a great business prospect for young people in many rural and semi-urban areas, especially for those who have struggled to find traditional work. Because of its rather low start-up costs, fast returns, and capacity for large-scale operations, commercial pig farming offers a practical substitute income source. This sector presents young people with a great chance to use their skills and knowledge to improve the food security in their localities. Commercial pig farming offers educated young people both the chance to apply modern agricultural and economic techniques and livelihood security. This covers the improvement of feed efficiency, application of better breeding methods, optimization of manufacturing processes, and use of technology for monitoring and health control. By using these strategies, one can improve output, generate jobs, and increase the pork supply to meet growing demand. Moreover, commercial pig farming is growing into a dynamic industry that offers teenagers many chances to be entrepreneurs, thereby promoting rural development and economic growth. By offering attractive and sustainable livelihood options inside their local communities, pig farming not only brings income but also helps to reduce rural unemployment and slow down young migration to metropolitan centers.

Pig farming supports many small farms and landless workers, especially in rural areas. Many countries, like India, consider pig farming the fastest-growing industry. It's one of the most profitable animal industries. It provides food, money, and jobs to impoverished areas. Poor tribal, scheduled caste, and other low-income Indians farm most pigs. These farmers raise pigs traditionally due to their small landholdings. Pig farming is part of their lifestyle even though they don't have modern farming methods or large-scale businesses.

Pig farming is great because it can provide security in times of trouble. Sell pigs to make extra money when money is tight. Selling pigs or pork products can increase the animals' value. Building assets helps these poor groups stabilize their economies. These assets provide financial stability and reduce their vulnerability to crop failures and personal hardships. Many indigenous people value raising pigs socially and spiritually. Pigs are important to Indian holidays, traditions, and community gatherings as well as food and money. Because raising pigs is so important to many local traditions and activities, it can affect national identity and social status. Pigs could be used for trade, feasts, and religious offerings, strengthening their role in these societies. In addition to cultural and economic needs, raising pigs improves rural relations. Pig farmers can trade animals informally or in their communities to build trade and cooperation networks. Pig farmers and their families may not have access to goods, services, and social support without these exchanges. It can improve their socioeconomic status (Mukesh Kumar et al., 2015).

Pig farming is naturally a gendered activity since women participate more in rearing than men do. Usually tending smallholder or backyard farms, women handle tasks including feeding, cleaning, and pig care. Usually with more resources and a commercial emphasis, larger pig farms are owned and run by men. Together with differences in access to land and capital, this gendered division of work reflects more general social and cultural conventions. Smallholder pig farmers run vulnerabilities and difficulties. Women especially face They are more vulnerable to hazards including disease outbreaks that might wipe off whole pig populations and changes in pig prices that might affect their income. Maintaining strong pig supplies and guaranteeing market stability is mostly dependent on these women to keep their

means of life. Notwithstanding these difficulties, pig farming is still a vital business activity that helps women become financially independent and offers stability for the society (Fang, 2022).

Pig farming is an important part of the economy and culture of India's North Eastern (NE) states, especially for tribal people and socially disadvantaged people. It's a big way for them to make money and shows how poor these groups are. In this area, where farming might not be enough to support several households, raising pigs is a big way to make money, get food, and learn about the culture. With its rough terrain and changing weather, the Northeast is a place where raising pigs can be both profitable and challenging. Even with these problems, people from rural areas have done well in the pig farming industry because they know how to do it right. There are also food habits in the area that support this. For example, a lot of people eat pork, and there are no social or cultural rules against it. In the mountainous parts of the Northeast, pigs have become the main source of meat for many people because they are a cheap way to get protein. Still, farmers in the area still face big problems, even though the pig business offers many growth opportunities. Some of these problems are not having access to modern farming methods, not having enough infrastructures, not always being able to get to markets, feeding animals with bad food at high prices and with health risks and disease outbreaks. Even with these problems, the NE Indian piggery industry has a lot of potential to create jobs and boost the economy, especially in areas that aren't doing well. Government support, awareness campaigns, and market connections can help farmers get around these problems and improve their socioeconomic status, especially those who come from tribal or poor areas of society. If these problems are fixed, the area will be able to fully use pig farming as a source of food security and long-term income.

Pig Farming and Rural Livelihood

The on-going rise in demand for pork and piglets offers a significant chance to raise incomes and improve livelihood stability. Therefore, it seems that piggery farming has a promising future. One of the finest ways for tiny and landless farmers, young people without jobs who are either educated or not, and rural women to make money is through the pig farming industry. The main interventions required to

increase the profitability of pig production are better marketing, easier access to credit, and instruction on better pig husbandry techniques (Karthiga et al., 2020).

Rural households have ceased raising pigs for a variety of reasons, but the primary one is the rise in the opportunity cost of labour. It was necessary to go out and gather "pig grass," cook it, muck out the waste, and compost it. The substitution of artificial fertilisers for organic manure is another crucial element that cannot be disregarded. Raising pigs allowed farmers to "eat meat" and create manure when they lacked artificial fertiliser or the funds to purchase it, upholding the traditional integrated approach of horticulture and animal husbandry (Chen et al., 2024).

Traditional small-scale subsistence-driven production practices are used to raise the majority of pigs in India. In these low-input systems, pigs consume feed that would otherwise be wasted, giving producers value-added output. The poorest people's livelihood and food security are enhanced by smallholder agricultural systems. Pigs not only supply human consumption protein but also serve as a source of manure for crops and are frequently one of the primary sources of cash revenue in rural areas. Additionally, it contributes to community cultural traditions and offers a financial safety net in times of need. In particular, pig farming raises earnings, encourages greater self-sufficiency, and gives urban households more food security. Smallholder pig farming offers nutritional and economic advantages to Indian tribal groups. It also allows household waste to be turned into fertiliser for crops. Nearly every home in the north-eastern Indian states has a little piggery. Because residents in this state prefer pork to other meats, there is a great demand for pigs. To guarantee more sustainability, the local pork selling channels must be strengthened, and the production program must be integrated with slaughterhouses (Chauhan, Patel, Maurya, Kumar, SushilShukla, et al., 2016).

Farming was primarily done for financial gain. When managed properly, pigs can help end poverty by lowering unemployment and reducing poverty. They can also raise the price of livestock, which would provide jobs for farmers and their families (Katagame et al., 2017). Smallholder pig farming is a significant source of income and cultural heritage. It also plays a major role in accomplishing the goals of rural development. For rural communities, smallholder pig farms offer vital income

and food security, frequently augmenting income from sources other than farming (Wellbrock et al., 2010).

Pigs are common in all of India's ecoregions and are important to rural society, particularly to tribal groups. For festivals and ceremonial purposes, several ethnic groups in the nation prefer to keep pigs, especially black ones. The eastern and north-eastern (NE) states have the largest pig populations, followed by India's northern, southern, central, and western regions.

Management of Pig farm

Pigs are significant in the livestock industry, particularly among the less fortunate segments of the population. Pork is a significant source of animal protein and provides those who are struggling financially with an inexpensive way to increase their protein consumption. Pigs are renowned for their high rate of reproduction and quick growth. Pigs require a comfortable environment that includes dry bedding, warmth, and shelter from inclement weather. Fermented rice, a by-product of rice wine, was once provided as an energy source by the pig owners. They also give the pigs kitchen scraps, rice polish, and occasionally veggies. However, vitamin-mineral premix was never employed in their ration. Twice daily, this feed mixture is administered. A deep well served as the main source of water for the pig farm (Belal, 2018).

Women frequently engage in livestock farming. The free-range or intensive, semi intensive and extensive systems are the three types of management systems were the common system followed. The free-range type is frequently utilised since it lacks sufficient resources. Due to their resilience to some diseases, environmental adaption, prolificacy, and capacity for survival in harsh environments, farmers often favoured raising native pigs. Pig farming, in contrast to crop cultivation, was a means of generating income to support other agricultural endeavours rather than the primary occupation. Compared to men, women and children performed the majority of daily tasks like feeding, cleaning, and restricting. Raising indigenous pigs was mostly done for food, cultural and religious purposes, and revenue production. Due to a lack of local market facilities, farmers had to travel with their animals in order to sell them. The products are sell locally at extremely low prices, while some farmers butcher and sell their animals, many farmers sell living animals (Conteh & Gogra, 2019).

Other considerations must be considered even while breeding must concentrate on what the market wants (mass or specialised market). The breeds and breeding practices employed in the organic livestock industry must protect animal welfare and health, preserve genetic diversity, and advance human health in addition to ensuring farm profitability. It is crucial to preserve, cultivate, and employ regional breeds that are genetically suited to their surroundings (Ichim, 2012).

Pig farming can range from small, family-run operations with a few pigs to large-scale, commercial farms that raise thousands of animals. The scale and management of pig farming depend on factors such as resources, available land, local climate, economic goals, and market demand. The most common method of raising local pigs was extensive/ scavenging, which was followed by semi-intensive. Few exotics and largely crosses were raised by farmers who used intensive farming systems. Because raising pigs is more expensive than semi-intensive and extensive systems, few farmers and government farms used intensive systems to raise local pigs. The majority of farmers used pigs as a source of protective income, either for meat and money or as savings. Typically, the pigs were sold to raise money for pressing expenses like debt repayment, cultural festivals, and school tuition. According to farmers, the main obstacles restricting their pig productivity were illnesses, housing work, and food. The kind of house offered, for example, demonstrates how these farmers' bad husbandry methods are exacerbated by little or no government assistance (Karimuribo et al., 2015).

Pig producers have been compelled to adopt precision farming techniques because to the rising demand for hog meat and the disease epidemic that poses a threat to pig farming (Klompenburg & Kassahun, 2022). Pig farming in China was traditionally carried out on a very small scale, with only one pig per household; this practice is known in Chinese as "scattered rearing" (sanyang). Among the many advantages of this approach was its ability to fully and promptly use non-standard feed types, such as agricultural byproducts, which reduced the demand for valuable grain for feed and preserved it for human consumption. Additionally, it supplied manure that was utilised to enhance the soil's fertility and structure, lowering horticultural expenses while also lowering environmental contamination from animal waste. As a result, an integrated agricultural production cycle was established. In

addition to enhancing rural earnings, scattered pig farming maximised the use of inexpensive agricultural labour and eased the strain on employment (Chen et al., 2024).

Proper nutrition is fundamental to pig growth, reproduction, and health. Diets should include proteins, carbohydrates, fats, vitamins, and minerals. Pigs are typically fed grains like corn and soybeans, supplemented with additional nutrients as needed. Most pigs are fed two to three times per day. Adjustments in feeding frequency and quantity are often made based on the pigs' age, weight, and production stage. Fresh, clean water is essential. Water should be available at all times, as inadequate hydration can lead to health issues and reduced productivity. In addition to the balanced meal (pig mash), the pigs were given green grass, locally sourced veggies, kitchen scraps, spoilt vegetables, and other items. Two lots of pigs were produced in a year because these animals were ready for slaughter in six months (Sahoo & Singh, 2021).

Poshomill sweepings, spoilt corn, sweet potatoes (tubers and/or vines), arrow root leaves, fruits like guava and avocado, brewer's waste, and flour cake were among the items that were added to the pigs' mixed diets, which were often prepared based on availability. While the fruits were mostly obtained from the wild, where they naturally grow, the crops were cultivated on the farm. This indicates that the season and climate have a significant impact on the quality and availability of feed, and consequently, on total pig output. This system did not provide mineral supplements in any way. All of the pigs in the semi-intensive method were stall fed once, twice and very few times a day. Farmers utilised market trash and concentrates, while a small percentage used market wastes exclusively. Some farmers fed their pigs mostly concentrates or with kitchen wastes as a supplement. Concentrates came from local merchants, homemade rations, and feed mills. Due to the substantial income they receive from the limited land areas, farmers in the semi-intensive system placed a higher value on pig farming than those in the vast system. Pig productivity appears to be mostly limited by subpar meals and inadequate feeding (Mbutia et al., 2015).

Pig reproduction is a key aspect of pig farming, as it directly influences the size and sustainability of the herd. Effective reproductive management involves

careful planning, breeding selection, and care for sows and piglets to maximize productivity. Farmers often select breeding sows and boars based on traits such as growth rate, fertility, and disease resistance to improve the herd's genetic quality. Many modern pig farms use artificial insemination (AI), which allows for better genetic control and can lead to higher pregnancy success rates.

Managing the reproductive cycle is critical; it requires close monitoring of heat cycles in sows to ensure successful mating or insemination. Proper care during pregnancy, known as gestation, includes providing sows with a balanced diet and stress-free environment to support healthy litter development. Farrowing, or the birthing process, is a sensitive time that demands careful management to minimize piglet mortality. New born piglets are particularly vulnerable and require warmth, colostrum intake, and protection from potential crushing by the mother.

Farmers often employ farrowing pens to enhance piglet safety during this stage. Proper weaning practices and gradual diet transition also play an essential role in piglet growth and survival. By optimizing reproduction through careful breeding, gestation management, and piglet care, farmers can ensure a steady supply of healthy pigs, supporting the overall productivity and profitability of the farm.

Pigs reach sexual maturity earlier than other animals, and they can mate for the first time when they are 8 to 9 months old. Two times a year, the sow can give birth to eight to twelve piglets (Karthiga et al., 2020). Farmers mostly use free will and group mating systems for reproduction, and deliveries typically occur within the herd (Motsa'a et al., 2019).

Pigs require housing that protects them from extreme weather, predators, and disease. Pig housing should be well-ventilated to maintain air quality and regulate temperature, as pigs are susceptible to heat stress. Pig excrement washed straight away from the pig sties, which were built on the pond embankments. Because of their rigorous upbringing, the piglets were not permitted to leave the pig sties. In addition to the balanced meal (pig mash), the pigs were given green grass, locally sourced veggies, kitchen scraps, spoilt vegetables, and other items. Two lots of pigs were produced in a year because these animals were ready for slaughter in six months (Sahoo & Singh, 2021).

The production of cattle is expanding more quickly than any other area of agriculture worldwide. Compared to wealthy nations, the developing world's meat consumption has increased at a far faster rate. Therefore, a proper piggery should be as inexpensive as feasible, have enough room, low feed waste, good sanitation and hygienic conditions, and ample protection against environmental hazards. In periods of high market prices and inexpensive feed, farmers may choose exotic pigs, but the on-going adoption of exotic species in emerging nations is endangering the survival of numerous native varieties. The traditional sector is more sustainable than the intensive sector, and intensive pig raising is stationary (Lekule & Kyvsgaard, 2003).

Pigs are historically raised on tiny pig farms in India. Increasing demand for meat drives the need for more stringent management techniques. For pig comfort and simpler management, this calls for high-quality shelter. Pig rearing success depends on proper housing, which also makes agricultural work easier (Attupuram et al., 2024).

Pigs were housed in a clean pigsty and fed a balanced diet at the appropriate times under the semi-intensive management system used by the majority of pig farmers. Additionally, the pigs received expert employment, veterinary care, and watering. Government organisations and private citizens that are interested in and knowledgeable about pig production have trained pig producers. Few created exotic and local breeds, whereas the majority generated crossed breeds. In the research region, pig production is profitable, efficient, and economically rewarding (Aminu & Ahonkhai, 2017).

Worm infections and *Haematopinus suis* infestations were regarded as the most significant illnesses. Farmers had no prior experience deworming or acaricide-spraying pigs, and their understanding of diagnosing parasite diseases was just moderate. Farmers frequently faced marketing obstacles, such as low prices and insufficient market knowledge (Kagira et al., 2010).

Regular cleaning of pig pens reduces disease risk. Many farms implement daily cleaning routines, washing floors, and using disinfectants to keep the environment sanitary. The pig farm upheld rigorous biosecurity protocols, limiting access to only authorised individuals and mandating that employees wear appropriate clothing, such as gumboots. Disinfectant treatments were used twice a day to clean

the farm's sheds. The practice included routine deworming and immunisation. Water tanks, lines, and troughs were routinely cleaned and disinfected to emphasise hygiene. Animals that had passed away were properly buried. On the other hand, backyard farming lacked thorough biosecurity protocols (Belal, 2018).

In an isolation shed, sick pigs were kept apart and given medical attention. Drugs from the government, including DB-vitamin, Renamycin, SP-vet, Amoxivet, and Anora, were given. The pig farm upheld rigorous biosecurity protocols, limiting access to only authorised individuals and mandating that employees wear appropriate clothing, such as gumboots. Disinfectant treatments were used twice a day to clean the farm's sheds. The practice included routine deworming and immunisation. Water tanks, lines, and troughs were routinely cleaned and disinfected to emphasise hygiene. Animals that had passed away were properly buried. On the other hand, backyard farming lacked thorough biosecurity protocols (Belal, 2018).

Importance of Knowledge and Skills in Pig Farming

Having solid knowledge in pig farming is crucial for farmers, as it directly impacts their ability to run a productive, profitable, and sustainable operation. Knowledge about pig health, feeding practices, and breeding management allows farmers to make informed decisions that improve the welfare and growth rates of their herds. For instance, understanding nutritional needs at different life stages enables farmers to provide balanced diets, which enhance growth and meat quality while reducing feed costs. Knowledge in disease prevention and biosecurity practices is essential to protect herds from contagious diseases like African Swine Fever, which can cause devastating losses.

Additionally, farmers with breeding and reproductive knowledge can optimize herd size by managing mating schedules, ensuring healthy litters, and reducing piglet mortality. Knowing market demands and seasonal trends helps farmers strategically plan their production cycles, allowing them to maximize profits by aligning with peak demand periods. Furthermore, understanding waste management and environmental practices can help farmers mitigate the environmental impact of pig farming, comply with local regulations, and maintain good relations with neighbouring communities. Ultimately, knowledgeable pig farmers are better equipped to overcome challenges, reduce costs, and adapt to new

technologies, which enhances both the productivity and sustainability of their operations.

Training and other related information given to pig farmers is crucial in pig farming management as it equips farmers with the skills, knowledge, and techniques needed to effectively manage their farms, boost productivity, reduce losses, and ensure animal welfare. Few responders in the unorganised sector had received official pig farming instruction. It goes without saying that a farmer with training will be farming more effectively than one without; they were also better adopters and made more money. Because organised farming follows good management practices, morality is lower there than in unorganised farming. Additionally, organised farmers used a scientific approach to control their pigs. That is, semi-intensive. Organised farming has greater economic benefits than unorganised farming when all economic aspects were taken into account (Payeng et al., 2013).

Most people believe that advice from their veterinarian is more reliable than information from other sources when it comes to disease control because veterinarians are available for rapid one-on-one guidance, their knowledge is locally contextualised, and they are working in the farmer's best interests (Garforth et al., 2013).

Many developing countries now consume a lot more pork, and producers use a variety of methods to keep up with demand. Depending on their level of experience and the resources at their disposal, pig farmers can use any production system. Smallholder pig farmers only generate a little money from their operations, despite the fact that pig farming uses a variety of production strategies worldwide. The incapacity of smallholder pig farmers to employ effective management techniques that would enable them to increase their production earnings is the cause of this situation. Extension services are vital in the pig sector because they give farmers the knowledge, skills, and modern methods they need to maximise productivity, yet less than three-quarters of pig farmers had access to training on pig production. Farmers can better comprehend the unique demands and problems by working with seasoned extension agents who have a thorough understanding of pig production systems (Adewale et al., 2024).

Challenges faced

Pig farming, like any other agricultural enterprise, is fraught with difficulties that could jeopardise environmental sustainability, animal welfare, and productivity. Challenges in pig farming play a significant role in shaping farming practices, resilience, and innovation within the industry. Confronting issues such as disease outbreaks, high feed costs, and limited market access pushes farmers to adapt, develop problem-solving skills, and often adopt more efficient practices to sustain their operations. For example, diseases like African Swine Fever highlight the need for strong biosecurity measures, leading farmers to prioritize hygiene, vaccination, and regular health checks, which ultimately improve overall herd health.

Pig farming faces a range of challenges that impact productivity, profitability, and sustainability. One of the most pressing issues is disease management, particularly with highly contagious illnesses like African Swine Fever (ASF) and Porcine Reproductive and Respiratory Syndrome (PRRS), which can devastate herds and result in major financial losses for farmers. In the past year, most families did not have any ill pigs. Pig illness was the main reason why pig keeping stopped. Among homes, ASF was identified as the most common disease. The majority of households stated that their pigs' primary cause of mortality was sudden death. The primary limitation was connected to feeding. The research area's high literacy rate may make it easier to establish extension services for better pig management and disease control. Extension agents can readily teach farmers about new technologies that will increase the sustainable revenue from pig raising (Nantima et al., 2015a).

Limited access to veterinary services and medications, especially in rural areas, exacerbates this problem, as farmers often rely on traditional knowledge and personal experience rather than professional guidance. Pigs are a common way for farmers in many parts of China to turn farm waste and kitchen scraps into manure for the crops and pork for sale or domestic usage. Household pig farming is currently diminishing quickly in rural China, despite its worth and significance. The threat of pig diseases increased quickly, and the Apricot Villagers were aware of pig parasitic diseases, swine fever, diarrhoea, swine pneumonia, pig diamond-skin disease, and foot-and-mouth disease. The majority of piglets were bred locally in the past. Piglets

were now sold to locals by traders who transported them from distant locations. It became more challenging for farmers to ensure that the piglets they purchased were healthy and had received the proper vaccinations because different counties and provinces frequently had varied inoculation and inspection standards. The primary issue was that farmers did not have access to veterinary care; the situation for village veterinarians was far worse; they were expected to perform necessary services but were paid very little (Jian, 2010).

High feed prices force farmers to seek alternative or locally sourced feed options, prompting innovative feeding strategies that reduce costs without sacrificing nutrition. High feed costs also pose a significant challenge, as feed is one of the largest expenses in pig farming. Many farmers struggle to afford high-quality feed, which can lead to nutritional deficiencies and slower growth rates. The many feeding restrictions in pig farming revealed that the most significant one was the high price of pig feed and feed ingredients. The respondents selected the lack of immunisations against the majority of dangerous pig illnesses as the top health care-related constraint (Doley et al., 2024).

Nearly 70% of the overall cost of pig farming is spent on feed, making it the main ongoing expense. Pigs' nutritional needs are determined by their breed, age, body weight, and physiological state (breeding, lactating, pregnant, etc.), in addition to their surroundings. An economical and sustainable method of swine nutrition is provided by the three-stage feeding system (weaner, grower, and finisher) that is often used in India. Pigs that are fed according to their age and physiological stage maximise growth and performance while using the fewest resources and generating the least amount of waste (Attupuram et al., 2024).

Additionally, inadequate infrastructure, such as poor housing and limited water supply, affects the health and comfort of pigs, particularly in regions with extreme temperatures. Waste management is another critical issue, as the accumulation of manure can lead to odor problems and environmental pollution if not properly handled. Pig farmers in Vietnam confront a number of difficulties, such as low output prices, a lack of funding, a shortage of high-quality input sources, high input costs, ignorance, inadequate farm infrastructure, a shortage of land, diseases, a lack of government assistance, and other limitations (Nguyen et al., 2021).

Farmers endured difficult situations of severe rain over six to eight months of the year. Livestock were occasionally physically harmed by these rains. Swine disease frequently causes havoc, and parasites are increasingly common. Veterinary products were utilised by pig breeders to treat and prevent diseases in their animals. Additionally, livestock farms struggle with a shortage of water for routine pig farm upkeep at the conclusion of the dry season. In order to feed the animals and make cleaning the pig fences easier, breeders are occasionally compelled to build water wells at their homes, which results in sludge deposits around the fences. Pig farming has been marginalised as a result of urban planning's assertion that it has no place in cities. Pig maintenance is severely hampered by urbanisation, particularly because of the stench it produces. By providing live animals to meet consumer demand, pig breeding allows breeders to quickly make money in urban marketplaces. Water is needed to clean intensive animal production systems in metropolitan settings. Groundwater may get contaminated by veterinary product residues. Pigs continue to benefit from conventional livestock production, but not cities (Mfewou & Lendzele, 2018).

In many pig farming locations, there was insufficient access to clean and sufficient drinking water. Numerous avoidable diseases have been shown to spread quickly and continuously due in part to inadequate veterinary care and a shortage of veterinary professionals or community animal health workers. Numerous pigs died in numerous villages as a result of pig farmers in isolated locations lacking access to medical care. Diarrhoea was supposedly treated using human medications, and internal parasites (worms) were controlled with herbs (pawpaw fruit). There have been reports of using ash-salt solution, lime water, and engine oil to control mange and other external parasites (tick) (Conteh & Gogra, 2019).

In the future, technology will be important, especially for early disease detection (Keyserlingk et al., 2023). The most common illnesses that pig rearers faced were swine fever, diarrhoea, pneumonia, piglet anaemia, mange, hemorrhagic septicaemia, and foot and mouth disease. The majority of people who kept native pigs as a living were housewives, daily workers, or farmers. They raised the pigs using confined systems, fencing, straw shed houses, and neck/girth tethering. The main obstacles to pig production in the areas under study were a lack of scientific

knowledge, a shortage of breeding boar, a lack of veterinary and extension services, and the unavailability of vaccines. However, it appeared that the main issue facing pig farmers was starvation (K. Ahmed et al., 2016).

Market access challenges, especially for small-scale farmers, inspire collaborative efforts, such as forming cooperatives, to pool resources and reach larger markets. These hurdles also emphasize the importance of training and knowledge-sharing, as farmers who are well-informed and supported are better equipped to respond to these obstacles.

The growing production pattern there is a corresponding growth in marketing channel for pig, different outlet for pork sale and source for piglet supply. Majority of the respondents disposed their pigs and pork through local traders who were familiar, faithful and business friendly. On the other hand majority of the farmers procured their piglets from co-farmers in order to reduce transportation cost, save time for going to the market and get their piglets free from stress which they would have been subjected to if bought from distant market (Suchiang et al., 2017).

Furthermore, market access can be limited for small-scale farmers, who often lack the resources to reach larger, more profitable markets. These challenges, combined with fluctuating pork prices and the need for ongoing training and support, make pig farming a complex industry that requires resilience, resourcefulness, and, ideally, greater institutional support to overcome.

Lack of funding or credit facilities, high piglet mortality, inadequate marketing, housing and nutrition issues, animal abuse, illnesses, and theft were the top five reported constraints in pig farming. Local resources such thatch, sticks, mud, bricks, rice bags, tapeline, and zinc were used to make the majority of the pens. A small number of pigs were housed in open fences without roofs, which could have exposed them to illnesses and other environmental dangers.

Although diseases play a significant role in farmers' economies, they currently appear to have been pushed to the side. The troubles caused by rising feed prices and low pig prices in the industry are currently overshadowing its economic significance to farmers. The layout of the farm buildings was viewed as both a limitation and a facilitator for the implementation of various control measures, which in turn influenced the decision on how to control a disease problem. Financial

difficulties make it difficult to hire the labour force needed to implement control measures effectively, and they may also lack the funds to make significant investments in the farm (Alarcon et al., 2013).

A concern in animal health is the growing focus on safe food production, in addition to new diseases. As important to human health as they are to animal health and welfare, effective and reasonably priced antibiotics are essential to appropriate veterinarian care. Swine production is subject to numerous risks and undergoes significant and on-going changes as a result of its interdependence with other chains. Climate change, the rise in diseases in recent decades, particularly zoonotic ones brought on by production concentration, urbanisation, and changes in pathogen virulence and antibiotic resistance (AMR). Prices for meat and cereals are becoming more volatile as a result of market globalisation (Zanella, 2017).

Because of the nature of raising animals, illnesses will occasionally arise. Furthermore, some hazards are beyond the control of farmers since their efforts may be hampered by those off the farm, such as truck drivers and pedestrians utilising public walkways across farms, who fail to effectively control dangers. The current state of diseases in the area is another factor that many farmers link to risk. hygiene on the farm; maintaining cleanliness is not something they do especially to lower the danger of disease, but rather is a standard aspect of excellent husbandry. The methods that were most frequently used were immunisation, choosing new animal sources carefully, separating newly arrived animals from existing stock, and cleaning facilities in between batches. Most people believe that advice from their veterinarian is more reliable than information from other sources when it comes to disease control because veterinarians are available for rapid one-on-one guidance, their knowledge is locally contextualised, and they are working in the farmer's best interests (Garforth et al., 2013).

Pig farming is well-known in north-eastern India, and raising pigs is essential to many tribes' means of subsistence. The government and veterinary authorities are working to put disease surveillance, preventive, and control measures into place in the area. To reduce the financial losses brought on by pig diseases, this includes vaccination campaigns, training initiatives, awareness campaigns, and

support for biosecurity measures. Pig diseases continue to cause economic losses in Northeast India despite efforts to avoid and control them.

It is vital for pig farmers to be well-informed about the typical indications of various diseases and acquire training on scientific pig farming procedures. Farmers can quickly detect and treat possible health problems in their herds by being aware of the particular signs, disease prevention methods, and hygiene and biosecurity procedures. Having the information and training they need guarantees that they can take appropriate action when needed and carry out efficient preventive actions (Milton et al., 2023).

Piglets are mainly sold right out of the farms premises where the buyers have to approach on their own convenience. With this reference it can be said that the place of the farm is where the sale of piglets usually happen. Pork on the other hand, which is the most favoured meat is sold in the market at specified stalls. When in times of scarcity, the buyers are often to be seen in line to catch their turn for buying their share. Pork is also sold in convenience at the local places where the locally sourced pigs are favoured by the buyers, this is also the premises where individual farmers slaughters and sells themselves (Vanlalmalsawma & Sharma, 2018).

Therefore, while challenging, these issues drive the pig farming industry toward resilience, resourcefulness, and continuous improvement, fostering a more sustainable and adaptable agricultural sector. Pig farming is particularly vulnerable to a range of factors that threaten both animal health and the financial stability of farmers. Disease outbreaks, such as African Swine Fever (ASF) and Porcine Reproductive and Respiratory Syndrome (PRRS), are among the most significant vulnerabilities, as they can rapidly decimate herds, leading to severe economic losses for farmers who may lack access to adequate veterinary care and disease prevention resources. Feed costs also contribute to this vulnerability; as feed represents a major expense, sudden price increases can make it difficult for farmers to sustain proper nutrition for their pigs, affecting growth and productivity. Environmental factors, such as extreme temperatures and seasonal water scarcity, further impact pig welfare and increase farm management costs. Additionally, many pig farmers, especially small-scale operators, face financial insecurity due to limited market access and

fluctuating pork prices, which makes it challenging to achieve stable incomes. The absence of supportive infrastructure, like cooperative networks or reliable insurance, leaves farmers exposed to significant risks with minimal safety nets. These vulnerabilities underscore the need for stronger support systems, biosecurity measures, and access to resources to help farmers protect their herds and livelihoods against these unpredictable challenges.

In India, pig farming is still a very traditional practice, the pig sector is extensive and characterized mainly by small-scale, mixed farms (Gangadhar, 2020), they usually reared pigs in temporary pigsties which are locally constructed with available materials (M. N. Singh et al., 2019). Pig farming provided livelihood opportunities for many backward household families (Karthiga et al., 2020), it has been practiced not only by the rural but also higher income group for earning extra income (Ghimire, 2004). High cost of concentrate feed, non-availability of proper veterinary health care in remote areas, frequent outbreak of diseases are the common challenges faced (Patr et al., 2014). The Pig Site (2020) has outlined that 90% of pigs are raised in Northern India but are sold directly to the North East and they are the main market. The demand for pork is increasing in Northern India for making sausages, and other eatable products because of the opening of the international restaurants. About 80% are small-scale pig farmers, around half a million people in India are practicing pig farming for income sources. According to Shahbandeh (2020), there are 677.6 million pigs in the world, in India the pig population is 9.06 million in the current census (Ministry of Fisheries, Animal Husbandry & Dairying, 2019).

In Mizoram, pork is the most demanded meat and pigsty is found near almost every house in the rural areas. As agriculture provides income seasonally, livestock has been practiced for one source of income. They usually practiced traditional farming system where pigs are fed with mixture of kitchen waste and small amount of concentrated feed (Rahman et al., 2008). Mostly the pigsties were temporarily built with locally available materials. The farmers make use of plants for treating the sick pigs and pigsty are often washed for maintaining the health of the pigs (Kumaresan et al., 2009). High cost of feed, non-availability of health care services are common problems (Tochhawng & Rewani, 2013).

1.1 Overview of Literature

Pig farming has been one of the livelihood options for the rural people and it is believed to be the most commonly reared livestock. It has uplifted the backward classes and plays an important role for eradicating poverty in rural areas (see for instance (Lubaba, n.d.), (Ghimire, 2004), (Tochhawng & Rewani, 2013). Some studies focuses on the importance of livestock farming for rural development (see for instance (Kamaghe et al., 2014), (Ali, 2007), (Maria et al., 2015).

There are studies on commercial and non-commercial farming where they point out that for commercial faming they have to be registered and they can ask for financial support from modernization and production funds, capital investments or rural development funds. Non- commercial production units do not have to be registered and can only ask for financial support through rural development funds (O.G., 2002). Non-commercially reared pigs are usually fed with kitchen waste because they are for fattening purpose only (Jurado et al., 2018).

There are studies on management practices where they reported that most of the pig farmers followed traditional system in managing their farms. They are usually fed with kitchen waste mixed with some amount of concentrated feed and local weeds (see (Chauhan, Patel, Maurya, Kumar, et al., 2016), (Borah et al., 2020), (Kumaresan et al., 2009). There were also some studies that point out that majority of the farmers construct pigsty with local available materials like bamboo, wood and thatch (see (Rahman et al., 2008), (Tudu et al., 2015), (Singh et al., 2019).

Pig farmers face many challenges in their livelihood (see for instance (Ra. Islam et al., 2016), (Patr et al., 2014), (Sahu et al., 2018), which include non-availability of proper veterinary services, high cost of concentrate feed, lack of quality piglets, frequent outbreak of diseases. Studies on marketing is linked with studies of constrains and production (see for instance (Antwi & Seahlodi, 2017), (Dzung & Phuong, 2011), (Mbuthia et al., 2015). Marketing studies include different types of marketing like farmers who sold piglets, pork and fatten pig, the quality of production is important for marketing. Cooperative society act as an umbrella to help farmers mitigate the influence of sudden shocks, provide different benefits for the farmers (see for instance (Ni et al., 2020), (Ji, Jia, & Trienekens, 2017) and (Ji et al., 2019).

Sustainable Livelihood Framework

The study makes use of the Sustainable Livelihood Framework (SLF).

Sustainable Livelihood Framework (SLF) has been developed by the Department for International Development (DFID) in the year 1997 to eliminate poverty in poor countries. The DFID make use of livelihood approaches in planning the programme, project, monitoring and in reviewing existing activities. The principles of Sustainable Livelihood Approach (SLF) include people-centered, holistic, dynamic, sustainability, building on strengths and macro-micro links, these principles help in fulfilling the objectives. The key elements of the Sustainable Livelihood Framework (see Figure 1) are:

- **Vulnerability Context:** It is the environment where people live, and the trends, seasonality, shocks which affect the livelihood of people and people have no control over them. The vulnerability occurs when people have to face threat or shocks with inadequate capacity to respond to them.
- **Livelihood Assets:** The livelihood approach concerned first with the people, it tries to understand the strengths like assets or capital that people have. The Framework outlines five types of assets like human capital, social capital, natural capital, financial capital and physical capital.
- **Policies, Institutions and Processes:** The policies, laws, institutions and processes cannot be overemphasized because they operated at every level and play a vital role. They determine access to assets and influence decision making.
- **Livelihood Strategies:** It comprises the activities and choices people make to fulfill the goals of their livelihood. It is a dynamic process in which activities are combining to meet their need on the time. It directly depends on asset status, policies, institutions and processes.
- **Livelihood Outcomes:** It is the achievements or results of livelihood strategies such as more income, increased well-being, reduce vulnerability, improved food security and more sustainable use of natural resources.
- **The Sustainable Livelihood Framework** focuses mainly on the poor as well as involving them in the processes with respecting their opinions. They aim to

bring short and long term changes and it allows pointing out the various processes which influence one another.

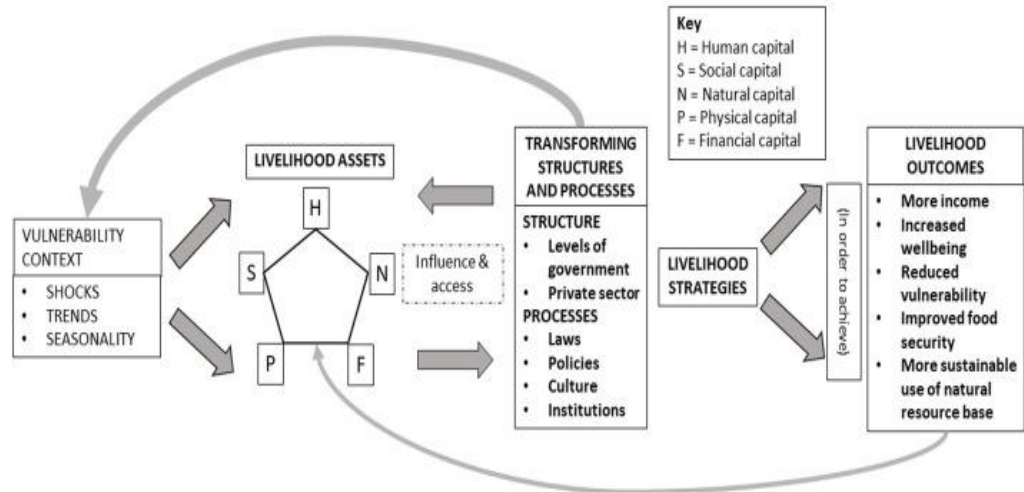


Figure 1 Sustainable Livelihood Framework (SLF)

- (Source: Dr Christopher McDowell, Department of Anthropology, Macquarie University, Sydney, Australia)

1.2 Statement of the Problem

Livestock farming has an important place in Mizo society from the early period. Pig is one of the most common livestock reared till today; it does not require much effort and skills and there is always a high demand of pork by the habitants. Till today, pork is the main meat and most preferable for any occasion among the Mizos, and almost all celebrations are cooperated by pork. Majority of the families in Mizoram consume pork except those who are bounded by religious teaching; it is a tradition to eat meat at least once a week whether rich or poor in Mizo society, so, we may say that pork is the most preferred meat. Due to development in technology and entrepreneurship, pork has been process in different forms like smoke pork, frozen, pickle and different eatables are prepared using pork while smoke pork is the only way to process before. Because of this there is an increase in demand of pork.

Pig farming is found common especially among the villagers and almost every family owned a pig near their house. But due to increase in demand even the rich people started rearing pigs for secondary sources of income. Pig is a livestock which does not require much time to grow, so, there is an advantage in farming.

The price of piglets have been increasing at an alarming rate and become difficult for many families to buy piglets for their next batch of pigs. Currently, natural food source for pigs are becoming scarce and they have to rely on pig feed which required more expenditure. This also creates difficult situation for the pig farmers. Due to the occurrence of diseases like American Swine Fever (ASF) many farmers faced challenges with their livelihood. For some, it may be their only source of income, so it is necessary to study how people cope with their livelihood challenges.

In this context, the present study employs the Sustainable Livelihood Framework to comprehend the vulnerability context of the pig farmers in Mizoram. It aims to understand the socio economic conditions of the pig farmers, how this livelihood has help in earning their living. The vulnerability context of pig farmers help to understand the challenges faced and the strategies used for overcoming and developing their farms.

1.3 Objectives

- To understand the vulnerability context of pig farmers.
- To identify the challenges faced and the strategies used to manage them.
- To probe into the role of cooperatives society and Self Help Group (SHG) in addressing the livelihood challenges and promotion of livelihood of pig farmers.
- To assess the patterns of livelihood assets and living conditions of pig farmers.
- To assess the relationship between the livelihood assets and living conditions of pig farmers.

1.4 Hypothesis

1. Living conditions of the pig farmer household are directly related to the natural resources endowment of it.
2. Living conditions of the pig farmer household are directly related to the physical capital endowment of it.

3. Living conditions of the pig farmer household are directly related to the human capital endowment of it.
4. Living conditions of the pig farmer household are directly related to the financial capital of it.
5. Living conditions of the pig farmer household are directly related to the social capital of it.

This hypothesis is drawn from a study conducted by (Zothanpari, 2019).

1.5 Chapter Scheme

The present study is organised into the following chapter viz., introduction, Review of Literature, Methodology, structural composition and patterns of pig farming in rural Mizoram, livelihood and living conditions of pig farmers, vulnerability context of pig farmers and conclusion.

The first chapter presents the introduction about pig farming, the management and challenges faced by the farmers. It discusses the prevalence of pig farming among the landless and rural people.

The second chapter presents the review of literature which is divided into different sub topic such as Livestock Farming and Rural Development, Economic Aspects, Management Practices, Challenges Faced, Marketing, Role of Co-operatives and Self Help Group (SHG) and Pig farming.

The third chapter presents the field settings and methodology used in the study. It includes the profile of study area such as Mizoram, Aizawl and Kolasib district as well as sample localities viz., Saihapui K, Rengtekawn, North Chaltlang, Lungdai, Sialsuk, Sumsuih, Sihphir and Muthi. It also includes research design, sampling method, tools for data collection and method used for data processing and analysis.

The fourth chapter includes structural composition and patterns of pig farming in rural Mizoram which explain the Profile of the Respondents which include family profile and household occupation and the patterns of pig farming.

The fifth chapter contains the livelihood and living conditions of pig farmers where the different livelihood assets viz., physical capital, human capital, natural capital, financial capital and social capital are further explain.

The sixth chapter discusses the vulnerability context of pig farmers and it mostly contains disease and challenges faced by farmers and the coping strategies used.

The final chapter presents the conclusion and includes the major findings from the study. It also discusses the suggestion and recommendation in which pig farming can be more secure and improve for the farmers.

CHAPTER II

REVIEW OF LITERATURE

A literature review helps in a researcher's comprehension of the theoretical and empirical aspects of a study subject. It also helps in determining the operational, conceptual, theoretical, methodological, and substantive problems related to the research challenge.

This chapter provides a review of the literature for the present study about the livelihood and living conditions of pig farmers in Mizoram and the research gaps that have been found from the literature review. The literature reviewed were classified into different sections like Livestock Farming and Rural Development, Economic Aspects, Management Practices, Challenges faced, Marketing, Role of Cooperatives and Self Help Groups (SHG).

2.1 Studies on Livestock Farming and Rural Development

A study on Livestock sector development and implications for rural poverty alleviation in India by Ali, (2007) highlight that livestock assets had been equally distributed as compared to land. The analysis on the relationship between poverty and livestock income had brought out that livestock has been helpful for eradicating poverty which indicate that livestock farming can be used for rural poverty reduction. Livestock holdings had been reducing among the landless that need to be given importance, they need to be provided with resources to secure their livelihood.

According to the study of the pig sector in North East India by Wright et al., (2010), North East India has higher consumption of pork compared to other parts of the country. Most of the families reared pigs and they usually sell their product at roadside or at markets. Results from survey shows that Nagaland has higher pig rearing percentage than Assam. Both Assam and Nagaland reared pigs for fattening purposes and only few of them kept it for breeding sows. Due to poor quality piglets, feeding pigs with local feed resources and lack of health care lower the product rate but low cost of management still make pig farming profitable.

A study on the constraints and potentials of pig production among communal farmers was conducted in Etayi Constituency of Namibia by Petrus et al., (2011), for the community farmers, smallholder pig farming was a vital source of

emergency funding and sustenance. Pigs were kept for a variety of reasons, including domestic use, money creation, and the fact that it is a family custom that has been carried down through the generations. Poor nutrition, a lack of extension services, illnesses, and limited access to profitable markets were the main issues facing pig producers in Etayi Constituency. Most farmers believed that pig production had potential if they could receive adequate instruction in husbandry skills and assistance in obtaining high-quality breeds and better feed to grow their units. In order to better their lives in a sustainable way, the study demonstrated that communal farmers are sitting on enormous potential sources of animal protein and possible avenues for cash production. Improved access to funds to cover school fees and purchase necessities like food, clothing, and better housing could boost livelihoods.

A study conducted by Kamaghe et al., (2014) on Assessment of livelihoods of smallholder pig keepers in Tanzania, pig farming has increased benefits socially and economically. The findings included that the livelihood are various depending on their assets including financial, social, natural, human and physical capital among the farmers. The indicators in the study include improved social status, house construction, child education, affording to pay for health services and formation of social networks. It has also shown that the farmers had upgraded their living conditions and purchase power. The farmers aim to keep pig farming in the future as it results in uplifting their livelihood, food production and income generation.

The majority of the pork consumed in China is still produced by smallholder pig farmers, who only produce a limited number of pigs annually. Future years should see a significant increase in the nation's appetite for pork. The majority of those pigs are still produced in extensive smallholder systems, even if a growing percentage come from large-scale industrialized production methods (Riedel et al., 2014).

According to the study conducted by Maria et al., (2015) on The Livestock Roles in the Wellbeing of Rural Communities of Timor-Leste, it was observed that livestock species play a crucial role for uplifting the rural people socially, culturally and economically which include food, income generation, employment sources, asset saving, soil fertility, livelihoods, transport, agricultural traction, agricultural diversification and sustainable agricultural production. Livestock are important mean

of assets as they can be converted into cash when family are in need, in many regions, livestock are the main source of asset accumulation. The income from this source can be used for fulfilling unexpected needs such as school fees, illness, etc.

Local pig breeds in the region show resilience, showing lower susceptibility to diseases, and provide a dependable source of income, particularly during dry seasons when dairy livestock may be less productive. The conventional subsistence of tribal communities in the area has predominantly centred on pig-centric production systems. Alongside pig farming, activities such as dairy production, kitchen gardening, backyard poultry, goat rearing, and artisanal work have substantially enhanced the livelihoods of the tribal population. These activities are essential for guaranteeing sustainable livelihoods, nutritional security, and maintaining the traditional lifestyles of tribal communities. The development of policies designed to enhance sustainable livelihoods for these communities has led to various rights and concessions for the tribal population. To enhance the welfare of tribal communities, a paradigm shift in livelihood promotion is essential, emphasising the fortification of the pig production system. This would correspond with the objectives of sustainable development and poverty reduction in the region (Kumar et al., 2015).

Eliakunda et al., (2015) conducted a study on Smallholder Pigs Production Systems in Tanzania, the finding indicated that pig farming is mainly carried out by smallholder farmers, involving over 500,000 rural households. Young smallholder farmers were engaged in pig keeping probably due to comparatively less capital and technology needed compared to dairy production. This observation reveals potential opportunity for improving future pig productivity, if these young and energetic pig farmers will be given suitable innovations. Level of education was identified as important factors influencing pig farmers to practise different management systems.

Leslie et al., (2015) study smallholder pig production systems in eastern Indonesia and concluded that in the eastern Indonesian region of Nusa Tenggara Timur (NTT), smallholder farmers frequently engage in pig farming. Few farmers reported keeping pigs only for domestic use, despite the fact that most interviewees considered farming to be their primary occupation. Most pigs kept by farmers were of an indigenous breed, and the main reason for maintaining them was to make

additional money. Traditional housing arrangements were used by all farmers to raise their pigs; rearing pigs on-farm can pose health risks. Pigs that were ill were either left untreated or given conventional treatment. Most pig farmers have never had an animal health professional or veterinarian come to their village. According to most farmers, they bought a pig so they could rear it on their property. Backyard slaughter was a prevalent practice among small-holder farmers at all sites of transmission, and other claimed reasons included consumption at a traditional ceremony and at funerals.

Pig farming is particularly prevalent among landless and small farmers in the Nadia district of West Bengal, with higher rates among scheduled tribe (ST) communities, followed by scheduled caste (SC) communities. The majority of pig farmers in this region earn an annual income below Rs. 15,000, suggesting that pig farming frequently serves as a supplementary livelihood rather than a principal income source. Pig housing is generally constructed from locally sourced materials, including bamboo and jute sticks, which are readily available. The feeders used for swine are primarily constructed from earthen materials or cement, which are economical and durable. This economical arrangement enhances the viability of pig farming for financially constrained farmers, despite their persistently low socio-economic status. The studies highlights the significance of pig farming in rural economies, especially for disadvantaged communities in the area (Tudu et al., 2015).

A study conducted by Chauhan, Patel, Maurya, Kumar, et al., (2016) on Pig Production System As a Source of Livelihood in Indian Scenario found that families residing in the North East India has owned small pig farm. Due to high demand of pork in the areas and the protein that it contains, pig rearing has become one of the most common livelihood opportunities for the inhabitants as it is a good source of secondary income as well. Pig farming does not only provide pork itself but manure which can be used for fertilizing the crops which means that it is suitable especially for the rural people. It provides nutrition, income sources and kitchen waste into fertilizers for crops.

A. K. M. M. Anower et al., (2017) study how Hygienic farming system impacted pig-rearers livelihood status in south-west region of Bangladesh and observed that Farmers Field School (FFS) had no training on pig rearing, and piglet

management is crucial for the farmers. One new type of animal production is pig keeping. Pigs were kept for marketing and pork consumption, and all pig owners were interested. They guaranteed that the goal of pig farming in the research region was profit and additional revenue. The findings of this evaluation suggested that raising pigs would provide impoverished members of minority groups with an extra source of income. Most people are drawn to it because it requires less land, which is followed by less capital and prolificacy.

Sokchea et al., (2018) study pig production system in Ratanakiri, Cambodia and found that the most popular method of raising pigs is small-scale farming. Usually, this kind of production results in a maximum of one or two pigs. Following the cultivation of rice and crops, farmers' second agricultural activity was raising animals, which was crucial to their livelihood and revenue generating. The current barrier to the development of ethnic communities' pig production is their religious beliefs and way of living. Breeding, food security, and praying for religious status were the primary goals of the production. The study discovered that, in accordance with their predecessors' experience, every indigenous person in the selected locations used a scavenging pig production technique. This was primarily caused by a lack of technical extension services, a higher rate of illiteracy, and the fact that the majority of them had just subsistence farming experience. About twice a year, the ethnic people in the targeted areas used their freely scavenged pig production primarily for meat consumption and religious devotion, and occasionally to heal family members' fevers or illnesses. Small-scale production and a freely scavenging system using extra feed supplies of primarily locally accessible natural resources dominated the target population's pig production.

Chilundo et al., (2020) also study how small holder pig farming education improved knowledge of community and management of pigs in Angónia district, Mozambique. Farmers raised pigs for various reasons, including supplementing their income, home consumption, and producing manure for crop fertilization. Most sold their pigs in informal markets, primarily through pig traders, and typically sold the animals alive. At the baseline of the study, about half of the farmers were aware of African Swine Fever (ASF) transmission and prevention methods. Both trained and untrained farmers improved their knowledge about ASF transmission between the

baseline and follow-up, with trained farmers demonstrating significantly greater understanding compared to their untrained counterparts.

In Tamil Nadu, pig production has crucial socioeconomic significance at both household and national levels. Pigs in the vast system spent the majority of the day tethered in the home compound. Piglets were allowed to roam freely throughout the property. The livelihood of vulnerable and impoverished small-scale farmers is enhanced by pig enterprises in a variety of ways. The primary goals of raising pigs are to sell the live animals during festival seasons, provide food for the family, create jobs for the owner, and satisfy their enthusiasm for raising livestock. Regular deworming using suitable deworming suspensions at three-month intervals and adherence to vaccination schedules for swine fever, foot and mouth disease, and other diseases helped to effectively manage the herd. Swill feeding, hotel garbage, wedding hall waste, school and college waste, vegetable waste, etc. are typically fed to entrepreneurs (Senthilkumar & Raja, 2021).

Especially for small-scale, marginal, or landless tribal farmers, pig farming is a vital part of animal husbandry in the upland areas of Manipur provides a sustainable income source. Most pig growers raise pigs mostly for fattening, thus they prefer crossbred pigs over native or exotic breeds. The accepted technique is natural mating since artificial insemination is not allowed. Usually kept in backyards, pigs are housed in enclosures built from locally obtained materials depending on availability and cost: wood, bamboo, and thatch. The sheds are simple, with low inputs; the feeding troughs are wooden planks, which simultaneously provide feed and water (Singh, 2023).

In some parts of India, raising pigs is a major part of the farming community. According to the findings of the 20th Livestock Census, there are 9.055 million pigs in India overall. For many farmers in India, particularly in areas where pig farming is practiced, raising pigs is a source of money and a means of subsistence. Pigs readily turn kitchen scraps, agricultural trash, and other organic wastes into premium pork. This promotes resource recycling and reuse in farming communities. The Indian farming community that raises pigs is seriously threatened by swine illnesses, which can result in large financial losses (Milton et al., 2023).

2.2 Livestock Farming and rural Economy

Ghimire, (2004) studies pig farming as support to rural livelihood in Palanase, Bhaktapur, Kirtipur, and Kathmandu, they found that livestock farming especially pig farming has been commonly practiced by the rural people in India. As pig farming is a good source of generating income due to the increase in demand, even the higher income group used it for earning extra income. It can be useful for eradicating poverty especially for those in the rural areas as they are usually poor and unemployed.

A study was conducted in Chayani-Barduar, Rampur, Goreswar and Kamalpur on Economics of Pig Production in Organized and Unorganized Sectors. The study findings included that people of North East India are usually tribal and most of them practiced livestock farming for generating income including Assam. Pig farming and tribal people cannot be separated and they have been practices for a long a time. The study findings included that the trained farmers profit more from their farming as compared to untrained farmers, and the organized farmers are more knowledgeable about farming than the unorganized and profit is more for the organized farmers. The reason for this could be high cost of treatment, transportation cost for the unorganized farmers, also the sale price for the organizes sector is higher that creates profit (Payeng et al., 2013).

Kumar et al., (2014) conducted a study in five states of India namely Uttar Pradesh, Punjab, Jharkhand, Chhattisgarh and Karnataka to understand Socio-economic factors and their influence on the production performance of commercial pig farm. The results show that pig rearing has been an importance source for improving the living conditions of rural farmers, and also for those educated people who are in an economically high position as it is a good income sources. In the study area, most of the farmers are in their middle age which is followed by young age and they are usually educated. For majority pig farming is their main income sources and they belong to small and marginal land owners (H D Kumar et al., 2014).

Pigs are vital to smallholder farmers' livelihoods in Western Kenya, and they also generate revenue for pig butchers and their staff. Enhancements to marketing systems can stabilize food supplies, boost consumer and producer benefits, and reduce poverty (Levy, 2014). Pig farming is commonly practiced by the

landless, small and marginal farmers in Nadia district of West Bengal. Pig farming has been the main livelihood for the poor community. Pigs are reared in kachcha house, made up of bamboo and jute stick that are available locally, and earthen or cement-cast mangers (Tudu et al., 2015).

Ahmed et al., (2017) study socio-economic status of small scale pig farmers in rural communities of Tripura and concluded that the increased in demand of pork has open a great opportunity for improving the economic status of the small scale pig farmers in Tripura. The common challenges faced include absence of scientific knowledge, malnourishment, and lack of veterinary health care facility. Their main source of buying piglets were the local market.

With 40% of India's pigs living in the North- Eastern area, pig farming is deeply rooted there. Small-scale and marginal farmers grow most pigs, highlighting the vital part pig farming performs in helping lower-income areas. Local diets include pork as a mainstay; indigenous breeds like Mali and Tripura's Dome pigs are especially prized for their taste and quality. Pig farming is a significant income source, with most farmers, often over 25 years old, earning between ₹30,000 and ₹3 lakhs annually and possessing diverse educational backgrounds. Herd sizes typically range from one to three pigs, whereas family sizes fluctuate between two and nine persons. Over fifty percent of farmers possess pigsties, primarily constructed from locally sourced wood and bamboo. Only a limited number possess sufficient floor area or concrete shelters (Das et al., 2018).

Singh et al., (2019) in their studies in Kangpokpi, Saitu Gamphazol, Purul and Mao Maram of Senapati district of Manipur, pig rearing is not replaceable for the tribal people in Manipur as it gives proteins and it became secondary sources of income and also it is an employment opportunities for the landless, underprivileged and marginal farmers. Majority of the farmers in this area are in category of low economic social strata who are not capable of taking up scientific pig rearing.

Rasbongshi et al., (2019) conducted study in Udalguri district in Assam and concluded that pig farming has played an important role for the tribal people in India. The people of Udal guri district are non-vegetarian and the demand for meat and fish are always high. The people mainly rely on livestock farming for generating income,

besides the demand for fine quality piglets is high. Due to this, pig farming and piglets production is becoming trends for earning income in the district.

Gangadhar, 2020) study role of woman in Pig rearing and observed that pig farming is still traditional practice and commercial pig farming is a profitable business in India. The social status of pig farming has changed, and the pig sector in the country is large and they are usually characterized by small scale and mixed farms. Pigs are helpful for turning low value limited waste and byproducts into high value food for consumption as well as for sale. Rearing pigs are helpful especially for the rural people as it can be a form of saving and also sources of income for household expenses.

Karthiga et al., (2020) conducted study on the topic of pig farming enhance the livelihood of Socio- economically backward families in Tamil Nadu pointed out that there is an ever growing demand for pork that opens a great opportunity for livelihood sources and income generation. It generates better future for the pig farmers as it contributes around 31 per cent to the total annual family income. In the study area there were some sections to be given importance in order to strengthen the pig farming like marketing channel, proper training programme on how to improve pig farming and also on accessing credits. They mainly focus on breeding the pigs meanwhile they also sold adult pigs especially in Namakkal district.

Doley et al., (2024) mentioned that one of the most lucrative livestock farming operations in Karbi Anglong, Assam is pig farming. In India's North eastern states, it is mostly raised for meat supply. Tribal rural households' socio-economic development is significantly influenced by pig farming. Pig farming is a long-standing custom that is essential to the security of rural livelihoods and the provision of nutrition. A vital source of meat and bi products for human use, pig farming is an important part of the worldwide livestock economy. Pig farming, like any other agricultural enterprise, is fraught with difficulties that could jeopardise environmental sustainability, animal welfare, and productivity. According to the socioeconomic profile research, the majority of households earned between Rs 75001 and Rs 105000.00 year, with agriculture and cattle serving as their primary sources of income. The majority of responders were from nuclear families and had average land holdings. The many feeding restrictions in pig farming revealed that the most

significant one was the high price of pig feed and feed ingredients. The most serious marketing limitations highlighted are the absence of organised marketing facilities and the inaccessibility of vaccines against the majority of dangerous pig illnesses.

2.3 Studies on Management Practices

Deka et al., (2007) made their studies on the current status, constraints and opportunities in Dhemaji's pig sub-sector found that almost all of the tribal families reared crossbreed pigs and it has become an important root for earning their income. Mising and Deori families usually kept one pig or more for sows and others for fattening purposes while another are sold. Because of the rising in demand of pork, the pig sellers from the locality have no issues on pig marketing. From the increasing in demand of slaughter pigs and quality piglets it is assume that small scale pig production is increased during the recent years for fulfilling the demand of pork and piglets.

The study conducted in Mizoram emphasised the utilisation of various unconventional feed resources for swine, encompassing flora such as Ankasa (*Spilanthus* Sp.), Vawkpui thal (*Bidens biternata*), Khup nal (*Hibiscus* Sp.), as well as additional items like bamboo shoots, pumpkin, banana pseudostem, and sweet potato. The plants were combined with wheat bran and rice, cooked into a slurry, and fed to the pigs bi-daily. The majority of farmers utilised locally crafted wooden feeders and waterers, or alternative materials including recycled vehicle tires and aluminium sheets. They primarily depended on pipeline connections or rainwater harvested from rooftops to establish a sustainable hydration system for their pigs (Kumaresan et al., 2007).

A study on Herd dynamics and contribution of indigenous pigs to the livelihoods of rural farmers was conducted in Zimbabwe and concluded that in the study area, pig ownership and management were primarily in the hands of women. Many of these women reported acquiring their pigs by helping others with feeding, which reflects a system of mutual assistance. Feed scarcity emerged as a major challenge for pig productivity in rural areas. Smallholder farmers, as in many parts of Zimbabwe and Southern Africa, typically maintain a variety of livestock, though pig herds are kept intentionally small due to limited feed resources, especially in the dry

season. This approach helps balance feed availability between humans and animals. Peak piglet births were recorded between November and February. Most farmers had herds of fewer than three pigs, primarily feeding them household leftovers and other accessible materials (Chiduwa et al., 2008).

Pig production and management system was studied in Aibawk and Tlangnuam blocks of Aizawl. The results included that due to the high demand of pork in Mizoram, the rural families are provided income sources through pig farming. Pigs are usually reared in a confinement area which is constructed with naturally available resources like woods and bamboos. The pigs are fed with kitchen waste mixed with some concentrated mixture, also weeds which are locally available that lessen the cost of feeding. Pigs are given vaccine and de-worming is practiced to prevent them from diseases and sickness. The pigs are usually sold when they reached the weight of 90 kgs as people usually thick back fat (Rahman et al., 2008).

A study was conducted to assess the impact of scientific management practices and the health challenges faced by pig farmers across various agroclimatic zones in Kerala. The profitability of pig farming in the region is largely driven by local dietary preferences and the abundant availability of swill, making pigs one of the most productive livestock species. Pigs play a crucial role in the economic advancement and food security of Kerala. The predominant pig farmers in the region employ non-traditional feeding methods, primarily using organic waste from both animal and plant sources. This method is economical; however, farmers encounter numerous challenges, such as disease outbreaks, diminished sow performance, and nutritional deficiencies. The potential of pig farming could be enhanced by enhancing farmers' awareness of scientific pig rearing and management practices. These initiatives would enhance income and bolster the community's nutritional security. The predominant health concern reported in pigs was digestive disorders, with 60-80% of farmers pursuing veterinary intervention for treatment. The principal constraint was financial limitations, followed by stock unavailability and social risk factors that hinder farmers' capacity to enhance their practices (Kannan et al., 2008).

A study on herd dynamics was conducted in Chiru-manzu, Zimbabwe, where pigs were primarily owned and managed by women. A significant number of women reported acquiring their pig stock by assisting other women with feeding,

highlighting feed scarcity as a major constraint affecting pig productivity in rural areas. Additionally, most farmers in the study area managed small herds, typically consisting of fewer than three pigs. The pigs were predominantly fed with household leftovers and other locally sourced materials. This highlights the dependence on constrained resources, which affects the overall productivity of pig farming in the area (Chiduwa et al., 2008).

Kumaresan et al., (2009) conducted a study in Mizoram on pig production systems in a mountainous area of Northeast, they concluded that pigs were fed with cooked food like mixing kitchen waste and locally available crops or feed and pigsty are usually kept near the house for easy management. Pigsties were usually constructed with local resources. Sick pigs were treated with available plants and cleaning of pigsty was practiced to maintain the health of pigs (Kumaresan et al., 2009).

The NEPED-SRTT livelihood framework for Nagaland aims to mitigate significant constraints that hinder the productivity and profitability of pig farming through its community-based piggery initiative. These constraints encompass Feeding Issues and Disease Management. The studies indicated that women predominantly engaged in the feeding and cleaning of pigs, whereas men were more active in medication and marketing tasks. Households typically sold approximately three piglets annually at a market price of 1,890 Rupees per piglet. Regarding insurance, merely 24% of households acquired any form of insurance in the preceding year. The main kinds of insurance acquired were health/life insurance and vehicle insurance, as opposed to insurance specifically for livestock (Njuki et al., 2010).

Mutua et al., (2010) conducted study in Western Kenya about farmer perceptions on indigenous pig farming and concluded that many families in the remote areas of Western Kenya rely heavily on pig farming for their livelihood. Income generating and a quicker growth rate than other livestock were cited as the main justifications for keeping pigs in all farmer groups. Some farmers compared pig farming to running a bank account, while others characterised it as a company like any other. In addition to requiring less room than other livestock, pigs were said to achieve market weight quickly, giving pig farmers faster returns than those of

farmers growing other animals. Others claimed that they had a particular fondness for pigs since they were less likely to become ill, had fewer enemies than other animals, and could thus move freely throughout the settlements. It was also believed that pigs were a valuable source of manure. Pigs were thought to provide protection and served as a charm to ward off evildoers in the neighbourhood, according to the local staff. Due to the perception that black pigs, which farmers frequently retained, had a poor market value, local purchasers preferred white pigs, therefore farmers believed that pig marketing was a major issue. The government gave pig farming little funding, and farmers lacked the means to expand their business. This was referred to as "lack of sponsorship" by one farmer participant. One of the main reasons for the poor marketing was believed to be the absence of a nearby pork processing facility. The team believed that a cultural concept regarding pig keeping in the study area might have an effect on local pig farming.

Pig farming in the Thukela District is a major economic activity satisfying both social and financial demands. Most farmers had past knowledge of pig farming; they had either lived or worked on farms running pigs for years. Still, this exposure by itself did not always improve their output ability. Although only a limited number of farmers had official training in pig production, the advantages of such training were clear, notably in terms of better management practices especially in breeding and increased output. Farmers with training routinely outperformed those without it. Though there were questions about its possible contribution in spreading infections, swill was the most often utilised pig feed in homes. Farmers had few choices because of shortages in feed. A few farmers mostly those growing pigs for sale or supplying abattoirs used commercial feeds. These producers understood how important good nutrition was for pigs meant for consumption (Gcumisa, 2013).

Since pigs are the most important livestock species, pig farming is vital for tribal families in Sikkim to make their living. The growing demand for pork in the state resulting from local taste for it over other meats creates chances for the growth of pig farming. Mostly rearing crossbred pigs, a lot of smallholder farmers raise pigs mostly for profit. Usually built from locally sourced materials using family labour, their pigsties are reasonably cheap. Mostly involved in intensive pig farming, farmers use kitchen waste mixed with a combination of maize husks, mustard oil cake,

banana pseudostems, tubers, and plant foliage for feed. This feeding system is customised to local conditions and reasonably cheap. But given the frequency of several diseases in the area including swine fever, diarrhoea, helminthiasis, sarcoptic mange, and pneumonia pig health is a worry. Notwithstanding these difficulties, farmers' experience and sense of acumen improve output and increase pig farming projects, so generating a major source of income in rural Sikkim (Nath et al., 2013).

Yadav et al., (2013) in their study on comparative evaluation of traditional and improved farming practices in Tripura pointed out that the most common type of animal husbandry is pig farming in Tripura as pork is consumed by almost every person in the area. Systematic pig farming is profitable as feed quality is provided which improves growth and fast reproduction. The best approach seems to be improved farming system to produce sustainable product, to generate income and also in providing livelihood opportunities for the rural people in Tripura (Yadav et al., 2013).

Roy, (2014) conducted a study focusing on Healthcare and Management Practices among Pig farmers in hill zone of West Bengal. The study finds that diarrhoea is the most common sickness among the pigs and they are given treatment based on traditional knowledge of the farmers. They did not separate sick pig from the healthy pigs, vaccination and deworming are not practice for maintaining the health of the pigs, giving of medicines like vitamin and iron was also not practice and quality feed are not given to pigs as well. Pigsties were constructed with local available materials and they make used of broom for cleaning the pigsty (Roy, 2014).

Particularly in the Nicobar Islands, pig rearing is essential for improving the socioeconomic and cultural situation of tribal people. It guarantees nutritional stability and acts as defence against natural disaster-causing crop failures. An indigenous breed, the Nicobari pigs have been central to Nicobari tribe life for millennia and represent success for them. The tribes consider these pigs to be family treasures. Still, the breed faces ongoing dangers from natural disasters (including earthquakes and tsunamis), disease outbreaks (such as swine fever), predators (such reticulated pythons), and poor scientific breeding and farming techniques. Pigs are traditionally let to roam freely for open-range feeding, and their production method is resource-oriented, mostly dependent on plantation-based systems. For pigs'

fattening, coconut is the main feed. The way of life of the Nicobari tribes depends on pigs since they are mostly consumed for pork and play a major part in celebrations and ceremonies, especially the pig festival (Jeyakumar et al., 2014).

Over 85% of the people who live in Nagaland, a hill state in north eastern India, rely on farming that is watered by rain to make a living. Tribal groups in the area grow fruits, vegetables, grains and rice in small jhum (slash and burn) and terraced farms. They also raise animals for food. Most people raise one to three pigs for their own use, to sell, or for both. Pigs are the most popular animal raised for food. In Nagaland, the demand for pigs and pork is rising quickly and is currently higher than the supply. To meet the demand, a lot of pigs and pork are being brought in from other Indian states and Myanmar. For small farmers, this growing market could mean a chance to switch from farming for survival to raising pigs for profit, which could greatly improve their way of life and bring in more cash. Local small indigenous pigs have been slowly replaced by better crossbreds over the past few years, but most pig farming is still done the old-fashioned way. Since free-range pigs are illegal to protect public health and crops, piglets are usually bought and kept in simple pens. Health care and other inputs are hard to get, though, and feeding systems depend mostly on forages gathered from forests and kitchen and yard waste (Padmakumar et al., 2014).

A study on Impact of Pig Keeping on Farmers Livelihood Outcomes: A Case of Mbeya Region, Tanzania indicated that pig farming has contributed in household needs like food security, health services, education cost, upgrading houses and household assets. The common challenges faced by the farmers were diseases, lack of capital and seasonal scarcity of pig feed (Mbwambo, 2015).

Nantima et al., (2015) carried out studies in the border districts of Uganda (Tororo and Busia) and Kenya (Busia and Teso) on characterization of smallholder pig production systems that the number of households keeping pigs was between 2000 and 2012, the number of households holding pigs increased. Pig farming was an alternate source of income for these households, as evidenced by the small percentage of household heads who were business owners, government employees, farm labourers, or casual labourers in industries other than farming. According to the report, the vast majority of farmers kept mostly tied, little pig herds. Their primary

goal in keeping pigs was to make money. The largest risk to pig investment was thought to be disease, particularly African swine fever (ASF), while the largest production limitation was thought to be feeding. To help farmers overcome the feed limitation, research into less expensive locally accessible feed choices should be conducted. Raising farmers' awareness of the need to implement bio security measures would lower the danger of illness, particularly ASF. Pig sickness was the main reason for the discontinuities in pig keeping, which was not a continual occupation. Among homes, ASF was identified as the most common disease. The majority of households stated that their pigs' primary cause of mortality was sudden death.

Eliakunda et al., (2015) study *Smallholder Pigs Production Systems in Tanzania* results concluded that most of the pig rearing followed traditional systems and management practices, the herds size were small and feed given to pigs were not healthy that may have effect on the public, also it can affect the economic condition of the farmers due to unhealthy production. The size of pigsty has great impact on investment like fees, shelter and labour. The large herd size required more resources; pigs were usually fed with available feed from the locality which reduces the feed cost, this feeding can be due to non-availability of concentrated feeds. The production is based on the feed quality given to pigs and the study revealed inadequate feeding which results in low production and reproductive issues in pigs.

Pig production has been increasingly significant in Eastern Africa in recent years. Two studies in the rural areas of Mbozi and Mbeya examined smallholder pig production systems and associated management techniques. In many parts of Tanzania, pig farming is primarily based on traditional practices, characterized by small herd sizes, weak bio security measures, limited productivity, low market turnover, and inadequate food safety standards. These challenges pose significant risks to public health and hinder the economic stability of smallholder farmers. The principal vocation of pig farmers involved both crop cultivation and livestock husbandry. The majority of farmers utilised pig shelters, primarily including dirt floors and elevated slatted hardwood flooring. A small number used concrete floors, whereas others utilised slatted timber floors positioned directly on the earth. Hominy meal (premium maize bran) served as the principal feed, supplemented by green

forages, local brewing by-products, sunflower seed cake, round potato tubers, banana by-products, kitchen scraps, and assorted fruits. All the farmers abstained from utilising commercial pig feeds. The majority provided sustenance to their pigs once daily, however feeding frequency differed among districts, seasons, and management practices. Daily feeding was significantly more prevalent in the wet season compared to the dry season (Eliakunda et al., 2015).

Length (2016) conducted Comparative study of Indigenous pig production in Vietnam and Sri Lanka and found that in the Asian region, Sri Lanka and Vietnam are two countries where rural families earn their living and food security from pig farming, and pig are reared for income generation for most of the families, while there are few families who reared pigs for consumption. In Sri Lanka, pigs roam around anytime they want which means their farming is free range system of rearing and in this system pigs are mainly fed with household waste. The involvement of farmers is very less and they do not care about the production as well. Meanwhile in Vietnam, pigs are put in a house which have roof. They mainly reared their pigs for income sources in rural. Farmers usually practice natural mating and they also practice artificial insemination.

According to a study conducted by Chauhan, et al., (2016) focusing on the overview of Pig Production System As a Source of Livelihood in Indian Scenario, it was found that in India pigs were usually reared in traditional system. This type of smallholder farming system improved the livelihood of people also providing food security to the poor. Almost all the families in the North East India reared pigs due to the high demand of pork in the area, pigs were fed with vegetables, feed that are available in the locality, kitchen waste and the reaming crops harvested where they did not have to spend much for the feed. The farmers lack knowledge on feeding, health care and breeding management.

Aminu & Ahonkhai (2017) conducted a study on Profitability and Technical Efficiency of Pig Production in Nigeria and found that pig farmers were young and have ability to overcome challenges faced in pig production farming. Most of them were married which increase the number of labour for the farm. Semi-investment system was followed, meanwhile some followed intensive system which is maintaining pigsty in a healthy manner and feeding were done in the right time.

Almost all of the respondents received trainings on pig production by government agencies and also from private which widens their knowledge on pig farming. Majority of the farmers run pig farming from their own savings, also there are some sources like borrowing from relatives and friends, banks and co-operative society.

Gebrehawariat et al., (2017) study Husbandry Practices, Farmers' Perception and Constraints of Pig Farming in Bishoftu and Holeta Areas in Central Ethiopia concluded that the main reason of pig farming are for breeding, fattening and both purposes. Most of the pigsty are made up of mud walls, thatched or zinc roof. Systemic pig housing was not found and pigs were put in one place unconcerned about their age, sex and reproduction status. Pigs were fed with kitchen waste, market waste and leftover crops from the fields, using of concentrated feed was rarely found.

In Bangladesh, traditional pig farmers typically neglect hygienic practices in pig husbandry. The majority of pig keepers are women, predominantly aged between 30 and 55 years, with most possessing less than one year of experience in pig husbandry. All participants in the study engage in pig farming primarily for commercial purposes. The primary incentives for pig farming are the minimal land requirement, the reduced capital investment, and the reproductive efficiency of pigs. Effective piglet management is essential for farmers; however, many lack formal training in pig rearing. Although some farmers seek the help of veterinarians or rural animal practitioners, the majority lack access to veterinary services. Alongside pigs, many respondents also rear various livestock, including cattle, goats, sheep, and poultry. The study demonstrates that pig farming provides an alternative source of revenue. Restricting pigs could reduce public health dangers linked to them, and with appropriate management, pig farming can offer farmers a significant income enhancement (Anower et al., 2017).

The study that was undertaken in the Jaipur and Alwar districts of Rajasthan elucidated the disparities in husbandry practices and social standing of pig farmers across the organised and unorganised sectors. Animal products, particularly pork, are vital for food security as they supply high-quality protein and essential micronutrients such as iron, zinc, and vitamins. In structured farms, pigs were accommodated in intensive systems with distinct pens for various age cohorts,

whereas unstructured farms generally reared indigenous or local breeds and employed scavenging feeding practices. In the formal sector, exotic and hybrid pigs, such as the Middle White Yorkshire, were more prevalent. The feeding system in organised farms incorporated hotel waste, hostel waste, or a combination thereof, whereas unorganised farms depended on less systematic feeding approaches. The study observed that deworming was more consistently implemented in organised farms. Both sectors encountered substantial challenges, including insufficient knowledge regarding scientific breeding, nutrition, and healthcare management. Moreover, disorganised marketing infrastructures and additional limitations obstructed the advancement of the piggy sector, despite the increasing demand for pork in the nation. The research emphasised the necessity for enhanced education and support to refine practices and surmount obstacles within the industry (Nanda et al., 2018).

Pig farming is regarded as a profitable livestock enterprise, with numerous individuals achieving beneficial results from commercial pig farming, especially for meat production in India. Pork enjoys strong domestic demand, with products easily sold in local markets, larger regional hubs, and even internationally. The nutritional needs of pigs vary based on age and body weight, requiring careful management. One common nutritional issue in piglets is anemia, which can be effectively prevented and treated through iron supplementation, either orally or via injection. Piglets ought to be vaccinated for swine fever between 2 to 4 weeks of age. To ensure perfect conditions, pig farms must be situated in quiet locations, and access for visitors should be limited to uphold biosecurity and safeguard the animals' health (Raje et al., 2018).

The study analysed the profitability and factors affecting farm income from pig farming in the Moulvibazar district of Bangladesh. Small-scale, home-based pig farming constitutes a significant source of livelihood for numerous farmers. The predominant Garo and Khasia entrepreneurs in the study area were aged between 35 and 44 years and funded their enterprises through local NGOs. The majority of farmers had undergone training in pig production provided by government agencies and local NGOs. Tribal women entrepreneurs generally utilised food waste as pig feed, enhanced by commercially purchased feeds at market rates. It considered both

home-sourced and commercially acquired feeds according to their market valuation. The feed comprised different vegetables, rice, and green forage. The research indicated that farm income increased with the entrepreneurs' educational attainment, implying that educated pig farmers attained greater income levels than their uneducated peers (Khanum et al., 2018).

The majority of farmers involved in commercial pig farming was middle-aged (30–51 years), had a higher degree of education, and had joint families with a medium size. Hinduism was the biggest religion practiced by the majority of respondents. Piggery was the primary occupation of the majority of respondents, who held either small or marginal land holdings. The majority had small herds, and cooperative organizations had the greatest respondents' levels of social participation. It was discovered that veterinarians were excellent information sources; they were well-versed in the mass media, and they all used radio and television as their primary mass media (Kumar et al., 2018).

A study conducted by M. Singh & Phurailatpam, (2019) in Nagaland on tribal knowledge and practices of pig farming reveal that pig rearing has provided livelihood to the people and their challenges include unavailability, inaccessible and expensive quality feed. Castration is done by the farmers as the pigs were for fattening purpose. The local people favour smoke pork and it is one way of preserving the pork.

A study conducted by M. Singh et al., (2019) on Tribal farmers' traditional knowledge and practices for pig farming in Nagaland concluded that pigs were usually reared in intensive system where pigsty was constructed temporarily with available natural resources like bamboo, wood and thatch. Pig rearing has uplifted the socio economic status of the farmers and the most common challenges faced by the farmers were unavailability, inaccessible and expensive quality feed.

A study on Diversity and sustainability of pig farm types conducted in Vietnam by Huyen et al., (2019) highlights that pig production at the study site can be divided into four main farm types, along with a new company-operated farm model. Farm types are strongly associated with specific zones and ethnic groups, with production being particularly specialized in the lowland areas. Financial and physical capitals, along with economic sustainability, were closely linked to pig

production. Natural and social capital also influences farm typology, though these factors operate independently of other resource groups. The findings highlight a strong connection between physical capital, financial capital, and pig production, which significantly impacts farm structure. Production relies on local pig breeds, with farmers adopting practices based on resource availability. Smallholder pig farms in the area remain small-scale, while a few newly established large-scale industrial farms (both company and contract-based) have begun to emerge. These larger, specialized farms, with their sizable pig herds, appear more sustainable economically and socially compared to smaller operations, though their environmental sustainability remains uncertain. Large mixed crop-livestock farms generate substantial income but tend to rely more on credit than other farm types.

According to a study conducted by Borah et al., (2020) on Participation of women in traditional pig farming in north bank plain zone of Assam a small scale pig farming is commonly found in Assam for generating income. Majority of the farmers have it as primary sources of income as they usually belong to economically backward classes. The system used for managing the farm was scavenging system. The farmers fed pigs with kitchen waste and remaining local rice beers and rice bran. The common problems faced by women who are involved in pig farming include lack of capital, expensive medication, commercial ration and household chores. Thus Pig rearing in the backyard helps in empowering and enhancing the socio-economic condition of the women.

A study on Rural pig production and pork consumption in Imo State , Nigeria by Nwachukwu & Udegbonam, (2020) revealed that majority of the pig farmers followed intensive system farming. There are some areas which play an important role in pig production like price of feed, farmer's income, farm size, medication cost, labour cost and household size. The capital for farming are self-investment, contribution schemes and from co-operative societies. The farmers received trainings on animal husbandry and skills for managing their farms. Major challenges faced by the farmers are high cost of labour, lack of finance, poor housing, land holding, rise of diseases and expensive feed. Most of the respondents have experienced in farming which increased production and can cope with challenges faced, the more they have experienced in farming they increased their

knowledge on farming, developed management skills, and have access to market which increased productivity and income. Most of the pigs reared in the study area are crossbred and exotic breed and the choices depend on the availability of breed.

Studies looking at women's involvement in pig farming found common sources of pig feed as food industry waste, kitchen trash, and grain products. Pigs turn low-value waste and bi-products into highly valuable food for sale and consumption. Moreover, raising pigs provides rural homes with a financial security since pigs are a source of income for domestic needs and a kind of savings. Pig farming is a traditional activity mostly carried out by women in India who either keep small animals for domestic consumption or as personal assets (termed "peva"). Women primarily undertook the responsibility of pig care, dedicating 1-3 hours daily to this activity. Many farmers have extended their time devoted to pig farming, occasionally reaching up to 5 hours daily, due to the additional care needed for rapidly growing crossbred pigs in contrast to local breeds. The alteration in pig breeding practices has resulted in women dedicating more time to pig farming than men (Gangadhar, 2020).

According to a study conducted by Mohakud et al., (2020) on the extent and structure of pig rearing system in urban and semi-urban areas of Guwahati that although the cattle industry is vital to the rural economy and means of subsistence, it is expanding both inside cities and outside of them as a result of the growing urban population. Pigs hold a significant position among livestock species since they are raised by the socioeconomically disadvantaged segments of society. While most pig farmers in urban and peri-urban areas had completed secondary school, many farmers had no formal education at all. Every farmer raised pigs that were crossbred. The most widely used raising system in Guwahati's urban and peri-urban areas was found to be the freerange, scavenging, pig rearing system, which was followed by the semi-intensive (outside pen) and intensive (indoors) systems. The majority of pig farms in Guwahati's urban and peri-urban regions did not adhere to quarantine regulations. This is not just detrimental in terms of the potential for disease transmission, and the FAO states that a young pig's ability to adapt to the farm environment is essential to its performance. The majority of farms in Guwahati's urban and peri-urban areas did not practise disinfection.

A large proportion of respondents (64.29%) reported an annual income between one to six lakh rupees. For farmers and newcomers in agriculture, structured and need-based training programs serve as vital sources of information. While factors such as age, education, and land ownership had a limited impact on knowledge acquisition, exposure to media and interactions with subject-matter experts played a significant role in enhancing their understanding. Training helps farmers address knowledge gaps, encourage the sharing of ideas, and provide the required motivation for success (Shelly & Verma, 2021).

The study aimed to evaluate the feeding practices employed by pig farmers in Tamil Nadu. A significant portion of the respondents were youthful, possessed secondary education, and held marginal land holdings. They owned limited livestock and engaged in animal husbandry as a supplementary occupation to agriculture. Their agricultural experience and income were comparatively minimal. The feeding practices and ingredients employed by farmers were largely determined by the resources at their disposal. The majority of farmers raised pigs for fattening and provided their livestock with hotel waste, banana leaves, and boiled rice. Approximately 30% of farmers utilised locally sourced feed, including grains, cereals, meat, and fish meal, for their breeding stocks; however, there was no distinct feed formulated for piglets, weaners, or adults. Merely very few farmers utilised commercially available swine mash for breeding purposes. The elevated expense of commercial swine mash constituted a significant limitation in pig farming. To mitigate feeding expenses, 10% of farmers utilised concentrate feed for breeding and swill feed for fattening livestock. The study indicated that numerous farmers lacked knowledge of scientific rearing and targeted feeding practices, resulting in problems such as piglet mortality, reduced production, and disease outbreaks. Feeding methods such as hotel waste and banana leaves were predominantly employed for fattening pigs, whereas alternative feeds like concentrates, grains, and mash were utilised in breeding farms. The training Krishi Vigyan Kendra, Muktsar, offers for pig farming was evaluated. Since most of the participants were under thirty years old, it suggests that younger people have more tendency to start new businesses and view pig farming as a low-input, high-output activity. The most of the respondents had a higher secondary (10+2) qualification; graduates and those with advanced degrees

came second. Most participants said their annual income falls between 1 and 6 lakh; most of them rely mostly on land for income; a minority also engage in business or service-related activities. Pig farming was regarded by many as a supplementary source of income. Adoption rates were elevated among individuals with education up to matriculation or higher secondary, whereas they were diminished among those with higher education. This indicates that pig farming is still regarded as a profession for the less educated and is associated with social stigma. Adoption rates were elevated among individuals whose primary income derived from land or service/business, as they perceived pig farming as a supplementary income stream requiring minimal investment (Jothika et al., 2021).

The study conducted by Ifeyinwa & Nwafor, (2021) on Feeding and Health Management Training Needs of Rural Farmers for Sustainable Pig Farming in Enugu State stated that animals like pigs and pigs production have great impact for human development for food sources and raw materials. The farmers in the study area did not have knowledge on management of feed, so, to increase the farmers in the study area it is necessary to give training on feeding and health maintenance of pigs by the concern authority. The results also reveal that the farmers and agriculture agents agreed to train farmers in regards to feeding and health management for sustainable pig production.

Pig farming is mostly controlled by women in Assam's Karbi Anglong district, who excel in many aspects of farm management including feeding, sanitation, and marketing. Men, depending on their availability, help with chores including housing, food procurement, and medication distribution. Pigs are mostly sold for celebrations, weddings, and festivals, or for quick money needs. Usually, piglets come from outside the district, nearby markets, or straight from neighbouring farms. Based mostly on kitchen waste, agricultural by-products, and locally available plant-based feed such leaves, fruits, tubers, and vegetation gathered from nearby forests and ecosystems, the pig farming system in the area runs with low external inputs. Lack of suitable veterinary services and agricultural inputs forces farmers to frequently resort to ethno veterinary techniques grounded on ancestral knowledge passed down through generations. Though they are still mostly unknown, these traditional techniques are usually more reasonably priced, easily available, and

culturally accepted than modern veterinary treatment. The limited availability of veterinary services and the great cost of modern medical treatment are main factors influencing the continuation of traditional health practices in pig farming. This difficulty is especially noticeable in rural areas, where access to professional veterinary help is limited and hence, traditional remedies are a more sensible and reasonably priced substitute for farmers (Kumar et al., 2022).

Pig farming has emerged as an essential livelihood strategy for numerous households, providing financial income, animal protein, and manure. In the last forty years, propelled by socioeconomic development and agricultural technological advancements, pig farming in China has transitioned from a traditional, subsistence-oriented practice to a more intensified and marketed system. Modern pig farming methods, such as improved breeds, artificial insemination (AI), commercially manufactured feed, and vaccinations, have been widely adopted to enhance productivity. However, many farmers, especially women, believe that pork from pigs fed traditional, non-industrial diets has a richer flavor compared to those raised on factory-produced feed. Additionally, some farmers argue that pork from commercially raised pigs may contribute to obesity and other health concerns, making it a less healthy option for consumption. While some farming families do not rely on pig farming as their primary source of income, they still raise one or two pigs annually for their own consumption (Fang, 2022).

From a socio cultural standpoint, pigs are always employed in a variety of customary ceremonial acts, the majority of breeders are between the ages of 15 and 60, and farmers have only an elementary school education. This demonstrates that pig farmers in East Flores Regency continue to have a comparatively low level of education. The responders have a lot of expertise raising pigs, so they can handle challenges and come up with solutions as their business grows. The findings indicated that there was a range of three to eight family members. East Flores Regency uses a semi-intensive and intense pig farming strategy (Keray et al., 2023).

Pig farming is an essential livelihood in rural tribal regions, notably in the Garo Hills of Meghalaya, where it significantly contributes to nutritional and economic security, particularly for women and marginalised communities. It functions as a mechanism for empowering women and enhancing their socio-

economic standing. By breeding superior crossbred pigs, farmers can enhance production levels, resulting in increased income. This practice offers a promising method to ensure both livelihood and nutritional security, particularly regarding animal protein, for rural families. The district is predominantly populated by tribal communities, with 70% dependent on agriculture for their sustenance. Owing to the substantial demand for pork in their diet, nearly every household in West Garo Hills maintains at least one or two pigs in their backyard. Nonetheless, a substantial disparity persists between pork demand and supply, chiefly due to the predominance of local, low-yield breeds of pigs raised. Farmers typically adhere to a low-input production system, utilising locally sourced materials such as rice bran, broken rice, kitchen scraps, and tubers, augmented with mineral mixtures. The feed is frequently subjected to boiling to enhance its palatability. Inexpensive pig enclosures are built utilising materials such as bamboo, timber, and thatch. De worming is conducted regularly, and vaccination for swine fever occurs annually. Veterinary care is administered as required, with support from the Krishi Vigyan Kendra (KVK) (Borah & Das, 2024).

2.4 Studies on Challenges Faced by Pig Farmers

In Croatia's rural areas, Smallholdings have socioeconomic value and are independent of formal markets for Croatia's rural population, where unemployment is still significant. They also have a cultural purpose that goes beyond basic economic activities. They have a number of challenges, such as restricted financial resources and a lack of options for land expansion. These farmers' inability to effectively communicate with the government makes it much harder for them to adjust to new rules. Many smallholders are dissatisfied with the government's lack of assistance and doubt their capacity to survive in the future (Wellbrock et al., 2010).

Mcorist et al., (2011) conducted a study on modern pig farming in the People's Republic of China: growth and veterinary challenges and the findings included that in China pig farming is commonly practiced in backyard, both small and large commercial farms. For Han Chinese pork is treated as the most preferable meat and they prepared pork in different style based on the occasion. Due to increase in population and development there was a high demand for pork and other meats

and they are in the form of frozen or processed. Pig farmers problems include high cost of feed and shortage of feed.

A traditional household activity and additional source of income, pig farming in the mountainous North Eastern Region's Dima Hasao district of Assam has become particularly prevalent. Among the many difficulties farmers face are rising commercial feed prices, limited market access, poor sales transportation, and high medicine and vaccination costs. Farmers frequently encounter difficulties in affording essential treatments and vaccinations for their animals due to their low economic status (Johari et al., 2014).

A study conducted by (Patr et al., 2014) in Nagaland aims to understand prospects and problems faced by pig farmer. The study findings included that pig farmers family in Nagaland are usually low education level and belong to a family of 5-8 members and have small to medium land, they belong to low level income group. The most common pig farming practice is intensive system. The most common challenges faced are expensive concentrated feed, poor veterinary health care services, unavailability of quality piglets, outbreak of diseases, lack of marketing channel etc.

Farm-abattoir-butchery or processing plant (wholesale) marketing channels are typical in Botswana, with supermarkets receiving the final products. Other marketing channels include individual sales and farm-to-farm sales. Pre-weaning mortality rates are high and linked to freezing and crushing, which suggests poor husbandry management techniques. This is because most pig farms in the nation lack heating systems and farrowing pens since they cannot afford the necessary equipment. The majority of the country's land used for cattle production is subserviced, meaning it lacks electricity and water. Additionally, the land used for pig rearing is placed far from the electrical grid or outside of water works areas. Trans-boundary disease outbreaks pose a hazard to the pig sector and result in significant financial losses for both producers and the whole economy. African swine fever, FMD, and classical swine fever are the three main dangerous illnesses (Montsho & Moreki, 2012).

The study conducted by Tochwawng & Rewani, (2013) in Aizawl focusing on two blocks namely Darlawn and Tlangnuam blocks focused on Constraint

Analysis of Backyard Pig Farming. In Mizoram, almost all of the family practiced pig rearing for earning secondary income and they owned marginal land and have about 10 year experience in pig farming. The common challenges faced by the farmers are poor management that includes vaccination timing, socio-economic constraints include expensive feed, institutional that include lack of health care facility, lack of technological knowledge that it is hard to obtain semen for artificial insemination and marketing constraints that is problem in transporting live pigs. These problems can be removed by developing and building infrastructure for stock and supply of medicines and vaccines.

A study conducted by Roy, (2014) in the hill zone of West Bengal on the health care and management practices among the farmers demonstrate that pig farming has become an important secondary source of income for the rural people who only have income seasonally. They mostly belong to low economic category and lack technical know-how on pig farming. The common challenges are mostly diseases like diarrhea, skin problems, parasitic and influenza. They did not practice separating sick animals from the healthy one this may be due to lack of rooms for separating; it can also be ignorant about segregation.

Islam, (2016) conducted a study in eight development blocks of Sivasagar district by covering the major constraints perceived by small scale pig farmers. The challenges faced by the farmers are separated into different categories. The first one includes breeding problems where unavailability of quality breed was most common challenges faced. Secondly, feeding challenges where inadequate knowledge on scientific feeding was found most common. The third category includes health maintenance; death of pigs due to unknown diseases was found common challenges by the farmers. The fourth one is marketing challenges where the farmers lack proper marketing channel and the last one include inability to access credit facility and absence of working assets.

A study performed in eight development blocks of Sivasagar district identified significant challenges encountered by small-scale pig farmers. The primary challenge was the deficiency of knowledge concerning scientific breeding, nutrition, and healthcare management practices. Other major challenges included the high cost of feed, unorganized marketing systems, a lack of improved pig breeds, limited

availability of vaccines and medications, and inadequate veterinary services. To address these issues, it was recommended that the extension wing of the Animal Husbandry and Veterinary Department, along with Krishi Vigyan Kendras, introduce comprehensive vocational training programs focused on modern scientific pig farming. These initiatives would equip farmers with the necessary knowledge and skills to enhance productivity and profitability in pig farming. Due to the majority of resource-constrained, unstructured communities in pig farming, middlemen have significant influence in the marketing process. The government could promote the formation of cooperative societies or self-help groups among farmers to tackle these marketing challenges. Furthermore, the State Government's establishment of pig breeding farms would ensure a consistent supply of enhanced pig breeds. Both the government and financial institutions must provide accessible credit facilities to aspiring entrepreneurs, enabling them to expand their pig farming ventures. Financial support plays a crucial role in enhancing production capacity, improving farm infrastructure, and ensuring the adoption of modern scientific farming practices, ultimately contributing to the growth and sustainability of the pig farming sector (Islam et al., 2016).

A study conducted in Ethiopia about challenges, opportunities and management practice of pig production highlight that majority of producers engaged in semi-intensive fallow production; the study area's primary pig feeding system was a combination of stall and pasture; and the primary water source for pigs, as determined by keepers, was a river. According to their order of importance, the majority of the obstacles that producers in the study areas face when it comes to pig production are: a lack of market; a negative societal attitude; the availability and cost of feed; a lack of water; a lack of labour; a lack of qualified veterinarians; the high cost of medications and pig diseases; and inadequate preventive health care (Emebet et al., 2017).

Study on Marketing Constraints Facing Emerging Small- Scale Pig Farmers in Gauteng Province, South Africa by Antwi & Seahlodi, (2017) reported that almost all of the respondents sold their pigs at local market, abattoirs, butchery and houses at a low value because of less amount of production. Some farmers sold at high value market like commercial processors and super market. Majority of the farmers sell

live pigs and there are also few who sold slaughtered or process but these sellers spend more money for transaction. Financial constraint is the most common challenges faced other challenges like lack of marketing information, lack of access to high value market, and lack of market infrastructure. There are also some constraints like poor medication, high cost of feed and water. The farming can be less profitable due to expensive feed.

Pig farming is a prevalent practice among village farmers, who feed pigs a combination of wild leaves, accessible vegetables, yam, purchased wheat bran, rice polish and maize meal. The ingredients are cooked, combined with substantial quantities of hot water, and augmented with kitchen waste. The presence of boar keepers in villages affects the quantity of sow keepers, diminishing their dependence on external piglet providers. The expense for boar services is consistent among villages, varying from INR 800 to 1000 or one piglet per service. Nevertheless, understanding of boar breeding and management is inadequate, and no formal education on pig breeding has been offered to date. Challenges in getting boar services, along with increased transportation expenses, are significant factors contributing to the underutilisation of these services for sows. Furthermore, farmers encounter challenges including disease outbreaks, elevated expenses for concentrated feed, inadequate housing conditions, and obstacles in acquiring veterinary medicines, as veterinary services are frequently inaccessible or of inferior quality (Huyen et al., 2017).

The main challenges impacting pig production in Embu-West Sub County encompass the scarcity of high-quality breeding stock, the elevated cost of commercial feeds, insufficient pig housing, and the widespread occurrence of diseases and pests. Despite these challenges, the majority of farmers consistently deworm their pigs, manage fleas and mange, and solicit the aid of para-veterinary professionals for treatment (Kithinji, 2018).

Sahu et al., (2018) study pig farming in Haryana and found that pig farmers faced different challenges especially socio-economic challenges in Haryana. These challenges include loans as it is not available only for scheduled castes, improper marketing channel, poor veterinary health care services and vaccines, lack of balances and subsidized feeds, also the farmers lack technical knowledge and little

trainings. Scheduled caste farmers are given special treatment and have knowledge on farming while the non-scheduled caste farmers are only for labourers as the family are not supporting this type of occupation.

Talukdar et al., (2019) study Prospects and Potentiality of Improving Pig Farming in North Eastern Hill Region of India, in their studies the farmers mentioned that pig feed are boiled before giving the pigs to prevent them from insects or diseases. The common problems faced by the farmers include non-availability of quality feed, lack of knowledge on pig farming, absence of financial help and marketing channel. They have neither any institution nor government sector to help them in marketing and managing the production. But pigs farming are usually practiced by unemployed youth and pension for earning their income.

A study on the profitability and limitations of pig production in southern Kebbi State, Nigeria, revealed that most pig farmers were aged between 36 and 45, with males being the predominant producers in the region. The majority of farmers regarded pig farming as their principal source of income. The study indicated that most farmers possessed 2 to 6 years of agricultural experience. Farmers primarily utilised traditional feed resources, including agricultural by-products like maize and rice bran, along with naturally occurring vegetables and weeds from forests, stream banks, and cropping areas. Seasonal weather patterns greatly affected the availability of those feed resources, hence dry season shortages. The limited availability of feed was a main limitation on pig output; many farmers noted that the cost of commercial feeds and feed components presented a significant challenge. Further difficulties included poor starting capital, religious restrictions, declining demand for pigs and their offspring, and high piglet costs. Notwithstanding these constraints, pig production was judged to be economically feasible, able to generate employment, boost income, and raise living standards in the study area (Dorh et al., 2019).

Pork has become a vital source of protein, driven by the rapid growth rate, high feed efficiency, quick production cycle, and prolific nature of pigs. The pork sector can satisfy the increasing demand for animal protein more economically than other meats. In India, the piggery business is growing steadily; however it remains concentrated in particular locations. The reduction in pig populations can be linked to factors including insufficient commercial pig farms, weaker marketing chains, and

poor policies that encourage pig farming. The principal source of economic losses in pig farming is the presence of diseases such as classical swine fever and porcine reproductive and respiratory syndrome (PRRS). Similar to numerous viral diseases, the African swine fever virus (ASFV) lacks a specific treatment. The most effective strategy for controlling disease involves culling infected and suspected pigs, properly disposing of carcasses, and thoroughly disinfecting contaminated areas. Additionally, restricting the movement of live pigs and pork products between affected and unaffected regions is essential for preventing the spread of infection. As ASF is a vector-borne illness, eradicating its vectors is essential for avoiding its dissemination (S. Kumar et al., 2020).

Agriculture constitutes the primary means of livelihood for the socioeconomically disadvantaged segments of society, ensuring livelihood stability for more than 75% of Assam's rural populace. Pig farming, predominantly practiced through traditional small-scale methods, plays a crucial role in income generation, employment, and livelihood security, particularly for tribal communities in Assam. Pigs make up 8.57% of the state's total livestock population. However, pig farmers face several challenges, including feed shortages, financial constraints, low productivity of indigenous breeds, inadequate veterinary and extension services, limited market access, and various technical difficulties (Kakati, 2020).

India, home to the world's second-largest population, faces the ongoing challenge of ensuring food security and meeting the nutritional demands of its growing populace. Animal products play a vital role by providing essential nutrients while also contributing to manure and fertilizer production. Additionally, by-products from animal husbandry support economic diversification and help mitigate risks for farmers. Among various livestock species, pig farming stands out as a crucial source of meat, bristles, and manure. A study conducted in the West Godavari district of Andhra Pradesh highlighted several challenges faced by pig farmers, shedding light on the obstacles hindering the sector's growth. The primary challenge identified was the absence of government schemes and policies, succeeded by issues including disorganised markets, decreased consumer demand for pork, elevated costs of concentrated and animal feed, inadequate relationships with extension agencies, insufficient veterinary services, reduced animal productivity, and high expenses

associated with veterinary services. These limitations impede the expansion and profitability of pig farming in the region (Pradesh et al., 2020).

A study conducted in Imo State, Nigeria, examined the socioeconomic characteristics of pig farmers, identifying various factors that affect their production and profitability. The majority of pig farmers were over 41 years of age, possessed primary education, and had more than 11 years of experience in pig farming. Drugs and vaccines were frequently utilised for disease prevention and treatment; however, challenges such as medication limited availability, poor quality, and inadequate cold-chain storage for vaccines compromised the effectiveness of them. The research indicated that farmers mainly depended on familial labour, and various factors affected the profitability of pig farming. The factors encompassed the type of piglets, years of experience, membership in agricultural organisations, medication expenses, flock size, household size, and educational attainment. Conversely, the primary challenges encountered by pig farmers included elevated feed costs, inadequate housing, labour shortages, marketing obstacles, restricted access to credit, and insufficient extension services. These factors established considerable obstacles to enhancing productivity and profitability in local pig farming (Ume et al., 2020).

Widely used in all of India's eco-regions, pig farming is especially important for the rural economy and helps tribal people particularly. Still, the industry must overcome several challenges that limit its production and expansion. Important obstacles include the lack of quality breeding stock, the predominance of endemic porcine diseases, restricted access to specialised training and technical knowledge, and the lack of a consistent representation for pig farmers. Dealing with these issues will help to fully utilise pig farming in India and guarantee sustainable livelihoods for rural and tribal populations depending on it (Thomas et al., 2021).

Osagie & Osabuohien, (2021) study pig farming in Nigeria and concluded that due to their subsistence-level operations, small-scale farmers are more vulnerable and less equipped to own and run big farms. The cost of pig feed and feed additives is a major issue for the majority of respondents. The cost of pig feed and feed additives was a major concern for the majority of respondents. Pig output may be hampered, and the pig industry may become less profitable. The majority of respondents said that their output was being negatively impacted by a number of

factors, including the prevalence of pig diseases, insufficient transportation infrastructure, and issues with marketing pig produce. According to the study, the government should make it easier for financial institutions to lend money to pig farmers in the study area, subsidize pig feed and feed ingredients so that the majority of pig farmers in local government areas can afford them, and provide a good road network, effective marketing, and education on disease prevention and treatment.

Pigs are common in all of India's rural society, particularly to tribal groups. For festivals and ceremonial purposes, several ethnic groups in the nation prefer to keep pigs, especially black ones. The eastern and north eastern (NE) states have the largest pig populations, followed by India's northern, southern, central, and western regions. A number of particular issues affect pig farming in India, such as the endemicity of pig illnesses and the lack of access to high-quality germplasm, which continue to be major problems in the industry. The nation's pig population is afflicted with major diseases such as Foot and Mouth Disease (FMD) viruses, Porcine Circovirus (PCV), and Classical Swine Fever (CSF). There are many chances to use pig farming as a means of reducing poverty in India since pigs provide a live source of insurance, especially for the weaker members of the community (Attupuram et al., 2024).

2.5 Studies on Marketing

A study on Potential for using indigenous pigs in subsistence-oriented and market-oriented small-scale farming systems was conducted in Southern Africa by Madzimure et al., (2012), the findings included that in South Africa, indigenous pigs provide essential food and economic independence for small-scale rural farmers. Many respondents noted a strong interest in pig farming among youth, though some young people avoided it due to viewing pigs as unclean animals. For market-oriented farmers, income generation was the primary reason for raising pigs, while in subsistence systems, consumption ranked higher, and socio-cultural uses were also more significant. In some areas most farmers sold pigs locally, while only farmers in Ngqushwa Municipality accessed formal markets such as butchereries, abattoirs, and supermarkets. Households most likely to sell pigs for income included those with housed pigs, younger household heads, backyard rearing systems, smaller cattle and sheep herds, and unemployed members. The likelihood of pig sales was higher for

housed pigs than those kept outdoors, and younger individuals were more inclined to sell than older ones. Households using backyard systems were also more likely to sell than those with scavenging setups. Climate change has impacted crop growth, availability of forage, water access, and led to increased pig mortality due to starvation and heat stress. About half of the farmers reported lacking the means to adapt to climate change. Households experienced the highest risk of disease or parasite challenges depending on production system, location, head of household's education and age, and household size.

Madzimure et al., (2014) conducted a study in Eastern Cape Province of South Africa where more pigs were likely to be sold by farmers using backyard production systems as opposed to those using free-range systems. The age of the head of the home was the next significant determinant, with younger people more likely to sell pigs than older persons. Compared to respondents with big herds of cattle, those with small herds were more likely to sell pigs. Furthermore, those without jobs were more likely to sell livestock than those with jobs. Pigs were more likely to be sold by household heads who managed their pigs at home than by those who were gone.

Pigs are highly efficient in converting feed and feed wastes, exhibiting significant growth potential and a brief generation interval relative to other domesticated livestock species. The study found that diarrhea was the most commonly reported illness among respondents. However, none of the farmers practiced isolating sick pigs from healthy ones. Most relied on traditional knowledge to treat animal illnesses, with minimal focus on deworming or vaccinations for major diseases. Moreover, most respondents utilised wooden or bamboo enclosures for their pigs and employed brooms primarily for sanitation purposes. No iron or vitamin supplements were provided for piglets, nor was separate housing, bedding materials, or weaning practiced. Insufficient emphasis was placed on additional feeding or preventive care to reduce piglet mortality (Roy, 2014).

Study conducted by Hung, (2015) on Improving the Livelihood of Small Farmers in the Pig Value Chain in China concluded that animal husbandry was a household head's main source of income. Very little of the pigs were processed; more than half were eaten locally. Nearly half of the produced pigs were sold to pig

collectors/traders who then transported them to other provinces, and around half of the finished pigs were sold to slaughterhouses (mainly local slaughtermen). In order to sell their pigs directly to local customers (in the same community), very few farmers killed them at home. Thus, the most significant purchasers are pig dealers and slaughterhouses. Smallholder pig farmers in Vietnam typically exhibit poor market orientation and lack comprehensive market knowledge, particularly with regard to end users in urban and peri urban areas. This made it more difficult for farmers to successfully engage in the pig value chains by increasing resource restrictions, such as knowledge and capacities.

The study identified the presence of both urban and rural pig farming systems in Manokwari regency, highlighting significant performance disparities between them. The gender dynamics in pig farming were analogous in both regions, with men primarily owning the pigs. Women participated in designated tasks such as feeding and cleaning the pig enclosures, but their overall role was more restricted. The study indicated that urban farmers were typically younger than their rural counterparts. The marketing systems differed between the two locations: in urban areas, farmers generally transported their pigs to local markets, engaged informed consumers, and sold directly from their residences. Conversely, rural farmers frequently depended on social networks for the sale of pigs, where transactions might encompass barter systems, including exchanges associated with marriage, debts, or customary matters. This community-oriented market strategy emphasises the significance of social connections in rural pig farming (Saragih & Iyai, 2015).

The majority of respondents relied on traditional methods for the treatment of sick pigs. Frequently reported ailments comprised diarrhoea, pneumonia, mange, piglet anaemia, mastitis, and several unidentified infections. Pigs were predominantly sold through middlemen, wholesalers, and directly to consumers in local marketplaces. The demand for pork was notably higher in winter compared to summer, as various festivals and celebrations during this season led to increased pork consumption in the study area (Shyam et al., 2016).

A study on Hygienic Farming System Improved Pig-Rearers Livelihood Status in South-West Region of Bangladesh was conducted over half of the respondents in Bangladesh reported having less than two acres of land, which is

insufficient for a subsistence agricultural lifestyle. To supplement their income, they have turned to pig farming, with most having less than a year of experience in this area, suggesting that pig farming is an emerging source of livestock production. All pig owners expressed interest in pig farming for both marketing and pork consumption, emphasizing profit and additional income as their main motivations. This assessment shows that pig rearing could serve as a valuable income source for economically disadvantaged minority communities. Respondents were drawn to pig farming primarily because it requires minimal land, followed by its low capital investment and high productivity. However, the study also pointed out several key challenges to the sustainability of local pig farming, with feeding, marketing, and breeding practices being areas of primary concern (Anower et al., 2017).

In the Southern Highland of Tanzania, the Mbeya Rural, Mbeya Municipality, and Mbozi districts have been studied in order to evaluate the pig market chain and flow of pork and pig products from rural villages to urban areas. Pig farming and marketing have become increasingly important for rural livelihoods in Tanzania, serving as a key source of animal protein for both urban and rural communities. The production, marketing, and consumption of pigs have steadily increased, driven by the rising demand for pork across both rural and urban areas in Tanzania and in other regions with similar socio-economic conditions. Live pigs and pork marketing today spans several market channels, segments, and players. Rising population, urbanisation, beef costs, and per capita income trends in Tanzania all point to domestic demand for pork continuing to be growing. Since most farmers sold their pigs straight to other farms and markets at the farm gate, villages become important centres for pig marketing. Acting both as providers and customers, pig growers were major market players. Driven by reduced rearing expenses, strong demand for this age group, and the possibility for improved returns due to higher pricing, most pigs were sold at a young age between 2 to 5 months. Fluctuations in market demand for pigs and pork were influenced by monthly and seasonal shifts in trading patterns. For example, during the peak cropping season from December to April, farmers faced increased agricultural expenses, which likely led to a decline in pork and pig consumption. But from May to November, the dry season, farmers'

income rose from crop sales and lowered input costs, therefore promoting demand for pigs and hence higher pig sales (Kimbi et al., 2020).

In the hilly regions of Assam, pig farming is a traditional domestic practice; however, rural markets in low-development countries (LDCs) encounter significant challenges. High transaction cost, resulting from inadequate infrastructure (including roads, bridges, and communication), hinder farmers' ability to trade livestock and livestock products. Consequently, farmers frequently encounter difficulties in obtaining fair prices for their pigs. Farmers who adopt improved rearing practices and effective marketing strategies typically achieve enhanced benefits. In certain circumstances, intermediaries or middlemen, rather than the actual farmers, significantly receive the benefits due to the risks and inefficiencies inherent in the marketing system. This shows the necessity for enhanced infrastructure and structured markets to more effectively assist pig farmers in rural regions (Johari et al., 2020).

Pork is a highly valued meat in Tamil Nadu, particularly favoured during the summer season for its elevated fat and energy content, which enhances its nutritional value and flavour. The majority of pig farmers in the region raise desi or black pigs, primarily for meat production and revenue generation. Pig farming, especially in rural regions, frequently employs a scavenging system. Large-scale pig farmers typically employ a more systematic method for slaughtering their pigs, whereas smaller and medium-scale farmers frequently conduct slaughtering at home and sell the meat in local markets. All unsold meat is either stored in deep freezers or sold in bulk to hotels for additional processing. Some farmers convert their surplus raw meat into cooked meat for local markets, thereby enhancing the value of their products (Marimuthu et al., 2020).

A study conducted by Kibirige & Sibandze, (2021) on factors influencing the profitability of pig production in Eswatini declare that there is a greater demand for pork than can be produced locally, imports fill the gap, indicating possible market opportunities that local pig farmers could take advantage of. The majority of those surveyed were seasoned pig farmers who fed concentrated feed to their animals. A larger percentage of the pig stock may be sold because the majority of them received extension services from the government, which help farmers properly manage their

pigs and increase production rates. Local pig farmer cooperatives comprise the majority of the farmers. The findings also indicate that butcher shops, individual customers, and dining establishments are the majority of pig producers' target markets.

In comparison to other kinds of animal flesh, pork is the most often eaten meat in the world. Small-scale farmers and underprivileged people's financial situation could both benefit from pig farming. Pork is a great source of premium animal protein, hence it can be rather important in helping underprivileged people prevent malnutrition. Nevertheless, the worldwide pork sector has slowed down in expansion even with the ideal conditions for raising pigs. A major threat is African swine fever (ASF), a highly contagious, lethal, and transboundary viral illness impacting both domestic and wild swine. African swine fever (ASF), induced by the African swine fever virus, exhibits a 100% morbidity and mortality rate, resulting in significant economic losses in impacted areas. Any region with a porcine population is susceptible to an outbreak (Dhial & Sharma, 2021).

Livestock theft was found to be a major problem amongst farmers. The most popular materials pens were constructed using wood, corrugated iron or a combination of the two; other materials used were cement blocks, polystyrene or plastic. The type of feed farmers gave to their pigs was categorized into three main categories, namely commercial, mixed and factory (by-products and waste). Smallholder pig farmers generally sell to informal markets without having a particular market group. Farmers generally did not sell to abattoirs as they either did not own enough pigs to do so or did not want to risk their pigs being condemned by the abattoirs. Most of these farmers sold to the same buyer, the result of having a personal buyer meant that income was secured for the farmers provided they reared healthy piglets. This motivated farmers to care better for their livestock in order to be able to sell them continually; it also provided them with a more reliable source of income for their pigs (Molotsi et al., 2021).

Rural populations rely heavily on pig farming for their livelihoods. Pigs' capacity to adapt to a particular environment is hampered by a lack of knowledge or a limited comprehension of their physiology and the conditions necessary for optimal performance (growth, reproduction). Poor housing has an impact on waste collection

and other management functions, which leads to low cleanliness and high pathogen loads in pens (Oba et al., 2023).

2.6 Studies on Role of Co-operatives and Self Help Group on pig farming

Rahman et al., (2008) conducted a study on production and management practices in Aibawk and Tlangnuam, Aizawl. Their studies were on Housing, Breeding, Feeding, Health Care, and General Care and Management. Most of the farmers make use of antibiotic for treating diseased pigs whereas more than half of them also practiced de-worming with allopathic or traditional medicines. Cross-bred animals are preferred by the farmers as they grow fast; they take artificial insemination due to low cost as the results are acceptable as well as good (Rahman et al., 2008).

Mutua et al., (2011) study Indigenous pig management practices in rural villages of Western Kenya concluded that in rural Western Kenya, smallholder pig farming is a significant source of income for many communities. Pork is a reasonably priced protein source that is widely consumed in Western Kenyan rural communities. Pig farming is still a profitable industry, and with the right management, it offers farmers the chance to improve their output and raise their revenues. The money made from the sale of the pigs helps the family pay for food, tuition, and medical expenses. One of the biggest problems in pig production, according to the majority of responders, is insufficient feeding especially on farms with a large number of pigs during the dry seasons. Diseases, restricted access to breeding boars, low profits, and free-range pigs that cause disputes with neighbours when they uproot crops were additional difficulties.

Chazovachii, (2012) study piggery production and how it empowered rural people in Zimbabwe and the study revealed that the majority of respondents listed meat as one of the advantages of pig farming, along with the benefits to income and human capital. This meant that people may make money after selling the pigs. It is discovered that the Mutambara community's pig farming operations have not resulted in much infrastructure development. Benefits like income and manure have increased options for empowerment, including as diversifying one's sources of income. Most respondents agreed that the raising of pigs had aided in the development of cash

crops. The fact that so many farmers grew fruits and vegetables indicates that cash crop farming has aided in economic emancipation. Having seen the importance of piggery production in as far as food production and income are concerned, it can be noted that the piggery production is of much importance to peoples' livelihoods. The findings envisage that there are more constraints than opportunities as attributed by majority of the respondents pointed out those factors such as lack of knowledge, institutional sustainability and markets accessibility among others had contributed to ineffectiveness of the project on empowerment of the rural forks.

A study conducted by Ji, Jia, & Trienekens, (2017) on managing the pork supply chain through a cooperative found that information and training are given to the farmers by the co-operative which include prevention and cure of diseases. They also received trainings on how to raise pig using information technologies and vaccines and veterinary services are also given at a lower cost to the farmers. They also provide concentrated feed at a low cost which is of same quality they received in a market at a higher price. There are number of issues facing China's pig business, including fragmented pig production, environmental stress, food safety problems, and swings in pig and pork prices. Jinli Cooperative offers farmers training and information on best practices in pig rearing, such as how to avoid and treat diseases. Additionally, it teaches farmers how to use information technology relevant to pig agriculture to rear pigs in a modern manner plays a significant part in establishing a lasting partnership between Jinzhong and farmers and forces both sides to dedicate themselves to the partnership in order to reap mutual benefits. Through Jinzhong logistics, they arrange and supply free transportation to the farmers in addition to providing affordable veterinary and immunisation services. They offer Jinlai pig feed at a discount, which is well-formulated and less expensive than comparable feeds available on the market.

Ji et al., (2019) conducted a study on estimating effects of cooperative membership on farmers' safe production behaviors: Evidence from pig sector in China and reported that co-operative members are more in number in engaging safe production farming compared to non- co-operative farmers. The co-operatives is an important sector that played positive and crucial part in helping the farmers to practice safe production.

(Ni et al., (2020) studies on Pig farmers' willingness to recover their production under COVID-19 pandemic shock in China observed that pig farmers who are members in the co-operative played an important role in pig production compared to non-co-operative members. Co-operatives played a crucial role in times of emergency for the farmers, the farmers suggested that the co-operatives may be strengthen to provide different services to the farmers like feed, training, prevention of disease outbreak as these services may be helpful for the farmers when facing shocks. Therefore, developing the co-operatives will bring sustainability of the pig industry.

Senthilkumar & Raja, (2021) conducted a study in Tamil Nadu on Empowerment of rural youth through pig farming and concludes that pig farming plays a vital role in enhancing the livelihoods of poor and vulnerable small-scale farmers. Primarily, pigs are reared for sale during festival seasons, as a nutritional resource for the family, and to create self-employment opportunities. Additionally, many farmers are driven by a strong passion for livestock rearing. The herds are carefully managed, receiving de-worming treatments every three months with suitable suspensions and adhering to a regular vaccination schedule. Farmers typically provide swill feed, including kitchen scraps, along with vegetarian-based feeds. Precautionary measures are implemented during disease outbreaks, and diseased carcasses are properly disposed of by deep burial with lime or salt on the farm. Some challenges persist, such as the limited availability of medications like swine fever vaccines. However, these constraints are mitigated through strategies like growing their own pasture and balancing animal sales between peak and off-peak seasons to offset losses.

Hmingthanzuala et al., (2016) study the impact of SHG on income of pig farmers in Mizoram was conducted and found that pig farming significantly contributes to the state's economy, even more than other livestock. It has become a key activity for Self-Help Groups (SHGs), providing an effective means to boost local economies. The study concludes that SHGs can adopt pig rearing as a strategy to improve financial stability for members. SHG members have seen annual income growth, with additional research indicating that SHGs support marginalized groups, especially women, by increasing income and employment opportunities, enhancing

social participation, and fostering overall empowerment (Hmingthanzuala et al., 2016).

The overview of literature shows that there are many studies related to pig farming. But there are some research gaps which we will discuss below.

Pig husbandry has been practiced by the Mizos from ancient times, even till today pigsties are found near many houses especially in villages. Many studies have been conducted in Mizoram but they concentrated more on the prevalence of diseases, management practices and constraints. We can say that there are no studies on living conditions and livelihood of the pig farmers, not only in Mizoram but also India as a whole. Some international studies briefly includes a small part of living conditions of the farmers (see (Benard & Buning, Cock, 2013), (Menghi, 2007), meanwhile there are some studies related to living conditions of the pig (see for instance (Velde et al., 2002), (Hansson & Lagerkvist, 2014). Sustainable Livelihood Framework (SLF) is rarely used to understand the vulnerability context of the pig farmers. Majority of the study in Mizoram are conducted by veterinary and agriculture department (see for instance (Pourouchottamane et al., 2012) (Mayengbam & Tolengkomba, 2014), no studies or research from the perspective of Social Work have been found.

Pig farming has great contribution for providing livelihood to the backward and rural people, there are studies related to rural livelihood and pig farming in Mizoram but there are few studies on their livelihood and living conditions. According to the statistical data of the Department of Animal Husbandry and Veterinary Services, more than half of the pig population of Mizoram is reared by/under Self-Help Groups (SHG). This practice generates income for many household and improves their livelihood. Their start up is financed by their SHG and they also can avail financial support or borrow loan, from their respective SHG, if they are faced with challenges. They are at an advantage from those that rear pigs privately or those pig farmers that are not involved with any SHG. It is also important to study the differences between these two groups and compare them.

CHAPTER III

METHODOLOGY

A well-structured methodology is essential for any research, serving as the foundation that guides the researcher in achieving their objectives, whether in educational or scientific fields. To ensure credible results, it is important to carefully select the study sample, use or develop scientifically valid tools, gather data with reliable and accurate methods, analyze the data systematically, and draw conclusions with precision. The success of the research thus largely depends on the methods and techniques chosen by the researcher. Additionally, it is necessary to establish a conceptual and operational framework that aligns with the local context. This chapter aims to fulfil these objectives.

This chapter is organized into two main sections: the study setting and the methodological framework. The first section, "Setting," provides a profile of the study area. The second section, "Methodological Aspects," covers the research design, sampling methods, data collection tools, data processing and analysis, conceptual and operational definitions, and the limitations of the study.

3.1 Field Settings: Profile of the Study Area

3.1.1 State of Mizoram

The Mizos are believed to have migrated from China, possibly from the region of Chhinlung near the Yalung River, and gradually moved through Burma to settle in India by the mid-16th century. Early Mizos known as Kukis arrived first, followed by New Kukis, with the Lushais migrating last. Their history was marked by raids and British consolidation of power, leading to the establishment of the Lushai Hills district in 1898. Autonomy was later granted in the Indian Constitution under the Sixth Schedule, though Mizo aspirations were only partially met.

Political activism grew in the mid-20th century, leading to the formation of parties advocating for Mizo rights and eventually for greater autonomy or statehood. The Mizo National Famine Front (MNFF), formed during the 1959-60 Mautam Famine, later evolved into the Mizo National Front (MNF), which sought independence but ultimately agreed to peaceful negotiations. After years of unrest, the Mizoram Accord was signed in 1986, leading to statehood on February 20, 1987.

Mizoram offers a rich cultural heritage with sites like Blue Mountain, historic memorials, caves, and relics that speak to the region's storied past, folklore, and the influence of British and Buddhist presence.

Mizoram, a mountainous region in northeastern India, became the 23rd state of the Union in February 1987. Formerly a district of Assam, it gained Union Territory status in 1972. Strategically located, Mizoram borders Myanmar to the east and south, and Bangladesh to the west, sharing a 630-mile boundary with both. The state features rugged, varied terrain with steep hills averaging 900 meters high, separated by rivers forming deep gorges. The highest peak, Phawngpui or Blue Mountain, rises to 2,210 meters.

Mizoram experiences a pleasant climate cool in summer and mild in winter with winter temperatures between 11°C and 21°C, and summer temperatures from 20°C to 29°C. Influenced by the monsoon, it receives heavy rainfall from May to September, averaging 208 cm annually in Aizawl. The winter months bring clear blue skies and vast clouds that add to the state's scenic charm. Rich in biodiversity, Mizoram boasts lush, green hills, an array of tropical plants, and diverse flora and fauna, offering stunning natural beauty across its landscapes.

Historians believe that the Mizos are part of a larger Mongolian migration wave that reached eastern and southern India centuries ago. The Mizos likely settled in western Burma around the 7th century and remained there for about two centuries. British missionaries reached the Mizos in the 19th century, greatly influencing their society, and most Mizos are now Christians. One significant impact of missionary work was the spread of education. Missionaries introduced the Roman script for the Mizo language and established formal education, leading to a high literacy rate of 95% (per National Sample Survey 1997-98), one of the highest in India.

Mizos are a distinct community, with social life centered around the village, typically located atop a hill. At the village center stood the chief's house and the Zawlbuk, or bachelor's dormitory, where young men slept and trained. This dormitory served as the village's focal point, shaping Mizo youth into responsible adults and cultivating a strong sense of community (N. I. C. Mizoram, 2024).

Over three-fourths of Mizoram's land area is covered in dense forests. These lush evergreen forests are home to valuable timber species, including champak

(*Michelia champaca*), ironwood, and gurjun (from the genus *Dipterocarpus*). The forests also support diverse wildlife, such as elephants, tigers, bears, deer, monkeys, gibbons, and serows (wild goat-like mammals). Many of these animals are protected within the state's national parks and wildlife sanctuaries (Lodrick, 2024).

Agriculture is the primary economic activity in Mizoram, involving over two-thirds of the workforce in the early 21st century. Two main agricultural methods are used: terrace farming, where crops are grown on stable, stepped terraces on hillsides to conserve water and minimize soil erosion, and shifting agriculture, known locally as *jhum*. In *jhum*, plots are cleared by burning, cultivated for a few years, then left fallow to allow natural vegetation and soil nutrients to regenerate. However, as the number of farmers grew in the 20th century, the traditional eight-year *jhum* regeneration cycle shortened, leading to decreased productivity. Key crops include rice, corn, cotton, and various vegetables (Lodrick, 2024).

Pig rearing has long been a traditional occupation ingrained in Mizo society, with nearly every household still practicing backyard pig farming today. With the right strategies and effective use of local resources, Mizoram has the potential to transform piggery into a more profitable enterprise (Sarma et al., 2017).

The Department of Animal Husbandry and Veterinary, Government of Mizoram currently maintains ten pig farms namely Regional Pig Breeding Farm, Selesih, Mega Seed Farm, Selesih, Pig Multification Farm, Thingdawl, Pig Demonstration Farm, Kolasib, Base Pig Farm, Lunglei (Lungpuizawl), Zovawk (Local Pig) Farm, Lunglei (Lungpuizawl), Pig Breeding Farm, Hnahthial, Piggery Farm, Mampui, Piggery Farm, Thenzawl and Piggery Farm, Mamit.

Initially, these farms were set up as demonstration sites, but they have since evolved into breeding centers focused on producing high-yield pig varieties for farmers. Some farms now also serve as instructional facilities for educating farmers. In alignment with the Government of India's policy to conserve indigenous breeds nearing extinction, the department has established a specialized pig farm for the conservation of the native "Mizo Vawk" breed. The goal of this farm is to produce improved piglets, supporting farmers in enhancing meat production through subsequent breeding. The breeding program initially relied on natural service methods. However, with technological advancements, artificial insemination (AI) has

been conducted since 1997 and has proven successful, similar to practices in more developed countries.

Currently, the Department has established AI centers in Aizawl, Lunglei, Kolasib, Champhai, and Serchhip. These centers provide 24-hour services based on demand. Requests for AI services can be directed to hospitals and dispensaries located in the respective district headquarters (G. of Mizoram, 2024).

Pigs are the most commonly reared livestock among the Mizo community. According to the 20th livestock census, the total pig population in Mizoram is 0.29 million, showing an increase of 19.26% compared to the previous (19th) livestock census (Lalmuansangi et al., 2007).

3.1.2 Aizawl District

Aizawl, the largest city and capital of Mizoram, India, is a picturesque destination located north of the Tropic of Cancer. Perched at an elevation of 1,132 meters (3,715 feet) above sea level, the city lies between the Tlawng River valley to the west and the Tuirial River valley to the east. Aizawl enjoys a moderate climate, with summer temperatures ranging from 20 to 30 degrees Celsius and winter temperatures from 11 to 21 degrees Celsius.

Known for its breathtaking natural beauty, Aizawl is also a hub of governmental activity, housing the State Assembly House, Civil Secretariat, and other important offices. The city is a harmonious blend of diverse Mizo communities that coexist peacefully. It offers tourists a mix of cultural richness, jungle products, and historic monuments tied to local legends and folklore. A lively and enchanting city, Aizawl is a must-visit for those seeking both natural charm and cultural depth (Lalhriatpuia, 2024).

The name "Aizawl," meaning "a field of wild cardamom," traces back to the early 19th century during the time of prominent Mizo chiefs Lalsavunga and Thanruma, who established villages near the current location of Raj Bhavan. The area became a permanent settlement and later the headquarters of Mizoram after the British set up "Fort Aijal" as a military outpost in 1890 (Mizoram Tourism, 2024).

As the state capital, Aizawl is Mizoram's political and cultural hub, housing the state government, public sector, and commercial centers. The Mizo people, predominantly Christians, have a westernized lifestyle and are known for their

warmth and hospitality. Aizawl, with its mild climate, is ideal for those seeking fresh air and a natural setting. It also offers exciting opportunities for adventure sports like paragliding from the Durtlang cliffs and river rafting on the Tlawng River (Mizoram Tourism, 2024).

In the 2011 Census, Aizawl District in Mizoram recorded a population of 400,309, with 199,270 males and 201,039 females. This marked an increase from the 2001 Census, where the population was 325,676, consisting of 166,877 males and 158,799 females. The population of Aizawl District accounted for 36.48% of the total population of Mizoram, slightly down from 36.65% in the 2001 Census. The district's population saw a growth of 22.92% compared to 2001, following a significant 38.07% increase in population between 1991 and 2001 (Population Census, 2022).

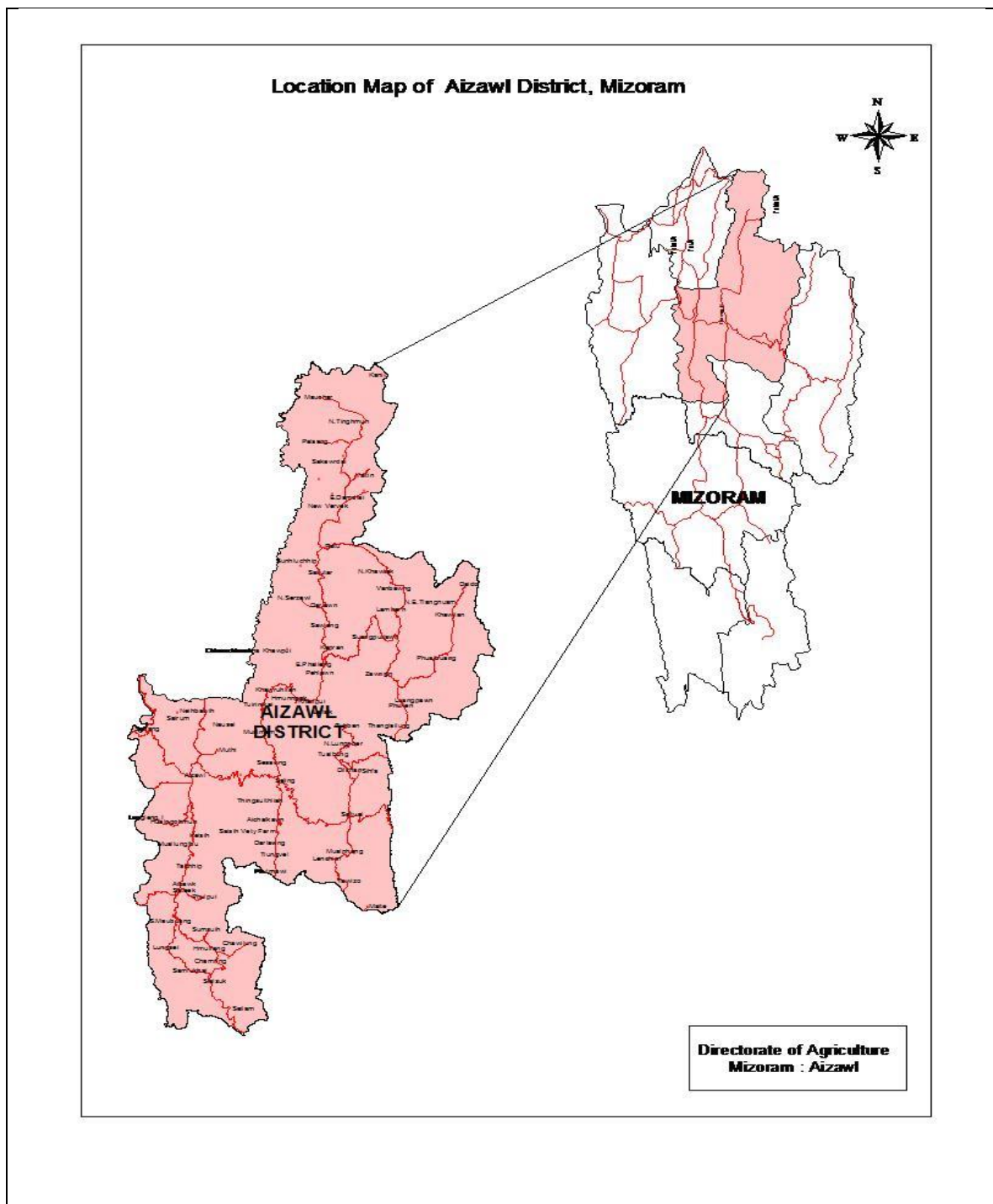


Figure 2 Map of Aizawl District

3.1.3 Kolasib District

Kolasib District, one of Mizoram's eight districts, has Kolasib town as its administrative center. Known for its scenic beauty, the district remains largely untouched by commercialization, offering a serene atmosphere throughout the year.

Kolasib town is a charming hill station with a calm, unspoiled environment. About an hour's drive from the town lies the man-made lake 'Serlui B,' which doubles as a 12 MW Small Hydel Project. Mizoram Tourism is enhancing the lake area to develop it as a water sports destination, adding to its appeal for visitors (Mizoram Tourism, 2024).

Bairabi, also in Kolasib District, is Mizoram's only rail head, completed on March 21, 2016, marking it as a significant transportation point. At the northern tip of the district, Vairengte serves as the main entry for tourists traveling by road from Assam. Kolasib is bordered by Assam to the north, Mamit District to the west, and Aizawl District to the east. Located 117 km from Aizawl, Kolasib town is well connected by road, with Pawan Hans helicopter services linking it to Aizawl for added accessibility (Mizoram Tourism, 2024).

According to the 2011 Census, Kolasib, a district in Mizoram, had a population of 83,955, with 42,918 males and 41,037 females. This marks an increase from the 2001 Census, where the population was recorded at 65,960, consisting of 34,562 males and 31,398 females. Kolasib's population represented 7.65% of the total population of Mizoram in 2011, compared to 7.42% in the 2001 Census. The population growth from 2001 to 2011 was 27.28%, and from 1991 to 2001, the district saw a significant increase of 35.25% in population (Population Census, 2022).

In the 2011 Census, Kolasib District in Mizoram reported an average literacy rate of 93.50%, which remained the same as the rate in 2001. The male literacy rate was 94.57%, while the female literacy rate was 92.38%. In comparison, the 2001 Census recorded a male literacy rate of 92.34% and a female literacy rate of 90.22%. The total number of literates in Kolasib District in 2011 was 65,895, with 34,147 males and 31,748 females. This is an increase from the 50,596 literates in the district recorded in the 2001 Census (Population Census, 2022).

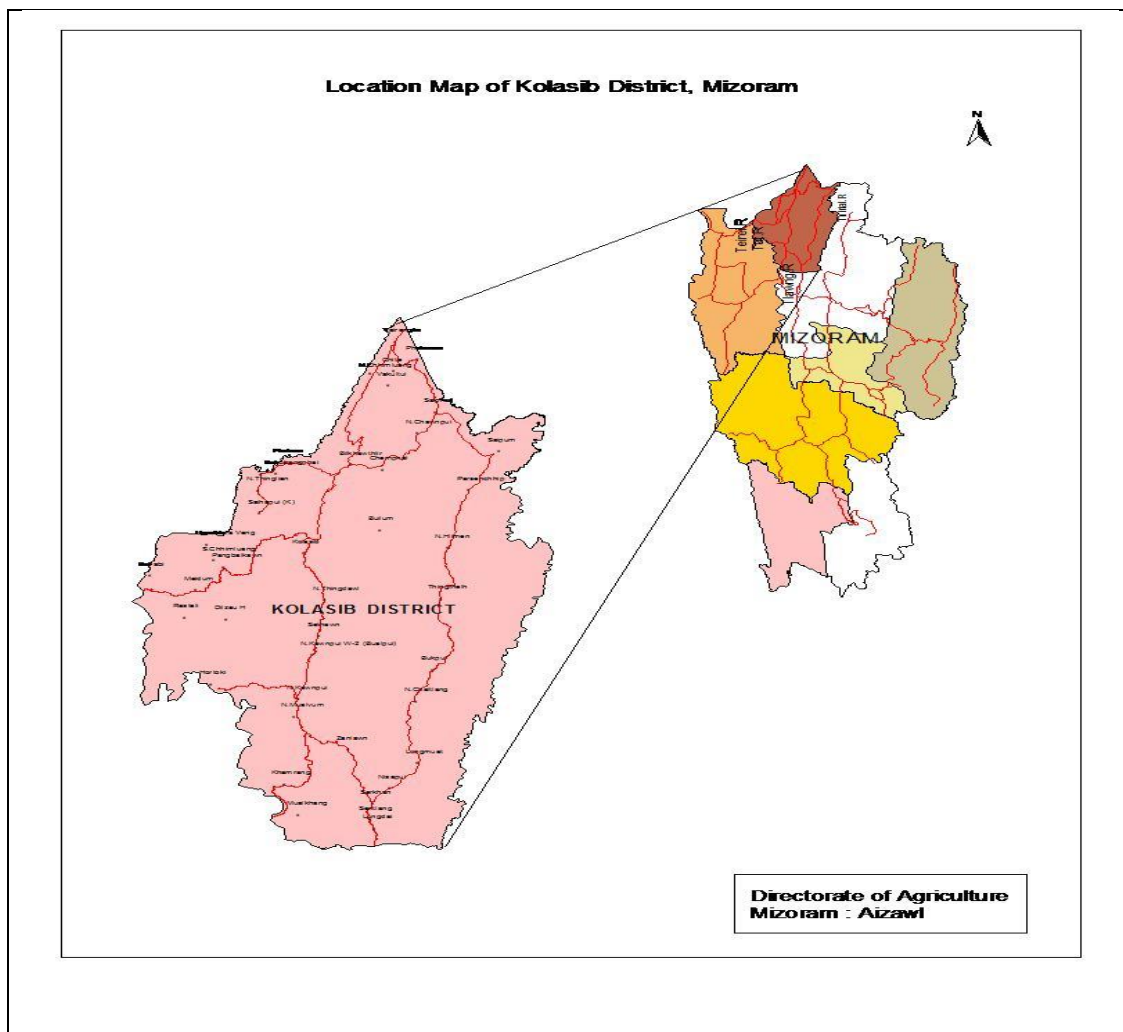


Figure 3 Map of Kolasib District

3.1.4 Profile of Sample Villages

Saihapui K

Saihapui K is a village situated in the Bilkhawthlir Block of Kolasib District, Mizoram, India. It is located 6 kilometers to the north of the district headquarters, Kolasib. It has a total population of 1,295, with 266 households. The local language spoken in the village is Mizo and the literacy rate in the village is 41.5% (Explore India, 2024).

Rengtekawn

Rengtekawn is a village located in the Bilkhawthlir Block of Kolasib District in Mizoram, India. It is situated 1 km east of the district headquarters, Kolasib, and 12 km from Bilkhawthlir, with the state capital, Aizawl, being 66 km away. Rengtekawn is bordered by Bilkhawthlir Block to the north, Katlicherra Block to the

north, Thingdawl Block to the south, and Zawlnuam Block to the west (Explore India, 2024).

North Chaltlang

N. Chaltlang is a village situated in the Thingdawl Block of Kolasib District, Mizoram, India. It is located 34 kilometers south of the district headquarters, Kolasib, and 32 kilometers from the state capital, Aizawl. The local language spoken is Mizo. The total population of the village is 1,053, with 218 houses and the literacy rate in N. Chaltlang is 77.0% (Explore India, 2024).

Lungdai

Lungdai is a village located in the Thingdawl Block of Kolasib District, Mizoram, India. It is situated 46 km south of Kolasib, 12 km from Thingdawl, and 20 km from the state capital, Aizawl (Explore India, 2024).

Sialsuk

Sialsuk is a medium-sized village located in the Aibawk Block of Aizawl District, Mizoram. According to the 2011 Census, the village has a population of 1,881, with 945 males and 936 females. The village consists of 396 families.

Sialsuk has a notably high literacy rate of 97.99%, which is above the state average of 91.33%. The male literacy rate in the village is 97.96%, while the female literacy rate is slightly higher at 98.03%.

The village is governed by a Sarpanch, an elected representative, as per the Panchayati Raj Act. However, there is no available information about the presence of schools or hospitals in the village on the website (Population Census, 2022).

Sumsuih

Sumsuih is a village located in the Aibawk Block of Aizawl District, Mizoram, India. The village is situated 35 kilometers south of the district headquarters, Aizawl, and 2 kilometers from Aibawk. It is approximately 33 kilometers from the state capital, Aizawl. The village has a total population of 744, with 161 households. The literacy rate in Sumsuih is 82.9% (Explore India, 2024).

Sihphir

Sihphir is one of the largest villages in Mizoram, situated in the Tlangnuam Block of Aizawl District. As per the 2011 census, the village has a population of 6,528 people. Sihphir is renowned for its large-scale production of squash, milk, and

vegetables. The residents of Sihphir engage in various activities for their livelihood, including agriculture, livestock farming, and labor work (Mizoram Science, 2024).

Sihphir is a village located in the Tlangnuam Block of Aizawl District, Mizoram, India. It is situated 9 kilometers north of the district headquarters, Aizawl, and 4 kilometers from Tlangnuam. The village has a total population of 6,528, with 1,349 houses. Sihphir has a literacy rate of 83.3% and the local language spoken in the village is Mizo (Explore India, 2024).

Muthi

Muthi is a village located in the Tlangnuam Block of Aizawl District, Mizoram, India. It is situated 6 kilometers to the east of the district headquarters, Aizawl, and 5 kilometers from Tlangnuam. The village is approximately 7 kilometers from the state capital, Aizawl. The total population of Muthi village is 907, with 170 houses. The literacy rate in Muthi is 82.6% and the local language spoken in Muthi is Mizo (Explore India, 2024).

3.2 Methodology

The methodology of the present study is divided into different section viz., design, sampling, tools of data collection and data processing and analysis. It also includes the ethical consideration and operational definition.

3.2.1 Research Design

The study is descriptive in design and cross sectional in nature. It is based on the primary data collected through qualitative, quantitative and participatory methods concurrently. However, it is predominantly quantitative in its methodological orientation. Qualitative and participatory data is used to understand the vulnerability context and livelihood challenges of pig farming households in the rural areas.

3.2.2 Sampling

The universe of the study is all the pig farmers and the unit of the study is pig rearing households.

A multistage random sampling method is used. In the first stage, among all the pig farming district, Aizawl and Kolasib is purposefully selected as it is the most populated pig farming districts based on the report given by Directorate of Animal Husbandry and Veterinary Services Mizoram. In the second stage, list of villages with pig farming is identified from Mizoram Pig Producers' Cooperative Federation

Limited (PIGFED) and Directorate of Animal Husbandry and Veterinary Services Mizoram, villages which is classified as near and far from district headquarter. The two most populated villages nearby and two most populated villages far from District Headquarter from both districts are selected. In the third stage, pig farmers who are far and near is randomly selected. The total sample size is 252.

3.2.3 Tools of Data Collection

Quantitative data is collected using Pretested Structured Interview Schedule. The schedule is designed with the help of Kobo Toolbox. Kobo Toolbox is a free online Open Data kit tool available for computer-aided data collection. Its Android app Kobo collect is used for data collection.

Qualitative data is collected with Key informant interviews and it is conducted with knowledgeable pig farmers and Case Studies are conducted with some farmers under Self Help Groups and Cooperative Society from near and far villages. Participatory exercises like Services and Opportunities, Resource Map, Daily Activity Schedule, and Seasonal Calendar is conducted among the pig farmers.

3.2.4 Data Processing and Analysis

Microsoft Excel and SPSS (Statistical Packages for the Social Sciences) is used for data processing and analysis. Cross-tabulation, percentages, ratios, descriptive statistics, 't' test and Karl Pearson's product moment correlation is used for data analysis.

Inclusion Criteria

Pig farming is a common livestock farming practice among the Mizos' where there are different patterns of farming and management practices. The study includes those pig farmers who have practice pig farming in the last one year.

Ethical consideration

The researcher takes consent from the respondents where cooperative members' consent is taken from their own cooperative society. Confidentiality is maintained and this study is used for research purpose only.

3.2.5 Operational Definition

Pig Farming: The raising of pigs for meat may be organized in a more or less sophisticated way, but it can always be analysed on the basis of the production cycle

and is divided into two parts: farrowing sows for the production of weaned piglets; the rearing of those piglets, as future breeding animals or as pigs for slaughtering.

Vulnerability Context: The Vulnerability Context refers to the seasonality, trends, and shocks that affect people's livelihoods. The key attribute of these factors is that they are not susceptible to control by local people themselves, at least in the short and medium term (Department for International Development (DFID)).

Livelihood: A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term (Chambers and Conway, 1992).

Livelihood Assets: The livelihood approach concerned first with the people, it tries to understand the strengths like assets or capital that people have. The Framework outlines five types of assets like human capital, social capital, natural capital, financial capital and physical capital (Department for International Development (DFID)).

Living Condition: Individual possession of resources in the form of money, goods, services, mental and physical energy, social relations, physical security etc. by means of which the individual person may control and consciously direct his/her living conditions in so far as the necessary arenas are available (Andersen, 1999).

CHAPTER IV

STRUCTURAL COMPOSITION AND PATTERNS OF PIG FARMING IN RURAL MIZORAM

The present chapter aims to provide analysis of the structural composition and pattern of pig farming in rural Mizoram. The structural compositions look into a wide-ranging analysis of the demographic and familial profile of the respondents. By groping this, the study aims to grasp the characteristics of structural bases and background of respondents. The pattern of pig farming is probed into by analyzing the nature and characteristics of pig farming in rural Mizoram. The present study will highlight the existing practices and situations among rural households in rural Mizoram.

4.1 Structural Composition of Respondents

Structural composition in the present study is probed into by studying the profile of respondents and profile of family.

4.1.1 Profile of the Respondents

Profile is the description of someone or something that gives useful information. The profile of respondent discussed in the present study elaborate socio-demographic characteristics of respondent viz., age, ethnic community, sub-tribe, religion and denomination (See table 4.1.1).

Age of respondents in the present study is classified into different age group viz., Below 30 Years, 30 to 40 Years, 40 to 50 Years, 50 to 60 Years and Above 60 Years. The age group of respondent is evenly distributed across youth and elderly. The largest group belongs to Above 60 years of age (26%) followed by 40 to 50 Years (25%), 50 to 60 Years (19%), 30 to 40 Years (16%) and Below 30 Years (14%). The near community have the same pattern where he largest group belong to Above 60 years of age (30%) followed by 40 to 50 Years (21%), 50 to 60 Years (17%), 30 to 40 Years (17%) and Below 30 Years (14%). In the meantime in the far community the largest group belongs to 40 to 50 Years (29%), followed by 50 to 60 Years (22%), Above 60 years of age (21%), 30 to 40 Years (15%) and Below 30

Years (13%). The mean age of respondents is 48 years. The mean age of the near community (49 years) is higher as compared to far community (47 years).

Gender in the study is classified as Male and Female. About half of the respondents are Female (53%) and the rest are Male (47%). Meanwhile, the pattern is different for Near and Far communities, in the near communities most of the respondents are Male (56%) and the rest are Female (40%). In contrast, in the Far communities most of the respondents are Female (60%) and the rest are Male (44%).

Ethnic Community observed in the present study is categorized into Mizo and Non- Mizo. Almost all of the respondents are Mizo (98%) and only few respondents are Non-Mizo (2%). The same pattern is observed in far and near community where majority of the respondents are Mizo (98%) and only few of them are Non-Mizo (2%). The number of Non-Mizo is higher in far community (2%) as compared to the near community (1%). In the far community majority are Mizo (98%) and few respondents are Non-Mizo (2%). Likewise in the near community almost all of the respondents are Mizo (99%) and the rest is Non-Mizo (1%).

Sub-tribe of respondents observed in the present study is classified into Lusei, Paite, Ralte, Hmar, Lai, Pawi and Non-Mizo. The largest group belongs to Lusei (53%) followed by Hmar (25%) and Ralte (11%). A few number of Pawi (8%), Non-Mizo (2%), Lai (1%) and few Paite (1%) are also observed. Likewise in the far community Lusei (42%) constitute the highest number followed by Hmar (35%), Pawi (12%) and Ralte (7%). There are few numbers of Non-Mizo (2%), Paite (2%) and Lai (1%). In the near community, the highest group belongs to Lusei (63%) followed by Hmar (15%) and Ralte (15%) which are evenly distributed, few respondents also belong to Pawi (5%), Non-Mizo (1%) and Paite (1%).

Religion of respondent observed in the present study is Christianity and all of the respondents in the far and near community are Christian (100%). Denomination in the present study is classified into different denominations viz., Baptist, Catholic, Presbyterian, Salvation Army, Seventh Day Adventist, UPC (NE), UPC (Mizoram) and others. Majority of the respondents belongs to Presbyterian (75%) followed by UPC Mizoram (9%). There are few respondents who belong to Catholic (5%),

Baptist (5%), UPC North East (3%), others (2%), Salvation Army (0.8%) and Seventh Day Adventist (0.4%). In the far community, majority belongs to Presbyterian (76%) followed by Catholic (9%), UPC NE (8%), others (3%), Salvation Army (2%) and UPC Mizoram (2%). In the near community Presbyterian (75%) is the most common denomination followed by UPC NE (10%), Baptist (8%), UPC Mizoram (5%), there is an evenly distribution of respondents who belongs to Seventh Day Adventist (1%) and Others (1%).

Table No 4.1.1 Profile of the Respondents

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Location						
	Far					120	48
	Near					132	52
2	Age						
	Below 30 Years	16	13%	19	14%	35	14
	30 to 40 Years	18	15%	23	17%	41	16
	40 to 50 Years	35	29%	28	21%	63	25
	50 to 60 Years	26	22%	22	17%	48	19
	Above 60 Years	25	21%	40	30%	65	26
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
	<i>Mean Age</i>	47	14	49	17	48	16
3	Gender	Near		Far		f	%
	Male	67	56%	52	44%	119	47
	Female	53	40%	80	60%	133	53
4	Ethnicity						
	Mizo	117	98%	131	99%	248	98
	Non-Mizo	3	2%	1	1%	4	2
5	Sub Tribe						
	Lusei	50	42%	83	63%	133	53
	Paite	2	2%	1	1%	3	1
	Ralte	8	7%	20	15%	28	11
	Hmar	42	35%	20	15%	62	25
	Lai	1	1%	1	1%	2	1
	Pawi	14	12%	6	5%	20	8
	Non-Mizo	3	2%	1	1%	4	2

6	Religion						
	Christian	120	100%	132	100%	252	100
7	Denomination						
	Baptist	1	1%	11	8%	12	5
	Catholic	11	9%	1	1%	12	5
	Presbyterian	91	76%	99	75%	190	75
	Salvation Army	2	2%	0	0%	2	0.8
	Seventh Day Adventist	0	0%	1	1%	1	0.4
	UPC (NE)	9	8%	13	10%	22	3
	UPC (Mizoram)	2	2%	6	5%	8	9
	Others	4	3%	1	1%	5	2

Source: Computed

4.1.2 Profile of Family

Family is a socially recognized group (usually joined by blood, marriage, cohabitation, or adoption) that forms an emotional connection and serves as an economic unit of society. Profile of family in the present study is studied by analyzing type of family, size of family, primary occupation of household and secondary occupation of household.

Type of family observed in the present study is classified into two viz., Joint and Nuclear family (See table 4.1.2). Majority of the respondents belong to Nuclear family (64%) while the rest belong to Joint family (36%). The same pattern is seen in both far and near communities. In far community majority belongs to nuclear family (67%) and the rest belongs to Joint family (33%). In the near community respondents belongs to Nuclear family (62%) and the rest belongs to Joint family (38%).

Size of family in the present study is classified into Small (Below 3 Members), Medium (4 to 6 Members) and Large (7 and Above Members) (See table 4.1.2). More than half of the respondents family is a Medium (4 to 6 Members) size family (56%) followed by Large (7 and Above Members) family (25%) and Small (Below 3 Members) family (18%) and the same pattern is seen in far and near communities. In far communities the largest number of respondents belongs to Medium (4 to 6 Members) size (56%) followed by Large (7 and Above Members) family (25%) and Small (Below 3 Members) family (19%). Similarly, in the near communities more than half of the respondents belongs to Medium (4 to 6 Members)

family (57%) followed by Large (7 and Above Members) family (26%), and the rest belongs to Small (Below 3 Members) family (17%). The mean size of family is 5 members and it is the same in the far and near community.

Table No 4.1.2 Family Profile of Respondents

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		F	%
1	Type of Family						
	Nuclear	80	67%	82	62%	162	64
	Joint	40	33%	50	38%	90	36
2	Size of Family						
	Small (Below 3)	23	19%	23	17%	46	18
	Medium (4 to 6 Members)	67	56%	75	57%	142	56
	Large (7 and Above Members)	30	25%	34	26%	64	25
						Mean	Std. Dev.
	<i>Mean Size of Family</i>					5	2

Source: Computed

4.1.3 Household Primary Occupation

The respondent's household primary occupation observed in the present study is categorized into Government Employee, Agricultural Labour, Business, Livestock Farming, Skilled Labour and Unskilled Labour (See table 4.1.3). Primary Occupation of respondent's households are evenly distributed and the largest group belongs to Agricultural Labour (35%) followed by Skilled Labour (19%) and Government Employee (15%). There are few households with Business (13%) and Livestock Farming (13%) as their primary occupation. Very few households declare Unskilled Labour (6%) as the primary occupation.

The same pattern is observed in the Far communities that largest number of respondents household depend on Agricultural Labour (35%) as a primary occupation followed by Skilled Labour (25%) and Government Employment (14%), Business (11%) and Livestock Farming (11%) and very few respondents have Unskilled Labour (4%). However in the near community largest number of respondents depends on Agricultural Labour (34%) as household primary occupation followed by Government Employment (15%), Livestock farming (15%), Business (14%), Skilled Labour (13%) and Unskilled Labour (8%) as the household primary occupation.

Table No 4.1.3 Household Primary Occupation

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Government Employee	17	14%	20	15%	37	15
2	Agricultural Labour	42	35%	45	34%	87	35
3	Business	13	11%	19	14%	32	13
4	Livestock Farming	13	11%	20	15%	33	13
5	Skilled Labour	30	25%	17	13%	47	19
6	Unskilled Labour	5	4%	11	8%	16	6

Source: Computed

4.1.4 Household Secondary Occupation

The household secondary occupation observed in the present study is categorized into Government Employee, Agricultural Labour, Business, Livestock Farming, Skilled Labour and Unskilled Labour (See table 4.1.4). Majority of the respondents depend on Livestock Farming (78%) as the household secondary occupation followed by Agricultural labour (8%), Unskilled Labour (4%), Government Employee (3%), Skilled Labour (3%), Business (2%) and very few respondents are without household secondary occupation (2%) which is not the same in far and near communities. In the far communities almost all the respondents depends on Livestock Farming (86%) as the household secondary occupation followed by Unskilled Labour (6%), Agricultural labour (3%), Skilled Labour (3%), Government Employee (1%), Business (1%) and few households are without secondary occupation (1%). In the Near communities' majority have Livestock Farming (71%) as the household secondary occupation which is followed by Agricultural Labour (13%) and Government Employment (5%), there is an equivalent number of respondents who has Business (3%), Skilled Labour (3%) and no secondary occupation (3%), very few respondents has Unskilled Labour (2%) as the household secondary occupation.

Table No 4.1.4 Household Secondary Occupation

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Government Employee	1	1%	6	5%	7	3
2	Agricultural Labour	3	3%	17	13%	20	8
3	Business	1	1%	4	3%	5	2
4	Livestock Farming	103	86%	94	71%	197	78
5	Skilled Labour	4	3%	4	3%	8	3
6	Unskilled Labour	7	6%	3	2%	10	4
7	None	1	1%	4	3%	5	2

Source: Computed

4.2 Pattern of pig farming

The pattern of pig farming in the present study is studied by analyzing various variables viz., Number of Pig owned, Types of Pig reared, Number of pigs reared, Purpose of pig rearing, Source of Piglets, Source of investment, Product from pig rearing, Number of pig put up for sale, Market system for product, Value of Pig Owned, Duration of rearing Pigs, Pigsty and Pig Feed used.

4.2.1 Number of Pig owned

The number of pigs currently owned in the present study is classified as Below 5 pigs, 5 to 10 Pigs, 10 to 20 Pigs and More than 20 Pigs (see table no 4.2.1). Most of the respondents owned Below 5 Pigs (66%) followed by 5 to 10 Pigs (16%) and 10 to 20 Pigs (14%), and only few respondents owned more than 20 Pigs (4%).

The same pattern is observed in the far communities, where most of the respondents owned Below 5 Pigs (78%) followed by owned 5 to 10 Pigs (14%), 10 to 20 Pigs (6%), and more than 20 Pigs (2%). In the Near communities, more than half of the respondents owned Below 5 Pigs (55%) followed by 10 to 20 Pigs (21%) and 5 to 10 Pigs (17%) and very few respondents owned More than 20 Pigs (7%).

The mean number of Pigs owned is 6 pigs, whereas the mean number of Pigs owned is higher among the near communities (6) as compared to far communities (5).

Table No 4.2.1 Number of Pig owned

Sl. No	No of Pigs Owned	Location (N=252)				N=252	
		Far		Near		Total	
		F	%	F	%	f	%
1	Below 5 pigs	94	78%	73	55%	167	66
2	5 to 10 Pigs	17	14%	23	17%	40	16
3	10 to 20 Pigs	7	6%	27	21%	34	14
4	More than 20 Pigs	2	2%	9	7%	11	4
		Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
	<i>Mean Number of Pigs Owned</i>	5	7	6	6	6	6

Source: Computed

4.2.2 Types of Pig reared

The types of pig reared observed in the present study is classified as Imported and Local Breed (See table no 4.2.2 (a)). Almost all of the respondents Never (99%) reared Imported pigs while only few respondents Always (0.8%) reared Imported pigs followed by who Sometimes (0.4%) have Imported Pigs.

Almost all the respondent always (99%) reared Local Breed and only few respondents never (1%) reared Local Breed.

Table No 4.2.2 (a) Types of Pig reared

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Imported	249	1	2
		99	0.4	0.8
2	Local Breed	1	0	251
		1	0	99

Source: Computed

The mean score indicated that Local Breed (1.9) is always reared and Imported (0.0) pigs are never reared. The same pattern is observed in the far and near communities that in far communities they always reared Local breed (2.0) and never reared imported pigs (0.0). Likewise, in the near communities Local Breed (2.0) are always reared and imported pigs (0.0) are never reared.

Table No 4.2.2 (b) Types of Pig reared (Mean Comparison)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev	Mean	Std. Dev.
1	Imported	0.0	0.2	0.0	0.2	0.0	0.1
2	Local Breed	2.0	0.0	2.0	0.2	1.9	0.1

Source: Computed

4.2.3 Value of Pigs Owned

The Value of Pig Owned (in Rupees) in the present study is categorized as Below 50000, 50000 to 100000, 1 Lakh to 2 Lakhs, 2 Lakhs to 5 Lakhs and Above 5 lakh (See table no 4.2.3).

Largest number of respondents owned Rs 50000 to 100000 (36%) value of pigs followed by Below Rs 50000 (28%), 1 Lakh to 2 Lakhs (18%) and 2 Lakhs to 5 Lakhs (14%), very few respondents owned Above 5 Lakhs (4%). In the Far communities largest number of respondents owned Below 50000 (42%) followed by 50000 to 100000 (35%) and 1 Lakh to 2 Lakhs (16%), very few respondents owned between 2 Lakhs to 5 Lakhs (7%) and Above 5 lakh (1%). In the Near communities, largest number owned a pig value of 50000 to 100000 (36%) followed by 2 Lakhs to 5 Lakhs (21%), 1 Lakh to 2 Lakhs (20%) and Below 50000 (16%) and few respondents owned Above 5 Lakhs (8%). The mean value of Pig Owned (in Rupees) is Rs 1,20,629/-, the mean value of Pig Owned (in Rupees) in the Near communities (Rs 1,33,508) is higher as compared to the far communities (Rs 1,04,889).

Table No 4.2.3 Value of pigs reared

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
1	Below 50000	50	42%	21	16%	71	28
2	50000 to 100000	42	35%	48	36%	90	36
3	1 Lakh to 2 Lakhs	19	16%	26	20%	45	18
4	2 Lakhs to 5 Lakhs	8	7%	27	21%	35	14
5	Above 5 Lakhs	1	1%	10	8%	11	4
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean value of Pig Owned (in Rupees)</i>	104889	124959	133508	142308	120629	135257

Source: Computed

4.2.4 Purpose of pig rearing

The purpose of pig rearing in the present study is categorized into Consumption, Piglet Production, Fattening for sale and Inseminator (See Table No 4.2.4 (a)). Almost all of the respondents declare that they Never (99%) reared pigs for consumption while there is only few who Sometimes (1%) reared pigs for consumption. Half of the respondents Always (50%) reared pigs for Piglet production meanwhile there are also respondents who Never (39%) reared pigs for Piglet production. A small number of respondents Sometimes (10%) reared pigs for producing piglet. Majority of the respondents Always (75%) reared fattening pigs for sale followed by those who Sometimes (17%) reared fattening pigs for sale. There are few respondents who Never (7%) reared Fattening pigs. Almost all of the respondents Never (98%) reared Inseminator pigs but only very Always (1%) reared Inseminator followed by respondents who Sometimes (0.4%) reared Inseminator pigs.

Table No 4.2.4 (a) Purpose of pig rearing

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Consumption	251	1	0
		(99)	(0.4)	(0)
2	Piglet Production	99	27	126
		(39)	(10)	(50)
3	Fattening for sale	19	43	190
		(7)	(17)	(75)
4	Inseminator	248	1	3
		(98)	(0.4)	(1)

Source: Computed

Figures in parenthesis is percentage

The mean score indicated that the purpose of pig rearing is always Fattening for Sale (0.6) and Piglet Production (0.9). Wright et al., (2010) also mentioned that in Assam and Nagaland pigs are mainly reared for fattening purpose and only little rear for breeding sows. Consumption (0.0) and Inseminator (0.0) are never the purpose for rearing pig. The same pattern is observed in Far and Near communities where in the Far communities Fattening for Sale (1.7) is always the purpose for rearing pig

and Piglet production (0.8) is sometime a reason for rearing pig, Consumption (0.0) and Inseminator (0.0) are never the purpose of rearing pig. Likewise, in Near communities Fattening for sale is always a purpose of pig rearing and Piglet production (1.4) is sometimes a purpose for rearing pig. Meanwhile, Consumption (0.0) and Inseminator (0.0) are never a purpose for rearing pig.

Table No 4.2.4 (b) Purpose of pig rearing (Mean Comparison)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Consumption	0.0	0.1	0.0	0.0	0.0	0.1
2	Piglet Production	0.8	0.9	1.4	0.9	1.1	0.9
3	Fattening for sale	1.7	0.5	1.6	0.7	1.7	0.6
4	Inseminator	0.0	0.2	0.0	0.2	0.0	0.2

Source: Computed

4.2.5 Source of Pigs

The sources of pigs observed in the present study are classified into Purchased from market, Purchased from Vety Department, Local Breed and Own Farm Production (See table no 4.2.5 (a)).

Almost all of the respondents Never (91%) Purchased pigs from market while only few respondents Always (7%) purchased from market followed by those who Sometimes (2%) purchased from market. Almost all of the respondents Never (99%) bought pigs from Vety Department but very few respondent Always (1%) purchased from Vety Department. About half of the respondents Always (51%) purchased Local Breed followed by those who Sometimes (35%) bought pigs from Local and a small number of respondents Never (15%) purchased Local Breed. Almost half of the respondents Never (46%) have their Own Farm production as a source of pigs meanwhile a good number of respondents Always (35%) have their Own Farm Production followed by those who Sometimes (21%) have Own Farm Production as a source of pigs.

Table No 4.2.5 (a) Source of Pigs

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Purchased from market	229	6	17
		(91)	(2)	(7)
2	Purchased from Vety Dept	251	0	1
		(99)	(0)	(1)
3	Local Breed	37	87	128
		(15)	(35)	(51)
4	Own Farm Production	116	54	82
		(46)	(21)	(33)

Source: Computed

Figures in parenthesis is percentage

The mean score indicated that the main sources of pigs are sometimes Local Breed (1.3) and Own Farm Production (0.8). Meanwhile, pigs are never purchased from Market (0.1) and Vety Department (0.0). This finding is similar with the finding of (M. A. Anower et al., 2017) where they mentioned that the main source of buying piglets were the local market. The same pattern is observed in the Near communities where respondents sometimes have Local Breed (1.2) and Own Farm Production (1.1) as the sources of pigs. In the far communities, Local Breed (1.5) is always the sources of pigs and they sometimes have Own farm Production (0.6). They never bought pigs from market (0.2) and Vety Department (0.0).

Table No 4.2.5 (b) Source of Pigs (Mean Comparison)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Purchased from market	0.2	0.6	0.1	0.4	0.1	0.5
2	Purchased from Vety Dept.	0.0	0.2	0.0	0.0	0.0	0.1
3	Local Breed	1.5	0.7	1.2	0.7	1.3	0.7
4	Own Farm Production	0.6	0.8	1.1	0.9	0.8	0.8

Source: Computed

4.2.6 Sources of Investment

The sources of investment for pig farming observed in the present study is classified as Self-Investment, Friends/Relatives, Loan from Cooperatives, Subsidized from Vety and Loan from Commercial Banks (See table no 4.2.6).

Self-Investment (96%) is the most common source of investment for pig farming and the rest are listed as Friends/Relatives (1%), Loan from Cooperatives (1%), Subsidy from Vety (1%) and Loan from Commercial Banks (1%). The pattern is slightly different among the near and far communities. In the Far communities the main sources of investment is Self-Investment (96%) for pig farming while very few have investment from Loan from Commercial Banks (3%) and an equivalent number of respondents who have Friends/Relatives (1%) and Subsidized from Vety (1%) as their sources of investment. However Loan from Cooperatives is missing in the far communities. The Near communities use Self-Investment (99%) as the main sources of pig farming and very few have Loan from Cooperatives (1%). Friends/Relatives, Subsidy from Vety, and Loan from Commercial Banks (0%) are missing in the far communities. This finding is in contrast with the findings of (Osagie & Osabuohien, 2021), they conducted a study in Nigeria and majority obtained their capital via institutional loans (bank, thrift, cooperative society, etc.), while a minority obtained their capital from personal savings.

Table No 4.2.6 Source of investment

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
1	Self-Investment	115	96%	131	99%	246	96
2	Friends/Relatives	1	1%	0	0%	1	1
3	Loan from Cooperatives	0	0%	1	1%	1	1
4	Subsidy from Vety	1	1%	0	0%	1	1
5	Loan from Commercial Banks	3	3%	0	0%	3	1

Source: Computed

4.2.7 Product from pig rearing

The types of product from pig farming observed in the study area are mainly in the form of Meat, Piglet and Manure (See table no 4.2.7 (a)).

Product in the form of meat is declared as Always (77%) by majority of the respondents followed by respondents who Sometimes (16%) produced Meat while few respondents declare that they Never (8%) produced Meat. Product in the form of piglet is declared as Always (52%) by more than half of the respondents and few

Sometimes (10%) produced Piglet. A significant number of respondents declare that they Never (39%) produce Piglet. Product in the form of Manure is declared as Never (86%) produced by majority of the respondents. However few respondents declare that they Always (12%) and Sometimes (2%) produced Manure. This finding is in contrast with the finding of (Chauhan, Patel, Maurya, Kumar, et al., 2016) where they mentioned that pig farming does not only provide pork itself but manure which can be used for fertilizing the crops which means that it is suitable especially for the rural people. It provides nutrition, income sources and kitchen waste into fertilizers for crops.

Table No 4.2.7 (a) Product from pig rearing

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Meat	19	40	193
		(8)	(16)	(77)
2	Piglet	98	24	130
		(39)	(10)	(52)
3	Manure	216	5	31
		(86)	(2)	(12)

Source: Computed

Figures in parenthesis are percentage

The mean score indicated that pig farmers always produced Meat (1.6) and sometimes Piglet (1.1). However they never produced Manure (0.2) (See Table no 4.2.7 (b)). The same pattern is observed in the Far and Near communities that in Far communities Meat (1.7) is always produced, sometimes Piglet (0.8) is produced and Manure (0.2) is never a product. In Near communities they always produced Meat (1.6), Piglet (1.4) is sometimes produced and they never have a product of Manure (0.4).

Table No 4.2.7 (b) Product from pig rearing (Mean Comparison)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Meat	1.7	0.5	1.6	0.7	1.6	0.6
2	Piglet	0.8	0.9	1.4	0.9	1.1	0.9
3	Manure	0.2	0.5	0.4	0.8	0.2	0.6

Source: Computed

4.2.8 Number of Pig given for sale in a year for the past five years

The average number of pig given for sale in a year for the past five years studied is the number of piglet and number of pig given for sale.

The number of piglet given for sale in a year observed in the present study is categorized as Below 10 Piglet, 10 to 50 Piglet, 50 to 100 Piglet and More than 100 Piglet (See Table No 4.2.8 (a)). The number of pig given for sale is diverse among pig farmers where the largest group belongs to farmer who produced 10 to 50 Piglet (44%) and there are very few farmers who have given more number of pig for sale viz., 50 to 100 Piglet (7%), Below 10 Piglet (3%) and More than 100 Piglet (3%). The mean number of piglet given for sale in a year is 19 piglets. However, there are significant numbers of farmers who declare that they have no Piglet Produced (43%).

Table No 4.2.8 (a) Average no of piglet given for sale in the past 5 years

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near		f	%
1	No Piglet Produced	73	61%	36	27%	109	43
2	Below 10 Piglet	4	3%	3	2%	7	3
3	10 to 50 Piglet	35	29%	76	58%	111	44
4	50 to 100 Piglet	6	5%	11	8%	17	7
5	More than 100 Piglet	2	2%	6	5%	8	3
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of piglet sale</i>	12	26	25	32	19	30

Source: Computed

The near communities have more number of piglets given for sale in a year as the mean number of piglet given for sale in a year in the near (25) communities is higher as compared to the far (12) communities. In the Far communities majority of the respondents have No Piglet produced (61%) in the mean time there are respondents who produced 10 to 50 Piglet (29%), 50 to 100 Piglet (5%), Below 10 Piglet (3%) and More than 100 Piglet (2%). In the Near communities, most of the respondents produced 10 to 50 Piglet (58%) followed by 50 to 100 Piglet (8%), More than 100 Piglet (5%) and Below 10 Piglet (2%). There are few respondents who declare that they have No Piglet produced (27%).

The number of pig given for sale in a year observed in the present study is categorized as No Pig, 1 to 5 Pigs and More than 5 Pigs (See table no 4.1.8 (b)). Majority of the respondents have given 1 to 5 Pigs (84%) for sale and very few have More than 5 Pigs (5%). Some respondents declare that they have No Pig (11%) for sale. The mean number of pig given for sale by household is only 2 pigs.

Although the number of pig sale in a year is higher in Near communities (3) as compared to Far communities (2) a same pattern is observed in both the Far and Near communities. In Far communities most of the respondents declare that they have given 1 to 5 Pigs (89%) for sale very few respondents have managed to give more than 5 Pigs (2%). Few respondents have No Pig (9%) for sale. In the Near communities, most respondents declare that they have given 1 to 5 Pigs (79%) for sale and very few respondents have More than 5 Pigs (8%). Few respondents have No Pig (13%) to sell.

Table No 4.2.8 (b) No of pig given for sale in a year (for the past 5 years)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	No Pig	11	9%	17	13%	28	11
2	1 to 5 Pigs	107	89%	104	79%	211	84
3	More than 5 Pigs	2	2%	11	8%	13	5
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of pig sale</i>	2	1	3	2	2	2

Source: Computed

4.2.9 Market system for product

The channel for selling pigs in the present study is classified into Commissioner, Meat Seller, Self and SHG/Cooperative (See table No 4.2.9 (a) & (b)). However sell product through SHG/Cooperative Society is not observed in the present study.

Commissioner as a channel for selling pigs is used by few respondents who declare that they always (3%) and sometimes (10%) use commissioner for selling pigs. However, majority of the respondents Never (77%) sell pigs through them.

Meat Seller as a channel for selling pigs is common as more than half of the respondents declare that they Always (37%) and Sometimes (22%) sell through Meat seller. However, almost half of the respondents Never (41%) sell through Meat Seller.

The pig farmers also managed to sell pigs by themselves and majority of the respondents declare that they always (64%) sell their product by themselves and some declare that they Sometimes (19%) sell their product. Only a few respondents declare that they Never (17%) sell their product by themselves.

Table No 4.2.9 (a) Market system for product

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Commissioner	194	26	32
		(77)	(10)	(13)
2	Meat Seller	104	56	92
		(41)	(22)	(37)
3	Self	43	48	161
		(17)	(19)	(64)
4	SHG/ Cooperative	252	0	0
		(100)	(0)	(0)

Source: Computed

Figures in Parenthesis are percentage

The mean score indicated that respondents sometimes sell their product through Self (1.4) and Meat seller (0.9). Commissioner (0.3) and SHG/ Cooperative (0.0) are never used for selling the pigs. The same pattern is followed in the Far communities where pigs are sometimes sold by Self (1.2) and Meat seller (1.2). Commissioner (0.1) and SHG/ Cooperative (0.0) are never used for selling the pigs. Meanwhile, in the Near communities pigs are always sell by Self (1.7) whereas Commissioner (0.6) and Meat Seller (0.7) are sometimes used for selling the pigs. The pigs are never sold through SHG/ Cooperative (0.0).

Table No 4.2.9 (b) Market system for product (Mean Comparison)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Commissioner	0.1	0.4	0.6	0.8	0.3	0.6
2	Meat Seller	1.2	0.9	0.7	0.8	0.9	0.8
3	Self	1.2	0.8	1.7	0.7	1.4	0.7
4	SHG/ Cooperative	0.0	0.0	0.0	0.0	0.0	0.0

Source: Computed

4.2.10 Value of Pig Owned

Pigs owned in the present study are mainly classified as pig producer, piglet and Fattening Pig. The value of pigs in the present study is estimated by the owner based on the current price range.

4.2.10 (a) Value of pig producer

The value of Pig Producer in the present study is categorized into three viz., Below 50000 and 50000 to 70000 (See Table No 4.2.10 (a)). Almost half of the respondents who have Pig Producer declare that the value is estimated between 50000 to 70000 (43%) and small number of respondents owned Below 50000 (13%). However the largest group of respondents does Not Owned (45%) Pig Producer.

The same pattern is observed in the Far communities that almost half of the respondents did Not Owned (48%) Pig Producer which is followed by 50000 to 70000 (42%) and few respondents owned Below 50000 (10%). A slight difference is found in the Near communities that largest number of respondents owned Pig Producer that have value between 50000 to 70000 (43%) followed by respondents who claim that Pig producer is Not Owned (42%) and small number of respondents owned Below 50000 (15%).

Table No 4.2.10 (a) Value of Pig Producer

Sl. No	Particular	N=252					
		Location				Total	
		Far		Near			
		f	%	f	%	f	%
1	Not Owned	58	48%	55	42%	113	45%
2	Below 50000	12	10%	20	15%	32	13%
3	50000 to 70000	50	42%	57	43%	107	43%

Source: Computed

4.2.10 (b) Value of Piglet

The value of Piglet in the present study is categorized as 6000 to 7000 and Above 7000 (See Table No 4.2.10 (b)). Half of the respondents declare that value of their Piglet is between 6000 to 7000 (50%), and very few respondents declare that their Piglet value is Above 7000 (5%). However almost half of the respondents claim that they do not owned Piglet (45%).

The same pattern is observed in the Near communities where more than half of the respondents owned Piglet that value between 6000 to 7000 (55%), followed by respondents who claim that Piglet is Not Produced (42%) and very few respondents said that their Piglet value is Above 7000 (3%). A minor difference is found in the Far communities that almost half of the respondents claim that Piglet is Not Produced (48%) followed by those who have Piglet that value between 6000 to 7000 (44%) and few respondents have Above 7000 (8%).

Table No 4.2.10 (b) Value of Piglet

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Not Produced	58	48%	55	42%	113	45%
2	6000 to 7000	53	44%	73	55%	126	50%
3	Above 7000	9	8%	4	3%	13	5%

Source: Computed

4.2.10 (c) Value of Fattening Pigs

The value of fattening Pig in the present study is presented in rupee which is categorized as Below 30000, 30000 to 35000 and Above 35000 (See Table No 4.2.10 (c)).

The value of Fattening pig owned by majority of the respondents is between 30,000 to 35,000 (69%), followed by Above 35000 (12%), and Below 30000 (8%). However there are some respondents who declare that they do not produce (12%) fattening pigs. The pattern is not the same in the near and far communities.

In Far communities majority of the respondents owned Fattening Pig valued as 30000 to 35000 (75%) followed by Above 35000 (11%), Below 30000 (5%) and few respondents declare Not Produced (9%). Whereas in the Near communities, majority of the respondents declare that value of Fattening Pig is 30000 to 35000 (64%), followed by Above 35000 (12%) and Below 30000 (10%). A small number of respondents declare Not Produced (14%).

Table No 4.2.10 (c) Value of Fattening Pig

Sl. No	Value of one Fattening Pig	Location (N=252)			Total		
		Far		Near	f	%	
1	Not Produced	11	9%	18	14%	29	12%
2	Below 30000	6	5%	13	10%	19	8%
3	30000 to 35000	90	75%	85	64%	175	69%
4	Above 35000	13	11%	16	12%	29	12%

Source: Computed

4.2.11 Duration of Rearing Pigs

Depending on the goal of the upbringing, raising pigs takes varying amounts of time; some require several months to reach production capacity, while others require more time. The duration of rearing pigs like inseminator, piglet producer and fattening pigs are discussed.

4.2.11 (a) Duration of rearing Inseminator

The duration of rearing pig inseminator observed in the present study is Above 12 Months and Not Owned (See Table no 4.2.11 (a)).

Only few respondents reared inseminator and the duration is Above 12 Months (5%) where majority of the respondents declare Pig Inseminator as Not Owned (95%). The same pattern is observed in the Far and Near communities, in the Far communities almost all of them did Not Owned (98%) pig inseminator and very few respondents reared for Above 12 Months (2%). Likewise in the Near communities, most of them claim that Pig Inseminator is Not Owned (93%) and few respondents reared for Above 12 Months (7%). The mean duration of rearing Pig Inseminator is 48 Months.

Table No 4.2.11 (a) Duration of rearing Inseminator Pigs

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Not Owned	117	98%	123	93%	240	95
2	Above 12 Months	3	2%	9	7%	12	5
						Mean	Std Dev
	<i>Mean duration of rearing pig inseminator</i>					48	0

Source: Computed

4.2.11 (b) Duration of rearing Slaughter Pig

The duration of rearing Slaughter Pig observed in the present study is categorized as Below 6 Months, 6 to 12 Months and Above 12 Months (See Table No 4.2.11 (b)).

Majority of the respondents reared slaughter pig for 6 to 12 Months (87%), and very few respondents reared for Below 6 Months (2%) and Above 12 Months (1%). In the mean time some respondents claim that slaughter pig is Not Owned (10%). The same pattern is observed in both the far and near communities. In the Far communities most of the respondents reared slaughter pig for 6 to 12 Months (86%), few respondents reared Below 6 Months (3%), Above 12 Months (3%) and few declare Not Owned (8%). In the Near communities most of the respondents reared slaughter pig for 6 to 12 Months (87%) and small number of respondents claim that slaughter pig is Not Owned (12%) and very few respondents reared Below 6 Months (1%). The mean duration of rearing slaughter pig is 8 Months.

Table No Table No 4.2.11 (b) Duration of rearing slaughter Pigs

Sl. No	Particulars	Location				N=252	
		Far		Near		Total	
1	Not Owned	10	8%	16	12%	26	10
2	Below 6 Months	4	3%	1	1%	5	2
3	6 to 12 Months	103	86%	115	87%	218	87
4	Above 12 Months	3	3%	0	0%	3	1
						Mean	Std. Dev.
	<i>Mean duration of rearing slaughter pigs (Months)</i>					8	3.5

Source: Computed

4.2.11 (c) Duration of rearing Piglet Producer

The duration of rearing Piglet Producer in the present study is classified as Above 12 Months and the rest are Not Owned (See Table No 4.2.11 (c)).

More than half of the respondents reared Piglet Producer for Above 12 Months (60%) and the rest claim that Piglet producer is Not Owned (40%). The same pattern is observed in the Near communities that majority of the respondents reared Piglet Producer for Above 12 Months (78%) and the rest claim that Piglet producer is Not Owned (28%). A slight difference is found in the Far communities as more than half of the respondents claim that Piglet Producer is Not Owned (53%) and the rest reared Piglet Producer for Above 12 Months (47%). The mean duration of rearing Piglet producer is 28 Months.

Table No 4.2.11 (c) Duration of rearing piglet producer

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Not Owned	64	53%	37	28%	101	40
2	Above 12 Months	56	47%	95	72%	151	60
						Mean	Std. Dev.
	<i>Mean duration of rearing piglet producer (months)</i>					28	24

Source Computed

4.2.12 Pig Sty

Pig sty is a small-scale outdoor enclosure used for the livestock rearing of domestic pigs. The number of pig sty, type, area, number of block, sources of materials for pig sty, frequency of cleaning pig sty, ways of cleaning and number of pigs in a block are discussed.

4.2.12 (a) Number of pig sty

The number of pigsty observed in the present study is classified as One Pig Sty, Two Pig Sty, Three Pig Sty and 4 and Above Pig Sty (See Table No 4.2.12 (a)).

Majority of the respondents have One Pig Sty (64%) followed by Two Pig Sty (23%), few respondents owned Three Pig Sty (9%) and 4 and Above Pig Sty (4%). The same pattern is observed in the Far and Near communities, in the Far communities most of the respondents owned One Pig Sty (77%) followed by Two Pig Sty (17%), there are very few respondents that owned Three Pig Sty (5%) and 4 and Above Pig Sty (2%). Likewise in the Near communities, more than half owned One Pig Sty (53%) followed by Two Pig Sty (30%), there are small number of respondents that owned Three Pig Sty (12%) and 4 and Above Pig Sty (5%). The mean number of pigsty is 2 and the number of pigsty in the Near communities (2) is higher as compared to Far communities (1).

Table No 4.2.12 (a) Number of Pig Sty

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
1	One Pig Sty	92	77%	70	53%	162	64%
2	Two Pig Sty	20	17%	39	30%	59	23%
3	Three Pig Sty	6	5%	16	12%	22	9%
4	4 and Above Pig Sty	2	2%	7	5%	9	4%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean number of pigsty	1	1.0	2	1.5	2	1.3

Source: Computed

4.2.12 (b) Type of Pigsty

The type of Pigsty observed in the present study is classified as Wood, Semi Concrete and Concrete (See Table No 4.2.12 (b)).

Majority of the respondents have Pig Sty made of Wood (80%) followed by small number of respondents having Semi Concrete (17%) and very few respondents owned Concrete (3%). The same pattern is observed in the far and Near communities, in the Far communities most of the respondents have Wood (85%) followed by Semi Concrete (13%) and concrete (2%). In the Near communities majority of the respondents has Wood (77%) which is followed by Semi Concrete (21%) and Concrete (5%). This finding is similar with the findings of (Molotsi et al., 2021) where he mentioned that the most popular materials pens were constructed using wood.

Table No 4.2.12 (b) Type of Pig Sty

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Wood	102	85%	101	77%	203	80
2	Concrete	2	2%	6	5%	8	3
3	Semi Concrete	16	13%	28	21%	44	17

Source: Computed

4.2.12 (c) Area of pigsty

The area of pigsty observed in the present study is categorized as Less than 50sq ft, 50 to 100 sq ft, 100 to 150 sq ft, 150 to 200sq ft and Above 200sq ft (See Table No 4.2.12 (c)).

More than half of the respondents have 50 to 100 sq ft (56%) of pigsty followed by 100 to 150sq ft (20%) and Less than 50sq ft (10%), only few respondents owned Above 200sq ft (7%) and 150 to 200sq ft (6%). In the Far communities, most of the respondents owned 50 to 100 sq ft (59%) area of pigsty followed by an equivalent number of Less than 50 sq ft (16%) and 100 to 150 sq ft (16%), very few respondents owned pigsty area of 150 to 200 sq ft (8%) and Above

200 sq ft (2%). In the Near communities half of the respondents owned 50 to 100sq ft (53%) which is followed by 100 to 150sq ft (24%) and Above 200sq ft (12%), there is an equivalent number of respondents having pigsty area of Less than 50sq ft (5%) and 150 to 200 sq ft (5%).

The mean area of pigsty is 109 Sq. ft the Near (124 Sq. ft) communities have a larger area of pig sty as compared to the Far (93 Sq. ft) communities.

Table No 4.2.12 (c) Area of Pig Sty

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
1	Less than 50sq ft	19	16%	7	5%	26	10
2	50 to 100sq ft	71	59%	70	53%	141	56
3	100 to 150sq ft	19	16%	32	24%	51	20
4	150 to 200sq ft	9	8%	7	5%	16	6
5	Above 200sq ft	2	2%	16	12%	18	7
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean Area of pigsty (Sq ft)</i>	93	69	124	121	109	101

Source: Computed

4.2.12 (d) Number of block

The number of Blocks in Pigsty observed in the present study is categorized as Below 5 Block, 5 to 10 Block and Above 10 Block (See Table No 4.2.12 (d)).

Majority of the respondents owned pig sty with number of blocks Below 5 Block (80%) and few respondents owned pig sty with 5 to 10 Blocks (18%) and Above 10 Block (2%). The same pattern is observed in the Far and Near communities, in the Far communities majority have Below 5 Block (87%) and small number of respondents have 5 to 10 Blocks (11%) and Above 10 Block (2%). In the Near communities most of the respondents have Below 5 Block (74%) and small number of respondents has 5 to 10 Blocks (24%) and Above 10 Block (2%). The mean number of Blocks in one pigsty is 3, the Near communities (3 Blocks) have pig sty with more number of Blocks as compared to Far communities (2 Blocks).

Table No 4.2.12 (d) Number of Blocks

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	Below 5 Block	104	87%	98	74%	202	80
2	5 to 10 Blocks	13	11%	31	24%	44	18
3	Above 10 Blocks	3	2%	3	2%	6	2
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of Blocks</i>	2	2.3	3	2.7	3	2.5

Source: Computed

4.2.12 (e) Source of material of Pig Sty

The sources of materials for pigsty observed in the present study is classified into Forest, Purchased by self, Supplied by Government and Supplied by Cooperative/SHG (See Table No 4.2.12 (e)).

Forest as a source of material declared is Never (90%) by majority of the respondents while some few respondents Sometimes (9%) collect material from Forest. Only very few respondents Always (2%) use Forest as a sources of materials for pigsty. Almost all of the respondents Always (98%) purchased materials for Pig sty by themselves which is followed by respondents who Never (2%) purchased and Sometimes (1%) materials purchased by self for pigsty. Materials supplied by government as a source of material for construction of pig sty is declared by majority all of the respondents as Never (98%) and only few respondents declare it as Always (1%) and Sometimes (1%). Cooperative/SHG never supply materials for building pigsty.

Table No 4.2.12 (e) Sources of materials for pigsty

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Forest	226	22	4
		90	9	2
2	Purchased by self	2	1	249
		1	1	98
3	Supplied by Government	248	2	2
		98	1	1

4	Supplied by Cooperative/SHG	252		0		0	
		100		0		0	
Sl. No	Particular	Location				N=252 Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Forest	0.2	0.5	0.1	0.2	0.1	0.4
2	Purchased by self	2.0	0.1	2.0	0.2	2.0	0.2
3	Supplied by Government	0.0	0.1	0.0	0.3	0.0	0.2
4	Supplied by Cooperative/SHG	0.0	0.0	0.0	0.0	0.0	0

Source: Computed

The mean score indicated that Purchasing by self (2.0) is always the sources of material for pigsty. The other sources listed such as Forest (0.1), Supplied by Government (0.0) and Supplied by Cooperative/SHG (0.0) are never used for sources of materials for pigsty. The same pattern is observed in the Near and far communities that in the Far communities Purchasing by self (2.0) is always a sources of materials for pigsty and the other sources like Forest (0.2), Supplied by Government (0.0) and Supplied by Cooperative/SHG (0.0) are never used for sources of materials for pigsty. In the near communities, Purchasing by self (2.0) is always used for sources of materials for pigsty and the rest such as Forest (0.1), Supplied by Government (0.0) and Supplied by Cooperative/SHG (0.0) are never a sources of materials for pigsty.

4.2.12 (f) Frequency of cleaning pig sty

The frequency of cleaning pigsty observed in the present study is categorized as Below 5 Times in a week, 5 to 10 Times in a week and More than 10 Times in a week (See Table No 4.2.12 (f)).

Majority of the respondents clean their pig sty More than 10 Times in a week (65%) followed by 5 to 10 Times in a week (24%) and Below 5 Times in a week (11%). The same pattern is observed in the Far and Near communities, in the Far communities most of the respondents clean More than 10 Times in a week (63%) followed by 5 to 10 Times in a week (23%) and Below 5 Times in a week (15%). Likewise in the Near communities, most of the respondents clean pigsty More than 10 Times in a week (67%) which is followed by cleaning pigsty 5 to 10 Times in a week (26%) and very few respondents clean pigsty Below 5 Times in a week (7%).

The mean score indicated that the respondents in the present study clean their Pigsty 11 times in a week which is the same with Near communities (11 times in a week) and the frequency of cleaning pigsty in Far communities (10 times) is slightly lesser as compared to Near communities.

Table No Table No 4.2.12 (f) Frequency of cleaning pigsty

Sl. No	Particular	Location				Total	
		Far		Near		f	%
1	Below 5 Times in a week	18	15%	9	7%	27	11
2	5 to 10 Times in a week	27	23%	34	26%	61	24
3	More than 10 Times in a week	75	63%	89	67%	164	65
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean frequency of Pigsty Cleaning</i>	10	4.6	11	4.0	11	4

Source: Computed

4.2.12 (g) Ways of cleaning

The ways of cleaning pigsty observed in the present study is classified into Washing with water and Sticks and Broom (See Table No 4.2.12 (g)).

Washing with water as a ways of cleaning pig sty is declared by majority of respondents as sometimes (83%) followed by who Always (16%) and very few respondents declared as Never (1%) wash with water. Cleaning pig sty with Sticks and Broom is declared by majority of the respondents as always (68%) followed by sometimes (24%) and few respondents never (9%) used Sticks and Broom to clean pigsty.

The mean score indicated that Sticks and broom (1.6) are always used for cleaning pigsty and they sometimes Wash with water (1.1). The same pattern is observed in the Near and Far communities where in the Far communities Sticks and Broom are always used and sometimes they practiced washing with water ((1.3). Likewise in the Near communities, using Sticks and Broom (1.5) is always practiced and sometimes they practiced Washing with water (1.3).

Table No 4.2.12 (g) Ways of Cleaning

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Washing with water	3	209	40			
		1	83	16			
2	Sticks and Broom	22	60	170			
		9	24	68			
Sl. No	Particular	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Washing with water	1.3	0.5	1.0	0.3	1.1	0.4
2	Sticks and Broom	1.5	0.8	1.7	0.5	1.6	0.6

Source: Computed

4.2.13 Number of Pig per block

Depending on the kind of pig raised, the number of pig in a block may vary. The number of pigs in one block, including inseminators, piglet producers, and fattening pigs, is discussed.

4.2.13 (a) Number of inseminator in one block

The number of Inseminator pigs in one block in the present study is classified as one inseminator and more than one inseminator (See Table No 4.2.13 (a)).

Almost all of the respondents declare that they have No Inseminator Pig (95%) and very few respondents put One Inseminator (4%) and More than One Inseminator (1%) in one block. The same pattern is observed in the Near communities where almost all of the respondents have No Inseminator (93%) and very few respondents placed One Inseminator (5%) and More than One Inseminator (2%) in one block. Meanwhile in far communities, almost all of the respondents have No Inseminator (98%) and few respondents kept One Inseminator (2%) in one block and none of them placed More than One Inseminator (0%) in one block.

Table No 4.2.13 (a) Number of Inseminator pigs in one block

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		f	%
1	No Inseminator	117	98%	123	93%	240	95
2	One Inseminator	3	2%	7	5%	10	4
3	More than One Inseminator	0	0%	2	2%	2	1

Source: Computed

4.2.13 (b) Number of Fattening Pig in one block

The number of Fattening Pig in one block in the present study is categorized as One Fattening Pig and More than 1 Fattening Pigs (See Table No 4.2.13 (b)).

Majority of the respondents placed One Fattening Pig (61%) in one block followed by More than 1 Fattening Pigs (26%), and few respondents have No Fattening Pigs (14%). The same pattern is observed in the far and Near communities that in the Far communities most of them kept One Fattening Pig (62%) in one block followed by More than 1 Fattening Pigs (25%) and few respondents have No Fattening Pigs (13%). In the Near communities also most of them kept One Fattening Pig (60%) in one block which is followed by More than 1 Fattening Pigs (27%) and few respondents have No Fattening Pigs (14%). The mean number of fattening pigs in one block is 1.2 which is the same with the far (1.2) and Near communities (1.2).

Table No 4.2.13 (b) Number of Fattening pigs in one block

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
1	Not Owned	16	13%	18	14%	34	14
2	One Fattening Pig	74	62%	79	60%	153	61
3	More than 1 Fattening Pigs	30	25%	35	27%	65	26
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of Fattening pigs in one Block</i>	1.2	0.7	1.2	0.8	1.2	0.8

Source: Computed

4.2.13 (c) Number of piglet producer in one block

The number of Piglet Producer Pig in one block in the present study is classified as One Piglet Producer, More than One Piglet Producer (See Table No 4.2.13 (c)).

More than half of the respondents placed One Piglet Producer (55%) in one block and very few respondents placed More than One Piglet Producer (2%) in one block. Almost half of the respondents have No Piglet Producer (43%). The same pattern is observed in the Near communities that most respondents kept One Piglet Producer (67%) in one block followed by respondents who have No Piglet Producer (29%) and very few respondents placed More than One Piglet Producer (5%) in one block. A slight difference is found in Far communities as most of the respondents have No Piglet Producer (58%) followed by One Piglet Producer (43%). The mean number of Piglet Producer in one block is 0.6, the number of Piglet Producer in one block in Near communities (0.6) is higher compared to Far communities (0.4).

Table No 4.2.12 (j) Number of Piglet Producers in one block

Sl. No	Particular	Location				Total	
		Far		Near		f	%
1	No Piglet Producer	69	58%	38	29%	107	43
2	One Piglet Producer	51	43%	88	67%	139	55
3	More than One Piglet Producer	0	0%	6	5%	6	2
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of Piglet Producer</i>	0.4	0.5	0.8	0.6	0.6	0.6

Source: Computed

4.2.14 Food and Feeding

Pigs are often fed with different types of food depending on the caretaker. The present study discusses the types of food, nature of feeding, frequency of feeding, source of fodder and feed, source of water, transportation used for collecting feed and fodder.

4.2.14 (a) Types of Food

The type of food given to pigs observed in the present study is classified into Pig Feed, Rice, Vegetables, Leaves, Wheat Bran and Kitchen Waste.

Pig feed is declared as always (65%) and Sometimes (23%) given to pigs. Some respondents declare that they Never (23%) use Pig feed. Rice is declared as always (94%) by almost all the respondents and very few respondents Sometimes (1%) given to pigs. A small number of respondents never (5%) provide rice. Vegetables is declared as always (38%) and Sometimes (28%) given to pigs. Meanwhile, there are also respondents who Never (38%) feed vegetables. Leave is declared as always (48%) by almost half of the respondents and few declare it as sometimes (28%). However there are few respondents who never (23%) use leaves for feed. Wheat Bran is always (18%) and Sometimes (9%) used by few respondents in the mean time majority of the respondents never (74%) feed Wheat Bran. Kitchen waste is always (57%) used by more than half of the respondents and some respondents declare that they sometimes (18%) use kitchen waste. Few respondents never (25%) use it for feeding pigs.

The mean score indicated that Rice (1.9) is always fed to pigs. Pig Feed (1.4), Vegetables (1.0), Leaves (1.3) and Kitchen Waste (1.3) are sometimes given to pigs while Wheat Bran (0.4) are never fed. The same pattern is observed in the Far communities as Rice (2.0) is always fed to pigs, Pig Feed (1.2), Vegetables (1.0), Leaves (1.2) and Kitchen Waste (1.4) are sometimes given to pigs while Wheat Bran (0.4) are never fed. A slight difference is observed in the Near communities where Rice (2.0) and Pig Feed (1.6) is always fed to pigs, Vegetables (1.0), Leaves (1.3) and Kitchen Waste (1.2) are sometimes given to pigs while pigs are never fed Wheat Bran (0.2).

Table No 4.2.14 (a) Types of Food

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Pig Feed	57	31	164			
		(23)	(12)	(65)			
2	Rice	13	1	238			
		(5)	(1)	(94)			
3	Vegetables	90	71	91			
		(36)	(28)	(36)			
4	Leaves	59	71	122			
		(23)	(28)	(48)			
5	Wheat Bran	186	22	44			
		(74)	(9)	(18)			
6	Kitchen Waste	64	45	143			
		(25)	(18)	(57)			
		Location				Total	
Sl. No	Particular	Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Pig Feed	1.2	0.9	1.6	0.7	1.4	0.8
2	Rice	2.0	0.3	1.8	0.6	1.9	0.4
3	Vegetables	1.0	0.9	1.0	0.8	1.0	0.8
4	Leaves	1.2	0.9	1.3	0.7	1.3	0.8
5	Wheat Bran	0.7	0.9	0.2	0.5	0.4	0.8
6	Kitchen Waste	1.4	0.8	1.2	0.9	1.3	0.9

Source: Computed

Figures in parenthesis are percentage

4.2.14 (b) Nature of feeding

The nature of feeding observed in the present study is categorized into Wet and Dry (See Table No 4.2.14 (b)).

Wet feeding is always (96%) and sometimes (1%) practiced by almost all of the respondents. There are only few respondents that never (4%) feed Wet feed. Dry feed is given by few respondents who always (4%) and sometimes (1%) practiced Dry feeding. Majority of the respondents never (96%) practiced dry feeding. The mean score indicated that Wet feeding (1.9) is always practiced and Dry feeding (0.1) is never practiced. The same pattern is observed in the Far and Near

communities where in the Far communities the nature of feeding is always Wet (2.0) and Dry feeding (0.0) is never used. In the near communities also Wet feeding (1.9) is always used and they never practice Dry feeding (0.1).

Table No 4.2.14 (b) Nature of feeding

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Wet	10	1	241			
		4	0.4	96			
2	Dry	241	1	10			
		96	0.4	4			
Sl. No	Particular	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Wet	2.0	0.3	1.9	0.5	1.9	0.4
2	Dry	0.0	0.3	0.1	0.5	0.1	0.4

Source: Computed

4.2.14 (c) Frequency of feeding

The frequency of feeding pigs observed in the present study is classified into four viz., Twice, Thrice and More than thrice (See Table No 4.2.14 (c)).

All of the respondents always (100%) feed their pigs Twice a day and few sometimes (1%) feed their pigs thrice a day. The mean score indicated that feeding Twice a day (2.0) is always practiced and the rest which are listed like Thrice (0.0) and More than Thrice (0.0) are never practiced. The same pattern is observed in the far and Near communities, Far communities always feed Twice (2.0) a day and they never practice feeding Once (0.0), Thrice (0.0) and More than Thrice (0.0). In the Near communities they always practiced feeding Twice a day (2.0) and they never practice feeding Once (0.0), Thrice (0.0) and More than Thrice (0.0).

Table No 4.2.14 (c) Frequency of Feeding

Sl. No	Particular	Never	Sometimes	Always			
1	Twice	0	0	252			
		(0)	(0)	(100)			
2	Thrice	249	3	0			
		(99)	(1)	(0)			
3	More than Thrice	252	0	0			
		(100)	(0)	(0)			
Sl. No	Particular	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Twice	2.0	0.0	2.0	0.0	2.0	0.0
2	Thrice	0.0	0.2	0.0	0.0	0.0	0.1
3	More than Thrice	0.0	0.0	0.0	0.0	0.0	0.0

Source: Computed

4.2.14 (d) Source of Pig feed

The sources of pig feed in the present study are categorized into Market, Cooperative Society and Vety Department.

Market as a source of feed is declared as always (77%) by majority of the respondents and few declare Sometimes (2%). Some respondents declare that they never (21%) bought pig feed from Market. All of the respondents declare that they never bought pig feed from Cooperative Society and Vety Department. The mean score indicated that Market (1.6) is always used as a source of Pig Feed and the other sources like Cooperative Society (0.0) and Vety department (0.0) are never used for sources of Pig Feed. The same pattern is observed in the Near communities that Market (1.8) is always a source of Pig feed and they never make use of Cooperative Society (0.0) and Vety department (0.0) for collecting pig feed. Whereas in the Near communities, Market (1.3) is sometimes used for a source of pig feed and Cooperative Society (0.0) and Vety department (0.0) are never used for source of pig feed.

Table No 4.2.14 (d) Sources of Pig Feed

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Market	54	4	194			
		21	2	77			
2	Cooperative Society	252	0	0			
		100	0	0			
3	Vety Department	252	0	0			
		100	0	0			
Sl. No	Particular	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Market	1.3	0.9	1.8	0.7	1.6	0.8
2	Cooperative Society	0.0	0.0	0.0	0.0	0.0	0.0
3	Vety Department	0.0	0.0	0.0	0.0	0.0	0.0

Source: Computed

4.2.14 (e) Source of Fodder

The source of fodder in the present study is categorized as Forest, Kitchen Waste, Vegetable Waste from Market and Own Garden (See Table No 4.2.14 (e)).

Forest as a source of fodder is declared as always (46%) used by almost half of the respondents and the same amount of respondents sometimes (40%) collect fodder from Forest. Few respondents declare that they never (14%) use forest as a source of fodder. Kitchen Waste as a source of fodder is declared as always (53%) by half of the respondents and some declare that they sometimes (23%) use kitchen waste. One fourth of the respondents never (23%) used Kitchen Waste as fodder. Vegetable Waste from Market is never (98%) used as fodder by most of respondents. Only few respondents sometimes (2%) collect Vegetable Waste from Market for fodder. Fodder is collected from their own garden by majority of the respondents who declare that they sometimes (53%) and always (18%) collect fodder from their own garden. One third of the respondents declare that they never (29%) collect from their Own Garden.

The mean score indicated that Forest (1.3), Kitchen Waste (1.3) and Own Garden (0.9) are sometimes used for sources of fodder and collecting Vegetable Waste from Market (0.0) is never a source of fodder. The same pattern is observed in the Far and Near communities, in the Far communities they sometimes have Forest

(1.2), Kitchen Waste (1.4) and Own Garden (0.8) for sources of fodder and they never collect Vegetable Waste from Market (0.0) is never a source of fodder. In the Near communities, they sometimes collect fodder from Forest (1.4), Kitchen Waste (1.2) and Own Garden (1.0) and Vegetable Waste from Market (0.0) is never a source of fodder.

Table No 4.2.14 (e) Sources of Fodder

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Forest	35	100	117			
		14	40	46			
2	Kitchen Waste	59	59	134			
		23	23	53			
3	Vegetable Waste from Market	248	4	0			
		98	2	0			
4	Own Garden	74	133	45			
		29	53	18			
Sl. No	Particular	Location					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Forest	1.2	0.8	1.4	0.7	1.3	0.7
2	Kitchen Waste	1.4	0.8	1.2	0.8	1.3	0.8
3	Vegetable Waste from Market	0.0	0.0	0.0	0.2	0.0	0.1
4	Own Garden	0.8	0.7	1.0	0.6	0.9	0.7

Source: Computed

4.2.14 (f) Source of water

The source of water observed in the present study is classified into Groundwater, Rain water harvesting, Waterhole/ Spring well, Water Connection and Purchase of Water (See Table No 4.2.14 (f)).

Groundwater as a source of water for pig farming is declared as never (89%) by majority of the respondents. Only few respondents have accessed Groundwater who declare that they sometimes (6%) and always (5%) take water from Groundwater. Rain water harvesting as a source of water is declared as sometimes (67%) by majority of the respondents and some always (15%) depend on rain water. Only few respondents declare that they never (18%) depend on rain water harvesting.

Waterhole/Spring Well as a source of water is declared as never (89%) by majority of the respondents. Only few respondents used Waterhole/Spring well for sources of water who declare that they sometimes (6%) and always (5%) used for pig farming. Water Connection as a source of water is declared as always (75%) by majority of the respondents and few respondents also declare they sometimes (8%) get water from water connection. However there are some respondents who never (17%) depend on water connection. Majority of the respondents Never (81%) Purchase Water while few respondents Always (12%) need to Purchase Water followed by who Sometimes (8%) Purchase Water for pig farming.

The mean score indicated that Water Connection (1.6) is always used as sources of water and Rain water harvesting (1.0) is sometimes a source of water. The other sources listed such as Groundwater (0.2), Waterhole/ Spring well (0.2) and Purchase of Water (0.3) are never used. The same pattern is observed in the Near communities where Water connection (1.7) is always used as source of water and Rain water harvesting (0.9) is sometimes used for water sources. Groundwater (0.3), Waterhole/ Spring well (0.2) and Purchase of Water (0.1) are never a sources of water. Whereas in the Far communities Water connection (1.5) is always a source of water and Rain water harvesting (1.0) and Purchase of Water (0.5) are sometimes used for water sources. Groundwater (0.0), Waterhole/ Spring well (0.1) are never a sources of water.

Table No 4.2.14 (f) Sources of Water

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Groundwater	225	15	12
		(89)	(6)	(5)
2	Rain water harvesting	46	168	38
		(18)	(67)	(15)
3	Waterhole/ Spring well	225	15	12
		(89)	(6)	(5)
4	Water Connection	42	20	190
		(17)	(8)	(75)
5	Purchase of Water	204	19	29
		(81)	(8)	(12)

Sl. No	Particular	Location					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Groundwater	0.0	0.3	0.3	0.6	0.2	0.5
2	Rain water harvesting	1.0	0.6	0.9	0.5	1.0	0.6
3	Waterhole/ Spring well	0.1	0.3	0.2	0.6	0.2	0.5
4	Water Connection	1.5	0.9	1.7	0.6	1.6	0.8
5	Purchase of Water	0.5	0.8	0.1	0.4	0.3	0.7

Source: Computed

4.2.14 (g) Nature of transportation of Fodder

The transportation used for collecting fodder observed in the present study is categorized into Head Load, Owned vehicle, Hired vehicle and Public transport (See Table No 4.2.14 (g)).

For transportation of fodder majority of the respondents always (83%) depend on Head Load and few respondents sometimes (8%) collect fodder on head load. Very few respondents never (8%) used Head Load for collecting fodder. Own Vehicle is used for transportation by few respondents who declare that they always (6%) and sometimes (27%) use it for transportation. However majority of the respondents never (67%) used their own vehicle for collecting fodder. Hired Vehicle is never (99%) used for transportation of fodder by almost all of the respondents. However very few respondents sometimes (1%) used hired vehicle for collecting fodder. Public Transport is never (98%) used for transportation of fodder by almost all of the respondents for collecting fodder while there is only few respondents who Sometimes (1%) and Always (1%) used Public Transport for collecting fodder.

The mean score indicated that Manual (1.8) is always used for collecting fodder and the other type of transportation listed such as Owned vehicle (0.4), Hired vehicle (0.0) and Public transport (0.0) are never used for collecting fodder. The same pattern is observed in the Far communities as manual (1.8) is always used for collecting fodder and Owned vehicle (0.4), Hired vehicle (0.0) and Public transport (0.0) are never used for collecting fodder. Meanwhile, in the Near communities, Manual (1.7) is always used for collecting fodder and Owned vehicle (0.5) is sometimes used for collecting fodder. Hired vehicle (0.0) and Public transport (0.0) are never used for collecting fodder.

Table No 4.2.14 (g) Nature of transportation of Fodder

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Head Load	21	21	210			
		(8)	(8)	(83)			
2	Owned vehicle	169	67	16			
		(67)	(27)	(6)			
3	Hired vehicle	251	1	0			
		(99)	(1)	(0)			
4	Public transport	248	1	3			
		(98)	(1)	(1)			
Sl. No	Particular	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Head Load	1.8	0.6	1.7	0.6	1.8	0.6
2	Owned vehicle	0.3	0.6	0.5	0.6	0.4	0.6
3	Hired vehicle	0.0	0.1	0.0	0.0	0.0	0.1
4	Public transport	0.0	0.2	0.0	0.2	0.0	0.2

Source Computed

4.2.14 (h) Nature of transportation of Dry Feed

The transportation used for collecting dry feed in the present study is categorized into Head Load, Owned vehicle, Hired vehicle and Public transport (See Table No 4.2.14 (h)).

For transportation of dry feed very few respondents depends on head load for transportation of dry feed who declare that they always (8%) and sometimes (7%) use it to transport dry feed. However majority of the respondents never (86%) depend on Head Load for transportation of dry feed. Own Vehicle is used for transportation by few respondents who declare that they always (39%) and sometimes (10%) use it for transportation of dry feed. In the mean time half of the respondents never (52%) use own vehicle for transportation of dry feed. Hired Vehicle for collecting dry feed is used by few respondents who declare that they sometimes (8%) and always (5%) used hired vehicle for collecting dry feed. However, majority of the respondents never (87%) used Hired Vehicle for collecting

dry feed. Majority of the respondents never (70%) used Public Transport for collecting dry feed. There are only few respondents who sometimes (18%) used and always (12%) used Public Transport for collecting dry feed.

The mean score indicated that Owned Vehicle (0.9) is sometimes used for collecting dry feed and the other type of transportation listed like Manual (0.2), Hired vehicle (0.2) and Public transport (0.4) are never used for collecting dry feed. The same pattern is observed in the Far and Near communities, in the Far communities Owned vehicle (0.6) is sometimes used for collecting dry feed and Manual (0.3), Hired vehicle (0.1) and Public transport (0.4) are never used for collecting dry feed. In the Near communities they sometimes used Owned Vehicle (1.1) for carrying dry feed and they never used Manual (0.2), Hired vehicle (0.2) and Public transport (0.4) are never used for collecting dry feed.

Table No 4.2.14 (h) Transportation for collecting dry feed

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Manual	216	17	19			
		(86)	(7)	(8)			
2	Owned vehicle	130	24	98			
		(52)	(10)	(39)			
3	Hired vehicle	220	20	12			
		(87)	(8)	(5)			
4	Public transport	177	44	31			
		(70)	(18)	(12)			
Sl. No	Particular	Location					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Manual	0.3	0.7	0.2	0.5	0.2	0.6
2	Owned vehicle	0.6	0.9	1.1	1.0	0.9	0.9
3	Hired vehicle	0.1	0.4	0.2	0.5	0.2	0.5
4	Public transport	0.4	0.7	0.4	0.7	0.4	0.7

Source: Computed

CHAPTER V

LIVELIHOOD AND LIVING CONDITIONS OF PIG FARMERS

This chapter aims to provide a comprehensive analysis of the livelihood and living conditions of Pig Farmers in Mizoram.

According to Chambers and Conway (1992:7-8) “A livelihood is made up of the activities, stores, resources, claims, and capabilities needed to support oneself. It is also sustainable because it can withstand shocks and strain, maintain or improve its assets and capabilities, and create opportunities for future generations to live sustainably. The present study employs Sustainable livelihood framework (SLF) to understand livelihood opportunities of pig farmers and study how livelihood assets are improved while addressing vulnerability such as shock, trend and seasonality.

Living condition of Pig farmers are characterized by household Income and expenditures. By providing a comprehensive analysis of these factors, this chapter aims to provide valuable insights into the lives of Pig farmers and certain characteristics that impact the wellbeing of pig farmers.

5.1 Livelihood Assets

The livelihood assets studied are Physical capital, Financial capital, Social capital, Natural capital and Human capital.

5.1.1 Physical Capital

Physical capital is essential as a basic building block for reducing poverty among the impoverished. It consists of necessary elements like manufacturing tools and infrastructure that meet their needs for a living. The Physical Capital owned by pig farmers is assessed by probing the household assets, type of pig sty, number of pig sty and area of pig sty.

5.1.1 (a) Household Assets Owned

Household assets owned by the pig farmer are explored as physical capital. The assets owned by pig farmers is classified as Land for housing, House, Livestock (Pig, Cow, Poultry, etc), House/Buildings, Household Furniture, Television, Refrigerator, Cell Phone, Washing Machine, Computers/Laptop, Two Wheeler, Four Wheeler, Inverter, Bank Saving, Insurance and Pigsty (See Table 5.1.1(a).

Livestock (Pig, Cow, Poultry, etc) (100%), Bank Saving (100%) and Pigsty (100%) is owned by all of the respondents, almost all of the respondents owned Household Furniture (98%), Cell Phone (98%), House (96%), Land for housing (95%) and Refrigerator (93%). Most of the respondents owned Television (83%) and Washing Machine (60%). Less than half of the respondents owned assets like Two Wheeler (48%), Four Wheeler (30%), a small number of respondents owned Inverter (28%), Computers/Laptop (11%), Insurance (10%) and Buildings (3%).

Table No 5.1.1 (a) Household Assets Owned

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Land for housing	112	93	129	98	241	95
2	House	115	96	129	98	244	96
3	Livestock (Pig, Cow, Poultry, etc)	120	100	132	100	252	100
4	Buildings	3	3	6	5	9	3
5	Household Furniture	119	99	128	97	247	98
6	Television	94	78	117	89	211	83
7	Refrigerator	110	92	125	95	235	93
8	Cell Phone	119	99	130	99	249	98
9	Washing Machine	71	59	81	61	152	60
10	Computers/Laptop	16	13	13	10	29	11
11	Two Wheeler	57	48	65	49	122	48
12	Four Wheeler	39	33	38	29	77	30
13	Inverter	32	27	40	30	72	28
14	Bank Saving	120	100	132	100	252	100
15	Insurance	16	13	10	8	26	10
16	Pigsty	120	100	132	100	252	100

Source: Computed

The same pattern is observed in the Far communities that all of the respondents owned assets like Livestock (Pig, Cow, Poultry, etc) (100%), Bank Saving (100%) and Pigsty (100%). Almost all of the respondents also owned Household Furniture (99%), Cell Phone (99%), House (96%), Land for housing (93%) and Refrigerator (92%), most of the respondents owned Television (78%) and Washing Machine (59%), a small number of respondents owned assets like Two Wheeler (48%), Four Wheeler (33%) and Inverter (27%), very few respondents owned Computers/Laptop

(13%), Insurance (10%) and House/Buildings (3%). In the Near communities all of the respondents owned Livestock (Pig, Cow, Poultry, etc) (100%), Bank Saving (100%) and Pigsty (100%). Assets such as Cell Phone (99%), Land for housing (98%), House (98%), Household Furniture (97%) and Refrigerator (95%) are owned by almost all of the respondents, most of the respondents owned Television (89%) and Washing Machine (61%). Less than half owned assets like Two Wheeler (49%), Inverter (30%), and Four Wheeler (29%). Very few respondents owned Computers/Laptop (10%), Insurance (8%) and House/Buildings (5%).

5.1.1 (b) Value of Assets Owned (Mean Comparison)

Apart from studying the asset owned, the value of assets owned is also analysed. The value of assets owned by the respondents is measured by assumption made by the respondents themselves. The mean score indicate that the highest value of assets owned is House (3598730) followed by Four Wheeler (673056), Bank Saving (203929), Land for housing (198552), Livestock (Pig, Cow, Poultry, etc) (149562), Refrigerator (19266), Television (14694), Household Furniture (72345), Pigsty (58889), Two Wheeler (50651), Cell Phone (43667), House/Buildings (40278), Washing Machine (10607), Computers/Laptop (4544), Inverter (2946) and Insurance (2892) (See Table 5.1.1(b)).

Table No 5.1.1 (b) Value of Assets Owned (Mean Comparison)

Sl. No	Assets Owned	Location				N=252	
		Far		Near		Values in Rupees	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Land for housing	184708	359646	211136	267287	198552	314300
2	House	3236500	2089241	3928030	3686872	3598730	3046892
3	Livestock (Pig, Cow, Poultry, etc)	99126	114249	195414	199565	149562	171161
4	House/Buildings	25000	156780	54167	327029	40278	260161
5	Household Furniture	71150	44623	73432	53948	72345	49642
6	Television	12908	9752	16318	11138	14694	10618
7	Refrigerator	18708	16079	19773	11867	19266	14012
8	Cell Phone	43508	26559	43811	21964	43667	24212
9	Washing Machine	10425	11365	10773	12961	10607	12204
10	Computers/Laptop	5458	15160	3712	11502	4544	13371
11	Two Wheeler	48525	63578	52583	77057	50651	70849
12	Four Wheeler	353167	974447	963864	4672556	673056	3455196
13	Inverter	2467	4593	3381	6462	2946	5657

14	Bank Saving	193542	166840	213371	153021	203929	159738
15	Insurance	3281	19390	2538	15669	2892	17508
16	Pigsty	48633	90721	68212	60501	58889	76866

Source: Computed

In the Far communities the highest value of assets owned is House (3236500) followed by Four Wheeler (353167), Bank Saving (193542), Land for housing (184708), Livestock (Pig, Cow, Poultry, etc) (99126), Household Furniture (71150), Pigsty (48633), Two Wheeler (48525), Cell Phone (43508), House/Buildings (25000), Refrigerator (18708), Television (12908), Washing Machine (10425), Computers/Laptop (5458), Insurance (3281) and Inverter (2467). In the Near communities the highest value of assets owned is House (3928030) followed by Four Wheeler (963864), Bank Saving (213371), Land for housing (211136), Livestock (Pig, Cow, Poultry, etc) (195414), Household Furniture (73432), Pigsty (68212), House/Buildings (54167), Two Wheeler (52583), Cell Phone (43811), Refrigerator (19773), Television (16318), Washing Machine (10773), Computers/Laptop (3712), Inverter (3381) and Insurance (2538).

5.1.1 (c) Type of Pigsty

The type of Pigsty observed in the present study is classified as Wood, Semi Concrete and Concrete (See Table No 5.1.1 (c)).

Majority of the respondents have Pig Sty made of Wood (80%) followed by small number of respondents having Semi Concrete (17%) and very few respondents owned Concrete (3%). The same pattern is observed in the far and Near communities, in the Far communities most of the respondents have Wood (85%) followed by Semi Concrete (13%) and concrete (2%). In the Near communities majority of the respondents has Wood (77%) which is followed by Semi Concrete (21%) and Concrete (5%).

Table No 5.1.1 (c) Type of Pig Sty

Sl. No	Particular	Location (N=252)				Total	
		Far		Near		F	%
1	Wood	102	85%	101	77%	203	80
2	Concrete	2	2%	6	5%	8	3
3	Semi Concrete	16	13%	28	21%	44	17

Source: Computed

5.1.1 (d) Number of pig sty

The number of pigsty observed in the present study is classified as One Pig Sty, Two Pig Sty, Three Pig Sty and 4 and Above Pig Sty (See Table No 5.1.1 (d)).

Majority of the respondents have One Pig Sty (64%) followed by Two Pig Sty (23%), few respondents owned Three Pig Sty (9%) and 4 and Above Pig Sty (4%). The same pattern is observed in the Far and Near communities, in the Far communities most of the respondents owned One Pig Sty (77%) followed by Two Pig Sty (17%), there are very few respondents that owned Three Pig Sty (5%) and 4 and Above Pig Sty (2%). Likewise in the Near communities, more than half owned One Pig Sty (53%) followed by Two Pig Sty (30%), there are small number of respondents that owned Three Pig Sty (12%) and 4 and Above Pig Sty (5%). The mean number of pigsty is 2 and the number of pigsty in the Near communities (2) is higher as compared to Far communities (1).

Table No 5.1.1 (d) Number of Pig Sty

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
1	One Pig Sty	92	77%	70	53%	162	64%
2	Two Pig Sty	20	17%	39	30%	59	23%
3	Three Pig Sty	6	5%	16	12%	22	9%
4	4 and Above Pig Sty	2	2%	7	5%	9	4%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean number of pigsty	1	1.0	2	1.5	2	1.3

Source: Computed

5.1.1 (e) Area of pigsty

The area of pigsty observed in the present study is categorized as Less than 50sq ft, 50 to 100 sq ft, 100 to 150 sq ft, 150 to 200sq ft and Above 200sq ft (See Table No 5.1.1 (e)).

More than half of the respondents have 50 to 100 sq ft (56%) of pigsty followed by 100 to 150sq ft (20%) and Less than 50sq ft (10%), only few respondents owned Above 200sq ft (7%) and 150 to 200sq ft (6%). In the Far

communities, most of the respondents owned 50 to 100 sq ft (59%) area of pigsty followed by an equivalent number of Less than 50 sq ft (16%) and 100 to 150 sq ft (16%), very few respondents owned pigsty area of 150 to 200 sq ft (8%) and Above 200 sq ft (2%). In the Near communities half of the respondents owned 50 to 100sq ft (53%) which is followed by 100 to 150sq ft (24%) and Above 200sq ft (12%), there is an equivalent number of respondents having pigsty area of Less than 50sq ft (5%) and 150 to 200 sq ft (5%).

The mean area of pigsty is 109 Sq. ft the Near (124 Sq. ft) communities have a larger area of pig sty as compared to the Far (93 Sq. ft) communities.

Table No 5.1.1 (e) Area of pigsty

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
1	Less than 50sq ft	19	16%	7	5%	26	10
2	50 to 100sq ft	71	59%	70	53%	141	56
3	100 to 150sq ft	19	16%	32	24%	51	20
4	150 to 200sq ft	9	8%	7	5%	16	6
5	Above 200sq ft	2	2%	16	12%	18	7
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean Area of pigsty (Sq ft)</i>	93	69	124	121	109	101

Source: Computed

5.1.2 Financial Capital

The term "financial capital" refers to the resources that people utilise to meet their goals for their way of life. One of the most crucial aspects of financial capital is the availability of cash or its equivalent, which allows people to employ a variety of livelihood choices. In the present study financial capital includes Household Saving, Per Capita Saving, Nature of saving from pig rearing, Value of Bank Saving,

5.1.2 (a) Household Saving

The Household Saving observed in the present study is classified as 25000 to 50000, 50000 to 1 Lakh, 1 Lakhs to 2 Lakhs, 2 Lakhs to 3 Lakhs and Above 3 Lakhs (See table 5.2.2).

Largest number of respondents has Household Saving of 1 Lakhs to 2 Lakhs (41) followed by an equivalent number of respondents having household saving of 50000 to 1 Lakh (21) and 2 Lakhs to 3 Lakhs (21), few respondents has Above 3 Lakhs (13) and 25000 to 50000 (4). A slight difference is observed in the Far and Near communities. In the Far communities largest number of respondents has Household Saving of 1 Lakhs to 2 Lakhs (38) followed by 50000 to 1 Lakh (27), 2 Lakhs to 3 Lakhs (17), Above 3 Lakhs (14) and few respondents has 25000 to 50000 (94). In the Near communities highest number of respondents has Household Saving of 1 Lakhs to 2 Lakhs (42) followed by 2 Lakhs to 3 Lakhs (25), 50000 to 1 Lakh (17) and Above 3 Lakhs (13) and very few respondents has 25000 to 50000 (3).

The mean household Saving is 206820, the household saving is higher in the Near communities (215909) compared to Far communities (196822).

Table No 5.1.2 (a) Household Saving

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	25000 to 50000	5	4	4	3	9	4
2	50000 to 1 Lakh	32	27	22	17	54	21
3	1 Lakhs to 2 Lakhs	46	38	56	42	102	41
4	2 Lakhs to 3 Lakhs	20	17	33	25	53	21
5	Above 3 Lakhs	17	14	17	13	34	13
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean Household Saving</i>	196822	173206	215909	155399	206820	164068

Source: Computed

5.1.2 (b) Per Capita Saving

The Per Capita Saving observed in the present study is classified as Below 20000, 20000 to 50000, 50000 to 1 lakh and Above 1 Lakh (See Table No 5.1.2 (b)).

Almost half of the respondents have per capita saving of 20000 to 50000 (44%) followed by 50000 to 1 lakh (31%), Below 20000 (19%) and small number of respondents have Above 1 Lakh (6%). The same pattern is observed in the Far and

Near communities where in Far communities largest number of respondents have per capita saving of 20000 to 50000 (37%) followed by 50000 to 1 lakh (33%), Below 20000 (27%) and very few respondents have Above 1 Lakh (2%). In the Near communities also, almost half of the respondents have per capita saving of 20000 to 50000 (49%) followed by 50000 to 1 lakh (29%), Below 20000 (13%) and few respondents have Above 1 Lakh (8%).

The mean Per Capita Saving is 43202, the per capita saving is higher in Near communities (45438) as compared to Far communities (40743).

Table No. 5.1.2 (b) Per Capita Saving

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near			
		F	%	f	%	F	%
1	Below 20000	32	27%	17	13%	49	19%
2	20000 to 50000	45	37%	65	49%	110	44%
3	50000 to 1 lakh	40	33%	39	29%	79	31%
4	Above 1 Lakh	3	2%	11	8%	14	6%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean Per Capita Saving	40743	33539	45438	33735	43202	33657

Source: Computed

5.1.2 (c) Nature of saving from pig rearing

The ways of saving from pig farming observed in the present study is classified into Cash in hand, Bank, Cooperative Society and Post Office (See Table 5.1.2 (b)).

Most of the respondents Never (87) save by Cash in Hand followed by those that Sometimes (13) save in Hand, none of the respondents Always (0) save by Cash in Hand. Half of the respondents Never (51) used Bank to save money while almost half of the respondents Always (44) used Bank for saving money and very few respondents Sometimes (5) save money in the Bank. However, savings in Cooperative Society and Post Office is not observed in the present study.

The mean score indicated that Bank (0.9) is sometimes used for savings and the other ways for savings listed like Cash in Hand (0.1), Cooperative Society (0.0)

and Post Office (0.0) are never used for savings. The same pattern is observed in the Far and Near communities, in the Far communities Bank (0.7) is sometimes used for savings while savings in Cash in Hand (0.1), Cooperative Society (0.0) and Post Office (0.0) are never observed. In the Near communities, savings is sometimes made in Bank (1.1) and Cash in Hand (0.2), Cooperative Society (0.0) and Post Office (0.0) are never used for savings.

Table No 5.1.2 (c) Nature of saving from pig rearing

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Cash in Hand	218	34	0			
		(87)	(13)	(0)			
2	Bank	129	13	110			
		(51)	(5)	(44)			
3	Cooperative Society	252	0	0			
		(100)	(0)	(0)			
4	Post office	252	0	0			
		(100)	(0)	(0)			
Sl. No	Particular	Location (N=252)					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Cash in Hand	0.1	0.3	0.2	0.4	0.1	0.3
2	Bank	0.7	1.0	1.1	1.0	0.9	1.0
3	Cooperative Society	0.0	0.0	0.0	0.0	0.0	0.0
4	Post office	0.0	0.0	0.0	0.0	0.0	0.0

Source: Computed

Figures in parenthesis are percentages

5.1.2 (d) Value of Bank Saving

The Value of Bank Saving observed in the present study is classified as 50000 & below, 50000 to 1 lakh, 1 lakh to 5 lakh and 5 Lakh & Above (See Table No 5.1.2 (c)).

Most of the respondents have 1 lakh to 5 lakh (80%) value of Bank Saving followed by 50000 to 1 lakh (13%), there is an equivalent number of respondents who have 50000 & below (4%) and 5 Lakh & Above (4%).

The same pattern is observed in the Far and Near communities where in Far communities majority has 1 lakh to 5 lakh (73%) value of Bank Saving followed by 50000 to 1 lakh (18%) and an equivalent number of respondents who have 50000 & below (5%) and 5 Lakh & Above (5%). In the Near communities also almost all of them has 1 lakh to 5 lakh (73%) value of Bank Saving followed by small number of respondents having 50000 to 1 lakh (18%) and an equivalent number of respondents who have 50000 & below (5%) and 5 Lakh & Above (5%).

The mean value of Bank Saving is 203929, the value of Bank Saving is higher in Near communities (213371) as compared to Far communities (193542).

Table No. 5.1.2 (d) Value of Bank Saving

Sl. N o	Particulars	Location (N=252)				Total	
		Far		Near			
		f	%	f	%	f	%
1	50000 & below	5	4%	4	3%	9	4%
2	50000 to 1 lakh	22	18%	10	8%	32	13%
3	1 lakh to 5 lakh	88	73%	114	86%	202	80%
4	5 Lakh & Above	5	4%	4	3%	9	4%
	Mean Value of Bank Saving	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
		193542	166840	213371	153021	203929	159738

Source: Computed

5.1.2 (e) Value of Insurance

The value of Insurance observed in the present study is classified as Not Owned, Below 5000, 5000 to 30000 and Above 30000 (See Table 5.1.2 (e)).

Almost all of the respondents claim that Insurance is Not Owned (90) while very few respondents have Insurance value of Below 5000 (6) and there is an equivalent number of respondents having 5000 to 30000 (2) and Above 30000 (2). A slight difference is observed in the Far and Near communities. In the Far communities most of them said that Insurance is not Owned (87) and very few respondents have Insurance value of Below 5000 (8), 5000 to 30000 (3) and Above 30000 (2). In the Near communities also almost all of them claim that insurance is

Not owned (93) and there is an equivalent number of respondents having Below 5000 (3) and Above 30000 (3) which is followed by 5000 to 30000 (2).

The mean value of Insurance is 2891, the value of Insurance is higher in Far communities (3280) as compared to Near communities (2537).

Table No 5.1.2 (e) Value of Insurance

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Not Owned	104	87	123	93	227	90
2	Below 5000	9	8	4	3	13	6
3	5000 to 30000	4	3	2	2	6	2
4	Above 30000	3	2	3	3	6	2
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean value of Insurance</i>	3280	19390	2537	15669	2891	17508

Source: Computed

5.1.3 Social Capital

Social capital encapsulates the notion that social relationships and norms constitute a critical component of the foundation for sustainable livelihoods. It is an important characteristic of a community and is one of the components of the asset pentagon of the sustainable livelihood framework. In the present study social capital includes Source of knowledge and Information, Source of Training, Government Support, membership in Cooperative Society and SHG.

5.1.3 (a) Membership in Cooperative Society

The membership in Cooperative society in the present study is classified as Member and Non-Member (See Table 5.1.3 (a)).

Almost all of the respondents are Non- Member (93%) and very few respondents are Member (7%). The same pattern is observed in the Far and Near communities that in the Far communities almost all of them are Non-Member (97%) and very few respondents are Member (3%). In the Near communities most of them are Non-Member (89%) and few respondents are Member (11%). The membership in Cooperative society is higher in the Near communities.

Table No 5.1.3 (a) Membership in Cooperative Society

Sl. No	Particulars	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Member	4	3	14	11	18	7
2	Non-Member	116	97	118	89	234	93

Source: Computed

5.1.3 (b) Duration of Membership in Cooperative Society

The duration of membership in Cooperative society in the present study is categorized as Non-Member, Below 5 Years and More than 5 Years Members (See Table 5.1.3 (b)).

Almost all of the respondents are Non-Member (93%), very few respondents are members for More than 5 Years (5%) followed by those who are members for Below 5 Years (2%). The same pattern is observed in the Far and Near communities, in the Far communities almost all of them are Non-Member (97%) followed by members who have More than 5 Years Membership (3%) and Below 5 Years Membership (1%). In the Near communities also most of them are Non-Member (89%) followed by respondents who are members for More than 5 Years (7%) and Below 5 Years (2%). The overall mean duration of membership in Cooperative Society is 0.5, the mean duration of membership in the Far communities is 0.1 and in the Near communities 0.8.

Table No 5.1.3 (b) Duration of Membership

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Non-Member	116	97	118	89	234	93
2	Below 5 Years	1	1	5	4	6	2
3	More than 5 Years Members	3	3	9	7	12	5
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean duration of membership</i>	0.1	0.8	0.8	2.6	0.5	2.0

Source: Computed

5.1.3 (c) Membership in SHGs

The membership in SHG in the present study is classified as Non-Member and Member (See Table 5.1.3 (c)).

Most of the respondents are Non-Member (73%) while the rest are Member of SHG (27%). The same pattern is observed in the Far and Near communities that in Far communities more than half of the respondents are Non-Member (64%) and the rest are Member in SHG (36%). In the Near communities, majority of the respondents are Non-Member (80%) and small numbers of respondents are Member (20%).

Table No 5.1.3 (c) Membership in SHG

Sl. No	Particulars	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Non-Member	77	64	106	80	183	73
2	Member	43	36	26	20	69	27

Source: Computed

5.1.3 (d) Duration of Membership in SHGs

The duration of membership in SHG observed in the present study is categorized as Not SHG Member, Below 5 Years Membership, 5 to 10 Years Membership and More than 10 Years Membership (See Table 5.1.3 (d)).

Most respondents are Non-Member (73), small number of respondents have 5 to 10 Years Membership (16) followed by Below 5 Years Membership (9) and very few respondents have More than 10 Years Membership (2). The same pattern is observed in both the Far and Near communities, in the far communities most of the respondents are Not SHG Member (64) followed by respondents who have 5 to 10 Years Membership (23) followed by Below 5 Years Membership (12) and More than 10 Years Membership (2). In the Near communities, majority are Not SHG Member (80), few respondents have 5 to 10 Years Membership (11) followed by Below 5 Years Membership (6) and More than 10 Years Membership (3).

The mean duration of membership in SHG is 2 Years, duration of membership in SHG is higher in Far communities (2 Years) compared to Near communities (1 Year).

Table No 5.1.3 (d) Duration of Membership in SHG

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Not SHG Member	77	64	106	80	183	73
2	Below 5 Years Membership	14	12	8	6	22	9
3	5 to 10 Years Membership	27	23	14	11	41	16
4	More than 10 Years Membership	2	2	4	3	6	2
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean duration of membership</i>	2	3	1	3	2	3

Source: Computed

5.1.3 (e) Source of Training

The source of training observed in the present study is classified as Government, Cooperative, SHG, NGO, Private and None (See Table 5.1.3 (e)).

Most of the respondents claim that they have None (74) of the training sources while small number of respondents have Government (21) followed by SHG (6) and an equivalent number of Cooperative (1) and NGO (1), none of the respondents have Private (0) as sources of training. In the Far communities most of the respondents have No sources of training (73) and small number of respondents claim that Government (23) and SHG (6) are the only sources of training, none of the respondents from far communities have Cooperative (0), NGO (0) and Private (0) as the sources of training. In the Near communities also most of the respondents have No sources of training (75) but small number of respondents have sources of training through Government (19), SHG (5), NGO (2) and Cooperative (1), none of the respondents received training through Private (0).

Table No 5.1.3 (e) Sources of training

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Government	28	23	25	19	53	21
2	Cooperative	0	0	1	1	1	1
3	SHG	7	6	7	5	14	6
4	NGOs	0	0	2	2	2	1
5	Private	0	0	0	0	0	0
6	None	87	73	99	75	186	74

Source: Computed

5.1.3 (f) Source of knowledge and Information

The sources and knowledge of pig farming observed in the present study are classified into Family Tradition, Neighbours, Newspaper, Cable TV, Internet, Pamphlet, Training and Veterinary Office (See Table 5.1.3 (f)).

Most of the respondents Always (66) have Family Tradition as a source of knowledge and information which is followed by who Sometimes (33) received knowledge through family practices and only few respondents Never (2) make use of Family Tradition for sources of knowledge and information. Most of the respondents Sometimes (66) received knowledge and information through neighbours which is followed by respondents who Always (28) have Neighbours as a source of information and knowledge. Only small number of respondents Never (6) have Neighbours as a source of information and knowledge. Almost all of the respondents Never (97) have Newspaper as a source of knowledge and information which is followed by respondents who Sometimes (3) used Newspaper as a source of knowledge and information. Majority of the respondents Never (93) used Cable TV as a source to collect knowledge and information which is followed by who Sometimes (7) used Cable TV for sources of knowledge and information, very few respondent Always (1) use Cable TV as a source of knowledge and information. Most of the respondents Never (63) used Internet to collect information about pig farming which is followed by who Sometimes (27) have Internet for sources of knowledge and information. A small number of respondents Always (10) used Internet for collecting knowledge and information on pig farming. All of the

respondents Never (100) have Pamphlet for collecting knowledge and information about pig farming. Most of the respondents Never (78) have Training for sources of knowledge and information which is followed by who Sometimes (21) make use of Training for collecting knowledge and information. Only very few respondent Always (1) have Training as a source of knowledge and information. Majority of respondents Never (93) collect information from Veterinary Office which is followed by small number of respondents who Sometimes (6) received knowledge and information from Veterinary Office, only few respondents Always (1) received knowledge and information from Veterinary Office.

The mean score indicated that they always used Family Tradition (1.6) as a source of knowledge and information and some respondents sometimes used Neighbours (1.2) and Internet (0.5). However the other sources listed such as Newspaper (0.0), Cable TV (0.1), Pamphlet (0.0), Training (0.2) and Veterinary Office (0.1) are never used as a source of knowledge and information. The Near communities have the same pattern where Family Tradition (1.6) is always used as a source of knowledge and information. Neighbours (1.3) and Internet (0.6) are sometimes used as sources of knowledge and information. The rest such as Newspaper (0.1), Cable TV (0.1), Pamphlet (0.0), Training (0.2) and Veterinary Office (0.0) are never used as a source of knowledge and information. A slight difference pattern is followed in Far communities where Family tradition is always used as a source of knowledge and information, Neighbours (1.1) is sometimes a source of knowledge and information. The other sources such as Newspaper (0.0), Cable TV (0.0), Internet (0.3), Pamphlet (0.0), Training (0.2) and Veterinary Office (0.1) are never used for source of knowledge and information. Chilundo et al., (2020) pointed out that both trained and untrained farmers improved their knowledge about ASF transmission between the baseline and follow-up, with trained farmers demonstrating significantly greater understanding compared to their untrained counterparts, this shows that training have played an important role in increasing knowledge on pig farming as well as management of diseases.

Table No 5.1.3 (f) Sources of Knowledge and Information

Sl. No	Particulars	N=252					
		Never	Sometimes	Always			
1	Family Tradition	4	82	166			
2	Neighbours	16	166	70			
3	Newspaper	244	8	0			
4	Cable TV	234	17	1			
5	Internet	159	68	25			
6	Pamphlet	252	0	0			
7	Training	197	52	3			
8	Veterinary Office	234	15	3			
Sl. No	Particulars	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Family Tradition	1.6	0.5	1.6	0.5	1.6	0.5
2	Neighbours	1.1	0.5	1.3	0.5	1.2	0.5
3	Newspaper	0.0	0.1	0.1	0.2	0.0	0.2
4	Cable TV	0.0	0.1	0.1	0.4	0.1	0.3
5	Internet	0.3	0.5	0.6	0.8	0.5	0.7
6	Pamphlet	0.0	0.0	0.0	0.0	0.0	0.0
7	Training	0.2	0.5	0.2	0.4	0.2	0.4
8	Veterinary Office	0.1	0.4	0.0	0.2	0.1	0.3

Source: Computed

5.1.3 (g) Government Support

The types of Government Support observed in the present study are classified into Capital, Subsidy, Loan, Material and Equipment, Fodder, Medicine and Health care Provider (VFA) (See Table 5.1.3 (g)).

Almost all of the respondents claimed that they Never (98) received Capital from Government which is followed by respondents who Sometimes (1) received Capital from Government, only very few Always (1) respondent has received Capital support from Government. All of the respondents said that they Never (100) received any kind of Subsidy support. None of the respondents received this kind of support from Government. All of the respondents Never (100) received Loan as a type of support from Government. None of the respondents received Loan as a support from Government. Almost all of the respondents Never (99) received Material and

equipment while small number of respondents Sometimes (1) received Material and equipment from Government. All of the respondents Never (100) get Fodder subsidy from Government. The highest number of respondents are Always (41) provided with Health care Provider (VFA) which is followed by respondents who Sometimes (34) get Health care Provider (VFA). A small number of respondents Never (26) get Health care Provider (VFA) from Government.

Table No 5.1.3 (g) Government Support

Sl. No	Particular	N=252					
		Never	Sometimes	Always			
1	Capital	249	2	1			
		(98)	(1)	(1)			
2	Subsidy	252	0	0			
		(100)	(0)	(0)			
3	Loan	252	0	0			
		(100)	(0)	(0)			
4	Material & equipment	249	3	0			
		(99)	(1)	(0)			
5	Fodder	252	0	0			
		(100)	(0)	(0)			
6	Medicine	249	3	0			
		(99)	(1)	(0)			
7	Health care Provider (VFA)	65	85	102			
		(26)	(34)	(41)			
Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Capital	0.0	0.2	0.0	0.1	0.0	0.2
2	Subsidy	0.0	0.0	0.0	0.0	0.0	0.0
3	Loan	0.0	0.0	0.0	0.0	0.0	0.0
4	Material & equipment	0.0	0.1	0.0	0.1	0.0	0.1
5	Fodder	0.0	0.0	0.0	0.0	0.0	0.0
6	Medicine	0.0	0.2	0.0	0.0	0.0	0.1
7	Health care Provider (VFA)	1.0	0.8	1.2	0.8	1.1	0.8

Source: Computed

Figures in parenthesis are percentages

The mean score indicated that the Government sometimes provide support through Health care Provider (VFA) (1.1) and the supports listed in the present study are never received from the Government such as Capital, Subsidy (0.0), Loan (0.0), Material and equipment (0.0), Fodder (0.0) and Medicine (0.0) are never received from Government. The same pattern is observed in both Far and Near communities where in far communities respondents sometimes received Health care Provider (VFA) (1.0), the other support listed such as Capital (0.0), Subsidy (0.0), Loan (0.0), Material and equipment (0.0), Fodder (0.0), Medicine (0.0) are never received as a Government support. In near communities Health care Provider (VFA) (0.8) is also sometimes received as government support and the rest such as Capital (0.0), Subsidy (0.0), Loan (0.0), Material and equipment (0.0), Fodder (0.0) and Medicine (0.0) are never received from Government.

5.1.4 Natural Capital

Natural capital includes access to land, water, and wildlife, from which households engage in agricultural pursuits and/or resource collection for both sustenance and income generation. In the present study natural capital includes land ownership, tins of land owned and livestock owned.

5.1.4 (a) Land Ownership

The pattern of land ownership observed in the present study is categorized as Community Land, Temporary/VC Pass, Land Settlement Certificate (LSC) and Leased in Land (See Table 5.1.4 (a)).

Most of the respondents possess Temporary/VC Pass (80) followed by Land Settlement Certificate (LSC) (39), very few respondents also possess Leased in Land (3) and Community Land (2). The same pattern is observed in the far communities where most of the respondents owned Temporary/VC Pass (78) followed by Land Settlement Certificate (LSC) (41), small number of respondents also owned Leased in Land (5) and Community Land (2). Whereas in the Near communities, Temporary/VC Pass (82) is the most common land owned followed by Land Settlement Certificate (LSC) (38), very few respondents owned Community Land (3) and Leased in Land (2).

The mean score indicated that Temporary/VC Pass (1.1) and Land Settlement Certificate (1.1) are sometimes owned by respondents while Community Land (0.2) and Leased in Land (0.2) is never owned by the respondents. The same pattern is observed in both the Far and Near communities that in the Far communities respondents sometimes owned Temporary/VC Pass (1.1) and Land Settlement Certificate (0.6), Community Land (0.0) and Leased in Land (0.1) is never owned. In the Far communities Temporary/VC Pass (1.2) and Land Settlement Certificate (0.6) are sometimes possess while Community Land (0.0) and Leased in Land (0.0) is never owned.

Table No 5.1.4 (a) Land Ownership

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Community Land	2	2	4	3	6	2
2	Temporary/VC Pass	94	78	108	82	202	80
3	Land Settlement Certificate	49	41	50	38	99	39
4	Leased in Land	6	5	2	2	8	3
Sl. No	Particular	Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Community Land	0.0	0.1	0.0	0.2	0.0	0.2
2	Temporary/VC Pass	1.1	1.2	1.2	1.1	1.0	1.1
3	Land Settlement Certificate	0.6	0.9	0.6	1.2	0.6	1.1
4	Leased in Land	0.1	0.2	0.0	0.2	0.0	0.2

Source: Computed

5.1.4 (b) Value of Land for Housing

The Value of Land for Housing observed in the present study is classified as Not Owned, 1 Lakh and below, 1 lakh to 5 Lakh and 5 Lakh and Above (See Table No 5.1.4 (b)).

Majority of the respondents have land housing value of 1 lakh to 5 Lakh (59%) followed by 1 Lakh and below (31%), very few respondents have 5 Lakh and Above (6%) and Not Owned (4%). The same pattern is observed in the Near communities as most of the respondents have land housing value of 1 lakh to 5 Lakh

(70%) followed by 1 Lakh and below (19%) and very few respondents have 5 Lakh and Above (8%) and Not Owned (2%). A slight difference pattern is observed in Far communities as largest number of respondents have land housing value of 1 lakh to 5 Lakh (46%) followed by 1 Lakh and below (43%) and very few respondents have Not Owned (7%) and 5 Lakh and Above (4%).

The mean value of land for housing is 198552, the value of land for housing is higher in Near communities (211136) compared to Far communities (184708).

Table No. 5.1.4 (b) Value of Land for Housing

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near			
		f	%	f	%	f	%
1	Not Owned	8	7%	3	2%	11	4%
2	1 Lakh and below	52	43%	25	19%	77	31%
3	1 lakh to 5 Lakh	55	46%	93	70%	148	59%
4	5 Lakh and Above	5	4%	11	8%	16	6%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean Value of Land for housing	184708	359646	211136	267287	198552	314300

Source: Computed

5.1.4 (c) Livestock Owned

The type of Livestock Reared observed in the present study is classified as Poultry, Cows, goats, Fish and None (See Table 5.1.4 (c)).

More than half of the respondents reared None (61) of the livestock, Poultry (32) is the most common livestock reared among the respondents followed by small number of respondents who reared Cows (7), Goats (2) and Fish (1). The same pattern is observed in the Far communities, more than half of the respondents reared None (57) of the livestock, among those who reared livestock largest number reared Poultry (34) followed by small number of respondents who reared Cows (9), Goats (4) and Fish (1). In the Near communities, majority of the respondents reared None (65) of the livestock while a good number of respondents reared Poultry (30) and Cows (8), there is no respondents who reared Goats (0) and Fish (0).

The mean score indicated that Poultry (7.1) is the most common livestock reared followed by Cows (0.2), Goats (0.1) and Fish (0.0).

Table No 5.1.4 (c) Livestock Owned

Sl. No	Particular	Location				N=252		Mean	Std. Dev.
		Far		Near		Total			
		f	%	f	%	f	%		
1	Poultry	41	34	40	30	81	32	7.1	25.8
2	Cows	11	9	8	6	19	7	0.2	0.9
3	Goats	5	4	0	0	5	2	0.1	0.8
4	Fish	1	1	0	0	1	1	0.0	0.3
5	None	68	57	86	65	154	61	0.0	0.0

Source: Computed

5.1.4 (d) Number of Livestock

The number of livestock observed in the present study is classified as Below 5, 5 to 10, 10 to 20 and 20 and Above (See Table No 5.1.4 (d)).

Almost half of the respondents owned Below 5 (45%) followed by 5 to 10 (22%), 10 to 20 (19%) and 20 and Above (14%). The same pattern is observed in the Far and Near communities, in the Far communities almost half of the respondents owned Below 5 (49%) followed by small number of respondents having 5 to 10 (19%), 10 to 20 (17%) and 20 and Above (15%). In the Near communities also largest number of respondents owned Below 5 (42%) followed by respondents having 5 to 10 (24%), 10 to 20 (21%) and 20 and Above (13%).

The mean number of Livestock is 0.1 which is the same with both Far (0.1) and Near (0.1) communities.

Table No. 5.1.4 (d) Number of Livestock

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near			
		f	%	f	%	f	%
1	Below 5	59	49%	55	42%	114	45%
2	5 to 10	23	19%	32	24%	55	22%
3	10 to 20	20	17%	28	21%	48	19%
4	20 and Above	18	15%	17	13%	35	14%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean number of Livestock	0.1	0.2	0.1	0.1	0.1	0.1

Source: Computed

5.1.4 (e) Value of Livestock (Pig, Cow, Poultry, etc)

The value of Livestock (Pig, Cow, Poultry, etc) observed in the present study is classified as Below 50000, 50000 to 1 lakh, 1 lakh to 5 Lakh and 5 Lakh and Above (See Table No 5.1.4 (e)).

Largest number of respondents have livestock value of 1 lakh to 5 Lakh (37%) followed by 50000 to 1 lakh (32%), Below 50000 (25%) and very few respondents have 5 Lakh and Above (6%). The same pattern is observed in the Near communities as almost half of the respondents have livestock value of 1 lakh to 5 Lakh (42%) followed by 50000 to 1 lakh (31%), Below 50000 (17%) and small number of respondents have 5 Lakh and Above (10%). A slight different pattern is observed in Far communities, largest number of respondents have Below 50000 (35%) followed by 50000 to 1 lakh (33%), 1 lakh to 5 Lakh (30%) and very few respondents have 5 Lakh and Above (2%).

The mean value of value of Livestock (Pig, Cow, Poultry, etc) is 149562, the value of Livestock (Pig, Cow, Poultry, etc) is higher in Near communities (195414) as compared to Far communities (99126).

Table No. 5.1.4 (e) Value of Livestock (Pig, Cow, Poultry, etc)

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near			
		f	%	f	%	f	%
1	Below 50000	42	35%	22	17%	64	25%
2	50000 to 1 lakh	39	33%	41	31%	80	32%
3	1 lakh to 5 Lakh	36	30%	56	42%	92	37%
4	5 Lakh and Above	3	2%	13	10%	16	6%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Value of Livestock (Pig, Cow, Poultry, etc)	99126	114249	195414	199565	149562	171161

Source: Computed

5.1.4 (f) Natural Capital used for pig farming

The Natural capital used for pig farming observed in the present study are classified as Forest as a sources of materials for pig sty, Forest as a sources of

Fodder, Groundwater as a sources of Water, and Waterhole/ Spring well as a sources of Water (See Table No 5.1.4 (f)).

Almost all of the respondents Never (90%) used Forest as a sources of materials for pig sty and very few respondents Sometimes (9%) and Always (1%) have Forest as a sources of materials for pig sty. In the Far communities, most of the respondents Never (84%) have Forest as a sources of materials for pig sty meanwhile small number of respondents Sometimes (13%) and Always (3%) have Forest as a sources of materials for pig sty. In Near communities, almost all of the respondents Never (95%) have Forest as a sources of materials for pig sty and very few respondents Sometimes (5%) used Forest as a sources of materials for pig sty.

Almost half of the respondents Always (46%) and Sometimes (40%) used Forest as a sources of Fodder while small number of respondents Never (14%) have Forest as a sources of Fodder. In the Far communities, largest number of respondents (43%) followed by those who Sometimes (38%) and Never (19%) used Forest as a sources of Fodder. In the Near communities, about half of the respondents Always (50%) and Sometimes (41%) have Forest as a sources of Fodder while very few Never (9%) have Forest as a sources of Fodder.

Most of the respondents Never (89%) have Groundwater as a sources of Water followed by very few respondents that Sometimes (6%) and Never (5%) used Groundwater as a sources of Water. In the Far communities almost all the respondents Never (98%) and very few respondents Always (2%) have Groundwater as a sources of Water. In the Near communities, most of the respondents Never (81%) have Groundwater as a sources of Water followed by small number of respondents who Sometimes (11%) and Always (8%) have Groundwater as a sources of Water.

Most of the respondents Never (89%) used Waterhole/ Spring well as a sources of Water while very few respondents Sometimes (6%) and Always (5%) have Waterhole/ Spring well as a sources of Water. In the Far communities, almost all the respondents Never (98%) used Waterhole/ Spring well as a sources of Water while very few respondents Always (2%) and Sometimes (2%) have Waterhole/ Spring well as a sources of Water. In the Near communities, most of the respondents Never (89%) used Waterhole/ Spring well as a sources of Water and few respondents

Sometimes (6%) and Always (5%) have Waterhole/ Spring well as a sources of Water.

Table No 5.1.4 (f) Natural Capital used for pig farming

Sl. No	Particular		Location		N=252
			Far	Near	Total
1	Forest as a sources of materials for pig sty	Never	101	125	226
			84%	95%	90%
		Sometimes	15	7	22
			13%	5%	9%
		Always	4	0	4
			3%	0%	1%
2	Forest as a sources of Fodder	Never	23	12	35
			19%	9%	14%
		Sometimes	46	54	100
			38%	41%	40%
		Always	51	66	117
			43%	50%	46%
3	Groundwater as a sources of Water	Never	118	107	225
			98%	81%	89%
		Sometimes	0	15	15
			0%	11%	6%
		Always	2	10	12
			2%	8%	5%
4	Waterhole/ Spring well as a sources of Water	Never	115	110	225
			96%	83%	89%
		Sometimes	2	13	15
			2%	10%	6%
		Always	3	9	12
			2%	7%	5%

Source: Computed

5.1.5 Human Capital

Human capital comprises the skills, knowledge, and ability to labor central to various livelihood pursuits. In the present study human capital includes Size of Family, Experience of Pig rearing in years, Types of training, Effectiveness of training and Manual Input.

5.1.5 (a) Size of Family

Size of family in the present study is classified into Small (Below 3 Members), Medium (4 to 6 Members) and Large (7 and Above Members) (See table 5.1.5 (a)).

More than half of the respondents family is a Medium (4 to 6 Members) size family (56%) followed by Large (7 and Above Members) family (25%) and Small (Below 3 Members) family (18%) and the same pattern is seen in far and near communities. In far communities the largest number of respondents belongs to Medium (4 to 6 Members) size (56%) followed by Large (7 and Above Members) family (25%) and Small (Below 3 Members) family (19%). Similarly, in the near communities more than half of the respondents belongs to Medium (4 to 6 Members) family (57%) followed by Large (7 and Above Members) family (26%), and the rest belongs to Small (Below 3 Members) family (17%). The mean size of family is 5 members and it is the same in the far and near community.

Table No 5.1.5 (a) Size of Family

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Small (Below 3)	23	19%	23	17%	46	18
2	Medium (4 to 6 Members)	67	56%	75	57%	142	56
3	Large (7 and Above Members)	30	25%	34	26%	64	25
						Mean	Std. Dev.
	<i>Mean Size of Family</i>					5	2

Source: Computed

5.1.5 (b) Experience of Pig rearing in years

The pig rearing experience (in years) observed in the present study is categorized as 5 to 15 Years, 15 to 25 Years, 25 to 35 Years and Above 35 Years (See Table 5.1.5 (b)).

Most of the respondents has pig rearing experience of 5 to 15 Years (80) followed by small number of respondents having 15 to 25 Years (16), there is an equivalent number of respondents having 25 to 35 Years (2) and Above 35 Years (2)

of pig rearing experience. The same pattern is observed in the Far and Near communities, in the Far communities most of the respondents have pig rearing experience of 5 to 15 Years (83) followed by small number of respondents having 15 to 25 Years (15), very few respondents have 25 to 35 Years (2) and Above 35 Years (1) of pig rearing experience. In the Near communities, most of the respondents have 5 to 15 Years (80) experience followed by 15 to 25 Years (17), very few respondents have pig rearing experience for 25 to 35 Years (3) and Above 35 Years (2).

The mean Pig Rearing experience is 12 Years, the mean Pig Rearing experience is higher in the far communities (12 Years) as compared to the Near communities (11Years).

Table No 5.1.5 (b) Pig Rearing experience in years

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	5 to 15 Years	99	83	103	78	202	80
2	15 to 25 Years	18	15	22	17	40	16
3	25 to 35 Years	2	2	4	3	6	2
4	Above 35 Years	1	1	3	2	4	2
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean Years of Pig Rearing Experience</i>	12	7	11	7	12	7

Source: Computed

5.1.5 (c) Training Attended

The training attended observed in the present study are classified as Healthcare, Feeding, Piglet production, Disease management and control, Financial Management, Government Scheme and Pigsty Construction (See Table 5.1.5 (c)).

Majority of the respondents Never (75) received Healthcare training followed by those who Sometimes (15) and Always (10) attend training on Healthcare. Majority of the respondents Never (78) attend training on Feeding while small number of respondents Sometimes (13) and Always (9) attend Feeding training. Most of the respondents Never (87) received training on Piglet Production and there is an equivalent number of respondents who Sometimes (7) and Always (7) received training on Piglet Production. Training on Disease management and control is Never (80) received by most of the respondents while small number of respondents Sometimes (11) and Always (9) received this type of training. Almost all of the

respondents Never (99) have training on Financial Management and only very few respondents Sometimes (1) have training on Financial Management. Training on Government Scheme are Never (99) attend by almost all of the respondents while very few respondents Sometimes (1) have training on Government scheme. Almost all of the respondents Never (97) have training on Pigsty Construction and very few respondents Always (2) and Sometimes (1) have training.

The mean score indicated that respondents never received any kind of training like Healthcare (0.3), Feeding (0.3), Piglet production (0.2), Disease management and control (0.3), Financial Management (0.0), Government Scheme (0.0) and Pigsty Construction (0.0). The same pattern is observed in both the Far and Near communities, in the Far communities none of the training listed such as Healthcare (0.4), Feeding (0.4), Piglet production (0.3), Disease management and control (0.3), Financial Management (0.0), Government Scheme (0.0) and Pigsty Construction (0.1) are never received by the respondents. Likewise in the Near communities, respondents did not received the following training Healthcare (0.3), Feeding (0.2), Piglet production (0.1), Disease management and control (0.3), Financial Management (0.0), Government Scheme (0.0) and Pigsty Construction (0.0).

Table No 5.1.5 (c) Training Attended

Sl No	Types of Training	N=252		
		Never	Sometimes	Always
1	Healthcare	189	38	25
		(75)	(15)	(10)
2	Feeding	197	33	22
		(78)	(13)	(9)
3	Piglet production	218	17	17
		(87)	(7)	(7)
4	Disease management and control	202	28	22
		(80)	(11)	(9)
5	Financial Management	250	2	0
		(99)	(1)	(0)
6	Government Scheme	251	1	0
		(99)	(1)	(0)
7	Pigsty Construction	245	2	5
		(97)	(1)	(2)

Sl. No	Types of Training	Location				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Healthcare	0.4	0.7	0.3	0.6	0.3	0.7
2	Feeding	0.4	0.7	0.2	0.5	0.3	0.6
3	Piglet production	0.3	0.7	0.1	0.4	0.2	0.5
4	Disease management and control	0.3	0.6	0.3	0.6	0.3	0.6
5	Financial Management	0.0	0.1	0.0	0.0	0.0	0.1
6	Government Scheme	0.0	0.0	0.0	0.1	0.0	0.1
7	Pigsty Construction	0.1	0.3	0.0	0.2	0.0	0.3

Source: Computed

Figures in parenthesis are percentages

5.1.5 (d) Number of family member working

In the present study manual input is various resources and materials used in pig farming. These inputs are essential for the cultivation and management of livestock. It includes types of manual input, Number of family member working, Number of male family member working, Number of female family member working and Number of hired labour working in pig farm. The number of family members working in pig farm observed in the present study is classified as One Member, Two to Three Members and Four and Above Members (See Table 5.1.5 (d)).

Most of the respondents have Two to Three Members (61) working followed by Four and Above Members (28) and very few respondents have One Member (6) working in pig farm. The same pattern is observed in the Far and Near communities that in Far communities more than half of the respondents claim that family working in pig farm is Two to Three Members (56) followed by Four and Above Members (37) and very few respondents have One Member (7) working in pig farm. In the Near communities most respondents said that family working in pig farm is Two to Three Members (71) which is followed by Four and Above Members (24) and very few respondents have One Member (5) working in pig farm.

The mean number of family members working is 2, the number of family members working is higher in Far communities (3 Members) as compared to Near communities (2 Members).

Table No 5.1.5 (d) Number of Family members working

Sl. No	Particular	Location				N= 252	
		Far		Near		Total	
		f	%	f	%	f	%
1	One Member	8	7	7	5	15	6
2	Two to Three Members	60	56	94	71	154	61
3	Four and Above Members	40	37	31	24	71	28
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of family members working</i>	3	1.4	2	1.0	2	1.2

Source: Computed

5.1.5 (e) Number of Hired labour employed

The number of hired labour in the present study is classified as Not Hired Labours, Male Hired labourers and Female Hired Labours (See Table 5.1.5 (e)).

In the Far communities respondents have Not Hired Labours (100) while in the Near communities almost all of them have Not Hired Labours (94) and very few respondents claim that they have Male Hired labourers (6).

Table No 5.1.5 (e) Number of Hired labour employed

Sl. No	Particular	Location (N=252)			
		Far		Near	
		f	%	f	%
1	No Hired Labours	120	100	124	94
2	Male Hired labourers	0	0	8	6
3	Female Hired Labours	0	0	0	0

Source: Computed

5.1.6 Relationship between Livelihood Assets

The relationship between different livelihood assets given in Sustainable Livelihood Framework (SLF) such as Natural Capital, Financial Capital, Social Capital, Physical Capital and Human Capital are measured using Pearson's Correlation. Natural Capital did not have any significant relationship with other

livelihood assets, Financial Capital has significant relationship with Physical capital, and Social Capital has significant relationship with Human capital (See Table 5.1.6).

Table No 5.1.6 Relationship between Livelihood Assets

Sl. No	Livelihood Assets	Natural Capital	Financial Capital	Social Capital	Physical Capital	Human Capital
1	Natural Capital	1	0.005	0.079	0.123	0.068
2	Financial Capital	0.005	1	0.094	.411**	0.044
3	Social Capital	0.079	0.094	1	0.016	.191**
4	Physical Capital	0.123	.411**	0.016	1	0.092
5	Human Capital	0.068	0.044	.191**	0.092	1

Source: Computed

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

5.2 Living Condition

Living conditions refer to the situations or elements that influence people's way of life, especially in terms of their well-being. In the presents study living condition includes Monthly Household Income, Per Capita Monthly Household Income, Monthly Household Expenditure and Per Capita Monthly Household Expenditure.

5.2.1 Monthly Household Income

Monthly Household Income observed in the present study is classified as Below 25000, 25000 to 50000, 50000 to 75000, 75000 to 150000 and Above 150000 (See Table 5.2.1).

Largest number of respondents has Monthly Household Income of 25000 to 50000 (55%) followed by small number of respondents having Monthly Household Income of Below 25000 (15%), 50000 to 75000 (15%) and 75000 to 150000 (12%) while very few respondents have Above 150000 (3%).

The same pattern is observed in the Far and Near communities. In the Far communities majority of the respondents has Monthly Household Income of 25000 to 50000 (60%) which is followed by Below 25000 (13%), 50000 to 75000 (13%) and 75000 to 150000 (12%) and few respondents have Above 150000 (2%). In the Near communities, half of the respondents has Monthly Household Income of 25000

to 50000 (51%) and small number of respondents has Below 25000 (16%), 50000 to 75000 (17%) and 75000 to 150000 (12%) and few respondents have Above 150000 (4%).

The mean Monthly Household Income is 49724, the Near communities has higher Monthly Household Income (51603) compared to Far communities (47656).

Table No 5.2.1 Monthly Household Income

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		f	%	f	%	f	%
1	Below 25000	16	13%	21	16%	37	15
2	25000 to 50000	71	60%	68	51%	139	55
3	50000 to 75000	16	13%	23	17%	39	15
4	75000 to 150000	15	12%	15	12%	30	12
5	Above 150000	2	2%	5	4%	7	3
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean Monthly Household Income	47656	29245	51603	38333	49724	34370

Source: Computed

5.2.2 Per capita Monthly Household Income

The Per capita Income observed in the present study is classified as Below 2000, 2000 to 5000, 5000 to 10000, 10000 to 20000 and Above 20000 (See Table No 5.2.2).

Largest number of respondents has 5000 to 10000 (32%) followed by 2000 to 5000 (31%), 10000 to 20000 (20%) and an equivalent number of respondents have Below 2000 (8%) and Above 20000 (8%). The same pattern is observed in the Near communities as largest number of respondents have income of 5000 to 10000 (34%) followed by 2000 to 5000 (29%), 10000 to 20000 (19%) and very few respondents have Above 20000 (10%) and Below 2000 (8%). A slight difference pattern is observed in the Far communities, largest number of respondents has income between 2000 to 5000 (34%) followed by 5000 to 10000 (31%), 10000 to 20000 (21%), Below 2000 (8%) and Above 20000 (6%).

The mean Per capita Income is 11863, the Per Capita Income is higher in Near communities (15673) as compared to Far communities (7672).

Table No. 5.2.2 Per capita Monthly Household Income

Sl. No	Particulars	Location				Total N=252	
		Far		Near			
		f	%	f	%	f	%
1	Below 2000	10	8%	11	8%	21	8%
2	2000 to 5000	41	34%	38	29%	79	31%
3	5000 to 10000	37	31%	45	34%	82	32%
4	10000 to 20000	25	21%	25	19%	50	20%
	Above 20000	7	6%	13	10%	20	8%
	Per Capita Income	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
		7672	7298	15673	86739	11863	62992

Source: Computed

5.2.3 Monthly Household Expenditure

The household expenditure observed in the present study is classified as Food, Clothing, Church Contribution, Education, Medication, Loan Reimbursement, Household management, Bills (Electric, Water, Wifi) and Pig farming (See Table 5.2.3).

The highest household expenditure is on Pig Farming (36505) followed by Food (11157), Church Contribution (5165), Loan Reimbursement (3990), Education (3289) and Household Management (2497). The others household expenditure are on Clothing (1939), Bills (Electric, Water, Wifi) (1867) and on Medication (629).

The same pattern is not observed in both the Far and Near communities. In the Far communities the highest expenditure is on Pig farming (20792) followed by Food (11229), Church Contribution (4945), Loan Reimbursement (3603), Education (2585), Household management (2493), Bills (Electric, Water, Wifi) (1995), Clothing (1809) and on Medication (598). In the Near communities the highest household expenditure is on Pig farming (50790) followed by Food (11091), Church Contribution (5366), Loan Reimbursement (4341), Education (3930), Household management (2500), Clothing (2057), Bills (Electric, Water, Wifi) (1751) and Medication (634).

Table No 5.2.3 Monthly Household Expenditure

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Food	11229	6180	11091	7580	11157	6936
2	Clothing	1809	1235	2057	1113	1939	1177
3	Church Contribution	4945	3615	5366	4409	5165	4048
4	Education	2585	5380	3930	13934	3289	10747
5	Medication	598	543	658	634	629	592
6	Loan Reimbursement	3603	7648	4341	12318	3990	10347
7	Household management	2493	1274	2500	996	2497	1135
8	Bills (Electric, Water, Wifi)	1995	3733	1751	2108	1867	2990
9	Pig farming	20792	77859	50790	150720	36505	122292

Source: Computed

5.2.4 Per Capita Monthly Household Expenditure

The Per Capita Expenditure observed in the present study is classified as Below 5000, 5000 to 10000, 10000 to 50000 and Above 50000 (See Table No 5.2.4).

Largest number of respondents have Per Capita Expenditure of 5000 to 10000 (41%) followed by Below 5000 (36%) and small number of respondents have 10000 to 50000 (18%) and Above 50000 (5%).

The same pattern is observed in the Far communities as half of the respondents have Per Capita Expenditure of 5000 to 10000 (52%) followed by Below 5000 (33%) and small number of respondents have 10000 to 50000 (12%) and Above 50000 (4%). A slight difference is observed in the Near communities, largest number of respondents have Below 5000 (39%) followed by 5000 to 10000 (31%), 10000 to 50000 (24%) and Above 50000 (6%).

The mean Per Capita expenditure is 15489, the Per capita expenditure is higher in Near communities (20629) as compared to Far communities (9835).

Table No. 5.2.4 Per Capita Monthly Household Expenditure

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near			
		f	%	f	%	f	%
1	Below 5000	40	33%	52	39%	92	36%
2	5000 to 10000	62	52%	41	31%	103	41%
3	10000 to 50000	14	12%	31	24%	45	18%
4	Above 50000	4	3%	8	6%	12	5%
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	Mean Per Capita Expenditure	9835	16789	20629	64721	15489	48467

Source: Computed

5.3 Relationship between Livelihood Endowment and Living Condition

The relationship between Livelihood Endowment such as Financial, Physical, Social, Human, Natural capital and Living Condition indicator like Household Expenditure, Household Saving and Insurance is calculated using Kendall's tau-b Correlation (See Table 5.3).

Financial Capital that is Nature of Household Saving have significant relationship with Household Expenditure (.519**) and Per capita Household Expenditure (.314**) but it has negative relationship with Per Capita Household Income (-.175**). Household Saving also has significant relationship with Household Expenditure (.545**) and Per capita Household Expenditure (.348**) but it has negative relationship with Per Capita Household Income (-.149*). Value of Bank Saving also has significant relationship with Household Expenditure (.537**) and Per capita Household Expenditure (.342**) but it has negative relationship with Per Capita Household Income (-.147*). Per Capita Saving has significant relationship with Per Capita Household Income (.299**), Household Expenditure (.130**) and Per capita Household Expenditure (.461**). Value of Insurance has significant relationship with Household Expenditure (.263**) and Per capita Household Expenditure (.185**). This indicates that Household Expenditure and Per capita Household Expenditure increases when there is an increase in Nature of Household Saving, Household Saving, Value of Bank Saving, Per Capita Saving and Value of Insurance. Meanwhile, Per Capita Household Income decreases when there

is an increase in Nature of Household Saving, Household Saving, Value of Bank Saving.

Physical Capital that is Household Assets have significant relationship with Household income (.152*), Household Expenditure (.580**) and Per capita Household Expenditure (.498**). Value of Household Assets has significant relationship with Household Expenditure (.313**) and Per capita Household Expenditure (.163**). Area of Pig Sty (Area in sq foot) has significant relationship with Household Expenditure (.162**) and Per capita Household Expenditure (.177**). Number of pig sty has significant relationship with Household Expenditure (.396**) and Per capita Household Expenditure (.369**). Type of pigsty also has significant relationship with Household Income (.218**). This indicates that Household Expenditure and Per capita Household Expenditure increases when there is an increase in Household Assets, Value of Household Assets, Area of Pig Sty (Area in sq foot), Number of pig sty, also Household Income increases when there is an increase in Household Assets and Types of Pigsty.

Social capital that is Source of Training has significant relationship with Household Expenditure (.158**) and Per capita Household Expenditure (.137**). Source of Knowledge has significant relationship with Household Expenditure (.411**) and Per capita Household Expenditure (.366**). Membership in SHG Cooperative Society has significant relationship with Household Expenditure (.217**) and Per capita Household Expenditure (.176**). Membership in SHG has significant relationship with Household Expenditure (.147**) and Per capita Household Expenditure (.151**). Government Support has significant relationship with Household Expenditure (.340**) and Per capita Household Expenditure (.358**). Duration of Cooperative Society members has significant relationship with Household Expenditure (.219**) and Per capita Household Expenditure (.180**). Duration of SHG members has significant relationship with Household Expenditure (.156**) and Per capita Household Expenditure (.168**). This indicates that Household Expenditure and Per capita Household Expenditure increases when there is an increase in Source of Training, Source of Knowledge, Membership in Cooperative Society, Membership in SHG, Government Support, Duration of Cooperative Society members, Duration of SHG members

Human Capital that is Frequency of Training has significant relationship with Household Expenditure (.280**) and Per capita Household Expenditure (.243**). Number of family members working in pig farm has significant relationship with Household Expenditure (.299**) and has negative relationship with Per capita Household Income (-.245**). Number of Hired labour has significant relationship with Household Income (.133*), Household Expenditure (.261**) and Per capita Household Expenditure (.278**). Size of Family has significant relationship with Household Expenditure (.451**) and has negative relationship with Per capita Household Income (-.625**) and Per capita Household Expenditure (-.235**). Pig Rearing experience in years has significant relationship with Household Income (.212**). This indicates that Household Expenditure increases when there is an increase in Frequency of Training, Number of family members working in pig farm, Number of Hired labour and Size of Family and Per capita Household Expenditure increases when there is an increase in Frequency of Training and Number of Hired labour, likewise Number of Hired labour and Pig rearing experiences in years increases Household Income. While, Per capita Household Income decreases when there is decrease in Number of family members working in pig farm and Size of family. Per capita Household Expenditure also decreases when Size of family is decrease.

Natural capital that is Land Ownership has significant relationship with Household Expenditure (.342**) and Per capita Household Expenditure .352**). Size of Land Ownership has significant relationship with Household Expenditure (.237**) and Per capita Household Expenditure (.204**). Value of Land for housing has significant relationship with Household Expenditure (.434**) and Per capita Household Expenditure (.323**). Value of Livestock (Pig, Cow, Poultry, etc) has significant relationship with Household Expenditure (.667**) and Per capita Household Expenditure (.578**). Ownership of Livestock has significant relationship with Household Expenditure (.201**) and Per capita Household Expenditure (.139**). Number of Livestock has significant relationship with Household Income (.243**), Household Expenditure (.376**) and Per capita Household Expenditure (.317**). Sources of Fodder_Forest has negative relationship with Per capita Household Income (-.125*), Household Expenditure (-.330**) and

Per capita Household Expenditure (-.358**). Sources of materials for pig sty Forest has significant relationship with Household Expenditure (.144*) and Per capita Household Expenditure (.190**). This indicates that Land Ownership Household Expenditure and Per capita Household Expenditure increase when there is an increase in Size of Land Ownership, Value of Land for housing, Value of Livestock (Pig, Cow, Poultry, etc), Ownership of Livestock, Number of Livestock and Sources of materials for pig sty Forest. Number of Livestock increases Household Income. Meanwhile, Natural Capital that is Sources of Fodder_Forest decreases Per Capita Household Income, Household Expenditure and Per capita Household Expenditure. Natural capital such as Groundwater as a sources of Water and Waterhole/ Spring well as a sources of Water has no significant relationship with the living condition.

Table No. 5.3 Relationship between Livelihood Assets and Living Condition

Livelihood Assets		Living Conditions			
		Household Income	Per Capita Household Income	Household Expenditure	Per Capita Household Expenditure
Financial Capital	Nature of Household Saving	0.02	-.175**	.519**	.314**
	Household Saving	0.06	-.149*	.545**	.348**
	Value of Bank Saving	0.062	-.147*	.537**	.342**
	Per Capita Saving	0.085	.299**	.130*	.461**
	Value of Insurance	0	-0.069	.263**	.185**
Physical Capital	Household Assets	.152*	-0.019	.580**	.498**
	Value of Household Assets	0.037	-0.101	.313**	.163**
	Area of Pig Sty (Area in sq foot)	0.001	0.017	.162**	.177**
	Number of pig sty	0.089	0.022	.396**	.369**
	Types of Pig Sty	.218**	0.104	0.107	0.082
Social Capital	Source of Training	0.095	0.094	.158*	.137*
	Source of Knowledge	0.088	-0.035	.411**	.366**
	Are you a member of Cooperative Society	0.051	-0.061	.217**	.176**
	Are you members of SHG	0.02	0.04	.147*	.151*
	Government Support	0.076	0.052	.340**	.358**
	Duration of Cooperative Society members	0.052	-0.06	.219**	.180**
	Duration of SHG	0.004	0.044	.156*	.168**

	members				
Human Capital	Frequency of Training	0.099	0.045	.280**	.243**
	Number of family members working	0.039	-.245**	.299**	-0.081
	Number of Hired labour	.133*	0.115	.261**	.278**
	Size of Family	-0.071	-.625**	.451**	-.235**
	Pig Rearing experience in years	.212**	0.069	0.035	0.041
Natural Capital	Land Ownership	0.041	0.016	.348**	.352**
	Size of Land Ownership	-0.071	-0.081	.237**	.204**
	Value of Land for housing	0.105	-0.037	.434**	.323**
	Value of Livestock (Pig, Cow, Poultry, etc)	0.102	-0.021	.667**	.578**
	Ownership of Livestock	-0.079	-0.116	.201**	.139*
	Number of Livestock	.243**	0.079	.376**	.317**
	Sources of Fodder_Forest	-0.088	-.125*	-.330**	-.358**
	Sources of materials for pig sty Forest	-0.013	0.063	.144*	.190**
	Groundwater as a sources of Water	0.008	-0.019	0.025	0.006
	Waterhole/ Spring well as a sources of Water	-0.02	0.025	-0.074	-0.028

Source: Computed

******. Correlation is significant at the 0.01 level (2-tailed).

*****. Correlation is significant at the 0.05 level (2-tailed).

5.4 Testing of Hypothesis

The relationship between Livelihood Assets and Living Conditions of pig farmers is measured using Pearson Correlation and it is found that Financial Capital, Social Capital and Physical Capital have impacted the living conditions while Natural and Human Capital is not significant (See Table 5.4).

Hypothesis 1: Living conditions of the pig farmer household are directly related to the natural resources endowment of it. From Pearson's Correlation this hypothesis is rejected.

Hypothesis 2: Living conditions of the pig farmer household are directly related to the physical capital endowment of it. From Pearson's Correlation this hypothesis is accepted.

Hypothesis 3: Living conditions of the pig farmer household are directly related to the social capital endowment of it. From Pearson's Correlation this hypothesis is accepted.

Hypothesis 4: Living conditions of the pig farmer household are directly related to the human capital endowment of it. From Pearson's Correlation this hypothesis is accepted.

Hypothesis 5: Living conditions of the pig farmer household are directly related to the financial capital of it. From Pearson's Correlation this hypothesis is rejected.

Table No. 5.4 Testing of hypothesis

Sl. No	Livelihood Assets	Living Condition
1	Natural Capital	0.112
2	Financial Capital	.156*
3	Social Capital	.394**
4	Physical Capital	.127*
5	Human Capital	-0.008

Source: Computed

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

CHAPTER VI

VULNERABILITY CONTEXT OF PIG FARMERS IN MIZORAM

Vulnerability context is the seasonality, patterns, and shocks that have an impact on people's livelihoods. One important characteristic of these forces is that, at least in the short and medium term, local people cannot control them. Therefore, it's critical to pinpoint indirect strategies for reducing the detrimental consequences of the vulnerability context, such as enhancing resilience and boosting overall livelihood security. This is especially important for the impoverished, as selling assets is a common reaction to unfavourable seasonality and shocks. But poor people frequently lack marketable possessions. Additionally, because they lack assets, they are frequently less equipped to react to good trends than their wealthier peers. The present study makes use of Sustainable Livelihood framework (SLF) to understand the vulnerability context of pig farmers in Mizoram.

The sustainable livelihoods method is a comprehensive strategy that attempts to identify and offer a way to comprehend the underlying causes and aspects of poverty without narrowing the attention to a select few variables (such as food security, economic concerns, etc.). Additionally, it attempts to illustrate the connections between the various facets (causes, manifestations) of poverty in order to facilitate more efficient operational prioritisation of actions. The goal of the SL method or approaches is to assist the poor in improving their quality of life over the long term. This is measured using metrics of poverty that the poor themselves identify (Sustainable Livelihoods Support Office, 1999). Vulnerability of pig farmers in the present study is presented.

6.1 Disease

One of the vulnerable settings that come with shocks is disease, when farmers lose their valuable assets and have no control over them. They also lack adequate insurance or compensation to replace their losses, which puts their livelihood at risk.

6.1 (a) Name of Diseases outbreak suffered

The name of diseases outbreak suffered in the present study is classified as None, PRRS, ASF, Skin Disease and CSF. Most of the respondents reported that they did not suffered from any diseases (60%), ASF (32%) is the most common

diseases suffered followed by very few respondents suffering PRRS (7%) and CSF (1%), none of the respondents suffered skin disease.

In the Far communities, most of the respondents did not suffered any kind of diseases (64%) listed while a good number of respondents suffered ASF (33%) followed by very few respondents suffering PRRS (3%), none of the respondents from Far communities suffered CSF (0%) and Skin Disease (0%). In the Near communities more than half of the respondents reported that they have not suffered any of diseases from the list (56%) but among the respondents suffering disease ASF (31%) is most common disease followed by PRRS (11%), CSF (2%) and Skin Disease (1%).

Table 6.1 (a) Name of Diseases outbreak suffered

Sl No	Particulars	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	None	77	64%	74	56%	151	60
2	PRRS	4	3%	14	11%	18	7
3	ASF	39	33%	41	31%	80	32
4	Skin Disease	0	0%	1	1%	1	0
5	CSF	0	0%	2	2%	2	1

Source: Computed

6.1 (b) Other diseases outbreak suffered

The name of other diseases outbreak suffered in the present study is classified as None, PRRS, CSF and Pneumonia. Almost all of the respondents claim that None (96%) of the disease listed is suffered while very few respondents suffered PRRS (3%).

In the Far communities, nearly all of the respondents (98%) stated that they had not been affected by the disease outbreak while very few respondents suffered PRRS (2%) and Pneumonia (1%), none of the respondents from Far communities suffered CSF (0%). In the Near communities almost all of them reported that they had not suffered from the disease while very few respondents suffered PRRS (4%)

and CSF (1%), none of the respondents from Near communities suffered Pneumonia (0%).

Table 6.1 (b) Other diseases outbreak suffered

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	None	117	98%	126	96%	243	96
2	PRRS	2	2%	5	4%	7	3
3	CSF	0	0%	1	1%	1	0
4	Pneumonia	1	1%	0	0%	1	0

Source: Computed

6.1 (c) Number of disease outbreaks suffered

The number of disease outbreaks suffered in the present study is categorized as Not Suffered, Once and Twice. Most of the respondents claim that they had not suffered any disease (60%) followed by those who suffered Once (39%) and very few respondents suffered Twice (1%).

The same pattern is observed in the Far communities that most of the respondents said that they did not suffered from disease (64%) followed by those who suffered Once (35%) and very few respondents suffered Twice (1%). In the Near communities more than half of the respondents claim they did not suffered (57%) any disease while almost half of the respondents suffered Once (43%) and none of the respondents from Near communities suffered Twice (0%).

The mean number of disease suffered is 0.4 which is both the same in the Far (0.4) and Nar communities (0.4).

Table 6.1 (c) Number of Disease Outbreaks Suffered

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Not Suffered	77	64%	75	57%	152	60
2	Once	42	35%	57	43%	99	39
3	Twice	1	1%	0	0%	1	1
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of disease suffered</i>	0.4	0.5	0.4	0.5	0.4	0.5

Source: Computed

6.1 (d) Number of other Disease

The number of other disease outbreak suffered in the present study is categorized as Not Suffered and Once. Almost the respondents' entire claim that disease is not suffered (94%) while very few respondents suffered Once (6%).

The same pattern is observed in the Far and Near communities, in the far communities almost all the respondents did not suffered any diseases (97%) while very few respondents suffered Once (3%). In the Near communities also almost the entire respondents claim disease is not suffered (92%) and very few respondents suffered Once (8%).

The mean number of other disease suffered is 0.1, the mean number of other disease suffered in the Near communities (0.0) is higher as compared to Far communities (0.1).

Table 6.1 (d) Number of other Disease

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	Not Suffered	116	97%	121	92%	237	94
2	Once	4	3%	11	8%	15	6
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of other disease suffered</i>	0.0	0.2	0.1	0.3	0.1	0.2

Source: Computed

6.1 (e) Number of Pigs lost due to disease

The number of pig lost due to disease in the present study is categorized as None, 1 to 10 Pigs and More than 10 pigs. Most of the respondents reported that none of their pigs were affected by disease (62%) while a good number of respondents lost 1 to 10 Pigs (30%) and very few respondents lost More than 10 pigs (9%).

The same pattern is observed in both the Far and Near communities where in the far communities most of the respondents had not lost (64%) their pigs because of disease followed by respondents who lost 1 to 10 Pigs (29%) and very few respondents lost More than 10 pigs (7%). In the Near communities also more than half of the respondents lost none of their pigs (59%) while some respondents lost 1 to 10 Pigs (30%) and very few respondents lost More than 10 pigs (11%).

The mean number of pig lost due to disease is 3.1, the number of pig lost due to disease is higher in the Near communities (3.6) as compared to Far communities (2.6).

Table 6.1 (e) Number of pigs lost due to disease

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	None	77	64%	78	59%	155	62
2	1 to 10 Pigs	35	29%	40	30%	75	30
3	More than 10 pigs	8	7%	14	11%	22	9
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean number of pig lost due to disease</i>	2.6	7.5	3.6	8.2	3.1	7.8

Source: Computed

6.1 (f) Value of Pig lost due to disease

The value of pig lost due to disease observed in the present study is categorized into None, Below 50000, 50000 to 100000, 100000 to 500000 and More than 500000. Most of the respondents lost none (62%) of their pigs. There is an equivalent number of respondents who lost 50000 to 100000 (14%) and 100000 to

500000 (14%), very few respondents lost Below 50000 (9%) and More than 500000 (2%).

The same pattern is observed in the Near communities as most of the respondents reported they had not lost any of their pigs (59%) and there is an equivalent number of respondents who lost 50000 to 100000 (15%) and 100000 to 500000 (15%), very few respondents lost Below 50000 (8%) and More than 500000 (3%). In the Far communities most of the respondents claim that they lost none of their pigs due to disease (64%), among those who lost their pigs largest number of respondents lost 100000 to 500000 (13%) followed by 50000 to 100000 (12%) and Below 50000 (10%), very few respondents lost a value of More than 500000 (2%).

The mean value of pig lost due to disease is Rs 68784, the value of pig lost in the Near communities (Rs 73977) is higher as compared to Far communities (Rs 63071).

Table 6.1 (f) Value of pig lost due to disease

Sl. No	Particular	Location				N=252	
		Far		Near		Total	
		f	%	f	%	f	%
1	None	77	64%	78	59%	155	62
2	Below 50000	12	10%	10	8%	22	9
3	50000 to 100000	14	12%	20	15%	34	14
4	100000 to 500000	15	13%	20	15%	35	14
5	More than 500000	2	2%	4	3%	6	2
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
	<i>Mean value of pig lost due to disease</i>	63071	188349	73977	155667	68784	171743

Source: Computed

6.1 (g) Ways of diagnosing diseases

The person who diagnose disease observed in the present study is classified into Vety Doctor, Veterinary Field Assistant (VFA), Self, other Pig Farmers and Private Doctors. Almost all of the respondents pigs are Never (98%) diagnosed by Vety Doctor while only few respondents said Vety Doctor Always (2%) diagnosed diseases.

Almost all of the respondents Never (91%) diagnosed pig disease through VFA which is followed by respondents who Sometimes (4%) diagnosed their pig disease by VFA. Very few respondents said that VFA Always (2%) diagnosed pig diseases.

Most of the respondents Never (61%) diagnosed their pig diseases while a good number of respondents Always (38%) diagnosed their pig disease by themselves which is followed by who Sometimes (1%) diagnosed pig disease by themselves.

Almost all of the respondents said that Other Pig Farmers Never (98%) diagnosed their pig disease which is followed by small number of respondents who Sometimes (2%) let Other Pig Farmers diagnosed pig diseases.

All of the respondents never (100%) diagnosed their pig disease by Private Doctors.

Table 6.1 (g) Ways of diagnosing diseases

Sl. No	Particulars	N=252		
		Never	Sometimes	Always
1	Vety Doctor	248	0	4
		(98)	(0)	(2)
2	Veterinary Field Assistant (VFA)	229	14	9
		(91)	(6)	(4)
3	Self	154	2	96
		(61)	(1)	(38)
4	Other Pig Farmers	248	4	0
		(98)	(2)	(0)
5	Private Doctors	252	0	0
		(100)	(0)	(0)

Source: Computed

Figures in parenthesis are percentages

The mean score indicated that disease diagnosed is sometimes by Self (0.8) and others such as Vety Doctor (0.0), Veterinary Field Assistant (VFA) (0.1), other Pig Farmers (0.0) and Private Doctors (0.0) never diagnosed diseases.

The same pattern is observed in the Far and Near communities, in the Far communities sometimes disease are diagnosed by Self (0.7) and Vety Doctor (0.0), Veterinary Field Assistant (VFA) (0.1), other Pig Farmers (0.0) and Private Doctors

(0.0) never diagnosed diseases. In the Near communities also disease diagnosis is by Self (0.8) and Vety Doctor (0.0), Veterinary Field Assistant (VFA) (0.4), other Pig Farmers (0.0) and Private Doctors (0.0) never diagnosed diseases.

Table 6.1 (h) Ways of diagnosing diseases (Mean Comparison)

Sl. No	Particulars	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Vety Doctor	0.0	0.2	0.0	0.3	0.0	0.3
2	Veterinary Field Assistant (VFA)	0.1	0.4	0.1	0.4	0.1	0.4
3	Self	0.7	0.9	0.8	1.0	0.8	1.0
4	Other Pig Farmers	0.0	0.1	0.0	0.1	0.0	0.1
5	Private Doctors	0.0	0.0	0.0	0.0	0.0	0.0

Source: computed

6.1 (i) Management of diseases

The person managing pig diseases observed in the present study are classified into Vety Doctor, Veterinary Field Assistant (VFA), Self, other Pig Farmers and Private Doctors. Almost all of the respondents said that Vety Doctor Never (98%) managed pig diseases which is followed by few respondents who Sometimes (2%) managed their pig diseases by Vety Doctor.

Most of the respondents claimed that Veterinary Field Assistant (VFA) Never (73%) managed a pig disease which is followed by respondents who said that Veterinary Field Assistant (VFA) Sometimes (17%) managed diseases. Only few respondents Always (10%) managed pig disease by Veterinary Field Assistant (VFA).

Almost all of the respondents never (98%) managed disease by Private Doctors while there is only few respondents whose pig disease are Sometimes (1%) and Always (1%) managed by Private Doctors.

Most of the respondents Never (62%) managed diseases by themselves while a good number of respondents Always (35%) managed disease by themselves which is followed by few respondents who Sometimes (3%) managed disease by Self.

Almost all of the respondents Never (99.2%) let Other Pig Farmers managed disease while only few respondent Always (0.4%) let Other Pig Farmers manage diseases which is followed by who Sometimes (0.4%) let Other Pig Farmers manage disease.

Table 6.1 (i) Management of diseases

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Vety Doctor	247	5	0
		(98)	(2)	(0)
2	Veterinary Field Assistant (VFA)	183	43	26
		(73)	(17)	(10)
3	Private Doctors	249	1	2
		(98)	(1)	(1)
4	Self	157	8	87
		(62)	(3)	(35)
5	Other Pig Farmers	250	1	1
		(99.2)	(0.4)	(0.4)

Source: Computed

Figures in parenthesis are percentages

The mean score indicated that disease is sometimes managed by Self (0.7) and Vety Doctor (0.0), Veterinary Field Assistant (VFA) (0.4), other Pig Farmers (0.0) and Private Doctors (0.0) never managed diseases.

The same pattern is observed in the Far communities that disease is sometimes managed by Self (0.6) and others like Vety Doctor (0.0), Veterinary Field Assistant (VFA) (0.3), other Pig Farmers (0.0) and Private Doctors (0.0) never managed diseases. Meanwhile, in the Near communities Self (0.9) and Veterinary Field Assistant (VFA) (0.6) sometimes managed diseases. Vety Doctor (0.0), other Pig Farmers (0.0) and Private Doctors (0.0) never managed diseases.

Table 6.1 (j) Management of diseases (Mean Comparison)

Sl. No	Particular	Location (N=252)					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Vety Doctor	0.0	0.2	0.0	0.1	0.0	0.1
2	Veterinary Field Assistant (VFA)	0.3	0.6	0.5	0.7	0.4	0.7
3	Private Doctors	0.0	0.3	0.0	0.0	0.0	0.2
4	Self	0.6	0.9	0.8	1.0	0.7	0.9
5	Other Pig Farmers	0.0	0.2	0.0	0.0	0.0	0.1

Source: Computed

6.1 (k) Method of management of disease

The disease management strategy observed in the present study is classified into Medication, Traditional Treatment, Disposal and No treatment. Most of the respondents Never (64%) treat diseases by Medication while much number of respondents Always (34%) treat by Medication which is followed by respondents who Sometimes (2%) used Medication for treating diseases.

Majority of the respondents Never (82%) used Traditional Treatment to managed diseases while only few respondents Always (11%) managed diseases by Traditional Treatment which is followed by those who Sometimes (8%) used Traditional Treatment to treat diseases.

Most of the respondents Never (63%) used Disposal as a way to treat disease while some respondents Always (35%) disposed pigs with diseases followed by those Sometimes (2%) used Disposal as a disease management strategy.

Almost all of the respondents Never (97%) manage disease by giving No treatment while few respondents Always (3%) manage by giving No treatment.

Table No 6.1 (k) Method of management of disease

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Medication	162	4	86
		(64)	(2)	(34)
2	Traditional Treatment	206	19	27
		(82)	(8)	(11)
3	Disposal	158	5	89
		(63)	(2)	(35)
4	No Treatment	245	0	7
		(97)	(0)	(3)

Source: Computed

Figures in parenthesis are percentages

The mean score indicated that Medication (0.7) and Disposal (0.7) is sometimes used for managing diseases. Traditional Treatment (0.3) and No treatment (0.1) are never used for disease management.

The same pattern is observed in the Far and Near communities, in the Far communities they sometimes managed disease by Medication (0.7) and Disposal (0.7) while Traditional Treatment (0.3) and No Treatment (0.1) are never used for managing disease. In the Near communities Medication (0.8) and Disposal (0.8) are sometimes used for disease management and they never used Traditional Treatment (0.3) and No Treatment (0.1).

Table No 6.1 (l) Method of management of disease (Mean Comparison)

Sl. No	Particular	Location (N=252)					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Medication	0.6	0.9	0.8	1.0	0.7	0.9
2	Traditional Treatment	0.3	0.7	0.3	0.6	0.3	0.6
3	Disposal	0.7	0.9	0.8	1.0	0.7	1.0
4	No Treatment	0.1	0.4	0.0	0.2	0.1	0.3

Source: Computed

6.1 (m) Consequences of Disease

The consequences of disease observed in the present study are classified into Death of Pigs, Stunt Growth, Selling pigs immediately and Increase Expenditure. Most of the respondents Never (62%) have Death of Pigs while the rest Always (38%) faced Death of Pigs.

All of the respondents never (100%) faced Stunt Growth of pigs due to diseases.

Almost all of the respondents Never (97%) need to Sell pigs immediately due to disease which is followed by those that Sometimes (2%) have to sell immediately and also there are respondents who Always (1%) have to Sell pigs immediately due to disease.

Most of the respondents Never (66%) have to Increase Expenditure due to disease but there are small number of respondents who Always (24%) need to Increase Expenditure due to disease followed by those who Sometimes (10%) faced Increasing Expenditure due to disease.

Table No 6.1 (m) Consequences of Disease

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Death of Pigs	157	0	95
		(62)	(0)	(38)
2	Stunt Growth	252	0	0
		100	0	0
3	Selling pigs immediately	245	4	3
		(97)	(2)	(1)
4	Increase Expenditure	166	26	60
		(66)	(10)	(24)

Source: computed

Figures in parenthesis are percentages

The mean score indicated that Death of Pigs (0.8) and Increase Expenditure (0.6) are sometimes caused by diseases and Stunt Growth (0.0) and Selling pigs immediately (0.0) are never the consequences of diseases.

The same pattern is observed in the Far and Near communities, in the Far communities the consequences of disease are sometimes Death of Pigs (0.7) and

Increase Expenditure (0.5), disease never cause Stunt Growth (0.0) and Selling pigs immediately (0.0). In the Near communities, disease causes Death of Pigs (0.7) and Increase Expenditure (0.5) but Stunt Growth (0.0) and Selling pigs immediately (0.0) are never the consequences of disease.

Table No 6.1 (n) Consequences of Disease (Mean Comparison)

Sl. No	Particular	Location (N=252)					
		Far		Near		Total	
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Death of Pigs	0.7	1.0	0.8	1.0	0.8	1.0
2	Stunt Growth	0.0	0.0	0.0	0.0	0.0	0.0
3	Selling pigs immediately	0.0	0.2	0.1	0.3	0.0	0.2
4	Increase Expenditure	0.5	0.8	0.7	0.9	0.6	0.9

Source: Computed

6.2 Challenges Faced

The challenges faced by pig farmers observed in the present study is classified into Lack of capital, High cost of management, Lack of insurance, Diseases, Increase expenditure due to disease, Inability to sell pigs due to disease, Unhealthy Pigs, Death of Pig/Piglet, Fodder Scarcity, High cost of Feed/Fodder, Non availability of Feed, Water Scarcity, Irregular marketing, Scarcity of piglet, Infertility in pigs, High cost of Transportation, Lack of fuel/wood, Non remunerative price, Poor quality of Piglet supplied, Lack of Health Care Facilities, High cost of Labour, Non availability of labour, Poor implementation of govt scheme, Scarcity of land, Poor quality of pig sty and Lack of knowledge and skills.

Half of the respondents Always (52%) faced Lack of Capital followed by that Sometimes (25%) faced this challenges. Small number of respondents Never (23%) faced Lack of capital as a challenge.

Majority of the respondents claim that High cost of management is Always (67%) a challenge faced followed by respondents who Sometimes (24%) faced this challenges. Very few respondents claim they Never (9%) faced High cost of management as a challenge.

Majority of the respondents Never (75%) faced Lack of Insurance as a challenge followed by small number who Always (18%) and Sometimes (7%) faced this challenges.

Half of the respondents said that their pigs Never (53%) have a disease followed by those who Sometimes (37%) have diseases, few respondents claim that they Always (10%) faced Diseases.

Majority of the respondents Never (67%) Increase expenditure due to disease followed by respondents who Sometimes (25%) Increase expenditure due to disease, very few respondents Always (8%) have to Increase expenditure due to disease.

Inability to sell pigs due to disease is Never (99%) a problem faced by almost all of the respondents followed by very few respondents that Sometimes (1%) faced this challenge.

Most of the respondents Never (88%) have Unhealthy Pigs followed by those that Sometimes (11%) have Unhealthy Pigs while only very few respondents Always (1%) faced challenges of Unhealthy Pigs.

More than half of the respondents Never (64%) have Death of Pig/Piglet followed by who Sometimes (32%) faced this challenges, while only very few respondents Always (4%) have Death of Pig/Piglet.

Most of the respondents Sometimes (76%) faced challenge of Fodder Scarcity followed by small number of respondents that Sometimes (23%) faced Fodder Scarcity and very few respondents Always (1%) faced Fodder Scarcity as a challenge.

High cost of Feed/Fodder is Always (90%) a challenges faced by almost all of the respondents followed by Sometimes (8%) that faced this challenges, while very few respondents Never (3%) faced challenges of High cost of Feed/Fodder.

Non availability of Feed is Never (98%) a problem for almost all of the respondents followed by very few respondents who claim it is Always (1%) and Sometimes (1%) a challenges faced.

Water Scarcity is Sometimes (64%) a challenges for more than half of the respondents followed by who Never (30%) faced this challenges and Always (6%) faced Water Scarcity.

Irregular marketing is Never (100%) a challenges faced for all of the respondents.

Scarcity of piglet is Never (99%) a challenges for almost all of the respondents followed by respondents who claim it is Sometimes (1%) a challenges faced.

Infertility in pigs is Never (90%) a challenges faced by almost all of the respondents followed by small number of respondents who Sometimes (10%) faced Infertility in pigs.

High cost of Transportation is Never (100%) a challenges faced for the pig farmers.

Almost all of the respondents Never (97%) faced Lack of fuel/wood followed by respondents who Sometimes (3%) faced challenges of Lack of fuel/wood.

Non remunerative price is Never (100%) a challenges for all of the respondents.

Poor quality of Piglet supplied is Never (98%) a challenges for almost all of the respondents followed by very few respondents that Sometimes (2%) and Always (1%) faced Poor quality of Piglet supplied as a challenge.

Largest number of respondents Sometimes (43%) Lack Health Care Facilities followed by respondents who claim that they Never (41%) Lack Health Care Facilities, while small number of respondents Always (16%) Lack Health Care Facilities.

High cost of Labour is Never (99%) a challenges faced by almost all of the respondents but very few respondents Always (1%) faced High cost of Labour.

Non availability of labour is Never (99%) a challenges faced by all of the respondents.

Poor implementation of govt scheme is Never (73%) a challenges faced by most of the respondents followed by respondents who claim that it is Always (19%) and Sometimes (8%) a challenges faced.

Scarcity of land is Never (92%) a challenges faced by almost all of the respondents followed by very few respondents who claim that they Sometimes (5%) and Always (3%) faced Scarcity of land.

Poor quality of pig sty is Never (95%) a challenge for almost all of the respondents followed by few respondents who Sometimes (5%) faced this challenges.

Lack of knowledge and skills is Sometimes (68%) a challenges for majority of the respondents followed by respondents who claim it is Sometimes (19%) a challenges faced, small number of respondents Always (13%) faced this challenges.

Table No 6.2 (a) Challenges faced

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Lack of capital	58	63	131
		(23)	(25)	(52)
2	High cost of management	22	61	169
		(9)	(24)	(67)
3	Lack of insurance	189	18	45
		(75)	(7)	(18)
4	Diseases	133	94	25
		(53)	(37)	(10)
5	Increase expenditure due to disease	169	64	19
		(67)	(25)	(8)
6	Inability to sell pigs due to disease	250	2	0
		(99)	(1)	(0)
7	Unhealthy Pigs	222	28	2
		(88)	(11)	(1)
8	Death of Pig/Piglet	162	81	9
		(64)	(32)	(4)
9	Fodder Scarcity	57	192	3
		(23)	(76)	(1)
10	High cost of Feed/Fodder	7	19	226
		(3)	(8)	(90)
11	Non availability of Feed	248	1	3
		(98)	(1)	(1)
12	Water Scarcity	77	160	15
		(31)	(64)	(6)
13	Irregular marketing	252	0	0
		(100)	(0)	(0)
14	Scarcity of piglet	251	1	0
		(99)	(1)	(0)

15	Infertility in pigs	227	25	0
		(90)	(10)	(0)
16	High cost of Transportation	252	0	0
		(100)	(0)	(0)
17	Lack of fuel/wood	245	7	0
		(97)	(3)	(0)
18	Non remunerative price	252	0	0
		(100)	(0)	(0)
19	Poor quality of Piglet supplied	246	4	2
		(98)	(2)	(1)
20	Lack of Health Care Facilities	102	109	41
		(41)	(43)	(16)
21	High cost of Labour	250	0	2
		(99)	(0)	(1)
22	Non availability of labour	252	0	0
		(100)	(0)	(0)
23	Poor implementation of gov't scheme	185	19	48
		(73)	(8)	(19)
24	Scarcity of land	232	13	7
		(92)	(5)	(3)
25	Poor quality of pig sty	239	12	1
		(95)	(5)	(0)
26	Lack of knowledge and skills	49	171	32
		(19)	(68)	(13)

Source: Computed

Figures in parenthesis are percentages

The mean score indicated that High cost of management (1.6) and High cost of Feed/Fodder (1.9) are always challenges for respondents. The other challenges such as Lack of capital (1.3), Diseases (0.6), Fodder Scarcity (0.8), Water Scarcity (0.8), Lack of Health Care Facilities (0.8), Poor implementation of govt scheme (0.5) and Lack of knowledge and skills (0.9) are sometimes the challenges faced by the respondents. The rest challenges which are listed viz., Lack of insurance (0.4), Increase expenditure due to disease (0.4), Inability to sell pigs due to disease (0.0), Unhealthy Pigs (0.1), Death of Pig/Piglet (0.4), Non availability of Feed (0.0), Irregular marketing (0.0), Scarcity of piglet (0.0), Infertility in pigs (0.1), High cost of Transportation (0.0), Lack of fuel/wood (0.0), Non remunerative price (0.0), Poor quality of Piglet supplied (0.0), High cost of Labour (0.0), Non availability of labour

(0.0), Scarcity of land (0.1), Poor quality of pig sty (0.1) are never faced by the respondents.

The pattern is different for both the Far and Near communities. In the Far community challenges like High cost of management (1.6) and High cost of Feed/Fodder (1.9) are always faced by the respondents. Lack of capital (1.4), Diseases (0.6), Fodder Scarcity (0.8), Water Scarcity (0.7), Lack of Health Care Facilities (0.8), and Lack of knowledge and skills (0.8) are sometimes the challenges faced by the respondents. The challenges such as Lack of insurance (0.3), Increase expenditure due to disease (0.4), Inability to sell pigs due to disease (0.0), Unhealthy Pigs (0.1), Death of Pig/Piglet (0.4), Non availability of Feed (0.0), Irregular marketing (0.0), Scarcity of piglet (0.0), Infertility in pigs (0.1), High cost of Transportation (0.0), Lack of fuel/wood (0.0), Non remunerative price (0.0), Poor quality of Piglet supplied (0.0), High cost of Labour (0.0), Non availability of labour (0.0), Poor implementation of govt scheme (0.4), Scarcity of land (0.2), Poor quality of pig sty (0.1) are never faced by the respondents.

In the Near communities the respondents always faced a challenges like High cost of management (1.6) and High cost of Feed/Fodder (1.9), they also sometimes faced Lack of insurance (0.5), Lack of capital (1.2), Diseases (0.6), Fodder Scarcity (0.8), Water Scarcity (0.7), Lack of Health Care Facilities (0.7), Poor implementation of govt scheme (0.5) and Lack of knowledge and skills (1.0). They never faced challenges such as Increase expenditure due to disease (0.4), Inability to sell pigs due to disease (0.0), Unhealthy Pigs (0.2), Death of Pig/Piglet (0.4), Non availability of Feed (0.1), Irregular marketing (0.0), Scarcity of piglet (0.0), Infertility in pigs (0.1), High cost of Transportation (0.0), Lack of fuel/wood (0.0), Non remunerative price (0.0), Poor quality of Piglet supplied (0.0), High cost of Labour (0.0), Non availability of labour (0.0), Scarcity of land (0.0), Poor quality of pig sty (0.1).

Table 6.2 (b) Challenges Faced (Mean Comparison)

Sl. No	Challenges	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Lack of capital	1.4	0.7	1.2	0.9	1.3	0.8
2	High cost of management	1.6	0.7	1.6	0.6	1.6	0.6
3	Lack of insurance	0.3	0.7	0.5	0.8	0.4	0.8
4	Diseases	0.6	0.7	0.6	0.6	0.6	0.7
5	Increase expenditure due to disease	0.4	0.6	0.4	0.6	0.4	0.6
6	Inability to sell pigs due to disease	0.0	0.0	0.0	0.1	0.0	0.1
7	Unhealthy Pigs	0.1	0.3	0.2	0.4	0.1	0.4
8	Death of Pig/Piglet	0.4	0.6	0.4	0.5	0.4	0.6
9	Fodder Scarcity	0.8	0.5	0.8	0.4	0.8	0.4
10	High cost of Feed/Fodder	1.9	0.4	1.9	0.4	1.9	0.4
11	Non availability of Feed	0.0	0.0	0.1	0.3	0.0	0.2
12	Water Scarcity	0.8	0.6	0.7	0.5	0.8	0.6
13	Irregular marketing	0.0	0.0	0.0	0.0	0.0	0.0
14	Scarcity of piglet	0.0	0.1	0.0	0.0	0.0	0.1
15	Infertility in pigs	0.1	0.3	0.1	0.3	0.1	0.3
16	High cost of Transportation	0.0	0.0	0.0	0.0	0.0	0.0
17	Lack of fuel/wood	0.0	0.2	0.0	0.1	0.0	0.2
18	Non remunerative price	0.0	0.0	0.0	0.0	0.0	0.0
19	Poor quality of Piglet supplied	0.0	0.2	0.0	0.2	0.0	0.2
20	Lack of Health Care Facilities	0.8	0.8	0.7	0.6	0.8	0.7
21	High cost of Labour	0.0	0.0	0.0	0.2	0.0	0.2
22	Non availability of labour	0.0	0.0	0.0	0.0	0.0	0.0
23	Poor implementation of gov't scheme	0.4	0.8	0.5	0.8	0.5	0.8
24	Scarcity of land	0.2	0.5	0.0	0.1	0.1	0.4
25	Poor quality of pig sty	0.1	0.3	0.1	0.2	0.1	0.2
26	Lack of knowledge and skills	0.8	0.5	1.0	0.6	0.9	0.6

Source: Computed

6.3 Coping Strategies

The coping strategies used for challenges faced observed in the present study is classified as Loan from bank, Financial support from Cooperative, Financial support from SHGs, Borrowed from relatives and friends, Healthy practice from disease, Government support, Collect fodder from forest, Vaccination, Medical treatment from VFA/Doctor, Medical treatment given by self, Purchased Water, Piping water from waterhole, Improve quality of feed, Claiming Insurance, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Training and orientation, Distribution of pamphlet and Use of internet for information and market.

Almost all of the respondents Never (96%) borrowed Loan from bank while very few respondents Sometimes (3%) borrowed loan and very few respondents Always (2%) cope their challenges by borrowing loan from bank.

Almost all of the respondents Never (99%) received Financial support from Cooperative to cope with their challenges which is followed by very few respondents that Sometimes (1%) cope their challenges by Financial support from Cooperative.

Most of the respondents Never (84%) used Financial support from SHGs to cope with challenges while a small number of respondents Sometimes (8%) received Financial support from SHGs followed by who Always (8%) cope their challenges through Financial support from SHGs.

Almost all of the respondents Never (98%) borrowed money from relatives and friends while only few respondents Sometimes (1%) and Always (1%) Borrowed money from relatives and friends to cope with challenges.

Almost half of the respondents Sometimes (42%) used Healthy practice from disease for coping strategies followed by respondents that Always (38%) cope their challenges by Healthy practice from disease. Small number of respondents Never (20%) used Healthy practice from disease to cope with challenges.

Most of the respondents Never (80%) cope their challenges through Government support and the rest Sometimes (20%) cope their challenges through Government support.

Largest number of respondents Sometimes (44%) collect fodder from forest followed by who Always (40%) collect fodder from forest to cope with challenges. A

small number of respondents Never (16%) used collecting fodder from forest as a coping strategy.

Almost half of the respondents Never (49%) used Vaccination as coping strategy followed by those that Sometimes (40%) take vaccination as a coping strategy and a small number Always (12%) take Vaccine to cope with challenges.

Half of the respondents Never (50%) get Medical treatment from VFA/Doctor to faced their challenges followed by those that Sometimes (46%) received Medical treatment from VFA/Doctor. Very few respondents Always (4%) have Medical treatment from VFA/Doctor to cope with their challenges.

Medical treatment given by self is Sometimes (64%) used as a coping strategy by more than half of the respondents followed by those who Always (32%) give Medical treatment given by self. Only few respondents Never (5%) used Medical treatment given by self as a coping strategy.

Most of the respondents Never (83%) Purchased water while there are few respondents that Sometimes (14%) and Always (4%) purchased water to cope with challenges faced.

Almost all of the respondents Never (98%) Pipe water from waterhole and there are very few respondents that Sometimes (2%) used Piping water from waterhole as a coping strategy.

Improving quality of feed is Never (83%) used as a coping strategy by largest number of respondents. Meanwhile, small number of respondents Always (10%) and Sometimes (8%) improve feed quality to cope with challenges faced.

Almost all of the respondents Never (99%) claim Insurance followed by those that Sometimes (1%) claim Insurance to cope with challenges.

Most of the respondents never (88%) have Additional income from bi product as manure and very few respondents Always (7%) and Sometimes (5%) have Additional income from bi product as manure to cope with challenges faced.

Largest number of respondents Never (60%) cultivate vegetable near pig sty for additional income and small number of respondents Sometimes (23%) and Always (17%) cultivate vegetable near pig sty for additional income for coping challenges.

Majority of the respondents Never (75%) attend Training and orientation followed by those who Sometimes (25%) make use of Training and orientation as coping strategy while very few respondents Always (1%) used Training and orientation to cope with challenges.

Distribution of pamphlet is Never (100%) used as a coping strategies.

Majority of the respondents Never (62%) make Use of internet for information and market followed by respondents who Sometimes (30%) use internet for information and market. Very few respondents Always (8%) use internet for information and market as a coping strategy.

Table No 6.3 (a) Coping Strategies

Sl. No	Particular	N=252		
		Never	Sometimes	Always
1	Loan from bank	241	9	2
		(96)	(3)	(1)
2	Financial support from Cooperative	250	2	0
		(99)	(1)	(0)
3	Financial support from SHGs	212	21	19
		(84)	(8)	(8)
4	Borrowed money from relatives and friends	249	1	2
		(99)	(1)	(1)
5	Healthy practice from disease	51	106	95
		(20)	(42)	(38)
6	Government support	202	50	0
		(80)	(20)	(0)
7	Collect fodder from forest	40	112	100
		(16)	(44)	(40)
8	Vaccination	123	100	29
		(49)	(40)	(12)
9	Medical treatment from VFA/Doctor	125	116	11
		(50)	(46)	(4)
10	Medical treatment given by self	12	160	80
		(5)	(64)	(32)
11	Purchased Water	208	34	10
		(83)	(14)	(4)
12	Piping water from waterhole	247	4	1
		(98)	(2)	(0)

13	Improve quality of feed	209	19	24
		(83)	(8)	(10)
14	Claiming Insurance	250	2	0
		(99)	(1)	(0)
15	Additional income from bi product as manure	221	13	18
		(88)	(5)	(7)
16	Cultivation of vegetable near pig sty for additional income	152	58	42
		(60)	(23)	(17)
17	Training and orientation	188	62	2
		(75)	(25)	(1)
18	Distribution of pamphlet	252	0	0
		(100)	(0)	(0)
19	Use of internet for information and market	157	76	19
		(62)	(30)	(8)

Source: Computed

Figures in parenthesis are percentages

The mean score indicated that the coping strategies such as Healthy Practice from Disease (1.2), Collect fodder from forest (1.2), Vaccination (0.6), Medical treatment from VFA/Doctor (0.5), Medical treatment given by self (0.5), Cultivation of vegetable near pig sty for additional income (0.6) and Use of internet for information and market(0.5) are sometimes used to managed challenges faced. The other strategies which are listed like Loan from bank (0.1), Financial support from Cooperative (0.0), Financial support from SHGs (0.2), Burrowed from relatives and friends (0.0), Government support (0.2), Purchased Water (0.2), Piping water from waterhole (0.0), Improve quality of feed (0.3), Claiming Insurance (0.0), Additional income from bi product as manure(0.2), Training and orientation (0.3), Distribution of pamphlet (0.0) are never used for coping their challenges.

The same pattern is observed in the Near communities as Healthy Practice from Disease (1.3), Collect fodder from forest (1.4), Vaccination (0.6), Medical treatment from VFA/Doctor (0.6), Medical treatment given by self (1.3), Cultivation of vegetable near pig sty for additional income (0.5) and Use of internet for information and market (0.6) are sometimes used for coping the challenges faced. The rest coping strategies such as Loan from bank (0.0), Financial support from Cooperative (0.0), Financial support from SHGs (0.2), Burrowed from relatives and friends (0.0), Government support (0.2), Purchased Water (0.1), Piping water from

waterhole (0.0), Improve quality of feed (0.2), Claiming Insurance (0.0), Additional income from bi product as manure (0.3), Training and orientation (0.2), Distribution of pamphlet (0.0) are never used for coping their challenges.

In the Far communities, the following coping strategies are sometimes used to managed their challenges Healthy Practice from Disease (1.0), Collect fodder from forest (1.1), Vaccination (0.6), Medical treatment from VFA/Doctor (0.5), Medical treatment given by self (1.2), Cultivation of vegetable near pig sty for additional income (0.6). The other strategies like Loan from bank (0.1), Financial support from Cooperative (0.0), Financial support from SHGs (0.3), Burrowed from relatives and friends (0.0), Government support (0.2), Purchased Water (0.3), Piping water from waterhole (0.0), Improve quality of feed (0.3), Claiming Insurance (0.0), Additional income from bi product as manure (0.1), Training and orientation (0.3), Distribution of pamphlet (0.0) and Use of internet for information and market (0.3) are never used for coping their challenges.

Table No 6.3 (b) Coping Strategies (Mean Comparison)

Sl. No	Particular	Location (N=252)				Total	
		Far		Near			
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
1	Loan from bank	0.1	0.3	0.0	0.2	0.1	0.3
2	Financial support from Cooperative	0.0	0.0	0.0	0.1	0.0	0.1
3	Financial support from SHGs	0.3	0.6	0.2	0.5	0.2	0.6
4	Burrowed from relatives and friends	0.0	0.3	0.0	0.1	0.0	0.2
5	Healthy practice from disease	1.0	0.8	1.3	0.7	1.2	0.7
6	Government support	0.2	0.4	0.2	0.4	0.2	0.4
7	Collect fodder from forest	1.1	0.7	1.4	0.6	1.2	0.7
8	Vaccination	0.6	0.7	0.6	0.7	0.6	0.7
9	Medical treatment from VFA/Doctor	0.5	0.6	0.6	0.6	0.5	0.6
10	Medical treatment given by self	1.2	0.6	1.3	0.5	1.3	0.5
11	Purchased Water	0.3	0.6	0.1	0.3	0.2	0.5
12	Piping water from waterhole	0.0	0.2	0.0	0.1	0.0	0.2
13	Improve quality of feed	0.3	0.7	0.2	0.5	0.3	0.6
14	Claiming Insurance	0.0	0.1	0.0	0.1	0.0	0.1

15	Additional income from bi product as manure	0.1	0.4	0.3	0.7	0.2	0.5
16	Cultivation of vegetable near pig sty for additional income	0.6	0.8	0.5	0.7	0.6	0.8
17	Training and orientation	0.3	0.5	0.2	0.4	0.3	0.5
18	Distribution of pamphlet	0.0	0.0	0.0	0.0	0.0	0.0
19	Use of internet for information and market	0.3	0.5	0.6	0.7	0.5	0.6

Source: Computed

6.4 Relationship between Challenges and Coping Strategies

Lack of Capital have significant relationship with the coping strategy of Collecting fodder from Forest (.178**), while it has negative relationship with Financial support from Cooperative (-.131*), Healthy practice from disease (-.288**), Medical treatment from VFA/Doctor (-.219**), Medical treatment given by self (-.351**), Improve quality of feed (-.321**), Additional income from bi product as manure (-.415**), Cultivation of vegetable near pig sty for additional income (-.150*), Training and orientation (-.124*) and Use of internet for information and market (-.239**). This indicates that they cope their challenges by collecting from forest which decreases expenditure for feed.

High cost of management has significant relationship with Purchased Water (.127*) while it has negative relationship with Financial support from SHGs (-.140*), Medical treatment given by self (-.189**), Additional income from bi product as manure (-.126*), Cultivation of vegetable near pig sty for additional income (-.136*) and Use of internet for information and market (-.150*). This indicates that SHG and other sources of income did not help in coping high cost of management.

Lack of insurance has significant relationship with Loan from bank (.198**), Financial support from Cooperative (.168**), Financial support from SHGs (.196**), Healthy practice from disease (.274**), Medical treatment from VFA/Doctor (.313**), Medical treatment given by self (.440**), Improve quality of feed (.199**), Additional income from bi product as manure (.517**) and Use of internet for information and market (.299**). Meanwhile, it has negative relationship with Collect fodder from forest (-.135*). This indicates that lack of insurance is being

cope through financial support from SHG and Cooperative Society, improving health condition of pigs through quality feed and medical treatment.

Diseases has significant relationship with Healthy practice from disease (.236**), Government support (.227**), Medical treatment from VFA/Doctor (.360**), Medical treatment given by self (.391**), Purchased Water (.171**), Claiming Insurance (.156*), Additional income from bi product as manure (.290**), Cultivation of vegetable near pig sty for additional income (.143*), Training and orientation (.250**) and Use of internet for information and market (.214**). This indicates that Diseases has been cope by maintaining healthy practices and treating pigs with medicine and receiving help from Gov't and earning secondary income through cultivating and selling manure, training and internet are also strategies used to cope with this challenge.

Increase expenditure due to disease has significant relationship with Healthy practice from disease (.237**), Government support (.199**), Vaccination (.240**), Medical treatment from VFA/Doctor (.384**), Medical treatment given by self (.224**), Purchased Water (.184**), Claiming Insurance (.174**), and Training and orientation (.138*). This indicates that Increasing expenditure due to disease is being cope by giving medical treatment by VFA and self, healthy practices and training, purchasing water and claiming insurance are also coping strategies used for this challenge.

Inability to sell pigs due to disease has significant relationship with Loan from bank (.198**), Borrowed from relatives and friends (.399**) and Medical treatment given by self (.125*). This indicates that financial help from bank and relatives and treating pigs by self are source of help to cope with Inability to sell pigs due to disease.

Unhealthy Pigs has significant relationship with Borrowed from relatives and friends (.183**), Healthy practice from disease (.164**), Medical treatment from VFA/Doctor (.185**), Medical treatment given by self (.277**), Improve quality of feed (.218**), Additional income from bi product as manure (.280**), Cultivation of vegetable near pig sty for additional income (.212**), Training and orientation (.187**) and Use of internet for information and market (.130*). This indicates that

burrowing money from others, medical treatment and supplying quality feed, earning extra income, training and internet are coping strategies used for unhealthy pigs.

Death of Pig/Piglet has significant relationship with Healthy practice from disease (.173**), Government support (.131*), Vaccination (.277**), Medical treatment from VFA/Doctor (.304**), Medical treatment given by self (.198**), Purchased Water (.158*) and Claiming Insurance (.145*). This indicates that Death of Pig/Piglet is coped by giving medical treatment, vaccine, receiving gov't support and claiming insurance.

Fodder Scarcity has significant relationship with Collect fodder from forest (.433**) while it has negative relationship with Financial support from Cooperative (-.162**), Healthy practice from disease (-.284**), Government support (-.211**), Medical treatment from VFA/Doctor (-.309**), Medical treatment given by self (-.367**), Improve quality of feed (-.295**), Claiming Insurance (-.162**), Additional income from bi product as manure (-.574**), Cultivation of vegetable near pig sty for additional income (-.252**), Training and orientation (-.215**), and Use of internet for information and market (-.263**). This indicates that Fodder Scarcity has been coping by collecting fodder from forest, healthy practices from disease and receiving gov't support.

High cost of Feed/Fodder has significant relationship with Vaccination (.171**) and Improve quality of feed (.153*), while it has negative relationship with Medical treatment given by self (-.194**) and Additional income from bi product as manure (-.191**). This indicates that High cost of Feed/Fodder used coping strategies like vaccine and supplying quality feed.

Non availability of Feed has significant relationship with Use of internet for information and market (.130*) and has negative relationship with Medical treatment from VFA/Doctor (-.125*). This indicates that internet has been used for receiving information and for marketing to cope with Non availability of Feed.

Water Scarcity has significant relationship with Purchased Water (.434**) and it has negative relationship with Loan from bank (-.125*), Financial support from Cooperative (-.127*), Financial support from SHGs (-.150*), Healthy practice from disease (-.182**), Medical treatment from VFA/Doctor (-.138*), Medical treatment given by self (-.370**), Additional income from bi product as manure (-

.367**), Cultivation of vegetable near pig sty for additional income (-.278**) and Use of internet for information and market (-.164**). This indicates that Water scarcity has been coping by purchasing water.

Scarcity of piglet has significant relationship with Financial support from SHGs (.132*) and Additional income from bi product as manure (.154*). This indicates that Scarcity of piglet is managed by financial support from SHG and selling manure to earn income.

Infertility in pigs has significant relationship with Financial support from SHGs (.186**), Healthy practice from disease (.267**), Government support (.234**), Medical treatment from VFA/Doctor (.124*), Medical treatment given by self (.283**), Purchased Water (.201**), Improve quality of feed (.160*), Additional income from bi product as manure (.365**), Cultivation of vegetable near pig sty for additional income (.270**), Training and orientation (.177**), and Use of internet for information and market (.315**). It has negative relationship with Collect fodder from forest (-.231**). This indicates that Infertility in pigs has been cope by financial support from SHG and Gov't, medical treatment and improving quality of feed, manure and cultivation for earning income, training and internet are also used for coping with this challenge.

Lack of fuel/wood has significant relationship with Collect fodder from forest (.126*). This indicates that Lack of fuel/wood is cope by collecting fodder from forest.

Poor quality of Piglet supplied has significant relationship with Financial support from SHGs (.230**), Healthy practice from disease (.143*), Medical treatment from VFA/Doctor (.168**), Medical treatment given by self (.168**), Piping water from waterhole (.162**) and Improve quality of feed (.130*). This indicates that they coped Poor quality of Piglet supplied by receiving support from SHG and medical treatment by VFA and self, improving feed supplied and piping water from waterhole.

Lack of Health Care Facilities has significant relationship with Financial support from Cooperative (.141*), Medical treatment from VFA/Doctor (.165**), Improve quality of feed (.303**), Additional income from bi product as manure (.180**), it has negative relationship with Government support (-.172**), Purchased

Water (-.269**). This indicates that Lack of Health Care Facilities has been cope by financial support from Cooperative society, medical treatment from VFA, supplying quality feed and selling manure for earning income.

High cost of Labour has significant relationship with Vaccination (.151*), Medical treatment from VFA/Doctor (.168**), and Medical treatment given by self (.125*), Improve quality of feed (.214**), Additional income from bi product as manure (.252**) and Cultivation of vegetable near pig sty for additional income (.148*). This indicates that High cost of Labour used coping strategies like giving vaccine, medical treatment, supplying quality feed and making income through manure and cultivating vegetables near pig sty.

Poor implementation of govt scheme has significant relationship with Loan from bank (.151*), Financial support from SHGs (.360**), Healthy practice from disease (.341**), Medical treatment from VFA/Doctor (.283**), Medical treatment given by self (.549**), Improve quality of feed (.242**), Claiming Insurance (.162**), Additional income from bi product as manure (.628**) and Cultivation of vegetable near pig sty for additional income (.311**), Training and orientation (.279**), and Use of internet for information and market (.283**). Meanwhile, it has negative relationship with Collecting fodder from forest (-.164**). This indicates that Poor implementation of Gov't scheme has been cope by financial support from bank and SHG, medical treatment and healthy practices, additional income from manure and cultivation of vegetables, training and using internet for information and market.

Scarcity of land has negative relationship with Collect fodder from forest (-.204**). This indicates that due to scarcity of land respondents faced challenges that they have no sources for collecting fodder.

Poor quality of pig sty has significant relationship with Healthy practice from disease (.144*), Medical treatment given by self (.127*), Improve quality of feed (.135*), Additional income from bi product as manure (.137*). This indicates that Poor quality of pig sty is being coped by healthy practices in maintaining pig farm, providing quality feed and medical treatment by self and earning income through manure.

Lack of knowledge and skills has significant relationship with Medical treatment from VFA/Doctor (.217**), Improve quality of feed (.151*) and has

negative relationship with Medical treatment given by self (-.126*), Purchased Water (-.130*), Piping water from waterhole (-.137*) and Cultivation of vegetable near pig sty for additional income (-.199**). This indicates that Lack of knowledge and skills has been cope by medical treatment by VFA and supplying quality feed.

Table No 6.4 Relationship between Challenges and Coping Strategies

	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16	C17	C18
Ch1	0.075	-.131*	-0.091	0.046	-.288**	-0.119	.178**	-0.03	-.219**	-.351**	-0.021	0.021	-.321**	-0.049	-.415**	-.150*	-.124*	-.239**
Ch2	0.097	0.062	-.140*	0.006	-0.092	0.058	-0.116	-0.038	-0.022	-.189**	.127*	-0.01	0.091	-0.024	-.126*	-.136*	0.014	-.150*
Ch3	.198**	.168**	.196**	0.026	.274**	0.107	-.135*	0.041	.313**	.440**	-0.015	-0.012	.199**	0.059	.517**	0.109	0.084	.299**
Ch4	0.081	-0.082	0.053	0.091	.236**	.227**	-0.022	0.102	.360**	.391**	.171**	0.119	0.08	.156*	.290**	.143*	.250**	.214**
Ch5	0.121	-0.062	0.033	-0.005	.237**	.199**	0.068	.240**	.384**	.224**	.184**	0.051	0.031	.174**	0.086	-0.077	.138*	0.11
Ch6	.198**	-0.008	-0.039	.399**	0.104	0.068	0.102	0.108	0.079	.125*	-0.041	-0.013	-0.04	-0.008	-0.033	0.004	0.05	0.015
Ch7	0.098	-0.033	0.09	.183**	.164**	0.038	-0.061	0.053	.185**	.277**	-0.04	0.123	.218**	0.104	.280**	.212**	.187**	.130*
Ch8	0.038	-0.066	0.072	-0.009	.173**	.131*	-0.005	.277**	.304**	.198**	.158*	0.03	0.039	.145*	-0.01	-0.075	0.063	0.023
Ch9	-0.073	-.162**	-0.112	-0.029	-.284**	-.211**	.433**	0.05	-.309**	-.367**	-0.105	0.006	-.295**	-.162**	-.574**	-.252**	-.215**	-.263**
Ch10	0.072	0.03	-0.136*	-0.08	-0.109	-0.096	-0.094	.171**	0.04	-.194**	-0.04	-0.042	.153*	0.03	-.191**	-0.108	0.108	-0.053
Ch11	-0.027	-0.011	-0.055	-0.014	0.006	-0.063	0.058	0.038	-.125*	-0.07	-0.058	-0.018	-0.057	-0.011	-0.047	0.005	-0.074	.130*
Ch12	-.125*	-.127*	-.150*	-0.085	-.182**	-0.076	-0.039	0.048	-.138*	-.370**	.434**	-0.037	-0.001	0.023	-.367**	-.278**	-0.056	-.164**
Ch13	-0.013	-0.006	.132*	-0.007	0.073	-0.031	0.072	-0.062	-0.062	0.088	-0.029	-0.009	-0.029	-0.006	.154*	0.055	-0.037	-0.048
Ch14	0.061	-0.03	.186**	-0.036	.267**	.234**	-.231**	0.068	.124*	.283**	.201**	-0.047	.160*	0.12	.365**	.270**	.177**	.315**
Ch15	-0.036	-0.015	-0.012	-0.019	-0.003	0.037	.126*	0.022	-0.076	-0.033	0.055	-0.024	-0.076	-0.015	-0.063	0.027	-0.044	0.097
Ch16	-0.033	-0.014	.230**	-0.017	.143*	0.055	-0.048	-0.04	.168**	.168**	0.005	.162**	.130*	-0.014	0.091	0.007	0.088	-0.02
Ch17	0.038	.141*	-0.006	-0.008	0.074	-.172**	-0.088	0.002	.165**	0.096	-.269**	0.02	.303**	-0.1	.180**	-0.066	-0.023	-0.114
Ch18	-0.019	-0.008	-0.039	-0.01	0.104	-0.044	0.102	.151*	.168**	.125*	-0.041	-0.013	.214**	-0.008	.252**	.148*	-0.052	0.099
Ch19	.151*	0.109	.360**	0.089	.341**	0.051	-.164**	0.07	.283**	.549**	-0.006	0.035	.242**	.162**	.628**	.311**	.279**	.283**
Ch20	-0.063	-0.026	-0.013	-0.032	0.005	0.003	-.204**	0.027	-0.052	0.035	0.1	-0.042	-0.054	-0.026	-0.06	0.104	0.026	0.088
Ch21	0.037	-0.021	-0.048	-0.026	.144*	-0.071	-0.045	0.038	0.109	.127*	0.047	-0.033	.135*	-0.021	.137*	0.064	0.067	0.072
Ch22	-0.04	0.013	-0.072	-0.052	0.063	0.045	-0.004	0.053	.217**	-.126*	-.130*	-.137*	.151*	-0.069	-0.044	-.199**	-0.056	-0.058

Source: Computed

Challenges

- Ch1 : Lack of capital
- Ch2 : High cost of management
- Ch3 : Lack of insurance
- Ch4 : Diseases
- Ch5 : Increase expenditure due to disease
- Ch6 : Inability to sell pigs due to disease
- Ch7 : Unhealthy Pigs
- Ch8 : Death of Pig/Piglet
- Ch9 : Fodder Scarcity
- Ch10 : High cost of Feed/Fodder
- Ch11 : Non availability of Feed
- Ch12 : Water Scarcity
- Ch13 : Scarcity of piglet
- Ch14 : Infertility in pigs
- Ch15 : Lack of fuel/wood
- Ch16 : Poor quality of Piglet supplied
- Ch17 : Lack of Health Care Facilities
- Ch18 : High cost of Labour
- Ch19 : Poor implementation of govt scheme
- Ch20 : Scarcity of land
- Ch21 : Poor quality of pig sty
- Ch22 : Lack of knowledge and skills

Coping mechanism

- C1 : Loan from bank
- C2 : Financial support from Cooperative
- C3 : Financial support from SHGs
- C4 : Borrowed from relatives and friends
- C5 : Healthy practice from disease
- C6 : Government support
- C7 : Collect fodder from forest
- C8 : Vaccination
- C9 : Medical treatment from VFA/Doctor
- C10 : Medical treatment given by self
- C11 : Purchased Water
- C12 : Piping water from waterhole
- C13 : Improve quality of feed
- C14 : Claiming Insurance
- C15 : Additional income from bi product as manure
- C16 : Cultivation of vegetable near pig sty for additional income
- C17 : Training and orientation
- C18 : Use of internet for information and market

6.4 Participatory Rural Appraisal (PRA) and Pig farming in rural Mizoram

The evaluation and learning methodology known as Participatory Rural Appraisal (PRA) focuses on giving locals the tools they need to actively analyse their own living circumstances, issues, and potentials in order to look for ways to improve their circumstances. Collective action is expected to bring about changes, and local communities are encouraged to take on responsibility for carrying out the necessary initiatives.

The PRA has mostly been used for advocacy and learning initiatives, service design, and stakeholder accountability. PRA is seen as an exercise that shifts the planning and decision-making responsibilities that are often carried out by government institutions and development organisations to the target group or community itself. It essentially embodies the concepts of decentralisation and empowerment.

The present study use PRA viz., Services and Opportunities Map, Resource Map, Daily Activities Schedule and Seasonal Diagram to understand the vulnerability context of pig farmers.

6.4.1 Services and Opportunities Map

Services and Opportunities Map is a representation of a community's services and prospects that is created by the community itself and is displayed on a map of the area, highlighting important sites such as schools, hospitals, marketplaces, water sources, and other areas of economic or social development that may present chances for growth.

6.4.1 (a) Saihapui K

Services and opportunities for Saihapui K are measured from the central point of the locality, known as 'Kawn.' The main services and opportunities mentioned by pig farmers include markets, veterinary healthcare, sources of concentrated feed and fodder, and banking facilities. The primary market channel for selling their products is within the locality and in Kolasib, approximately 15 kilometres away. Fodder is collected from nearby areas, with some farmers gathering it from neighbouring villages about 4 kilometres away. Banking, concentrated feed, and healthcare services are generally accessed in Kolasib, located around 15 kilometres from the community. Regarding water, they have access to a water connection.

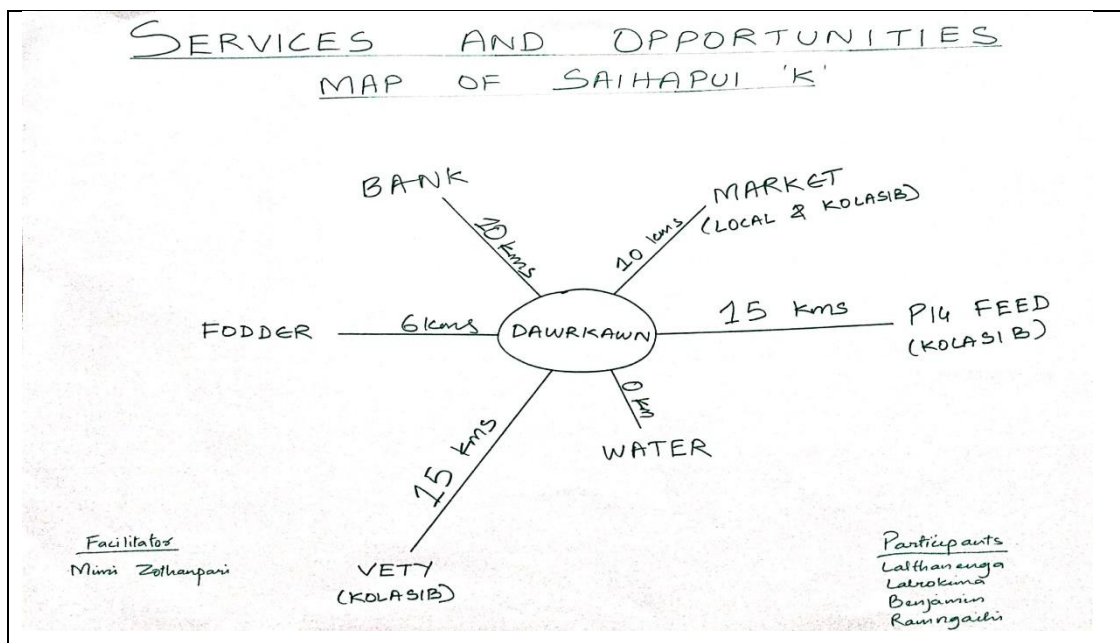


Figure 4 Services and Opportunities Map of Saihapui K

6.4.1 (b) Rengtekawn

Pig farmers in Rengtekawn have access to various services and resources for their farming needs, including veterinary care, banking, markets, pig feed, fodder, water, and piglets. The main bank and healthcare facilities used by farmers are located in Kolasib, which is about 4 kilometres away. Fodder is primarily sourced from outside the locality, approximately 5 kilometres away, while dry feed is collected locally around 2 kilometres. Water is supplied through a connection, and piglets are usually purchased from the local market. The primary marketing channel for their products is Kolasib, which is about 6 kilometres from the locality.

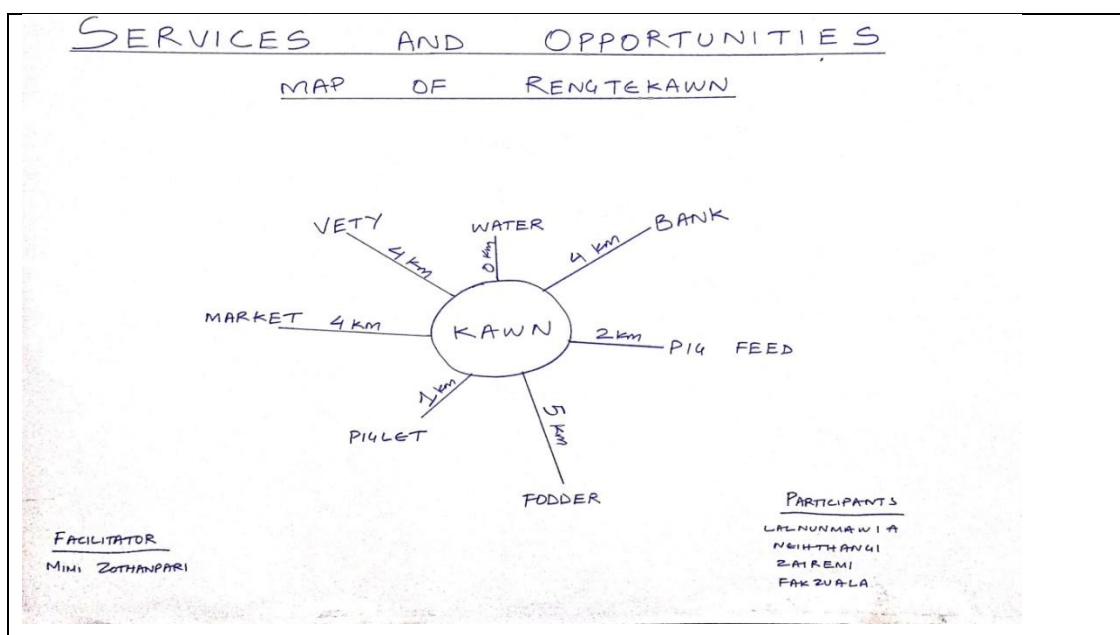


Figure 5 Services and Opportunities Map of Rengtekawn

6.4.1 (c) North Chaltlang

North Chaltlang has access to various resources and opportunities. For instance, they use local banks for saving money, and veterinary health care providers to treat sick animals. The community also has access to essential resources like water, fodder, and concentrated feed, as well as a reliable marketing channel. Their main market for selling products is in Aizawl, located about 51 kilometres from the centre of North Chaltlang. For veterinary health services, they seek assistance from providers in the nearby village of Bukpui, which is about 12 kilometres away. Concentrated feed is sourced from Aizawl, with a transportation cost of ₹70 per bag, as the distance is around 51 kilometres. Additionally, they rely on nearby forests and agricultural farms, located about 7 kilometres away, as a source of fodder. The community also benefits from a water connection that they depend on for their needs.

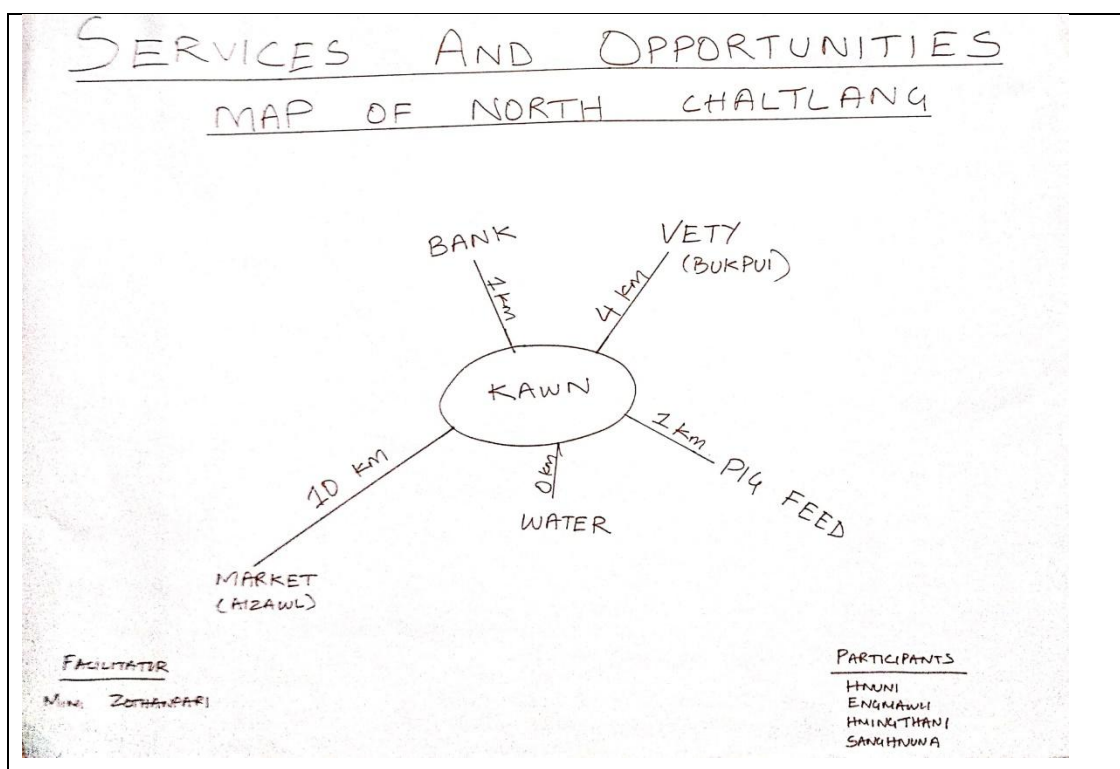


Figure 6 Services and Opportunities Map of North Chaltlang

6.4.1 (d) Lungdai

In Lungdai, most of the needs for pig farming are met locally. Farmers can easily access dry feed, fodder, water, veterinary health care services, and banking facilities within the locality. The main bank and veterinary health care services are just 1 kilometre away. Dry feed, which includes concentrated feed agents, is readily available locally, and fodder is mainly collected from nearby houses and the outskirts

of the locality. The primary marketing channel for their products is Aizawl, which is about 10 kilometres from Lungdai.

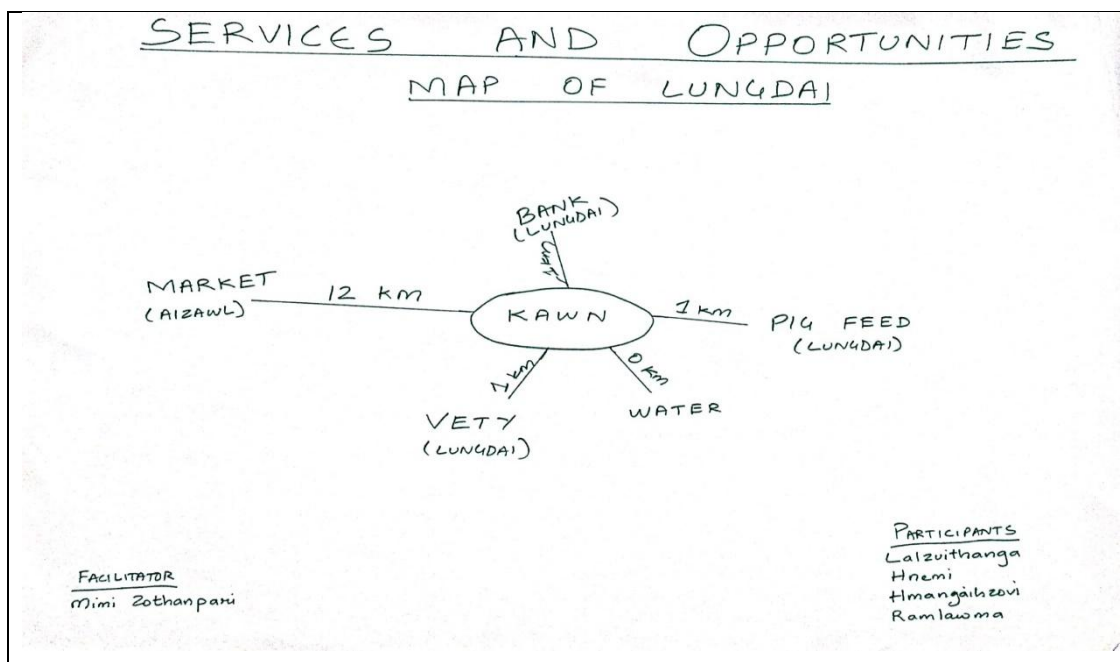


Figure 7 Services and Opportunities Map of Lungdai

6.4.1 (e) Sialsuk

In Sialsuk, the State Bank of India (SBI) serves as the central hub for accessing various services and opportunities such as water, banking, veterinary healthcare, concentrated feed, and fodder. Farmers use the bank primarily to save the money they earn from their products. They also benefit from having their own Veterinary Field Assistant (VFA), making it easier to care for sick animals. Fodder is mostly collected from the outskirts of the village, while concentrated feed is sourced from Aizawl, about 64 kilometres away, which incurs transportation costs. Although water connections are available, during the dry season, farmers sometimes need to purchase water.

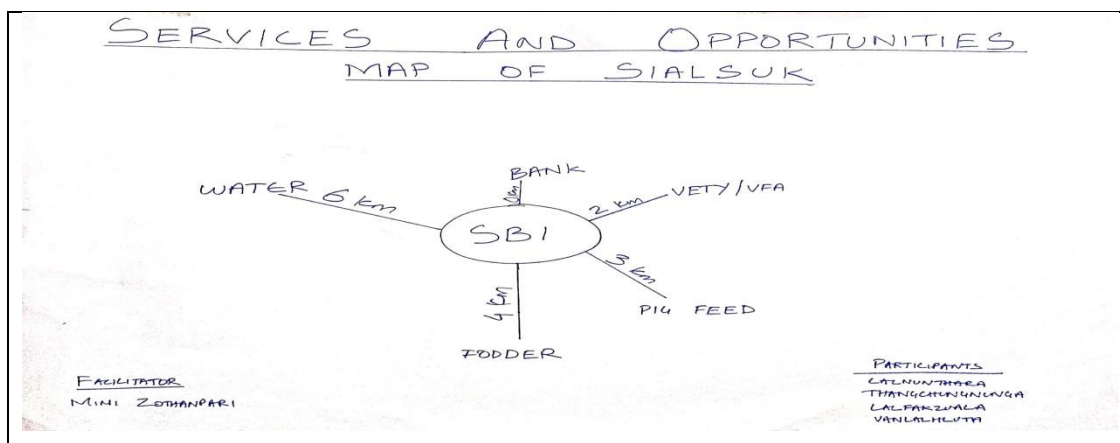


Figure 8 Services and Opportunities Map of Sialsuk

6.4.1 (f) Sumsuih

In Sumsuih, the market serves as the central point for accessing various services and opportunities, including marketing channels, veterinary healthcare, water, fodder, and concentrated feed. These services are located in different areas. Farmers source concentrated feed from Aizawl, about 48 kilometres away, which involves transportation costs. Fodder is mainly collected from their own farms, approximately 10 kilometres away, usually after completing farm work. Veterinary healthcare is available in Sialsuk, located 4 kilometres from the centre of Sumsuih. The community has a reliable water connection, and their primary marketing channel is local.

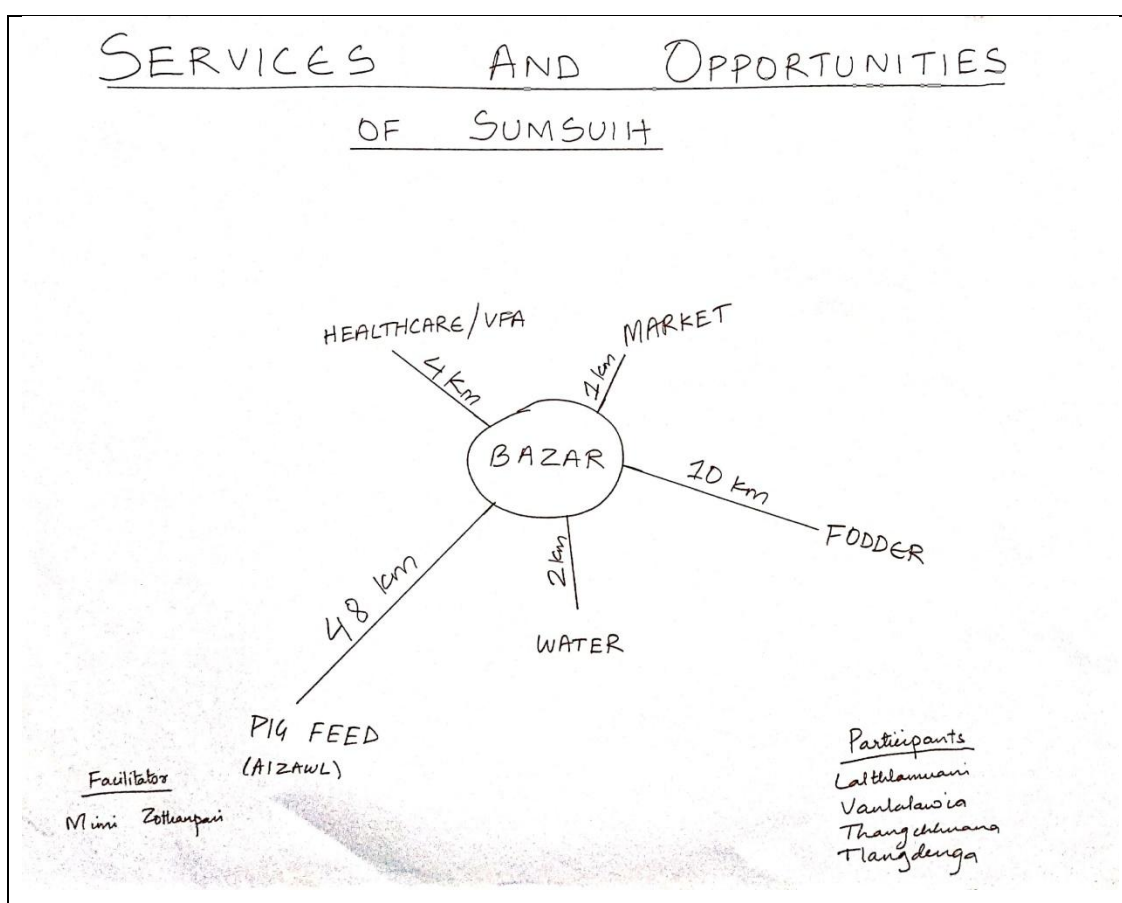


Figure 9 Services and Opportunities Map of Sumsuih

6.4.1 (g) Sihphir

In Sihphir, the central hub for services and opportunities is the Mizoram Rural Bank (MRB). This bank serves as an important resource for the community, particularly for saving money. Most of the community's needs are met locally, ensuring convenience. The bank, located in the central part of Sihphir, is also close to

the community's veterinary healthcare services, which are only about 2 kilometres away. Concentrated feed is typically purchased from the local market, just 1 kilometre away, while the source of fodder is on the outskirts of the community, about 6 kilometres away. However, the community does not have a water connection, so they rely on purchasing water. Piglets are usually bought from a local supplier located around 5 kilometres from the community.

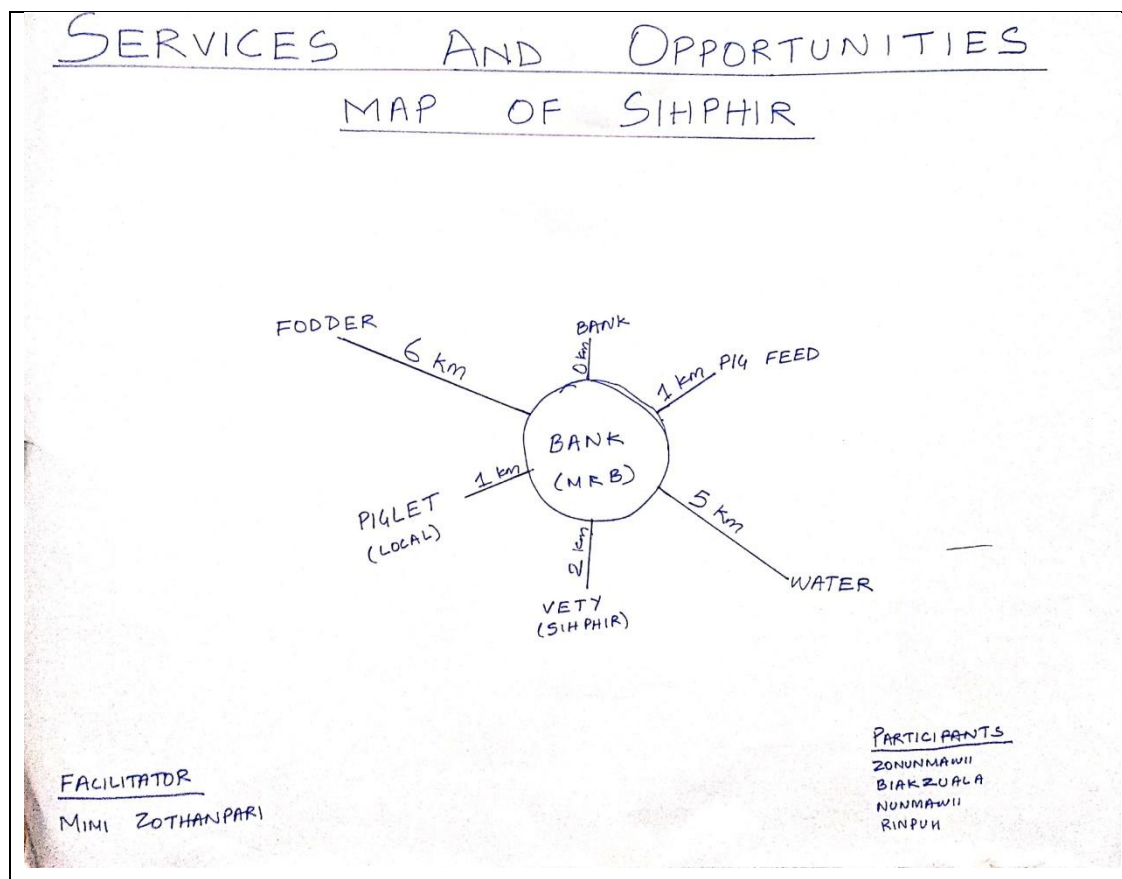


Figure 10 Services and Opportunities Map of Sihphir

6.4.1 (h) Muthi

In the Muthi community, the playground serves as the central point for evaluating services and opportunities for pig farmers. The community accesses veterinary healthcare in Durtlang, which is approximately 9 kilometres from the playground. For financial services, they use a bank to save money, and both the bank and pig feed are sourced from Thuampui, located 4.8 kilometres away. The community markets their products locally, with the market about 2 kilometres away, and they also purchase piglets from nearby local suppliers. Additionally, the community benefits from a water connection, making it easier for them to meet their basic needs.

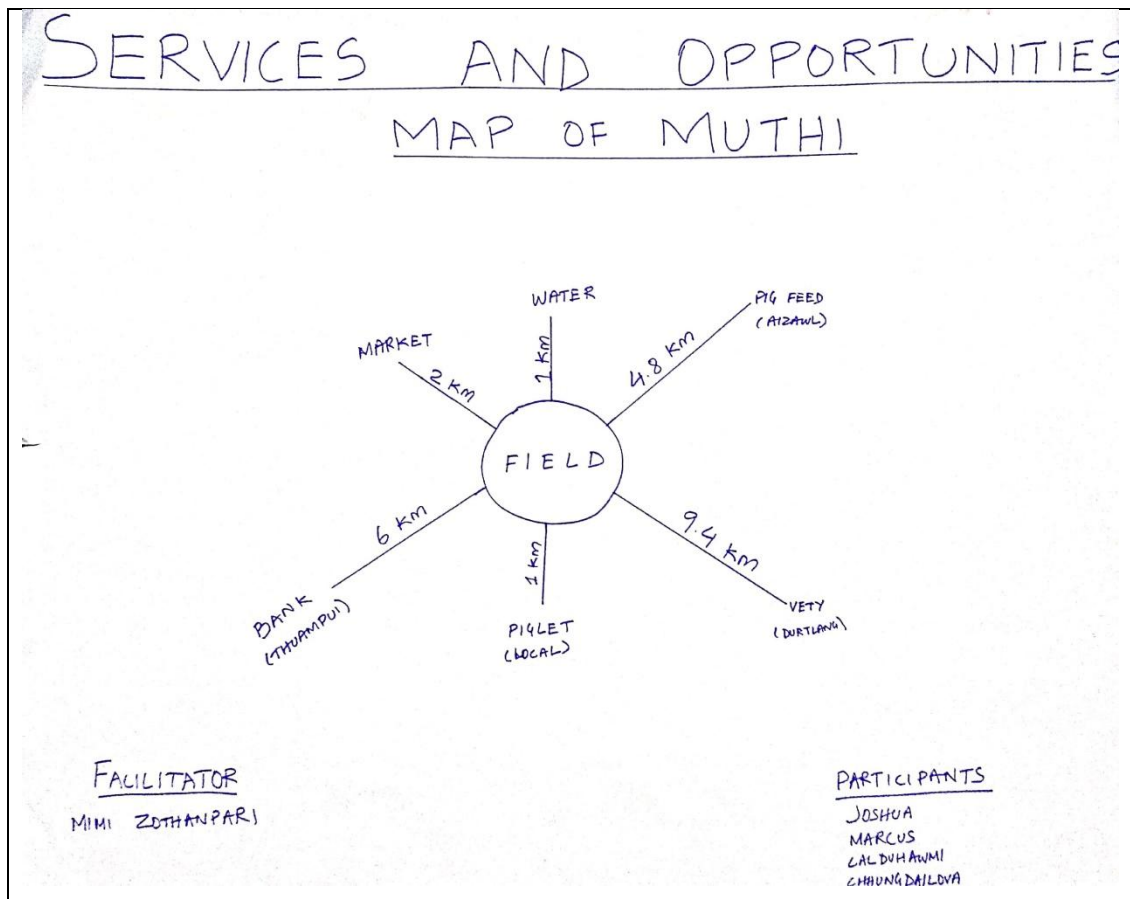


Figure 11 Services and Opportunities Map of Muthi

Summary of Services and Opportunities Map

Pig farmers in various localities of Kolasib District have access to services such as markets, veterinary healthcare, feed, fodder, banking, and water, though distances and sources vary. In Saihapui K, services are mostly available within the locality or Kolasib, 15 km away. Rengtekawn farmers access healthcare and markets within 4-6 km. North Chaltlang relies on Aizawl (51 km away) for markets and feed, while Lungdai farmers meet most needs locally. Sialsuk's key services are accessible locally or from Aizawl, 64 km away. Sumsuih sources concentrated feed from Aizawl (48 km), while Sihphir and Muthi communities manage most needs locally, but access specialized services from nearby towns.

6.4.2 Daily Activities Schedule

Daily activities schedule is a visual representation that shows the various activities that a community member or group engages in during the day, commonly plotted on a timeline to show the timing and duration of each action to comprehend the details of a person's or group's everyday life, including work, housework, leisure,

and other significant occasions, in order help researchers in identifying possible problem areas or places for development.

6.4.2 (a) Saihapui K

The respondents typically wake up between 5:00 and 6:00 a.m., starting their day by preparing breakfast. Before eating, they clean the pigsty and feed the pigs. After breakfast, they engage in activities such as agriculture or other forms of work. Once their daily tasks are completed, they focus on household chores like cleaning the house and preparing dinner. In the evening, they cook feed for the pigs and then feed them. After having dinner, they take some time to rest before either attending church activities or handling any other necessary tasks. The rest of the night is spent relaxing by watching TV, visiting neighbors, or spending time with family, with bedtime usually around 11:00 p.m.

TIME	ACTIVITIES
5:00am - 6:00pm	WAKE UP
6:30am - 8:00am	PREPARING BREAKFAST
8:30am - 9:00am	CLEANING & FEEDING PIGS.
9:00am - 9:30am	BREAKFAST
10:00am - 3:30pm	WORKING & COLLECTING FODDER
3:30pm - 4:00pm	DOING HOUSEHOLD CHORES
4:00pm - 5:00pm	FEEDING PIGS + COOKING PIG FEED
5:00pm - 6:00pm	DINNER
6:00pm - 6:30pm	TEA TIME
6:30pm - 8:00pm	ATTENDING CHURCH OR DOING NECESSARY WORK
8:00pm - 11:00pm	WATCHING TV / VISITING NEIGHBOURS
11:00pm onwards	SLEEPING

FACILITATOR
MIMI ZOTHANPARI

PARTICIPANTS
ZALEK JIA
ZAL STAKHUNG
ZAL STAKHUNG

Figure 12 Daily Activities Schedule of Saihapui K

6.4.2 (b) Rengtekawn

The respondents wake up between 5:00 and 5:30 AM and start the day by preparing pig feed. Afterward, they make breakfast and take care of household

chores. The pigs are typically fed between 8:00 and 9:00 AM, after which they have their own breakfast. The rest of the day is spent working and attending to various tasks. In the late afternoon, around 4:00 PM, they clean the pigsty and feed the pigs again. After preparing and having dinner, they either attend church or visit neighbors, spending the evening in leisure. They usually go to bed around 10:30 PM.

DAILY ACTIVITIES SCHEDULES OF RENGTEKAWN	
TIME	ACTIVITIES
5:00am-5:30am	Wake up/Wash Up
5:30am-6:30am	Cooking Pig Feed
6:30am-8:00am	Household Chores
8:00am-9:00am	Breakfast
9:00am-4:00pm	Working
4:00pm-4:30pm	Cleaning Pigsty/Feeding Pigs
4:30pm-6:00pm	Preparing Dinner/ Dinner Time
6:00pm-8:00pm	Attending Church/ Visiting Neighbours
8:00pm-10:30pm	Leisure Time
10:30pm-onwards	Sleeping
FACILITATOR Mim Lothangpui PARTICIPANTS Thammaui Labnunmauia Zinhang Labnunfeli	

Figure 13 Daily Activities Schedule of Rengtekawn

6.4.2 (c) North Chaltlang

The respondents typically wake up between 5:00 and 6:00 AM, wash up, and have tea before starting their household chores. They feed the pigs between 8:00 and 8:30 AM and then have breakfast. Afterward, they prepare for work, spending most of their day engaged in agricultural activities. Once their work is done, they clean the pigsty and feed the pigs again. After dinner, they either attend church or, if there are no other activities, prepare pig feed. The rest of the evening is spent relaxing, and they usually go to bed around 11:00 PM.

DAILY ACTIVITIES SCHEDULE OF NORTH CHALTLANG	
TIME	ACTIVITIES
5:00 am - 6:00 am	Wake up + Tea Time
6:00 am - 8:00 am	Household Chores
8:00 am - 8:30 am	Feeding Pigs
8:30 am - 9:30 am	Breakfast - Preparing for work.
9:30 am - 3:00 pm	Working
3:00 pm - 4:30 pm	Cleaning Pigsty & Cooking
4:30 pm - 6:00 pm	Dinner + Feeding Pigs
6:00 pm - 9:00 pm	Dinner Time
9:00 pm - 11:00 pm	Church Activities + Cooking Pig Feed.
11:00 pm onwards	Leisure Time
	Sleeping
FACILITATOR Ulini Zothanpari PARTICIPANTS Lalruatpuii Ngilnei Isak Ramlauma	

Figure 14 Daily Activities Schedule of North Chaltlang

6.4.2 (d) Lungdai

The community typically wakes up around 6:00 to 6:30 AM and begins the day with household activities, such as preparing breakfast and pig feed. After feeding the pigs, they have breakfast and wash the dishes. They then get ready for the day and spend most of it working in agriculture. Once work is done, they feed the pigs again and spend the evening doing household chores and having dinner. In the night, they attend church, community meetings, or other necessary events, followed by downtime before going to bed around 10:30 PM.

DAILY ACTIVITIES SCHEDULE OF LUNGDAI	
TIME	ACTIVITIES
6:00am - 6:30am	Wake up
6:30am - 7:30am	Preparing Breakfast
7:30am - 8:00am	Preparing Pig Feed
8:00am - 8:15am	Feeding Pigs
8:15am - 8:40am	Breakfast
8:40am - 9:30am	Washing dishes and drinking tea
9:30am - 10:00am	Preparing for work
10:00am - 4:00pm	Working + Feeding Pigs
4:00pm - 6:00pm	Preparing and having dinner
6:30pm - 8:00pm	Church/Committee etc.
8:00pm - 10:30pm	Downtime
10:30pm onwards	Sleeping
FACILITATOR Mimi Zethanpori PARTICIPANTS Luithanga Thansiala Reuben	

Figure 15 Daily Activities Schedule of Lungdai

6.4.2 (e) Sialsuk

In the Sialsuk community, people typically rise between 5:00 and 6:00 AM. They begin the day with tea and household chores. Pigs are fed between 8:00 and 8:30 AM, followed by breakfast. Most of the day is spent working, including collecting fodder from their farms. In the evening, after returning home, they prepare pig feed, feed the pigs, and clean the pigsty. After these tasks, they prepare and have dinner between 6:00 and 6:30 PM. The night is spent attending church, visiting neighbors, or enjoying leisure time. They typically go to bed around 11:00 PM.

DAILY ACTIVITIES SCHEDULE OF SIALSUK	
Time	Activities
5:00am - 6:00am	Wake up and Tea Time
6:00am - 8:00am	Household chores
8:00am - 8:30am	Feeding Pigs
8:30am - 9:30am	Breakfast
9:30am - 3:30pm	Working
3:30pm - 4:30pm	Cooking + Feeding Pigs + Cleaning Pigsty
4:30pm - 6:30pm	Preparing Dinner + Dinner
6:30pm - 8:30pm	Attending church / Other Activities Visiting Neighbours
8:30pm - 11:00pm	Leisure Time
11:00pm onwards	Sleeping
Facilitator Mini Zothanpau Participants Lalyakzuala Lalukhimi Lalmatsanga Lalduhauoma	

Figure 16 Daily Activities Schedule of Sialsuk

6.4.2 (f) Sumsuih

The community typically wakes up between 5:00 and 5:30 AM, beginning the day by washing up and having tea. Their morning is spent preparing breakfast, doing household chores, feeding the pigs, and cleaning the pigsty. After feeding the pigs, they have breakfast and then spend the day working, sometimes collecting fodder as well. In the evening, they clean the pigsty again and feed the pigs, followed by preparing and having dinner. Once they've finished any necessary tasks, they cook pig feed at night and spend the rest of the evening resting, usually going to bed by 11:00 PM.

DAILY ACTIVITIES SCHEDULE OF SUMSUH	
TIME	ACTIVITIES
5:00am - 5:30 am	Wake up + Tea Time
6:00am - 8:00 am	Preparing Breakfast / Household Chores
8:00am - 8:30am	Feeding Pigs / Cleaning Pigsty
8:30am - 9:30am	Breakfast
9:30am - 3:30 pm	Working / Collecting Fodder
3:30pm - 4:30 pm	Cleaning Pigsty / Feeding Pig
4:30pm - 6:00pm	Preparing Dinner / Dinner
6:00pm - 8:30pm	Church Activities / Praying
8:30pm - 9:30pm	Cooking pig feed
9:30pm - 11:00pm	Leisure Time
11:00pm - Onwards	Sleeping
<u>Facilitator</u> Mini Zothanpani <u>Participants</u> Lalchuanliova Sangchuma Thangchuma Lalrinchuan	

Figure 17 Daily Activities Schedule of Sumsuh

6.4.2 (g) Sihphir

The community usually wakes up between 5:30 and 6:00 AM, starting their day with household chores. Before preparing breakfast, they feed the pigs and clean the pigsty, then proceed to make breakfast. Their day is spent working to earn a living, and afterward, they tend to necessary pig farming tasks like cooking pig feed and feeding the pigs. In the evening, they have dinner and may spend the night attending church or participating in assigned programs. Before bed, they enjoy family time and relaxation, typically going to sleep around 11:00 PM.

DAILY ACTIVITIES SCHEDULE OF SIHPHIR	
TIME	ACTIVITIES
5:30am - 6:00am	WAKE UP
6:00am - 7:00am	DOING HOUSEHOLD CHORES
7:00am - 7:30am	FEEDING PIGS
7:30am - 8:30am	PREPARING BREAKFAST
8:30am - 9:30am	BREAKFAST
9:30am - 3:00pm	WORKING
3:00pm - 4:00pm	PREPARING PIG FEED + FEEDING PIGS
4:00pm - 5:30pm	PREPARING DINNER
5:30pm - 6:30pm	DINNER
6:30pm - 8:30pm	CHURCH ACTIVITIES/COMMITTEE
8:30pm - 11:30pm	LEISURE TIME
11:00pm onwards	SLEEPING
Facilitator MIMI ZATHANPARI	Participants — (i) Lalthmingsangi (ii) Lalthmangashi (iii) Zoravallana (iv) Lalbakmawia

Figure 18 Daily Activities Schedule of Sihphir

6.4.2 (h) Muthi

The community typically wakes up early in the morning, starting their day with tea while preparing breakfast and handling household chores. Pigs are fed between 7:00 and 8:00 AM, and the pigsty is also cleaned at that time. After breakfast, they spend the day working to earn an income and collecting fodder. In the evening, after preparing dinner, they cook pig feed and feed the pigs between 4:00 and 5:00 PM, followed by their own dinner. The night is spent attending to necessary activities, relaxing, and spending time with family, and they usually go to bed around 10:00 PM.

DAILY ACTIVITIES SCHEDULE OF MUTHI	
TIME	ACTIVITIES
5:00am – 6:00am	WAKE UP + TEA TIME
6:00am – 7:00am	PREPARING BREAKFAST +
7:00am – 8:00am	DOING HOUSEHOLD CHORES
8:00am – 9:00am	CLEANING PIGSTY +
9:00am – 10:00am	FEEDING PIG
10:00am – 3:00pm	BREAKFAST
3:00pm – 4:00pm	TEA TIME + PREPARING FOR WORK
4:00pm – 5:00pm	WORKING / COLLECTING FOODER
5:00pm – 6:00pm	PREPARING DINNER +
6:00pm – 10:00pm	COOKING PIG FOOD
10:00pm ONWARDS	FEEDING PIG + CLEANING PIGSTY
	DINNER
	ATTENDING ACTIVITIES /
	LEISURE TIME
	SLEEPING
FACILITATOR- MIMI ZOTHANPARI PARTICIPANTS- (i) Laldubhamsi (ii) Joshua (iii) Lalchhuanawmi (iv) Ngurchhuanawmia	

Figure 19 Daily Activities Schedule of Muthi

Summary of Daily Activities Schedule

In various communities, the daily routine of pig farmers begins early, typically between 5:00 and 6:30 AM. Their morning activities include preparing breakfast, feeding the pigs, and doing household chores. Afterward, they engage in agricultural work or other income-generating tasks. The pigs are usually fed again in the afternoon, around 4:00 to 5:00 PM, followed by cleaning the pigsty. Evenings are spent preparing dinner, attending church, or participating in community activities, and the day ends with relaxation, visiting neighbors, or spending time with family. Bedtime is generally between 10:00 and 11:00 PM.

6.4.3 Seasonal Diagram

Seasonal calendar, seasonal activity profile, and seasonal analysis are other names for seasonal diagrams. One of the most widely used PRA techniques for temporal analysis that extend annual cycles is the seasonal diagram, which uses months or seasons as the fundamental unit of analysis. The locals' opinions about

seasonal variations on a variety of goods are reflected in it. Though they can be cross-checked against primary or secondary data to confirm the information produced, seasonal diagrams are not statistically based.

The seasons play a crucial role in people's lives and have a significant influence on locals' standard of living, especially in rural areas. To investigate what occurs throughout the year and when, seasonal diagrams have been employed. Their usefulness and richness are increased by quantifying and illustrating the scope of the various activities.

6.4.3 (a) Saihapui K

Fodder, including vegetables and leaves, is most abundant during the rainy season, from June to October, though it is also available in April and May. Feed is generally available year-round, but transportation challenges during the rainy season can sometimes cause difficulties. From the diagram, it's evident that disease outbreaks tend to occur mostly during the summer months, from March to July. Water is more plentiful during the rainy season, from June to September. The marketing season usually coincides with the festive period, from October to January.

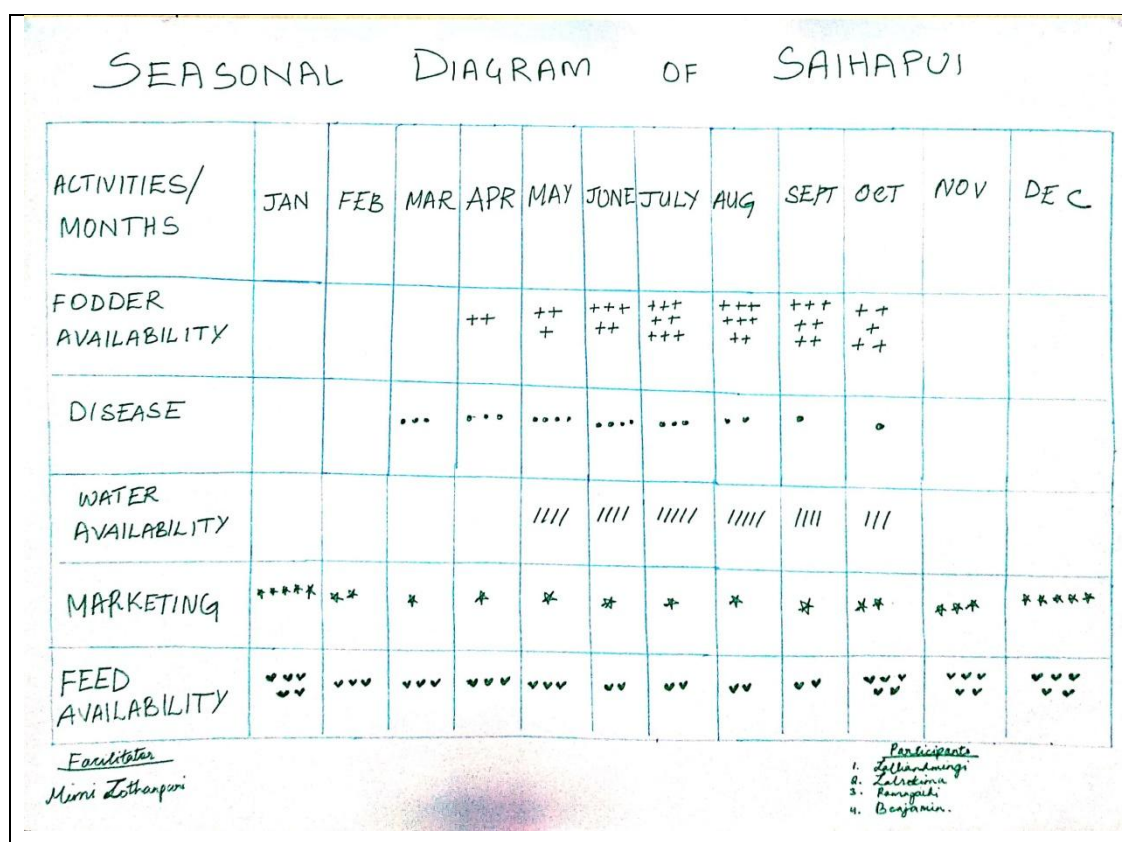


Figure 20 Seasonal Diagram of Saihapui K

6.4.3 (b) Rengtekawn

Water is most readily available from June to October, which is also when fodder is abundant due to the rainfall that nourishes the plants. Disease outbreaks tend to occur during the rainy season, as the increased presence of insects facilitates the spread of illness. The community has a shop that sells concentrated feed, ensuring they never face a shortage of feed throughout the year. They rarely experience difficulty selling their products, but December and January see the highest sales, as the Christmas season drives increased demand for meat during the festive period.

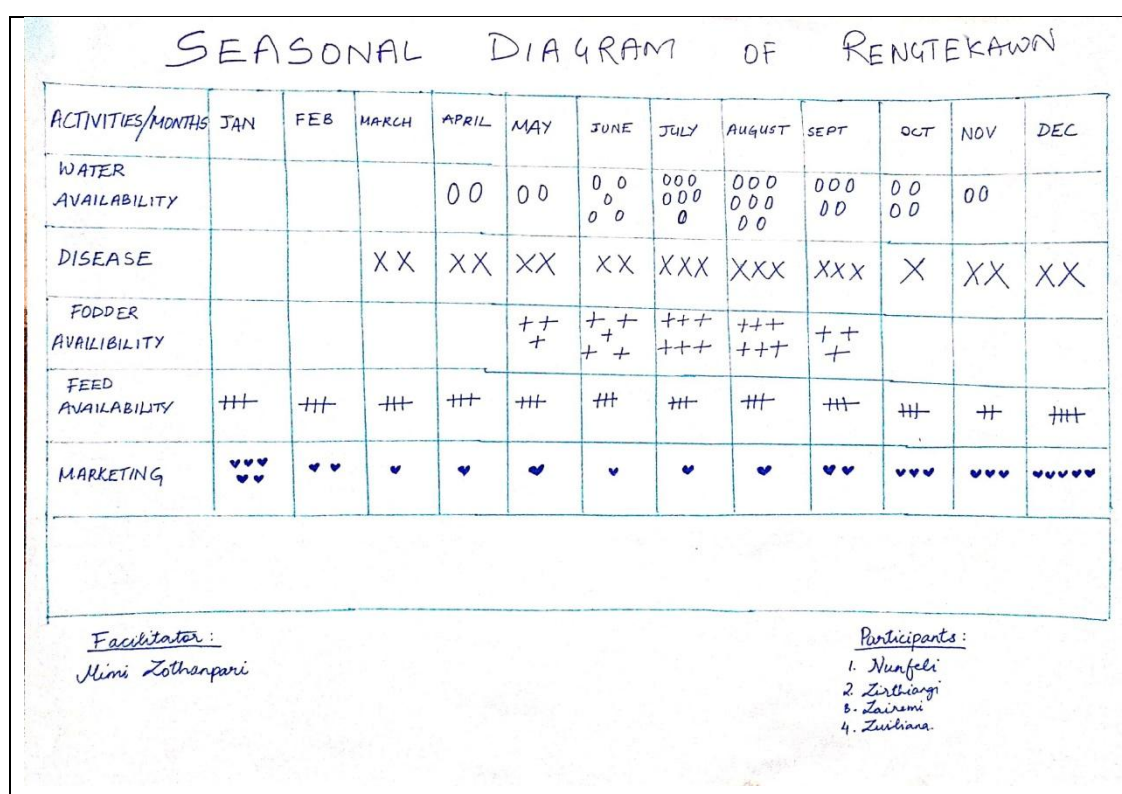


Figure 21 Seasonal Diagram of Rengtekawn

6.4.3 (c) North Chaltlang

The rainy season, from June to September, is when water and fodder are most abundant compared to other seasons. However, this is also when disease outbreaks are more common, as insects that transmit diseases are more prevalent. Feed is available year-round, so the respondents never face challenges due to feed shortages. Pork is the most consumed meat among the Mizos, making it generally easy to sell their products. While marketing is easier during festive seasons, they occasionally struggle to sell during disease outbreaks.

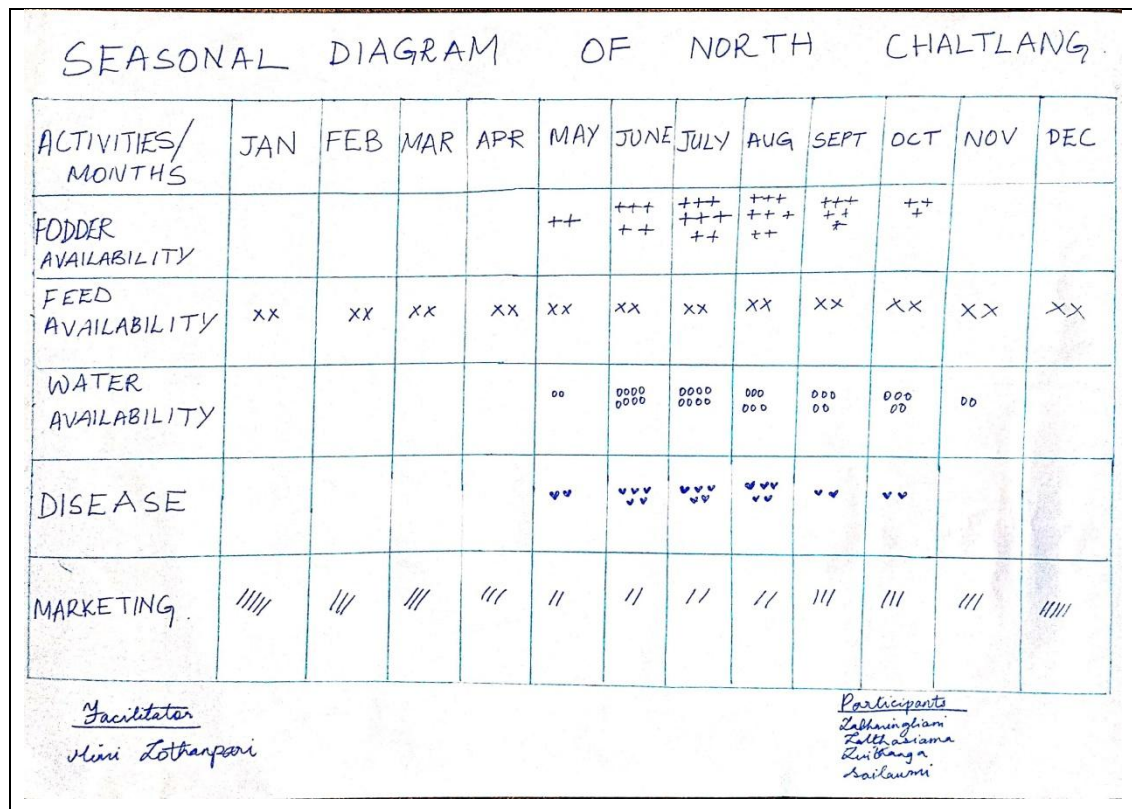


Figure 22 Seasonal Diagram of North Chaltlang

6.4.3 (d) Lungdai

Concentrated feed is available year-round, though transportation challenges due to bad roads during the rainy season can sometimes cause difficulties. Fodder and water are abundant during the rainy season, from June to September, so respondents have little concern about their availability during that time. Disease outbreaks are more common during the dry season, likely because maintaining cleanliness in the pigsty is harder due to limited water. Marketing is typically easier during festive seasons, as people spend more to celebrate Christmas and other holidays.

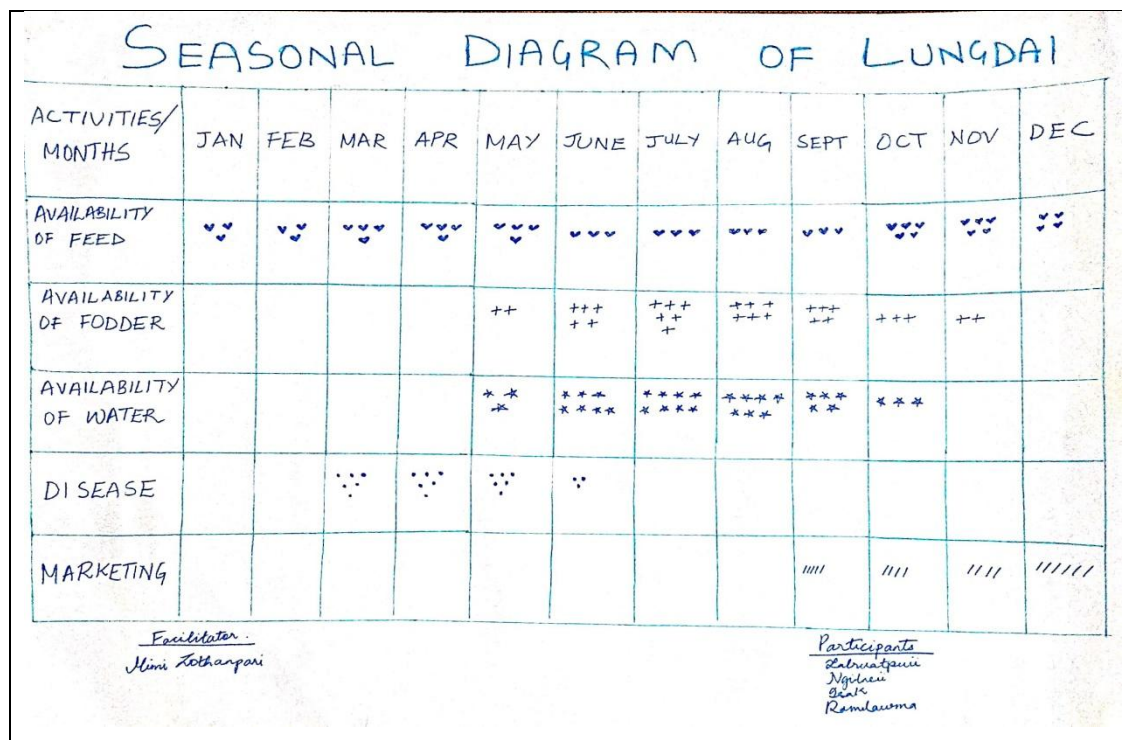


Figure 23 Seasonal Diagram of Lungdai

6.4.3 (e) Sialsuk

Fodder and water are both readily available during the rainy season, from June to September, while feed is supplied year-round without any issues. Disease outbreaks mainly occur from the end of the dry season and continue throughout the rainy season, which also poses challenges for marketing. However, the festive season, from November to January, is when marketing becomes much easier for farmers, as demand increases during celebrations.

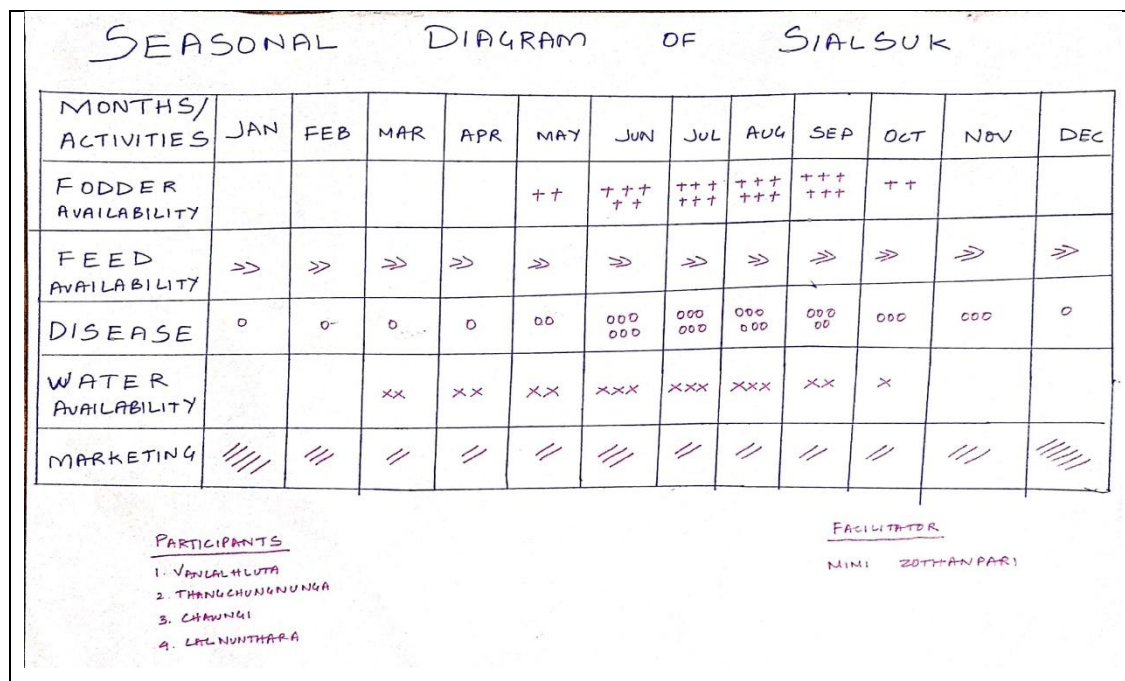


Figure 24 Seasonal Diagram of Sialsuk

6.4.3 (f) Sumsuih

During the rainy season, from June to September, farmers have abundant fodder and water, meeting the pigs' needs. Feed is available year-round, though transportation challenges can arise during the rainy season. Disease outbreaks are most common between May and September, making marketing difficult for farmers during this period. However, if their pigs remain disease-free, the months from September to January offer the best marketing opportunities, as the festive season brings increased demand for meat, with various churches celebrating with feasts.

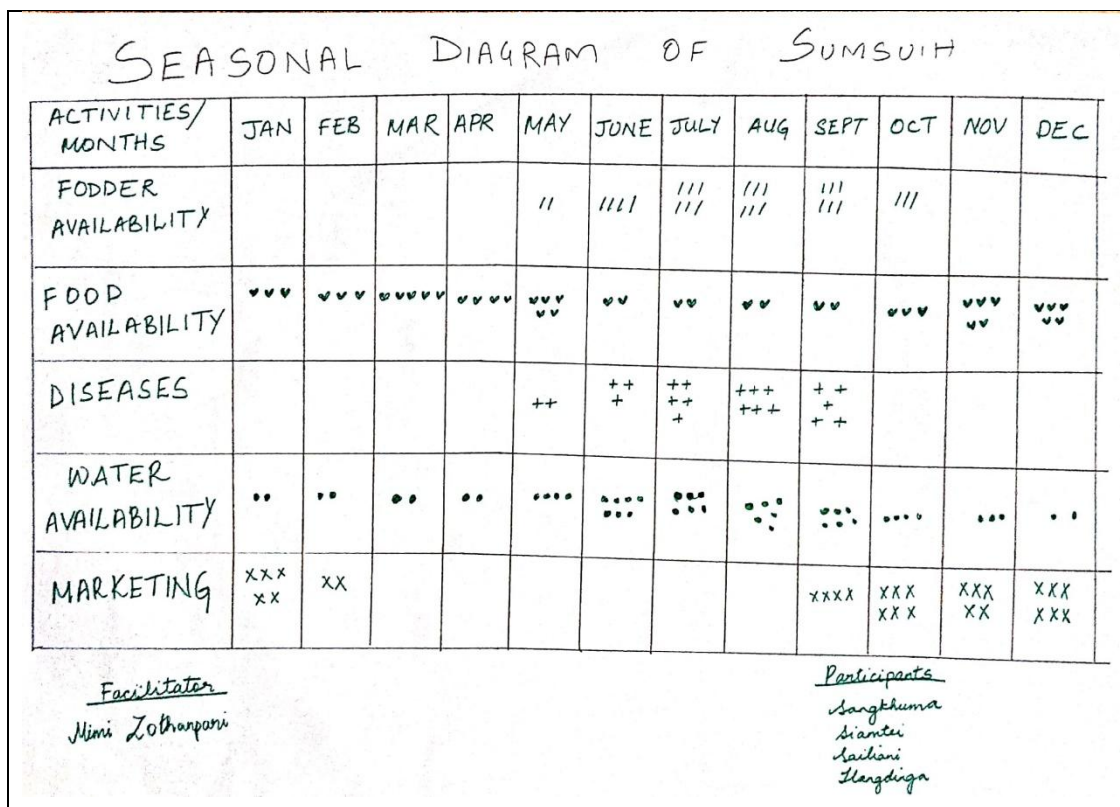


Figure 25 Seasonal Diagram of Sumsuih

6.4.3 (g) Sihphir

From June to September, fodder and water are more easily accessible for farmers, as the rainy season alleviates the need to buy water, a necessity due to the lack of water connections in the community. However, disease outbreaks typically begin at the end of the dry season in March and continue through the rainy season, presenting significant challenges despite the availability of water and fodder. Feed is available year-round, as the community has a shop that supplies concentrated feed. In terms of marketing, December and January are the best months for farmers, as the Christmas season in Mizoram drives high demand for pork.

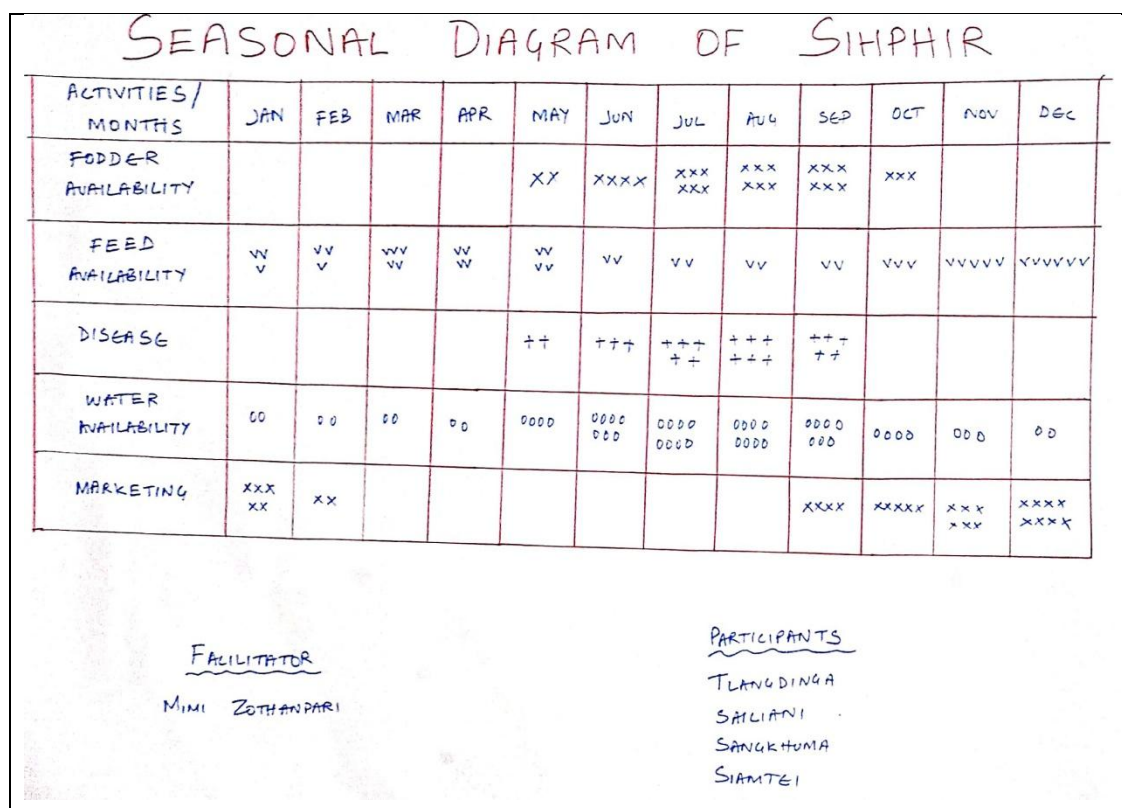


Figure 26 Seasonal Diagram of Sihphir

6.4.3 (h) Muthi

Fodder is available from May to November, with peak availability during the rainy season, from June to September. Feed is supplied year-round, so farmers don't have to worry about shortages. Water is mostly available from May to October, coinciding with the rainy season, which helps farmers maintain cleanliness in their farming operations. Disease outbreaks typically occur from March to September, which can make it difficult for farmers to market their products during this period. Milton et al., (2023) also pointed out that Indian farming community that raises pigs is seriously threatened by swine illnesses, which can result in large financial losses. However, after the outbreak season, marketing improves, with December and January being the easiest months to sell due to the high demand during the festive season. Senthilkumar & Raja (2021) in their study they mentioned that many farmers raised pigs to sell during the festive period indicates that the season is an advantageous time for farmers to market their products.

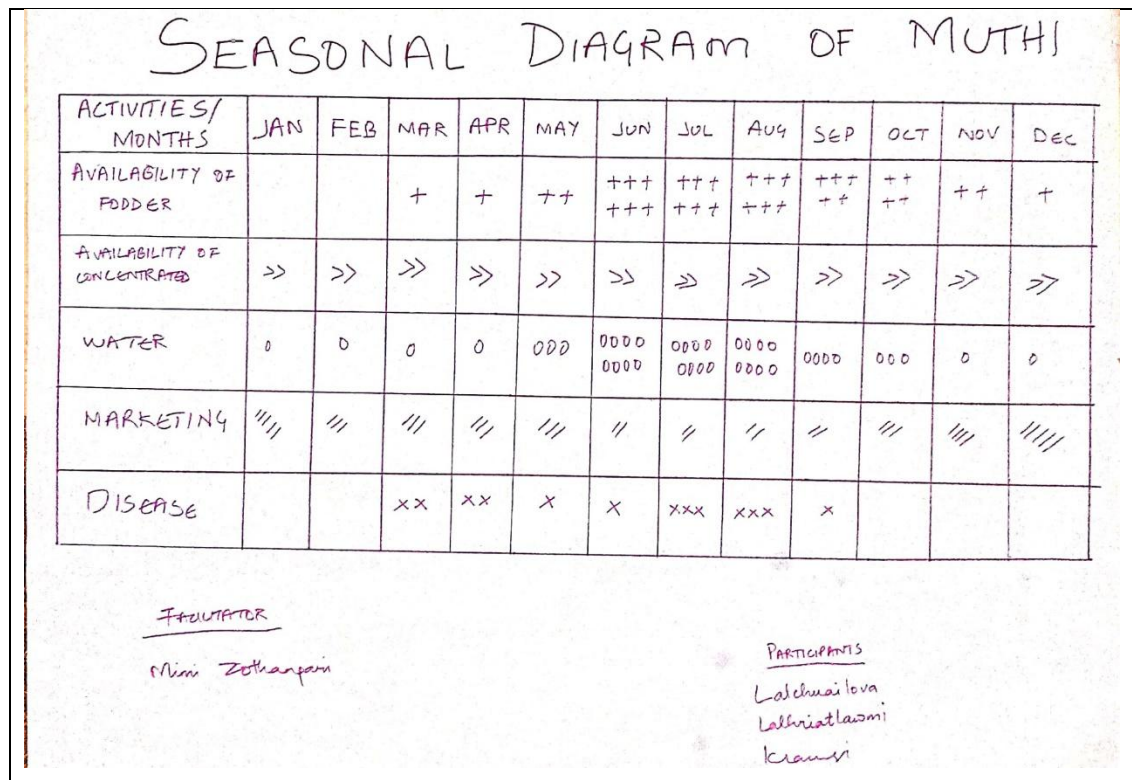


Figure 27 Seasonal Diagram of Muthi

Summary of Seasonal Diagram

Fodder and water are abundant during the rainy season, from June to September, making it easier for farmers to meet the needs of their pigs. Feed is available year-round, though transportation challenges may arise during the rainy season. Disease outbreaks are common from March to September, especially during the rainy months when insects are more prevalent, which can complicate marketing. Despite these challenges, the festive season from October to January provides excellent marketing opportunities, with high demand for pork during celebrations like Christmas.

6.4.4 Resource Map

The resource map shows the land, hills, rivers, fields, vegetation, and other natural resources in the area it might also include information on habitation. The line separating the social map from the resource map occasionally become hazy. It is carried out by locals rather than specialists. The locals are thought to possess extensive knowledge of the environment in which they have long lived. As a result, the locals' resource map is seen as accurate and detained. But it's crucial to remember that it represents people's perceptions rather than exact measurements to scale. As a result, a resource map shows how local residents perceive their natural resources.

6.4.4 (a) Saihapui K

Saihapui is rich in natural resources, with a river running through the locality. Fodder can easily be collected from nearby areas since the community has fewer buildings, and people live in scattered parts of the area, allowing them to grow vegetables and fodder close to their homes. Agriculture is the main occupation, and many residents are able to gather fodder directly from their own farms.

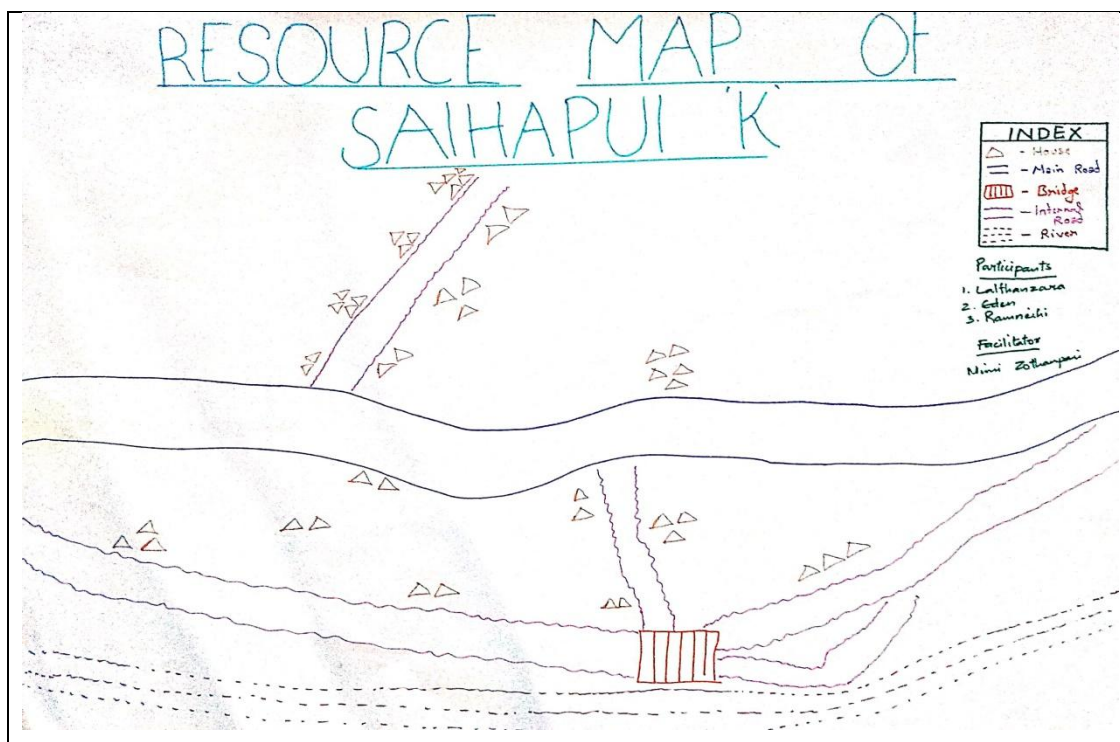


Figure 28 Resource Map of Saihapui K

6.4.4 (b) Rengtekawn

Rengtekawn has a reliable source of fodder, as many residents are still engaged in agriculture and can easily gather fodder from their farms. The community also has its own shop that sells concentrated feed, eliminating the need for transportation costs. Additionally, a water tank is available, helping the community manage water scarcity during the dry season.

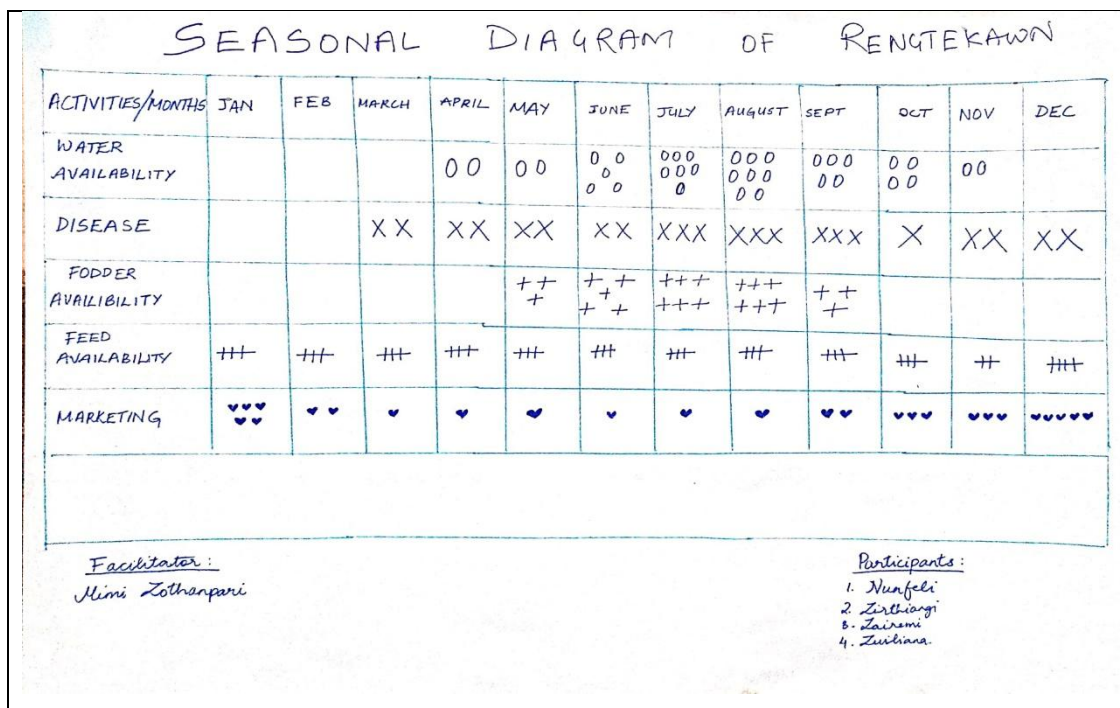


Figure 29 Resource Map of Rengtekawn

6.4.4 (c) North Chaltlang

The community has abundant natural resources, such as fodder and water. Farmers tend to feed their animals more fodder than concentrated feed. Although they have access to water sources, they sometimes need to purchase water during the dry season.

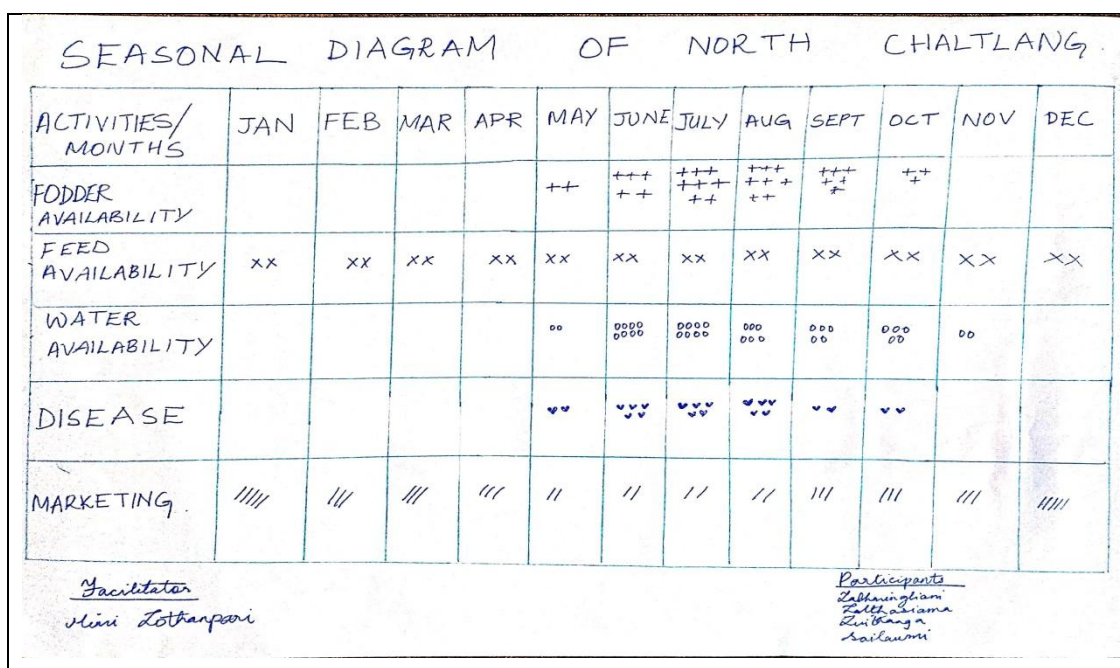


Figure 30 Resource Map of North Chaltlang

6.4.4 (d) Lungdai

Water and fodder are readily available, providing farmers with a sufficient supply of these resources. However, during the dry season, they often have to spend money to buy water, as maintaining pigs requires more water for regular cleaning of the pigsty. A feed shop is located within the community, making it easy for farmers to access feed. Additionally, there is a veterinary clinic for health care services, conveniently situated in the central part of the locality.

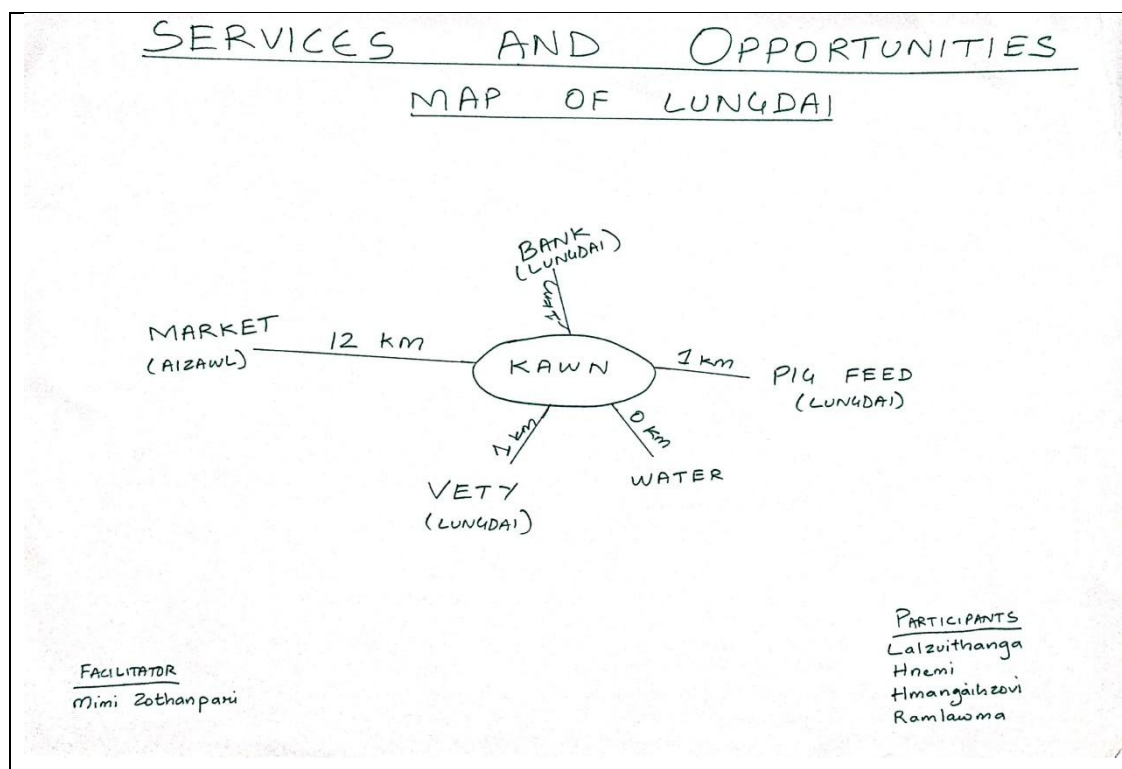


Figure 31 Resource Map of Lungdai

6.4.4 (e) Sialsuk

Fodder is readily available in the nearby locality, making it convenient for farmers. Additionally, agriculture serves as another source of fodder, as community members remain engaged in farming activities. In terms of water, they have a water connection, but during the dry season, they occasionally need to purchase water.

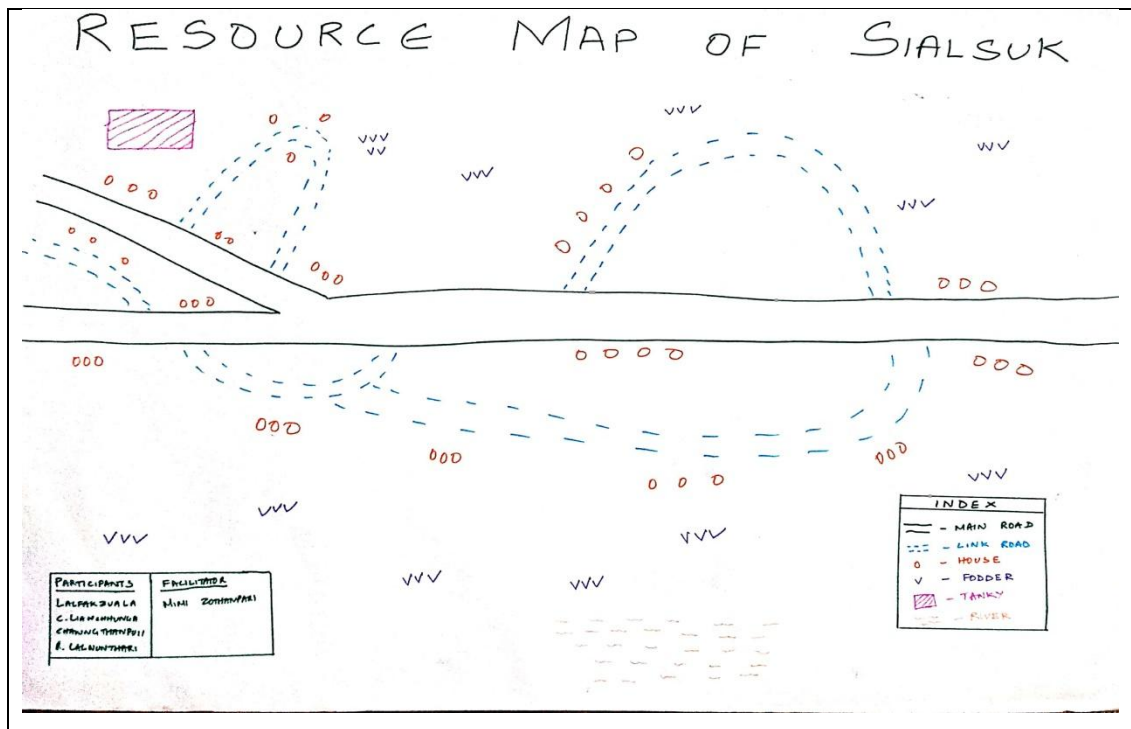


Figure 32 Resource Map of Sialsuk

6.4.4 (f) Sumsuih

Sumsuih has a market where travelers can purchase vegetables, which also serve as a source of fodder for farmers. Vegetables that cannot be sold are often given away for free or bought at a low cost. The community has a good supply of fodder, as it can be collected from nearby houses and also harvested from their agricultural land. Additionally, there are water tanks and a river, ensuring that farmers rarely experience water scarcity.

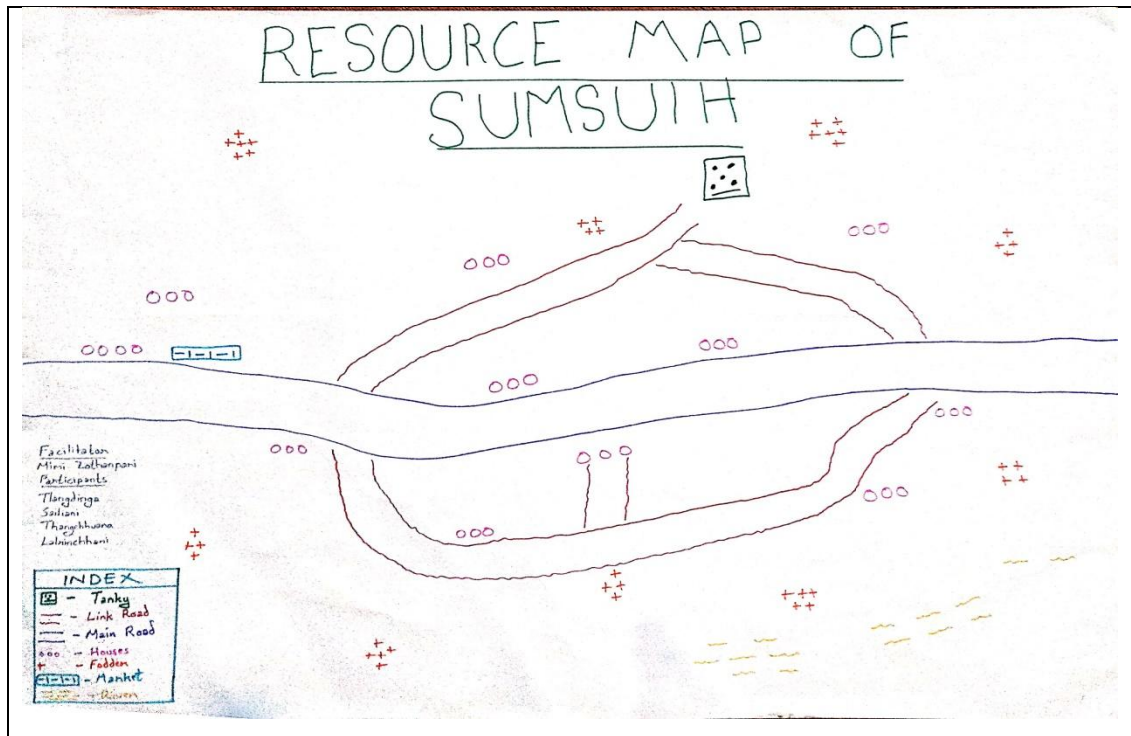


Figure 33 Resource Map of Sumsuih

6.4.4 (g) Sihphir

Fodder can be collected from nearby houses, and despite the growing population, residents have land close to their homes where they can gather it. Although there are rivers from which water can be easily accessed, the lack of a water connection poses a challenge for farmers. The bank is conveniently located in the central part of the community, making it easily accessible, and concentrated feed can also be sourced locally within the community.

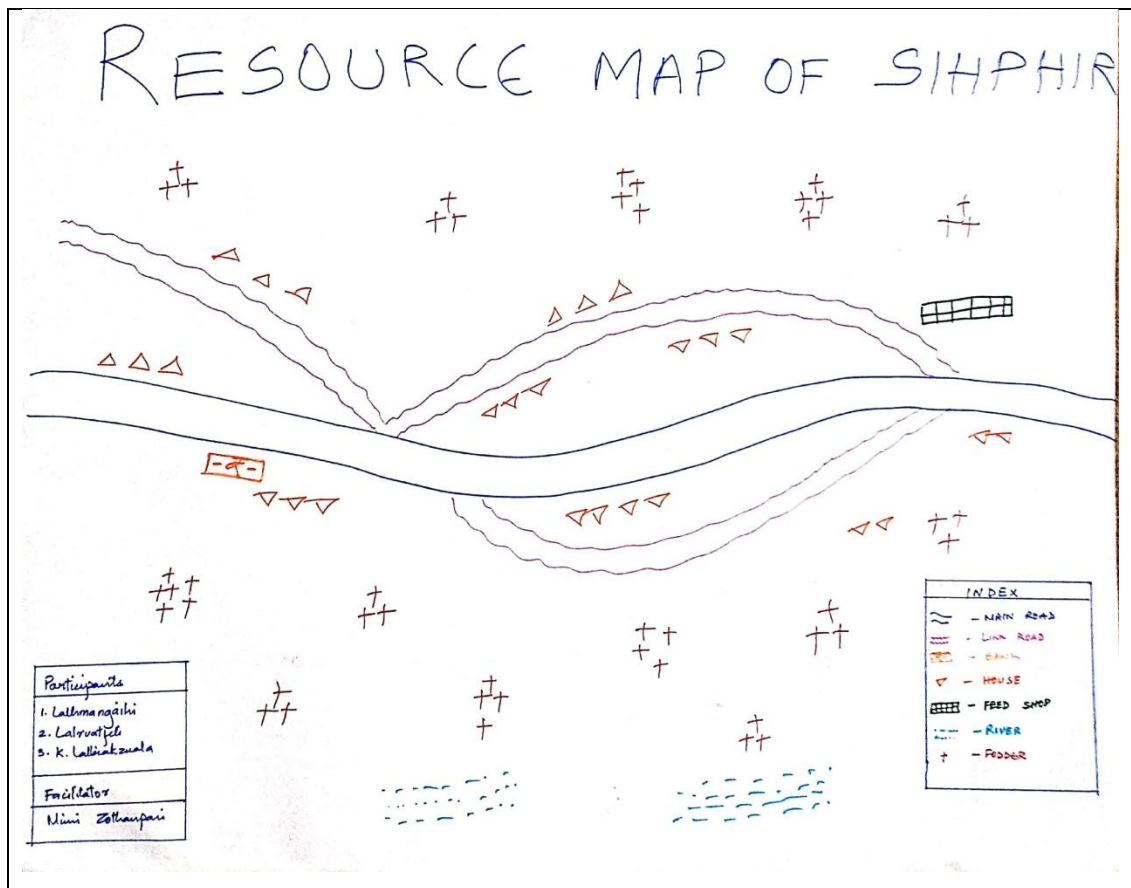


Figure 34 Resource Map of Sihphir

6.4.4 (h) Muthi

The main occupation in Muthi is agricultural labor, indicating that the community is rich in land. Residents have easy access to fodder from both nearby sources and their own agricultural land. However, there are no shops selling concentrated feed in the area, so they must travel to Aizawl to obtain it.

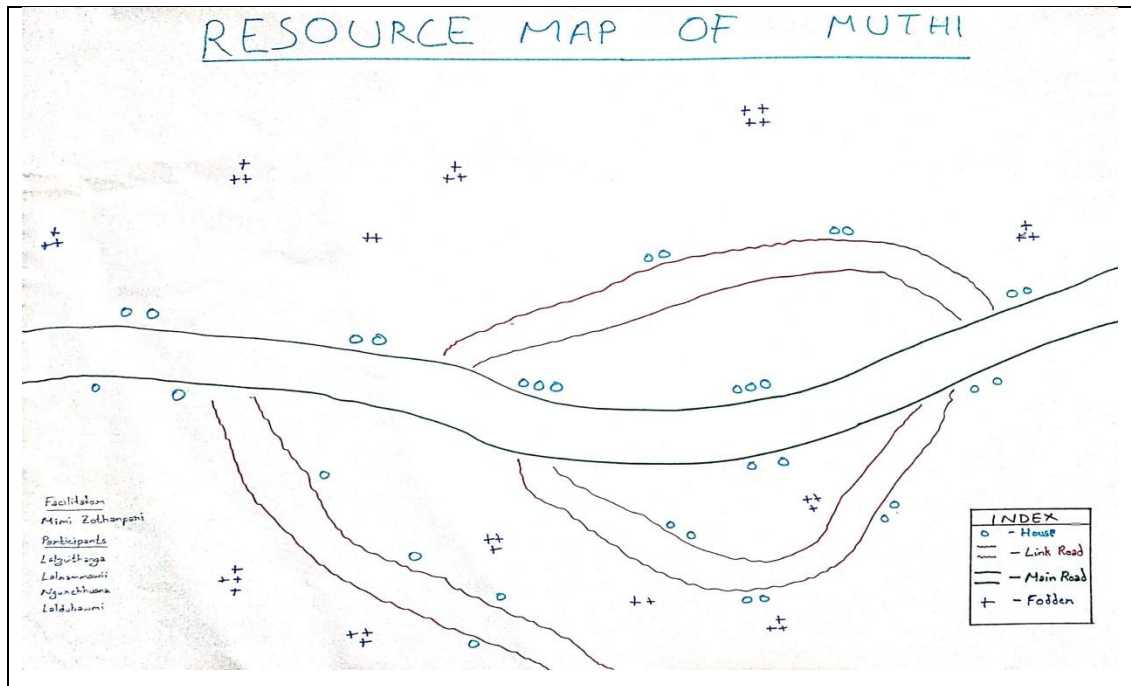


Figure 35 Resource Map of Muthi

Summary of Resource Map

Saihapi benefits from abundant natural resources, including a river and easily accessible fodder from nearby areas, as the scattered housing allows for vegetable and fodder growth near homes. Agriculture is the main occupation, providing an additional fodder source. Rengtekawn residents also gather fodder from their farms, and the community has a shop selling concentrated feed and a water tank to address dry-season water shortages.

Most communities have easy access to fodder, often from nearby homes or agricultural lands, and some have water sources like rivers or tanks. However, during the dry season, water shortages may require purchases. Sumsuih's market offers vegetables that can serve as fodder, and Muthi relies on agriculture for fodder but lacks local shops for concentrated feed, requiring travel to Aizawl. Despite these challenges, access to fodder and water remains generally sufficient across the communities.

6.5 Case Studies

A case study is an important method used to gather qualitative information for a thorough, in-depth, and comprehensive scientific investigation of a social unit. An individual, family, community, group, or even a whole society might be considered this social unit.

According to Mary Richmond, a "case study" is basically a thorough analysis of a person's social circumstances, including their surroundings and life circumstances, that is used to determine their needs and create a customised intervention plan. This process is commonly known as "social diagnosis" and is a crucial part of her "social casework" concept.

Case Study 1: Lalduhawmi (Muthi)

Over the past five years in the field, Lalduhawmi is a seasoned pig farmer. She runs ten pigs right now—two piglet producers, three fattening pigs, and five piglets. She feeds her mixed breed twice a day a meal including rice, concentrated feed, vegetables, and leaves. She underlines how regular cleaning of the pigsty helps to avoid infections. She uses several preventive steps during epidemics, including avoiding direct contact with pigs, cleaning the pigsty with bleaching powder and "tui sen," and changing clothes both before and after handling pigs. Dead pigs are buried some three to four feet below her house using bleaching powder. The outbreak of disease cause the loss of their pigs, farmers frequently stop their pig farming operations for roughly six months. The reason for this pause is the conviction that infections can stay in the pigsty and influence next generations of animals.

Regarding healthcare, Lalduhawmi usually pays a visit to a Durtlang veterinarian costing Rs300. The government or other departments pay nothing to her or other farmers. Still, the veterinary department pays farmers who report and kill pigs. Lalduhawmi is not aware of any accessible programs or schemes for pig farming and has not paid insurance for her pigs because of the brief farming season.

One regarded as a decent source of income and way of life is pig farming. Sometimes, nonetheless, the great volume of farmers engaged in piglet production makes sales of piglets difficult. Piglet prices depend on their breed and quality. Though pork sales drop as people are reluctant to buy during disease outbreaks, the market for the meat is usually steady. While the government does not control pork prices, the Village Council steps in to lower overly high costs. For the local pig growers, there is no Cooperative Society or Association. Though attempts to establish one have been undertaken, farmers sometimes would rather work alone than through a group.

Case Study 2: Lalthanpuui (Muthi)

Lalthanpuui possesses six years of experience in pig husbandry and now maintains a herd of 28 pigs, following the loss of 22 piglets due to illness. Her herd consists of six piglets, two inseminators, twelve fattening pigs, and eight piglet growers. They have seen no issues during arid seasons and mostly take concentrated feed, predominantly Dheus and wheat bran. Purchased for Rs 7500 each, the pigs are a premium breed that produces 17 piglets per litter.

Despite the breed's superior quality posing no marketing challenges, Lalthanpuui has not obtained governmental assistance or insurance for pig farming. She cultivates veggies with pig manure as fertilizer. She employs Dettol, bleaching powder, mosquito netting, isolation of sick pigs, and incineration to eliminate airborne pathogens during disease outbreaks. Deceased pigs were interred beside bleaching powder. She regards piglet farming as a viable source of income despite the challenges. She has received no governmental assistance or insurance for her pig farming. She has not had marketing issues, as her locally sold pigs are of superior grade. Piglet farming, she asserts, is a viable albeit labor-intensive source of income. She enhances her vegetable cultivation by utilizing pig manure as fertilizer.

Lalthanpuui determined that cleaning the pigsty alone was insufficient to prevent infection during disease outbreaks. She employed mosquito netting, restricted access to the pigsty, utilized alternate caregivers, isolated sick pigs from healthy ones, and personally fed the piglets, among other preventative measures. She refrains from purchasing any meat to decrease the risk of illness. To eliminate airborne pathogens, additional measures involved igniting fires, use Dettol-infused water for cleaning, and applying bleaching powder both within and surrounding the pigsty. Deceased pigs are interred adjacent to the residence, coated in bleaching powder.

Case Study 3: Zonunmawii (Saihapui)

After her piglet producers failed to reproduce, Zonunmawii began farming pigs in 2020 and currently owns three fattening pigs. Her pigs have mostly a diet including concentrated feed, rice, wheat bran, and greenery. Kolasib sources concentrated feed at a shipping cost of Rs 70 per bag; leaves are obtained from

nearby homes. She runs low in leaves during the dry season, but she has not had trouble with water availability since it comes from a nearby forest.

Through Local Community Resource Persons (LCRPs), informed members of Self-Help Groups (SHGs), Zonunmawii and other farmers reach out to the Veterinary Field Assistant (VFA) in the hospital. These self-help groups are absolutely vital in enabling women and giving farmers veterinary care. Making contact with the VFA using an LCRP incurs Rs 50. Should they immediately contact the VFA, the cost is Rs 300. There is no official association or cooperative society for the local pig producers. Crucially helping its member pig breeders are Self-Help Groups (SHGs). By enforcing rules forbidding cattle from roaming freely within the village, the Village Council (VC) controls livestock farming.

The community credits the high temperatures and municipal ban on meat imports during epidemics for not seeing any illness breakouts or suffering of pigs resulting from disease. Still, they had marketing difficulties during disease outbreaks even if they were not affected by the disease itself. She got two pigs using financial help from FOCUS as she is a member. One piglet sold for Rs 7000; fattening pigs are sold for Rs 400 per kg, with an average yearly sales of four fattening pigs.

Case Study 4: PC Lalremruata (Saihapui)

PC Lalremruata started raising pigs in 2019 and now has 10 pigs, 5 breeding sows, 2 fattening pigs, and 3 pups. The food he gives his pigs is a mix of cooked rice, vegetable leaves, atta, concentrated feed, and wheat bran. A shipping fee of Rs 70 per bag is added to the feed prices. Wheat costs Rs 1300 per bag, concentrated feed costs Rs 1550 per bag, and atta costs Rs 1150 per bag. During the dry season, it is hard for him to get green leaves, which he gets from Phaisen village.

He always cleans and bathes the pigs using "tui sen," which makes sure they are very clean. He has a hard time selling his pigs, even though he has not seen any disease breakouts. He struggles with marketing his pigs despite not having observed any disease outbreaks. He could consider diversifying his feed sources, improving marketing strategies, exploring direct sales opportunities, and establishing more reliable vegetable leaf supply chains to address these challenges.

Locally sold piglets bolster marketplaces in Kolasib and Bilkhawthlir through PC Lalremruata's pig farming initiative. He produces approximately 10 piglets per cycle and mostly markets fattening pigs at 8 to 9 months of age for Rs 6500.

He compensates an inseminator from Bilkhawthlir Rs 2000 per service for insemination, plus an additional Rs 500 for gas in the event of service failure. His management techniques include monthly deworming, administering egg feed to gestating sows, and supplying milk-enhancing feed. The therapy influences the fluctuation in veterinary care costs, which range from Rs 200 to Rs 2000. PC Lalremruata may focus on enhancing insemination success rates, controlling feed costs, fortifying marketing strategies, and regulating veterinary expenses to improve his business operations.

Case Study 5: Lalnunmawia (Rengtekawn)

Since 2019, Lalnunmawia has started raising pigs; today, he owns 22 pigs: 3 piglet growers and 19 fattening pigs. He leaves in the afternoon and dries feeds. He pays Rs 7000 on transportation and Rs 8000 weekly for concentrated feed from Kolasib. His dry feeding habit helps him to handle forage throughout the dry season; but, water shortage presents a problem that he solves by water purchase.

He calls a veterinarian when pigs get sick and pays between Rs 500 and Rs 2000 based on the treatment. For men, castration runs Rs 300; for women, it costs Rs 600. Selling each for Rs 30,000 to Rs 40,000 at eight to nine months of age, he mostly markets his fattening pigs in Aizawl. From Kolasib, he pays Rs 7,000 for piglets.

Lalnunmawia cleans the pigsty during illness outbreaks with Dettol water and "tui sen." Notwithstanding these attempts, he has lost pigs and handles the dead using bleaching powder; he hired workers for this purpose. Fearing the disease, the Veterinary Department refused to let him try to eradicate all the pigs to stop the epidemic and was hesitant to help.

Case Study 6: Vanlalruati (Rengtekawn)

Currently owning two pigs—one piglet producer and one inseminator—Vanlalruati has twenty years of experience in pig farming. Her investing comes from Bandhan Bank. She mostly markets piglets for Rs 7000 to Vairengte consumers.

Usually when the pigs reach 8 to 9 months of age, sells them locally and to a commissioner from Kolasib in order to fattening pigs.

She avoids issues during the dry season by dry feeding her pigs, so removing the need to gather leaves or veggies. She sources Bagha for her concentrated feed shop she owns. She visits a veterinarian for health concerns; depending on the treatment, treatment charges go from Rs 500 to Rs 1500. Veterinary insemination services run Rs 2000.

Case Study 7: Reuben Lalthazuala (Lungdai)

Currently owning 12 pigs—2 piglet producers, 3 fattening pigs, 1 inseminator, and 8 piglets—Reuben Lalthazuala has 12 years of expertise in pig farming. Using mixed breeds, his main concentration is on piglet output. One piglet cost Rs 7000, but he sells them for Rs 6500.

Mostly selling his pigs in Aizawl and Keifang, he has a consistent clientele in Aizawl that facilitates sales. Local cattle producers often have piglet businesses. Usually giving each piglet producer one kg of concentrated feed daily, he offers a combination of leaves, rice, and concentrated feed. Lungdai is the source of the feed; several goods vendors are there. He does not vaccinate his pigs since he has seen that vaccinated pigs often show more sensitivity to infections. He depends on private doctors for medical treatment even though the locality has a veterinarian office; it lacks doctors or other healthcare services. He pays roughly Rs 250 for female castration, Rs 200 for injections, and a total of almost Rs 500 for treatments on healthcare costs. Pigs without castration, he has observed, are more prone to Classical Swine Fever (CSF). Reuben points out that although cattle farming is somewhat common in the area, medical services are lacking.

Disease outbreaks in his pigs farming business presented major difficulties for him. He lost 40 pigs in 2018 from African Swine Fever (ASF), then lost 10 pigs in 2020 from Classical Swine Fever (CSF). He had to start his pig farming from nothing with his own investment; he did not get any help or payment from NGOs or the government. The great number of local pig producers during disease outbreaks made marketing difficult and difficult to sell pigs inside the locality. The Village Council has been helpful in starting initiatives to avoid infections by spraying sodium chloride close to houses and roads and in hiring workers and JCB equipment

to bury dead pigs. Every family gets one laborer to help with this chore. While Reuben is not a member of the Mizoram Vawkvulh Association, other farmers are. He said he felt jealous of the superior breeds on the WhatsApp group of the association.

Furthermore, the community built a cooperative organization for pig farmers but it is not running efficiently because of problems with leadership change. Notwithstanding these obstacles, nearby farmers help one another when needed. From Reuben Lalthazuala's point of view, more insects that can carry diseases cause diseases to spread more quickly in hot weather. He thinks that the main reasons of disease outbreaks in Mizoram are the use of frozen foods and the import of pigs from several areas. About insurance, banks offer both vaccination records and insurance cards. This insurance cannot be started, nevertheless, during an epidemic of a disease.

Case Study 8: C. Zohmingthangi (Lungdai)

With five years of experience in pig farming, C. Zohmingthangi currently owns 35 pigs, including producers of piglets as well as fattening pigs. She keeps a superior breed that generates up to 15 piglets each litter, which fetch Rs 7000 each. Pigs sold for fattening range in weight from 45 to 60 kg; usually, each pig weights 180 kg at market. She feed vegetable leaves, concentrated feed, and rice mixed together. She sources concentrated feed from her own neighborhood store and gathers vegetable leaves from a big garden close by. The large garden has helped her not have issues with feed during the dry season.

She mostly promotes her piglets by means of contacts with other pig farms around Aizawl, Lengte, Tuirial, Sialsuk, and L Junglei. Given her brief farming career, she does not insure her pigs. She has also said she is not looking for help and that the government has not given her any either. In running her pig farm, she has not faced any disease outbreaks. She follows biosecurity guidelines including bleaching powder around her house and pigsty and spraying "tui sen" She also feeds her pigs 'Thuamriat,' raw leaves she discovered from the news. She changes her clothes before returning home when travel in order to help to prevent pigs from disease outbreak. Marketing still presents difficulties, especially during epidemic of diseases.

From C. Zohmingthangi's point of view, importing pigs from other areas fuels avarice that causes disease epidemics. She also points out that the small and less appropriate for commercial use indigenous pig breed known as "Tuikuk Vawk," or "Mizo Vawk." She notes that disease outbreaks are more common during the dry season and thinks that if such outbreaks arise often; pig farming could not be a sustainable livelihood for people.

Case Study 9: Lalrinpuii (Sihphir)

Having six years of experience in pig farming, Lalrinpuii currently owns twelve pigs, including fattening pigs as well as breeding sows. Piglets she sells for Rs 7000. Her main marketing channel is the local market, where she periodically sells pigs to a commissioner and sometimes by kilogram to local customers.

She follows dry feeding methods and buys concentrated feed from the nearby market. She has nearby access to a veterinarian field assistant (VFA), who can help during an illness. She buys water since there is no water connection; unless during the rainy season, when water is more easily available. Being close to local water supplier, it helps her to make the cost reasonable even if water has to be bought.

During the illness pandemic Lalrinpuii faced in 2022, she loss many pigs due to disease. She limited access to the pigsty, changed clothes before and after accessing the pigsty, and interred dead pigs close to the pigsty to help to prevent more problems. Using "tui sen," bleaching powder, she cleans the pigsty. Lalrinpuii notes that pig farming can be a profitable source of income; yet, she also warns that disease outbreaks seriously compromise its feasibility, thereby making this a dangerous source of income.

Case Study 10: Jekyll Laltlanhlua (Sihphir)

Jekyll has not experienced any disease outbreaks and currently owns eighty pigs. He bought concentrated feed from Godrej, a brand he trades with, he feeds his pigs a mix of rice and concentrated feed. He can easily access water from his garden that makes simple pumping possible, he does not have water problems even during the dry season despite not having a water connection in his town. He buys pigs straight from the neighbourhood market.

Jekyll's management techniques includes keeping "tui sen" near pigsty, not letting anyone visit the pigsty, and misting sodium chloride and bleaching powder around the pigsty. He thinks that disease epidemics are just a question of chance as some people have avoided illness even when their neighbors lost all their pigs. Disease outbreaks have also caused difficulties in marketing when consumers start to avoid pork, so influencing the channels of marketing.

Jekyll generally calls the Veterinary Field Assistant (VFA) in the locality during illness; each call costs Rs 50 plus the cost of any necessary medication or vaccination. Working with the National Livestock Mission, he uses the National Insurance Company (NIC) for insurance. Two insurance alternatives are Paying Rs 1700 which covers claims for Rs 20,000 for pigs over 45 inches and Paying Rs 3550 which covers claims for Rs 40,000 for pigs over 45 inches. Only when the pigs are tested and verified clear of disease will one be able to get insurance.

Case Study 11: Nunhlupuii (North Chaltlang)

Though sickness exists in their neighborhood, Nunhlupuii owns three fattening pigs now and has not suffer any disease outbreaks. She purchased concentrated feed from Aizawl with a transportation cost of Rs 50 per bag, she feeds her pigs a combination of rice, concentrated feed, and vegetables. She finds difficulties with fodder and water shortage during the dry season. She buys water to solve water shortage; hence, she mostly uses a stick to clean the pigsty given restricted water availability.

She calls the Veterinary Field Assistant (VFA) from Bukpui, a nearby area, in times of illness; but they hardly need this service as the pigs hardly have health problems. She feeds pigs eggs when they have less appetite. She notes that the wet season brings higher cases of pig disease. Disease outbreaks create marketing difficulties like to those experienced by other communities. The local market is the key marketing channel; different events around Christian holidays like Christmas and New Year help to boost sales, so simplifying marketing at these times.

Case Study 12: Lalrohnemi (North Chaltlang)

Lalrohnemi has two piglet producers and one inseminator, overall she owns eighteen pigs including fifteen piglets and young fattening pigs. Aiming to sell speedily given the great supply of piglets in the neighborhood, she concentrates

mostly on piglet production and charges Rs 6000 for one piglets. She mostly sold her fattening pigs and piglets within the neighbourhood. She pays Rs 3000 for the inseminator and the injection together. When insemination is unsatisfactory or unsuccessful, she might ask the inseminator for a free follow-up. She must pay the same sum once more.

With the type of concentrated feed depending on the pigs' age, she feeds her pigs a variety of concentrated feed, grains, leaves, and vegetables. She buys feed from a nearby village called Nisapui, paying Rs 50 for transportation for each bag. Fodder comes from the forest and used two-wheeler to carry the fodder. She has great marketing difficulties during disease outbreaks since people are afraid to take the risk and piglets are difficult to sell. Her obligation to keep and look after all the piglets under this circumstances complicates feeding and handling. She occasionally leaves piglets to others for care in order to control the matter. When the piglets die, there is a loss; but, when they live, her and the caretaker split the price of the pigs. She also refrains from doing any insemination during outbreaks to stop more risk to her pigs.

Though sickness has been spreading over Mizoram, the community has not suffered from epidemics as of July 2024. The Village Council has blocked the import of meat from other localities, therefore guaranteeing that only local products are consumed and preventing diseases from invading their community. They have no intentions to stop pig raising as they have not seen a disease breakout.

Case Study 13: Siamtei (Sumsuih)

Siamtei is a proficient pig farmer, typically managing a herd of three to five pigs year. She lost fifty pigs due to an outbreak of ASF. She mostly provides her pigs with concentrated feed purchased from Aizawl, incurring a transportation cost of Rs 50 per bag. She exclusively provides concentrated feed without mixing it with other grain, thereby practicing dry feeding. Each piglet breeder generally produces 10 to 12 piglets per litter and sells them for Rs 7000 each.

She relies on the Veterinary Field Assistant (VFA) located in Hmuifang for healthcare; the specific case or treatment required dictates the expense of sickness management. She utilizes 'tui sen' as a precautionary measure during disease outbreaks. She is undeterred in her pursuit of pig farming, although she cautions that

once a disease proliferates, no management method can prevent pig fatalities. She asserts her commitment to pig husbandry despite the prevalence of illness outbreaks. She is unaware of any insurance options specifically tailored for pig farming. In times of sickness and declining market conditions that create vulnerabilities, Siamtei and others in similar situations provide piglets to family and neighbors for their care. If the piglets die, there is no obligation to pay. If the piglets live, the caregivers will nonetheless remit the stipulated payment. This arrangement aids both caregivers and owners by sharing risk and ensuring a financial return if the piglets are successfully nurtured.

Case Study 14: Lalchhuanawmi (Sumsuih)

Lalchhuanawmi owned three pigs, in which two are fattening pigs and one is a piglet producer. Due to the disease outbreak, they have lost sixteen pigs, of which fourteen are piglets and the remaining four are fattening pigs. They have received thirty thousand rupees as compensation from the government.

With regards to management, they feed twice a day and provide a mixture of rice with vegetable leaves and ‘changel’ and did not provide any kind of concentrated feed. They used artificial insemination, as there is no pig inseminator in the area. They never took vaccines to prevent themselves from disease; when their pig faced illness or sickness, they contacted VFA from Sialsuk.

Marketing is one of the most important things for farmers, as it affects the profit. The respondents mentioned that they have an agent from Aizawl who sells their pigs alive, as it is more profitable and they cannot be in debt. During the disease outbreak, they often faced difficulty in selling their pigs, and due to the disease, people regarded pig farming as not being secure for a primary source of livelihood.

The transmission of ASF disease is hard to understand; they mentioned that even when the neighbors are suffering, their nearby neighborhood is free from disease. It somehow depends on luck whether they get the disease or not. They cope with the disease by using ‘tui sen,’ where they clean the pigsty with that water, also burning wood to use the smoke to clear the disease and not visiting the pigsty by different people.

Their pig farming training, mostly on pigsty construction and management, is useless because the environment and weather are different from in a plain. So the training is not that helpful for the hilly farmers.

Case Study 15: Zothanmawia (Sialsuk)

With piglets as his main output, Zothanmawia is an experienced pig farmer who specializes in the care of piglet manufacturers. He has four piglet producers right now, down from nine because of a disease outbreak that calls for a restart. Getting the feed from Aizawl at a transportation cost of Rs 50 each bag, he feeds his pigs a mix of rice and commercial pork feed.

He depends on a competent Veterinary Field Assistant (VFA) in his community for healthcare, whom he visits during an illness. He uses fire and gas for sanitation, cleans the pigsty with "tui sen' and bleaching powder," and builds mud barriers around the pigsty to help to reduce disease transmission during epidemic. When disease outbreaks cause pig deaths, the Village Council helps to bury dead pigs, therefore relieving individual pig farmers of some burden. He has not received any government or non-governmental organization support or condolences and is unaware of any insurance coverage available to cattle producers.

Pigs exposed to fire smoke or sprayed with fire show a higher probability of disease survival and are generally less sensitive to illness, he said. He found that giving concentrated feed yields positive results; pigs suffering with African Swine Fever (ASF) in 2024 did not get concentrated feed, so demonstrating its effectiveness in disease prevention. He said that imported pigs help to explain some of the spread of disease in Mizoram. Pigs have increased danger of pneumonia and other infections under humid conditions since they are more susceptible to diseases.

Case Study 16: Lianmawia (Sialsuk)

Lianmawia is the owner of 25 pigs, and they owned three piglet producers. Prior to the disease outbreak, Lianmawia had an average of eighty pigs, but due to ASF, they lost eighty-three pigs and had to start the farm anew. He currently serves as the chairman of the pig farmer society, a registered entity under the Mizoram Cooperative Society.

They have suffered different kinds of illnesses and diseases, such as ASF, pneumonia, PRRS, diarrhea, and skin diseases. They received compensation from the government, but it only covered one-fourth of their loss. Before the disease outbreak, they used bleaching powder to clean the pigsty, but they said it was bad because the pigs could eat it. They take vaccines to prevent PRRS; medical care is very poor in the locality where they mostly consult VFA from their locality and online consultation of private doctors from Aizawl.

They provided concentrated feed without mixing it with any other feed and rice. In terms of marketing, their product is being purchased by people from various locations, but this year's disease outbreak posed a challenge. They also practiced letting people take care of piglets without paying the piglet price, but they distributed the price of pigs when they were marketable. They reported that due to the high cost of feed and disease outbreaks, they assume that pig farming is not secure enough to be a primary source of income.

6.5.1 Case Summary

Experience and Operation

The majority of pig farmers possess over five years of experience and concentrate predominantly on piglet production, suggesting that although this sector demands greater effort, it is generally more profitable. Many farmers also participate in the fattening of pigs, which lessens agricultural expenses by facilitating year-round sales. Insemination services are prevalent in the Kolasib district. The increasing number of piglet producers has generated marketing challenges. Farmers utilizing high-quality breeds can yield approximately 17 piglets per litter, in contrast to 8 to 10 for those employing standard breeds. The prices for high-quality piglets are typically elevated and more consistent.

Management Practices

All respondents provide their pigs feed twice daily, utilizing a blend of rice and concentrated feed. In rural regions, certain farmers offer vegetables or foliage around midday. Pigsties are cleaned bi-daily prior to feeding, utilizing water and brooms; however, in Aizawl district, water cleaning is more prevalent, whereas in Kolasib district, brooms and sticks are favored. During the dry season broom and stick are often used for cleaning pigsties due to scarcity of water. Feed is generally

obtained from the city at a transportation expense of under Rs 100, although certain farmers obtain it locally.

In terms of healthcare, the majority of farmers depend on Veterinary Field Assistants (VFAs) for the treatment of ill pigs, whereas others seek the services of private veterinarians, primarily due to the VFAs' unavailability and the superior quality of care provided by private practitioners. In communities where livestock farming is predominant, medical facilities are frequently insufficient, rendering this livelihood less secure. The consultation fee varies from Rs 300 to Rs 1000, contingent upon the treatment, with veterinary field assistants typically being more economical than private practitioners.

The cost of castration is Rs 600 for females and Rs 300 for males, usually conducted by veterinarians. The cost of insemination is Rs 2000, irrespective of whether it is performed via injection or natural methods. However, if the initial attempt is unsuccessful, the fee for injection insemination is incurred again, whereas natural insemination attempts may be repeated at no additional charge until successful.

Marketing

Piglets are generally priced between Rs 6000 and Rs 7500, with a discount for purchasers of over 10 piglets, lowering the cost to Rs 6500 each. The cost of piglets is generally elevated in the Aizawl district, presumably owing to reduced transportation expenses. Marketing channels differ, yet local sales are predominant for both piglets and pork. Fattened pigs are typically sold in their entirety for Rs 30,000 to Rs 40,000 upon attaining a weight of 45 to 60 kg. A significant price disparity exists between core and peripheral regions, with swine prices elevated in core areas. Communities near Aizawl possess superior marketing channels for both piglets and pork.

Disease Management

The majority of respondents have encountered diseases in their pigs; however, certain communities, including Lungdai, Saihapui, and North Chaltlang, are less often impacted. Conversely, communities such as Sihphir, Sumsuih, and Sialsuk exhibit greater vulnerability, with the Aizawl district overall encountering an elevated risk of disease. Pigsties are typically treated with Tui sen and bleaching

powder to manage and prevent diseases; additionally, some farmers employ sodium chloride, smoke, and mud. Deceased pigs are interred near the residence following the prior application of bleaching powder. There is a belief that warmer regions may harbor a greater number of disease agents, although some contend that elevated temperatures could diminish disease prevalence. Access to pigsties is restricted during disease outbreaks, and the importation of meat from other regions is prohibited to prevent disease transmission, including the consumption of infected pigs.

Cooperative societies or associations could serve as a significant asset for farmers; however, the majority of communities either lack these organizations or possess ones that operate ineffectively. A multitude of individuals favor autonomous management of their livelihoods, and even those within active communities encounter difficulties. The lack of support or compensation from NGOs, the government, or pertinent departments renders farmers susceptible, particularly during disease outbreaks. The absence of external assistance exacerbates their livelihood insecurity. Moreover, the majority of farmers remain uninformed about insurance alternatives, although some do employ insurance for their enterprises.

6.6 Key Informants Interview (KII)

In qualitative research, a Key Informant Interview (KII) is a method of in-depth, open-ended interviews with people who have particular knowledge, experience, or expertise connected to the subject of study. Selected for their special insights, roles, or positions in the community or industry under study, these people—known as key informants—are Farmers with understanding of disease outbreak and management techniques. It was carried out with pig farmers from various locations, and depending on their geographical area, the type of response was likewise different. Citing the lack of a treatment or efficient management techniques, most respondents name African Swine Fever (ASF) as the most dangerous disease compromising pigs. Many times causing sudden death, ASF leaves farmers with little chance to treat sick animals. Usually handling the matter themselves, farmers feel that visits from Veterinary Field Assistants (VFAs) or healthcare professionals who come into touch with several sick animals run the danger of spreading the disease further. Farmers thus depend on their own experience and knowledge.

Management techniques to control ASF include allowing pigs to bath in mud, cleaning pigs and pigsties with "tui sen," sanitizing pigsty surroundings with sodium chloride, isolating suspected infected pigs from healthy ones, changing clothes before and after entering the pigsty, and avoiding eating pork during outbreaks. To stop disease spread, local officials sometimes forbid pork imports from other regions. ASF outbreak timing differs depending on the localities. Some note outbreaks during the rainy season, while others claim more events during the hot summer months because of rising disease transmission. Most localities, nevertheless, agree that ASF outbreaks do not follow any particular seasonal pattern. ASF outbreaks are mostly caused by pigs imported from different parts of the world. Many times, farmers give quality breeds top priority without checking the health history or source of the piglets, so unintentionally bringing the disease into their neighborhood. Pigs are usually cared for by Veterinary Field Assistants (VFAs) and the farmers themselves during sick times—that is, whether from disease or another ailment. Because of the more expenses involved than VFAs, farmers hardly ever see private practitioners or veterinary doctors. While some farmers believe vaccinations can make pigs more prone to diseases, others use vaccinations to shield piglets from diseases.

With regard to management techniques, feeding and maintaining pigsties follow set procedures. Most farmers mix rice with concentrated feed, and in places where fodder is readily available they augment the feed with fodder. Usually fed twice a day, pigs get morning and evening meals. Although wet feeding is the accepted method, many large-scale farmers would rather dry feed to save the trouble of cooking meals for more pigs. Labor is hardly sought for since family members usually make major contributions in pig farming. Pigsties are at least once or twice a week washed with water and cleaned using a broom or stick. Depending on available materials, their construction differs; some are built from wood and others have concrete flooring.

There are not active cooperative societies or associations for pig farmers in the localities. Since the farming cycle for one pig is rather short, farmers usually want to work alone. Still, they usually help each other informally when needed. Most farmers are mostly ignorant of the programs or initiatives that the government offers since most of them have not gotten payment or support from it. The Mizoram Cooperative Society, a government-registered organization, established society for

pig farmers in Sialsuk in 2018. The society collects a membership fee, requiring each member to contribute Rs 20 upon registration. Presently, Mr. Lianmawia is the chairman of the society; he mentioned that the only benefit they received as a society member is that loans can be accessed easily with low interest. Meanwhile, during the death or loss of pigs due to sickness and disease, they did not receive compensation from the government just because they were members.

But due to lack of knowledge and information, they often face difficulty as trainings about knowledge on pig farming are hardly attended by respondents, and even those who attend mention that it is often not applicable for them as the weather conditions are not the same as those of the specialists who came to give training. Also, as there is no cure for ASF, farmers will continue facing challenges because of this disease. He mentioned that pig farming is not secure enough to be used for primary occupation due to disease outbreak as farmers loss their valuable assets at once where it is hard for them to cope the loss.

CHAPTER VII

CONCLUSION

The conclusion chapter is presented in three different sections. The first section presents the major findings, the second section include the conclusion and suggestions for policy and future research are presented in the third section.

7.1 Major findings

The findings are summarized in terms of sub sections viz., Structural Composition of Respondents, Pattern of pig farming, Livelihood Assets Owned by Pig Farmers, Living Condition of Pig Farmers, Relationship between Livelihood Endowment and Living Condition, Relationship between Challenges and Coping Strategies and Vulnerability Context of Pig Farmers.

7.1.1 Structural Composition of Respondents

The socio demographic features of the respondents in this study include age, religion, denomination, ethnic community, and sub-tribe. The majority of responders are between the ages of 40 and 50 and over 60, indicating that pig farmers are neither physically active nor capable of performing labour-intensive tasks so they focus on generating income through livestock farming. Since the study was carried out in Mizoram, nearly all of the participants are Mizo, with the Lusei sub-tribe making up the largest group. As Mizoram is a Christian state all of the respondents are Christian, The majority of the people that are part of the study are Presbyterians, who are the dominant denomination in the northern section of Mizoram.

A person's social existence and growth are greatly influenced by their family, which is a key social unit. Family profile in the present study includes type and size of family. Nowadays, nuclear families are the norm in Mizoram; the majority of respondents have nuclear families, and over half of them are part of medium-sized families, which include four to six family members.

Since agriculture is the primary occupation of Mizoram's people and the majority of the study is carried out in villages, the majority of respondents have agricultural labour as their primary occupation. Since ancient times, Mizo people

have engaged in small-scale livestock farming, such as raising cattle near homes. This practice is still carried on, and the majority of respondents list livestock farming as a secondary family profession. This finding is similar with the findings of Sokchea et al., (2018) where after cultivation of rice and crops, farmers' second agricultural activity was raising animals, which was crucial to their livelihood and revenue generating.

7.1.2 Pattern of pig farming

The majority of respondents are small-scale farmers because the study is being conducted in villages and none of them owned large farm, and the majority of them owned fewer than five pigs, with an average value of between Rs 50,000 and Rs 100,000. Because of the availability of access and the disease outbreak, nearly all of them raised local breed piglets because they considered it was safer to rear piglet which they have known it safe from disease. The primary goal of pig breeding is fattening for sale as in case study they mentioned that it enables year-round sales and helps cover farming expenses and also pork is the most popular meat among the Mizo and demand for pork is growing. The respondents most frequently produced meat, and over half also produced piglets while case study shows that pig farmers concentrate mostly on producing piglets, suggesting that although this field demands more work, it is typically more profitable. Local breeds and own farm production are the primary sources of pigs. The most popular form of funding for pig farming is self-investment.

The majority of respondents generated between 10 and 50 piglets in a year; the number of piglets produced is determined by the type of pig raised, meaning that the more high-quality breeds produced, the more piglets were produced. Case study shows that compared to those with conventional breeds, farmers with high-quality breeds can produce approximately 17 piglets every litter. Most respondents sell fattening pigs between 1 to 5 pigs annually, depending on the quality of the feed they give their animals the number of sells differ. Self and Meat seller is the most common marketing system for pig farmers. The estimated worth, according to nearly half of the respondents with pig producers, is between Rs 50,000 and Rs 70,000.

Due to breed and marketing, the value of piglets varies by location, case study shows that piglets are typically more expensive in the Aizawl district, most likely as a result of cheaper transportation; also the higher the quality of the breed, the more the price of the piglet can be higher; additionally, when farmers wish to sell their piglets quickly, they lower the price. From the case study it is found that piglet marketing has become more difficult due to the increasing number of piglet farmers.

According to half of the respondents, the value of their piglets is between 6000 and 7000, case study shows that high-quality pigs typically have more consistent and higher values. According to the majority of respondents, fattening pigs are worth between Rs 30,000 and Rs 35,000. The value of fattening pigs varies depending on their weight and the time of sale, such as when there is a disease outbreak the value also decreases. From the case study conducted, it was reported that once they weigh between 45 and 60 kg, fattening pigs are often sold whole for between Rs 30,000 and Rs 40,000. Pig prices in core locations are greater than those in periphery areas, indicating a significant price differential. Piglets and pork are more effectively marketed in communities nearer Aizawl.

Few respondents raised inseminators for longer than 12 months, case study shows that regardless of whether it is done naturally or by injection, insemination costs Rs 2000. However, if the first attempt is unsuccessful, the cost of injection insemination is billed again; however attempts at natural insemination can be repeated for free until they are successful. Most farmers raised slaughter pigs for 6 to 12 months, the length of time spent raising pigs varies depending on the quality of the feed, as higher-quality feed allows for faster growth, and breed type also affects growth. Over 50% of the participants raised piglets for more than a year; they switch out the pigs when they believe they are too old or unfit to produce piglets. The primary source of pigsty material is self-purchase. The majority of responders cleaned their pigsty more than ten times each week, and some did so frequently in order to guard against disease. Pigsty is mostly cleaned by washing it with water and using a broom and sticks. Case study shows that in Aizawl district, cleaning with water is more common, whereas in Kolasib district, brooms and sticks are preferred. Due to a lack of water during the dry season, pigsties are frequently cleaned with a broom and stick.

Pigs are fed a variety of foods, most often a boiled mixture of rice, vegetables, leaves, pig feed, and kitchen waste. They typically feed twice a day, though some farmers also feed grass at midday. Daily Activities Schedule shows that after cleaning the pigsty, the pigs are often fed between 4:00 pm to 5:00 pm. Pig farmers typically used wet feeding, but very few used dry feeding. Since dry feeding appears to be more expensive, farmers frequently blend rice with pig feed. The primary source of dry pig feed is the market, from PRA it is reported that there is a good supply of feed despite the lack of a feed shop in their own area, whereas the sources of fodder are the forest and kitchen waste. Water connection and Rain water harvesting are the main sources of water but Seasonal Diagram shows that during dry season purchase of water can be necessary due to water constraints. Manual is always used for collecting fodder and Owned vehicle is used for collecting dry feed.

7.1.3 Livelihood Assets Owned by Pig Farmers

The livelihood assets owned by pig farmers are classified into physical capital, natural capital, human capital, financial capital and social capital.

Physical Capital

Most of the respondents owned assets like Livestock (Pig, Cow, Poultry, etc), Bank Saving, Pigsty, Household Furniture, Cell Phone, House, Land for housing and Refrigerator, Television and Washing Machine. The highest value of assets owned is House (3598730), Four Wheeler (673056) and Bank Saving (203929). Majority of the respondents have One Pig Sty as mentioned earlier all of the farmers owned small scale farm, most of the respondents used Wood to construct pigsty due to financial problem, and more than half of the respondents have 50 to 100sq ft having Below 5 Blocks and most of them placed One Pig in one block. This finding is in contrast with the findings of (F. Mutua et al., 2010) where they found that most farmers did not have a pigsty. These farmers either lacked the funds to buy building supplies or lacked the skills necessary to construct the homes.

Financial Capital

The majority of respondents have household savings of between 1 to 2 lakhs (206820), and nearly half of them have per capita savings of between 20000 to 50000. Since banks are not available in most areas Cash in hand is the most frequent

method of saving. It is challenging for them to regularly save money because the majority of them do not have a monthly salary and are dependent on seasonal products like livestock and agriculture. The majority of respondents have bank savings between 1 to 5 lakh, with a mean value of 203929. Near communities have greater bank savings values (213371) than far communities (193542). The mean value of insurance is 2891, and the value of insurance is higher in far areas (3280) than in near communities (2537), almost all of the respondents say they have never held insurance.

Social Capital

Cooperative membership is uncommon because most localities lack cooperative societies or those that do exist are not operating effectively. As a result, only a small percentage of respondents are members of cooperative societies and have been for more than five years, with the majority of members being under 20. The government's assistance and health care facilities are the primary reasons for joining a society. The majority of them play member roles at their yearly meetings. The majority has not received any advantages from the society and has not participated in any training or programs offered by the cooperative society.

Few respondents are members of Self-Help Groups (SHGs), which are affiliated with the government and comprise groups of five to eight people. In Far villages, there are more SHG members than in Near areas. Training and the development of saving habits are the primary goals of joining a SHG. They typically contribute between Rs 50 and Rs 100 each month, and SHG contributions in far communities are higher than those in near communities. The majority of respondents have been SHG members for five to ten years, and far communities have longer SHG membership durations than near communities. The majority of them play member roles at their weekly meetings. The majority of members did not participate in SHG training or programs. Even though the majority of them have not received training, the most frequent benefits obtained from Self-Help Groups (SHGs) are training and the development of saving habits. This is because SHGs are not very helpful to farmers, so training and the development of saving habits are the most common benefits obtained from SHGs. Of those who have attended government-sponsored training, the majority of respondents say they have never attended any.

Farmers learn how to raise pigs through family traditions, which are a widespread source of knowledge and information. Nearly every respondent stated that they had never received assistance from the government, and the most frequent form of assistance that the government offers is through health care providers (VFAs).

Natural Capital

The majority of responders have a land settlement certificate and a temporary/VC pass. Since LSC is used to build homes and Temporary/VC Pass is primarily used for agriculture, nearly all of the respondents work in agriculture, and they frequently own land, including Temporary/VC Passes and Land Settlement Certificates. The typical land value for dwelling is 198552, and the majority of respondents have land worth between 1 lakh and 5 lakh. The land's value cannot be as high as it would be in a city because of its rural position.

Due to easy management and requires less money than other livestock, poultry is the most widely raised livestock. The number of livestock owned by the respondents is that almost half of the respondents owned Below 5. The majority of responders have cattle valued between one lakh and five lakh. Livestock (cows, pigs, poultry, etc.) has an average value of 149562. The value of livestock (poultry, pigs, cows, etc.) is higher in near communities (195414) than in far communities (99126). This could be due to the fact that the near towns have more marketing options because they are closer to the city, where they can readily sell their goods.

Nearly half of the respondents utilised forests as a source of fodder, gathering it from their agricultural land, whereas nearly all of the respondents never used forests as a supply of materials for pig sty. The primary sources of water are rainwater gathering and water connections; most farmers had trouble keeping their pigsty under control during the dry season. The majority of respondents never used waterholes or spring wells as a source of water, and the majority of respondents never had access to groundwater.

Human Capital

More than half of the respondents family is a Medium (4 to 6 Members) size family. Aside from agriculture, livestock farming is the primary source of income for rural residents, so people have positive experience farming. The majority of

respondents have five to fifteen years of experience raising pigs, with pig rearing experience being higher in far communities (12 years) than in near communities (11 years). This finding is similar with the findings of (Osagie & Osabuohien, 2021) where they found that majority of respondents in Nigeria had 6–15 years of experience in pig farming.

The majority never received any training, but among those who did, the most common training acquired by pig farmers was in healthcare, disease management, and feeding. According to the farmers, the majority of the trainings are ineffective since they are not relevant to them. A study conducted by (Petrus et al., 2011) they mentioned that most farmers believed that pig production had potential if they could receive adequate instruction in husbandry skills and assistance in obtaining high-quality breeds and better feed to grow their units. Training is essential for increasing the production. Payeng et al., (2013) also found that the trained farmers profit more from their farming as compared to untrained farmers, and the organized farmers are more knowledgeable about farming than the unorganized and profit is more for the organized farmers.

The majority of respondents had two to three family members who care for the pigs, and it is more common for remote villages to have three family members working on a pig farm than near communities, which only have two. According to the majority of respondents, there are less than three male members working on pig farms; this is because most of them only own a few pigs. Compared to Near areas, there are more men employed on pig farms in Far communities. The availability of family labour may play a significant role on pig production involvement (Toan et al., 2012). The majority of respondents have fewer than three female family members employed on pig farms; in Far areas, there are more female employees than in Near communities. Few respondents in the Near communities say they have male hired labourers, whilst those in the Far areas say they have no hired labourers.

Living Condition of Pig Farmers

Largest number of respondents has Monthly Household Income of 25000 to 50000, the mean Monthly Household Income is 49724. The Near communities has higher Monthly Household Income (51603) compared to Far communities (47656). Largest number of respondents has Per capita Household Income of 5000 to 10000,

the mean Per capita Income is 11863. The Per Capita Income is higher in Near communities (15673) as compared to Far communities (7672).

The highest household expenditure is on Pig Farming and Food. In the Far communities the expenditure on Pig farming is 20792 and in the Near communities the expenditure on Pig farming is 50790. Due to high cost of concentrated feed farmers have to spend more money on pig farming. Largest number of respondents has Per Capita Expenditure of 5000 to 10000, the mean Per Capita expenditure is 15489.

7.1.4 Relationship between Livelihood Endowment and Living Condition

Natural capitals such as Nature of Household Saving, Household Saving, Value of Bank Saving and Per Capita Saving have significant relationship with Per Capita Household Income, Household Expenditure and Per Capita Household Expenditure. This shows that when there is an increase in livelihood assets then the Per Capita Household Income and expenditure also increases.

Physical Capital such as Household Assets, Value of Household Assets, Area of Pig Sty (Area in sq foot) and Number of pig sty have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that the higher the values of physical capital then the expenditure are also increasing. Household Assets and Types of Pigsty have significant relationship with Household Income; this shows that when the value of assets and pigsty increases then the Household Income also increases.

Social Capital such as Source of Training, Source of Knowledge, Membership in Cooperative Society, Membership in SHG, Government Support, Duration of Cooperative Society members and Duration of SHG members have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that in order to increase social capital then the expenditure has to be high.

Human Capital such as Frequency of Training, Number of Hired labour and Size of Family have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that the higher the family size then the expenditure also increases and when training are attended the expenditure also

increase. Number of Hired labour and Pig Rearing experience in years have significant relationship with Household Income, this shows that higher income family have a practice of hiring labour and more experience in pig farming. Number of family members working has significant relationship with Per Capita Household Income and Household Expenditure, the higher the family members involving in farming then the income and expenditure also increases.

Natural capital such as Land Ownership, Size of Land Ownership, Value of Land for housing, Value of Livestock (Pig, Cow, Poultry, etc), Ownership of Livestock, Number of Livestock, Sources of Fodder and Forest and Forest as Sources of materials for pig sty have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that when the natural capital is high then the expenditure is also increases. Number of Livestock has significant relationship with Household Income and Forest as Sources of materials for pig sty have significant relationship with Per Capita Household Income. This shows that the more the livestock the farmers owned and when they make use of natural resources then the income is higher.

7.1.5 Relationship between Challenges and Coping Strategies

Financial related challenges such as Lack of capital, High cost of management, Lack of insurance, Increase expenditure due to disease, High cost of Transportation, Non remunerative price and High cost of Labour used coping strategy such as Collect fodder from forest, Purchased Water, Loan from Bank, Financial support from Cooperative, Financial support from SHGs, Healthy practice from disease, Medical treatment from VFA/Doctor, Medical treatment given by self, Improve quality of feed, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Vaccination and Use of internet for information and market. This indicates that financial help from bank, cooperative and SHG help them cope with their financial challenges, as the cost of VFA and Self is lower than private doctors they usually manage sick animal through this which can reduce financial challenges, also vaccination help them prevent from disease where they need not to spent money for managing diseases. Earning extra income through using manure and cultivating vegetables help them in coping with financial

challenges. The farmers make use of internet for learning management about pig farming.

Health and disease related challenges such as Diseases, Inability to sell pigs due to disease, Unhealthy Pigs, Death of Pig/Piglet and Infertility in pigs used coping strategies such as Loan from bank, Financial support from SHGs, Borrowed from relatives and friends, Healthy practice from disease, Government support, Vaccination, Medical treatment from VFA/Doctor, Medical treatment given by self, Purchased Water, Improve quality of feed, Claiming Insurance, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Training and orientation and Use of internet for information and market. In order to cope with health related challenges farmers maintain cleanliness to keep their animals free from disease where they have to use more water and even purchased water, when the pigs get sick they call VFA or treat them by self. Case study shows that when it comes to healthcare, the majority of farmers use Veterinary Field Assistants (VFAs) to treat sick pigs, while others choose private physicians because they are more accessible and provide better care. Depending on the treatment, visits might cost from Rs 300 to Rs 1000. In general, VFAs are less expensive than private physicians. This livelihood is less secure in communities where livestock farming is common because medical services are frequently insufficient. Through attending training and orientation and using internet they coped their challenges related to health where they received information about the management and consequences of disease.

Feed and Water related challenges such as Fodder Scarcity, High cost of Feed/Fodder, Non availability of Feed, Water Scarcity and Lack of fuel/wood used coping strategies such as Collect fodder from forest, Vaccination, Purchased Water, Improve quality of feed, and Use of internet for information and market. The farmers make use of forest to collect fodder as mixture of grass is commonly given to pigs and they also focus on providing quality feed to increase production, purchasing water is also necessary during scarcity of water. The farmers use internet to get information in order to provide healthy balance of feed as well as for ordering concentrated feed.

Infrastructure related challenges such as Irregular marketing, Poor implementation of govt scheme, Scarcity of land and Poor quality of pig sty used coping strategies such as Loan from bank, Financial support from SHGs, Healthy practice from disease, Medical treatment from VFA/Doctor, Medical treatment given by self, Piping water from waterhole, Improve quality of feed, Claiming Insurance, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Training and orientation, Distribution of pamphlet and Use of internet for information and market. In order to cope with infrastructure related challenges they received aid through bank, SHG, insurance, VFA and they also take water from waterhole and they focus on providing quality feed. Training, Pamphlets and Internet played a role in coping with these challenges as knowledge and information are received through these channels.

Service related challenges such as Scarcity of piglet, Poor quality of Piglet supplied, Lack of Health Care Facilities, Non availability of labour and Lack of knowledge and skills used coping strategies such as Financial support from Cooperative, Financial support from SHGs, Healthy practice from disease, Medical treatment from VFA/Doctor, Medical treatment given by self, Piping water from waterhole, Improve quality of feed, Additional income from bi product as manure. Most of the farmers in the study area lack veterinary health care institution so they cope these challenges by getting help from VFA and taking care of the pigs by self. They also seek financial help through Cooperative and SHG and they focus on improving feed that they provided to pigs. From the PRA it is found that many communities are forced to use their neighbours for banking and healthcare services because these are not available in their own localities.

7.1.5 Vulnerability Context of Pig Farmers

Vulnerability context is the seasonality, patterns, and shocks that have an impact on people's livelihoods.

One of the vulnerable settings that come with shocks is disease, when farmers lose their valuable assets and have no control over them. They also lack adequate insurance or compensation to replace their losses, which puts their livelihood at risk.

ASF is one of the most prevalent illnesses; Seasonal Diagram shows that during the summer and monsoon seasons, disease outbreaks are frequent. KII shows that ASF often causes sudden death, leaving farmers with little opportunity to care for sick animals. From KII it is reported that the primary cause of ASF outbreaks is attributed to the importation of pigs from other regions. Farmers often prioritize quality breeds without verifying the health history or origin of the piglets, inadvertently introducing the disease to their local area.

The mean number of pigs lost to sickness is 3.1, and a sizable portion of responders lost one to ten. Farmers have to deal with the loss of pigs as a result of the lack of treatment. The disease spreads swiftly and spreads so quickly that farmers are unable to treat the afflicted pigs in time; case study reveals that communities like Sihphir, Sumsuih, and Sialsuk are more vulnerable, and the Aizawl district as a whole is at a higher risk of illness. Meanwhile, some contend that hotter weather could lower illness prevalence; there is a perception that hot places may contain more disease agents. However, from KII most localities agree that ASF outbreaks do not follow a specific seasonal pattern. Some farmers have lost all of their pigs to sickness; the value of pigs lost to disease varies from Rs 50,000 to Rs 500,000.

Since self-diagnosis and self-management are the most popular methods of disease diagnosis and treatment, pig farmers are ultimately responsible for all diagnosis and treatment of their sick animals. This is because the farmers did not want the medical professional to come to them because of the disease outbreak because they can spread the disease by visiting a lot of pig farms and they know that there is no proper treatment available, so they feel it is better to take care of them themselves rather than paying for it. The most popular way to treat illness is with medication, and sick pigs are disposed of when illness is identified. In some places, pigs were treated using a traditional method that involved soaking them in mud. It was said that this could cure the pigs' ailments. Other methods mentioned in case study and KII includes that pigs are frequently treated with bleaching powder and Tui sen to control and prevent infections; some farmers also employ dirt, smoke, and sodium chloride. The most frequent outcome of sickness is pig death, which also raises costs because farmers must pay for medical consultations and medication. Dead pigs are buried close to the home after being treated with bleaching powder.

Pig farmers most frequently faced challenges like lack of capital, high management costs, and high feed/feeder costs. Even though concentrated feed is expensive, farmers use it to help pigs develop and fatten. Piglet producer are more expensive in management because they require more care to create healthy offspring, and they are given vitamins and more food in addition to their regular diet. Disease-preventive measures include cleaning the pigsty frequently, washing it with a liquid insecticide since insects can transfer disease, avoiding people who keep pigs, and changing clothes both before and after visiting the pigsty. From the case study it was reported that in order to stop the spread of disease, including the consumption of infected pigs, access to pigsties is restricted during disease outbreaks, and pork from other locations is prohibited.

Since one of the biggest obstacles is the high cost of feed and fodder, most of them work in agriculture, gathering fodder from the forest is their primary coping mechanism because it is convenient for them. Seasonal Diagram shows that concentrated feed is accessible all year round, but transportation issues may occur during the rainy season. In contrast, fodder and water are plentiful throughout the rainy season and during dry season farmers faced fodder scarcity.

In order to cope with these challenges, cooperative society or association can play an important role but KII report shows that Cooperative societies or associations for pig farmers are not active in the localities. Farmers generally prefer to work independently, as the farming cycle for a single pig is relatively short. However, they often assist one another informally when needed. Most farmers have not received compensation or support from the government and are largely unaware of the schemes or projects available to them.

7.2 Conclusion

The study provides an in-depth study of the socio demographic characteristics, farming methods, resources, and vulnerabilities encountered by pig farmers in rural Mizoram. The results emphasise how important pig farming is to the community's economy and culture, particularly in rural areas where it serves as the main source of earnings and livelihood for many households.

The majority of pig farmer households are small scale farmers who depend mainly on self investment, typically keeping less than five pigs. The source of piglet

in the near community is own farm production and far community depend on local breed. The far community have more experience in number of years but the near communities have more number of pigs, pig sties, and land area used for pig farming is also larger in the near communities. The material used for building pig sty is mainly wood and few concrete which was purchased by pig farmer household in both the near and far communities. Pig feed from market and leaves from forest are used more in the near community while rice and kitchen waste are used more in the far community which are mostly wet feed usually twice a day. The number of livestock and values of pig owned is also higher among the near communities. Near community reared pig for piglet production that have a significant higher number of piglets given for sale whose transaction is mainly done by self while the far community reared pig for fattening for sale and produce more meat for sale through meat seller. Livelihood assets viz., Physical Capital, financial capital, natural capital, social capital, and human capital are better in near communities. Therefore the living condition of pig farmer in a form of monthly household income and expenditure is also higher among near communities.

The level of output restricts the possibility for profit and shows a dependence on regional breeds, which are thought to be more disease-resistant and more suited to the climate in the area. Farmers that produce on a small scale, however, might not have the economies of scale required for profitability and resilience to environmental and market shocks. Pig farmers confront vulnerabilities in certain form viz., shock, trend and seasonality. Limited access to cooperative societies, veterinary care, and financial services were the main challenges faced even though they profit from locally accessible resources like fodder, water, and community support. Disease management has been noted as a significant concern, especially given the frequency of swine diseases such as African Swine Fever (ASF). Significant livestock losses brought on by ASF outbreaks have a negative effect on household income and the financial stability of the community. Due to a lack of access to reliable veterinary care, many farmers diagnose and treat illnesses using their personal experience and their community's knowledge. Despite its resourcefulness, this self-sufficiency is eventually not suitable when general outbreaks happen on a large scale, as it is evident from the annual loss of pig by household farmers. This vulnerability is made

worse by the lack of efficient insurance and compensation systems, which force farmers to shoulder the entire financial burden of disease outbreaks and there is limited support from the government and other institutions.

The study additionally highlights the resource limitations faced by pig farmers, particularly with regard to feed and water. Many farmers gather forest resources or use kitchen waste to cut costs because feed costs account for a large amount of their expenses. Pig growth rates, reproductive success, and total output may all be impacted by this method, which may save money but may also lead to variable nutritional quality. Daily activities are made more difficult by seasonal conditions, such as transportation problems during the monsoon and water scarcity during the dry season. Farmers find it difficult to sustain output and guarantee the well being of their animals in the absence of consistent access to water, feed, and veterinary supplies. In spite of these challenges, producers do profit from periods of high demand, especially during the holidays when there is a notable increase in pork consumption. Pig producers have a great chance to increase their revenue and get higher prices due to this demand. However, because farmers frequently rely on local purchasers rather than larger, possibly more profitable markets, the absence of organised market structures hinders their ability to fully benefit on these seasonal variations.

One of the common issues faced by pig farmer is the lack of institutional support. The only available institutional support for many pig farmers household is through Health care Provider (VFA) which is also not regular. In Mizoram, farmers have limited access to official training programs, government support, and cooperative groups. When they do exist, cooperative organisations give little assistance, and Self-Help Groups (SHGs), which may be able to provide resources for training and savings, are not being used to their full capacity to meet the requirements of pig farmers. The government-sponsored training that is available is frequently broad and does not specifically address the particular methods and difficulties associated with pig farming, and many farmers express a lack of knowledge or confidence in it.

In summary, this study underscores the essential yet vulnerable nature of pig farming in Mizoram. Pig farming is at the household level and more related to

culture as majority do not rear pig for commercial purposes. While farmers demonstrate resourcefulness and adaptability in sustaining their livelihoods, the livelihood and living condition of pig farmers in the rural areas is not positively impacted by pig farming. On the other hand the industry faces significant challenges in disease control, financial stability, and resource access. To realize the full potential of pig farming as a sustainable livelihood, a coordinated approach involving government agencies, NGOs, and local communities as institutional support is almost absent in Mizoram. Vulnerabilities in the form of veterinary care, financial risk management, cooperative support, and market access are not addressed by various institutions and through government programmes and policy. So the pig farmers in Mizoram addressed these vulnerabilities at the household level with limited resources. Although pig farming is deeply rooted into the Mizo culture especially in the rural areas, it partially constituted as livelihood options as it practised at a small scale and serves only as a kitchen waste management strategy. Therefore the livelihood assets and living condition are not enhanced significantly and the economic contribution of pig farming to rural livelihood is not sustainable.

7.3 Suggestions and Recommendations

The results indicate that strategic interventions may significantly improve the resilience, productivity, and profitability of pig farming in Mizoram. Social Work Intervention can be offered at different level where micro level intervention may be at policy development to address vulnerabilities, financial support and marketing system. The mezzo level intervention may include developing institution and infrastructure in the rural areas for support. Micro level intervention may be at household and individual level including enhancement of knowledge and development of skills required for pig farming. These recommendations tackle both critical problems and enduring enhancements to foster a sustainable pig farming sector especially in the rural areas:

1. Bridging the gap between Government and pig farmers to design policies addressing their vulnerabilities in terms of seasonality, trends and shocks.

2. A comprehensive marketing system and supply chain that includes a consistent supply of concentrated feed and piglets. Additionally, facilities for processing pork into frozen and smoked products will also broaden the marketing channels.
3. Enhancing security of pig farming through insurance and other financial institution must be available for farmer to encourage farming at a larger scale.
4. Enhancing the Cooperative Society, Self Help Group or any organization associated with pig farming will provide institutional support in management and could be effective in addressing various challenges encountered such as market fluctuation, supply of feed and losses of pigs due to disease,.
5. Improving veterinary health care infrastructure is essential to have accessible veterinary services staffed with skilled professionals to ensure immediate illness treatment and prevention.
6. Educating pig farmers about existing schemes and policies that can enhance their farming practices or assist in addressing challenges.
7. Skill development training related to pig farming, feed procurement, disease prevention, piglet production, and other useful techniques for pig farming.

Pig Farming and Rural Livelihood in Mizoram
Household Interview Schedule (For Research Purpose Only)
by Mimi Zothanpari (Ph.D Scholar, MZU)

I. Respondents Profile

1. Name : _____
2. Age : _____
3. Type of Family : Joint/ Nuclear/ Reconstituted
4. Size of family : _____
5. Ethnicity : Mizo/ Others
6. Sub Tribe : Lusei/ Paite/ Ralte/ Hmar/ Lai/ Pawih
7. Religion : Christian/ Hindu/ Others
8. Denomination : Baptist/ Roman Catholic/ Presbyterian/ Salvation Army/ Seventh Day
Adventist/UPC (Mizoram)/ UPC (NE)/ Others
9. Socio Economic Category: Very Poor (AAY)/ Poor (BPL)/ Non-Poor (APL)
10. Family Particulars
 - Sex : _____
 - Age : _____
 - Educational Qualification:
Primary/ Middle/ High School/ Higher Secondary/ Graduate/ Post Graduate/ Others
 - Marital Status : Unmarried/ Married/ Divorced/ Widowed/ Remarried
 - Earner or Dependent: _____
 - Relationship with Head: Head/ Wife/Husband/ Son/ Daughter/ Parent/ Grandchild/ Others
 - Involvement in Pig farming: Main role/ Supporting role/ Not involved
 - Have you attended any kind of training/skill development: Yes/No
11. Household Primary Occupation:
Government Employee/ Agriculture Labour/ Business/ Livestock Rearing
Unskilled Labour/ Skilled Labour
12. Household Secondary Occupation:
No Secondary Occupation/ Government Employee/ Agriculture Labour
Business/ Livestock Rearing/ Unskilled Labour/ Skilled Labour
13. Monthly Primary Income: _____
14. Monthly Secondary Income: _____
15. Household monthly Expenditure

Sl.No	Items	Expenditure in Rs
1	Food	
2	Clothing	
3	Church Contribution	
4	Education	
5	Medication	
6	Loan reimbursement	
7	Household management	
8	Bills (Electric, Water, Wifi)	
9	Pig farming	
10	Others (Please Specify)	

II. Patterns of Land Ownership

1. What are the forms of land owned/used for pig farming:

Sl. No	Types Of Land	Number Of Tins
1	Community Land	
2	VC Pass	
3	Land Settlement Certificate	
4	Leased in Land	

2. Please tell me the assets owned by your household

Sl. No	Assets	Yes	No	Value in Rs
1	Land for housing	LSC/House pass		
2	House	Owned/rented		
3	Livestock (Pig, Cow, Poultry, etc)			
4	House/Buildings			
5	Household Furniture			
6	Television			
7	Refrigerator			
8	Cell Phones			
9	Washing Machine			
10	Computers/Laptop			
11	Two Wheeler			
12	Four Wheeler			
13	Inverter			
14	Bank Saving			
15	Insurance			
16	Pigsty			
17	None			

III. Livestock Rearing

1. What are the different forms of livestock reared by you?

Sl. No	Types of Livestock Reared	Number
1	Poultry	
2	Cows	
3	Goats	
4	Fish	

2. Source of Investment: Self-Investment/ NLUP/ Friends/Relatives/ Loan from Cooperatives/ Subsidized from Vety/Loan from Commercial Banks/ Others (Please Specify)

IV. Patterns of Pig Rearing

1. Pig Rearing experience in years (Vawk vulh tawh hun chung): _____
2. Average number of pigs reared in a year for the past 5 years: _____
3. How many pigs owned currently (Tuna vawk neih zat): _____
4. Value of pig owned (Tuna vawk vulh zawng2 man zat): _____

5. Purpose of Pig Rearing

:

Sl.No	Purpose	Never	Sometimes	Always
1	Consumption (Mahni a ei tur)			
2	Piglet Production (Vawk note hralh)			
3	Fattening for sale (Talh tur chi)			
4	Other (Please specify)			

6. Duration of rearing slaughter pig (in Months): _____

7. Duration of rearing pig inseminator (in Months): _____

8. Duration of rearing piglet producer (in Months): _____

9. What are your products?

Sl.No	Product	Never	Sometimes	Always
1	Meat (Sa)			
2	Piglet (Vawk note)			
3	Manure (Lei tha)			

10. Where do you sell your product?

Sl. No	Market	Never	Sometimes	Always
1	Commissioner			
2	Meat seller			
3	Self			
4	Through SHG/ Cooperative			

11. Types of Pigs reared

Sl. No	Types	Never	Sometimes	Always
1	Imported			
2	Local Breed			

12. Sources of pig

Sl. No	Sources	Never	Sometimes	Always
1	Purchased from market			
2	Purchased from Vety Dept			
3	Local Breed			
4	Own farm production			

13. Types of Pigsty

: Wood/Concrete/Semi Concrete

14. Sources of material for pig sty

: Forest/ Self/ Government/ Cooperative/SHG

15. No of pig sty

: _____

Size of Pigsty

: Length____ Width____

16. No of Blocks in one pig sty

: _____

17. No of piglet producer pigs in one block

: _____

18. No of inseminator pigs in one block

: _____

19. No of fattening pigs in one block

: _____

20. How often do you clean pigsty

: _____ (per week)

21. Ways of cleaning :

Sl. No	Ways of Cleaning	Never	Sometimes	Always
1	Washing with water			
2	Sticks and Broom			

22. Who look after the pigs :

Sl. No		Never	Sometimes	Always
1	Self			
2	Family			
3	Hired Labour			
4	Self and hired labour			
5	Family and hired labour			

23. How many family members are working: Male: _____ /Female: _____

24. How many hired labours are working in your pig farm : Male: _____ /Female: _____

25. What are the types of food you have given to pigs:

Sl. No	Types of Food	Never	Sometimes	Always
1	Pig Feed			
2	Rice			
3	Vegetables			
4	Leaves			
5	Wheat bran			
6	Kitchen Waste			

26. Nature of Feeding

Sl. No	Nature	Never	Sometimes	Always
1	Wet			
2	Dry			

27. How many times do you feed your pigs in a day:

Sl. No	Frequency	Never	Sometimes	Always
1	Once			
2	Twice			
3	Thrice			
4	More than thrice			

28. From where do you get water? :

Sl. No	Source	Never	Sometimes	Always
1	Groundwater			
2	Rain water harvesting			
3	Waterhole/ Spring well			
4	Water Connection			
5	Purchase of Water			

29. What are the sources of pig feed :

Sl. No	Source	Never	Sometimes	Always
1	Market			
2	Cooperative Society			
3	Vety Department			

30. From where did you collect fodder :

Sl. No	Source	Never	Sometimes	Always
1	Forest			
2	Kitchen Waste			
3	Vegetable Waste from Market			
4	Own Garden/Farm			

31. What kind of transportation do you used for collecting fodder ?

Sl. No	Transportation	Never	Sometimes	Always
1	Manual			
2	Owned vehicle			
3	Hired vehicle			
4	Public transport			

32. What kind of transportation do you used for collecting dry feed?

Sl. No	Transportation	Never	Sometimes	Always
1	Manual			
2	Owned vehicle			
3	Hired vehicle			
4	Public transport			

33. Value of one piglet (in Rs) : _____

34. Value of one pig producer (Vawk pui man) : _____

35. Value of one pig (Vawk talh chi man) : _____

36. Average no of piglet given for sale in a year (for the past 5 years): _____

37. Average no of pig given for sale in a year (for the past 5 years) : _____

38. Annual Income from pig rearing : _____

39. Annual expenditure for pig rearing

Sl. No	Items	Value in Rs
1	Fodder (Rice, Veg etc)	
2	Pig Feed	
3	Pig sty	
4	Medicine including vaccine and Health Check-up	
5	Transportation	
6	Purchase of Piglet	
7	Electricity	
8	Water	
9	Loan Reimbursement	
10	Hiring Labour	
11	Insemination	
12	Wood/Gas	

40. Amount of saving (in rupees) from pig farming: _____

41. Ways of saving _____ :

Sl. No	Ways of Saving	Never	Sometimes	Always
1	Cash in Hand			
2	Bank			
3	Cooperative Society			
4	Post Office			
5	Others (Please Specify)			

42. Have you received any kind of Government subsidy/support: Yes/No

43. Types of Government support

Sl. No	Support	Never	Sometimes	Always
1	Capital			
2	Subsidy			
3	Loan			
4	Material & equipment			
5	Fodder			
6	Medicine			
7	Health care provider (VFA)			

44. Source of knowledge and information on pig farming

Sl. No	Sources	Never	Sometimes	Always
1	Family Tradition			
2	Neighbours			
3	Newspaper			
4	Cable TV			
5	Social Media			
6	Pamphlet			
7	Training			
8	Veterinary office			

45. Sources of training: Government/Cooperative/SHG/NGO/None

46. What types of training have you received?

Sl. No	Types of Training	Never	Sometimes	Always
1	Healthcare			
2	Feeding			
3	Piglet production			
4	Disease management and control			
5	Financial Management			
6	Government scheme			
7	Pig sty Construction			

47. Effectiveness of training for your farming attended

Sl. No	Effectiveness of Training	Strongly Disagree	Disagree	Agree	Strongly Agree
1	Training enhance knowledge				
2	Training build confidence				
3	Increase Production				
4	Improve management practices				
5	Improve Financial Management				
6	Improve health condition of pigs				
7	Helps in disease control and Management				

48. Do you have any kind of insurance in regards to pig rearing: _____

49. if Yes, Type of insurance: From government/Banks/insurance company

50. Value of insurance: _____

51. Diseases outbreak suffered during the past 5 years (hri leng tawrh tawh): _____

52. Number of times suffered: _____

53. Value of pig lost due to disease: _____

54. Who diagnose diseases suffered by your pigs

Sl.No	Diagnosis	Never	Sometimes	Always
1.	Vety Doctor			
2.	Veterinary Field Assistant (VFA)			
3.	Self			
4.	Other Pig Farmers			
5.	Others (Please Specify)			

55. Who manage diseases suffered by your pigs

Sl.No	Particulars	Never	Sometimes	Always
1.	Vety Doctor			
2.	Veterinary Field Assistant (VFA)			
3.	Private Doctors			
4.	Self			
5.	Other Pig Farmers			

56. Management of Diseases (Vawk hri kai enkawl dan)

Sl.No	Management	Never	Sometimes	Always
1.	Medication			
2.	Traditional Treatment			
3.	Disposal			
4.	No Treatment			
5.	Others (Please Specify)			

57. Consequences of Diseases (Hri in a vawk a khawih dan)

Sl.No	Consequences	Never	Sometimes	Always
1.	Death of Pigs			
2.	Stunt Growth			
3.	Selling pigs immediately			
4.	Increase Expenditure			
5.	Others (Please Specify)			

58. Have you received compensation from Gov't in terms of disease outbreak:
 59. If yes, how many have you received per pig (Sorkar atanga tanpuina dawn zat)?

V. Role of Co-Operatives Society

1. Are you a member of Cooperative Society? No/ Yes
 2. Duration of being Cooperative Society members (in years): _____
 3. Purpose of joining Co-operative Society? :

Sl. No	Purpose	Never	Sometimes	Always
1	Supply of Piglet			
2	Easy marketing			
3	Health care facilities			
4	Easy feed supply			
5	Condolences in times of loss			
6	Insemination Services			
7	Buying medicine in a lower price			
8	Subsidised equipment			
9	Support from government			
10	Development of habit of saving			
11	Training			

4. Number of members in the Society: _____
 5. Number of meeting: Weekly/monthly/Quarterly/Half yearly/Annually
 6. Is there any membership fee/ contribution, if yes how much: _____
 7. Level of involvement in Cooperative Socciety: Leader/Member
 8. Have you attended any programmes under the Cooperative Society, If yes what training: _____

9. What are the benefits you received from the Cooperative Society? :

Sl. No	Benefits	Never	Sometimes	Always
1	Supply of Piglet			
2	Easy marketing			
3	Health care facilities			
4	Easy feed supply			
5	Condolences in times of loss			
6	Insemination Services			
7	Buying medicine in a lower price			
8	Subsidised equipment			
9	Support from government			
10	Development of habit of saving			
11	Training			

VI. Role of Self Help Group

1. Are you members of SHG: Yes/No 2. Membership fee/monthly contribution: _____
 3. Duration of membership in SHG: _____ 4. Number of Group Members: ____
 5. Is SHG under gov't or private: _____
 6. Purpose of joining SHG :

Sl. No	Purpose	Never	Sometimes	Always
1	Supply of Piglet			
2	Easy marketing			
3	Health care facilities			
4	Easy feed supply			
5	Condolences in times of loss			

6	Insemination Services			
7	Buying medicine in a lower price			
8	Subsidised equipment			
9	Support from government			
10	Development of habit of saving			
11	Training			

7. Number of Meeting: Weekly/monthly/Quarterly/Half yearly/Annually

8. Level of involvement in SHG: Leader/Member

9. Have you attended any programmes under the SHG: _____

10. What are the benefits received from SHG

Sl. No	Benefits	Never	Sometimes	Always
1	Supply of Piglet			
2	Easy marketing			
3	Health care facilities			
4	Easy feed supply			
5	Condolences in times of loss			
6	Insemination Services			
7	Buying medicine in a lower price			
8	Subsidised equipment			
9	Support from government			
10	Development of habit of saving			
11	Training			

VI. Challenges and coping Strategies

Sl. No	Challenges	Never	Sometimes	Always
1	Lack of capital			
2	High cost of management			
3	Lack of insurance			
4	Diseases			
5	Increase expenditure due to disease			
6	Inability to sell pigs due to disease			
7	Unhealthy Pigs			
8	Death of Pig/Piglet			
9	Fodder Scarcity			
10	High cost of Feed/Fodder			
11	Non availability of Feed			
12	Water Scarcity			
13	Irregular marketing			
14	Scarcity of piglet			
15	Infertility in pigs			
16	High cost of Transportation			
17	Lack of fuel/wood			
18	Non remunerative price			
19	Poor quality of Piglet supplied			
20	Lack of Health Care Facilities			
21	High cost of Labour			

22	Non availability of labour			
23	Poor implementation of govt scheme			
24	Scarcity of land			
25	Poor quality of pig sty			
26	Lack of knowledge and skills			
27	Others (Please Specify)			

Coping Strategies

Sl. no	Particular	Never	Sometimes	Always
1	Loan from bank			
2	Financial support from Cooperative			
3	Financial support from SHGs			
4	Borrowed from relatives and friends			
5	Healthy practice from disease			
6	Government support			
7	Collect fodder from forest			
8	Vaccination			
9	Medical treatment from VFA/Doctor			
10	Medical treatment given by self			
11	Purchased Water			
12	Piping water from waterhole			
13	Improve quality of feed			
14	Claiming Insurance			
15	Additional income from bi product as manure			
16	Cultivation of vegetable near pig sty for additional income			
17	Training and orientation			
18	Distribution of pamphlet			
19	Use of internet for information and market			

Interview guide for Case Study

1. How does farming experience influence management practices and decision-making during disease outbreaks?
2. Why do many farmers prefer piglet production despite its higher labour requirement?
3. How does breed quality affect profitability and market stability?
4. What challenges might small-scale farmers face in shifting to superior breeds?
5. How do repeated insemination failures impact farmers' financial sustainability?
6. Are there any differences between artificial insemination and natural insemination in terms of risk and cost?
7. How do feeding practices influence productivity and disease resistance?
8. What are the economic implications of rising feed and transportation costs?
9. How does water scarcity affect hygiene practices and disease control?
10. What are the strengths and limitations of Veterinary Field Assistants (VFAs) compared to private veterinarians?
11. How does inadequate veterinary infrastructure affect livelihood security?
12. What are the economic risks and benefits of piglet production and fattening pigs?
13. Why do marketing challenges increase during disease outbreaks?
14. How does proximity to Aizawl influence marketing opportunities and price advantages?
15. What strategies can rural farmers adopt to strengthen market access?
16. How can traditional methods be integrated with scientific disease prevention strategies?
17. What are the potential environmental and health risks of carcass practice?
18. How does the absence of insurance increase livelihood vulnerability?
19. What policy measures could improve farmers' access to insurance?
20. What are the advantages of forming an effective pig farmers' cooperative?
21. Why might farmers prefer individual farming over collective action?
22. How does partial compensation affect farmers' recovery capacity?

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INTEREST AREA

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- Participated in National Online Workshop on Social Work Research Skills-1: Formulation and Design of Qualitative, Quantitative and Mixed Method Research

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- Participated in Interaction Programme for Doctor of Philosophy Scholars and Post-Doctoral fellows (14th – 20th October 2021)
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- Participated in 1st Annual International Conference on Social Sciences Theme: Social Sciences in the Contemporary World: The Way Forward (8th – 10th November 2023)
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- Presented paper in National Seminar cum IIPA Prelude Conference 2019 on Good Governance and United Nations Sustainable Development Goals organized by the Indian Institute of Public Administration Mizoram regional Branch (IIPA-MRB) in collaboration with the Department of Public Administration and the UGC-Women's Studies Centre (WSC), Mizoram University on 20th September 2019.
- Presented paper in National Online Seminar on Family, Community, Health and Wellbeing: Patterns Process and Outcomes of Social Work Research in India organized by Department of Social Work, Mizoram University on 24rd and 24th June 2021.
- Presented paper in Interaction Programme for Doctor of Philosophy Scholars and Post-

Doctoral fellows organized by the UGC – Human Resource Development Centre, Mizoram University on 14th to 20th October 2021.

- Presented paper in Two day National Seminar on “Agriculture and Livestock Farming in NE India: A Climate Resilient Approach” organized by ICFAI University Mizoram in collaboration with State Institute of Rural Development & Panchayati raj, Government of Mizoram on 21st and 22nd March 2023.
- Participated in 1st Annual International Conference on Social Sciences Theme: Social Sciences in the Contemporary World: The Way Forward organized by Mizoram University on 8th – 10th November 2023.

PUBLICATION

- Vulnerability Context and Role of Cooperatives in the Livelihood of Dairy Farming in Mizoram published in *Mizoram University Journal of Humanities & Social Sciences*, Vol. IX, Issue 2, December 2023. P. 188- 205.
- Livestock Farming: Living Conditions of Dairy Farmers in Mizoram, published in *Contemporary Social Scientist*, May 2025.

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ABSTRACT

PIG FARMING AND RURAL LIVELIHOOD IN MIZORAM

AN ABSTRACT SUBMITTED IN PARTIAL FULFILLMENT OF

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DEPARTMENT OF SOCIAL WORK

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Abstract

PIG FARMING AND RURAL LIVELIHOOD IN MIZORAM

BY

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Submitted

**In partial fulfillment of the requirement of the Degree of Doctor of Philosophy in Social
Work of Mizoram University, Aizawl**

INTRODUCTION

The global human population is increasing resulting in the rapid growing of food demands and the agricultural sector needs to be improved and uplifted. Apart from farming, animal husbandry is the second most important sources of income for people, so they are being given concern. Livelihood is the fundamental concern for all organisms. It is a fundamental human right. Livelihood is the fundamental requirement for human existence. Livelihood constitutes both the means and the objectives of existence. Mixed farming systems, that combine crops and livestock on the same terrain, provide the foundation of small-scale agriculture across Asia. The capabilities, assets—material and social resources—as well as the activities needed to keep a means of living constitute a livelihood system. A livelihood is said to be sustainable when it can withstand shocks and stresses, maintain or improve its capacities and assets both now and in the future, without endangering the base of natural resources,. Livelihood comprises not only one activity but also "complex, contextual, diverse, and dynamic strategies devised by households to fulfil their needs.

Livelihood entails the acquisition of resources necessary for existence within society, encompassing tangible assets (e.g., food reserves, valuables such as gold, jewelry, and cash savings) and resources (e.g., land, water, trees, livestock, and agricultural equipment), alongside intangible assets such as claims (i.e., appeals or demands for material, moral, or practical support) and access to opportunities (to utilize resources, stores, services, or to obtain information, materials, technology, employment, food, or income).

Rural livelihood is the methods by which individuals in rural regions generate income, including various activities such as agriculture, fishing, animal husbandry, and non-agricultural employment, all intended to fulfil fundamental necessities and enhance their quality of life. In rural areas, the main livelihood opportunities are agriculture and related occupations. They are frequently seasonal, irregular, disorganised, informal, and economically less productive than those in urban areas.

Agriculture serves as a fundamental source of livelihood for numerous individuals worldwide, particularly in rural regions, offering income, employment, and food security. Agriculture is essential in India, especially for rural communities,

many of which depend on it for their livelihoods. Agriculture is the science or practice of farming, encompassing the cultivation of crops and the rearing of livestock for human use and consumption.

Animal husbandry pertains to the rearing of livestock and the practice of selective breeding. It involves the management and care of animals to enhance their genetic traits and behaviors for profit. A significant proportion of farmers rely on animal husbandry for their sustenance. Animals are a vital resource for the rural poor, including both individuals directly involved in agricultural production and impoverished non-farm rural households that depend on local production for economical sustenance. The farming of livestock is essential for global livelihoods, considerably enhancing food security, revenue generation, and economic development, particularly for smallholder farmers and rural communities. Livestock farming encompasses the rearing of animals, including cattle, sheep, pigs, goats, and poultry, for the production of food, fibre, and other commodities, involving activities such as breeding, feeding, and raising animals.

Pig farming, also known as pig husbandry or swine farming, is the practice of raising and breeding domestic pigs primarily for meat production, known as pork. As a branch of livestock farming, it involves various practices to manage pig health, feeding, breeding, and housing, all aimed at optimizing growth, reproduction, and meat quality. Pigs were also a significant source of edible fat and protein, and their bristles were fully utilised to make brushes (Chen et al., 2024). It does not require high level educational qualification so it is also common in rural areas. Pig farming is an important livelihood option for poverty alleviation as it provides employment and income for the people (Ghimire, 2004).

Pig farming as a commercial enterprise for self-employment as well as piglets' production is crucial for uplifting socio economic status of people (Rasbongshi et al., 2019). So, majority of the farmers engaged in the commercial pig farming (H D Kumar et al., 2014), the socially higher-class groups of people are doing pig farming in commercial scale to earn higher level of income (Ghimire, 2004). Pig production in Assam is invariably a small-scale, backyard, marketed-oriented enterprise to generate income (Shyam et al., 2016). In India, pigs are reared

in traditional small-scale subsistence-driven production systems (Chauhan, Patel, Maurya, Kumar, et al., 2016).

Pig farming has great potential to boost income and employment, especially for small and marginal farmers. Pigs have high reproductive and growth rates, offering farmers, even those with limited land, an exciting opportunity. Pig farming requires a small capital investment and uses local feed, lowering operating costs. Pigs also provide a steady supply of meat, which is in high demand in many markets, generating income. Farmers, especially in rural or tribal areas, can increase employment, economic stability, and family nutrition by expanding pig farming. Pig farming could boost feed production, veterinary services, meat processing, and marketing. Strong market connections are needed to ensure this sector's success. These connections help farmers get fair prices, better veterinary and breeding services, and sustainable pig farming growth.

Major Findings

Structural Composition of Respondents

The socio demographic features of the respondents in this study include age, religion, denomination, ethnic community, and sub-tribe. The majority of responders are between the ages of 40 and 50 and over 60, indicating that pig farmers are neither physically active nor capable of performing labour-intensive tasks so they focus on generating income through livestock farming. Since the study was carried out in Mizoram, nearly all of the participants are Mizo, with the Lusei sub-tribe making up the largest group. As Mizoram is a Christian state all of the respondents are Christian. The majority of the people that are part of the study are Presbyterians, who are the dominant denomination in the northern section of Mizoram.

Family profile in the present study includes type and size of family. Nowadays, nuclear families are the norm in Mizoram; the majority of respondents have nuclear families, and over half of them are part of medium-sized families, which include four to six family members.

Since agriculture is the primary occupation of Mizoram's people and the majority of the study is carried out in villages, the majority of respondents have agricultural labour as their primary occupation. Since ancient times, Mizo people have engaged in small-scale livestock farming, such as raising cattle near homes. This practice is still carried on, and the majority of respondents list livestock farming

as a secondary family profession. This finding is similar with the findings of Sokchea et al., (2018) where after cultivation of rice and crops, farmers' second agricultural activity was raising animals, which was crucial to their livelihood and revenue generating.

Pattern of pig farming

The majority of respondents are small-scale farmers because the study is being conducted in villages and none of them owned large farm, and the majority of them owned fewer than five pigs, with an average value of between Rs 50,000 and Rs 100,000. Because of the availability of access and the disease outbreak, nearly all of them raised local breed piglets because they considered it was safer to rear piglet which they have known it safe from disease. The primary goal of pig breeding is fattening for sale as in case study they mentioned that it enables year-round sales and helps cover farming expenses and also pork is the most popular meat among the Mizo and demand for pork is growing. The respondents most frequently produced meat, and over half also produced piglets while case study shows that pig farmers concentrate mostly on producing piglets, suggesting that although this field demands more work, it is typically more profitable. Local breeds and own farm production are the primary sources of pigs. The most popular form of funding for pig farming is self-investment.

The majority of respondents generated between 10 and 50 piglets in a year; the number of piglets produced is determined by the type of pig raised, meaning that the more high-quality breeds produced, the more piglets were produced. Case study shows that compared to those with conventional breeds, farmers with high-quality breeds can produce approximately 17 piglets every litter. Most respondents sell fattening pigs between 1 to 5 pigs annually, depending on the quality of the feed they give their animals the number of sells differ. Self and Meat seller is the most common marketing system for pig farmers. The estimated worth, according to nearly half of the respondents with pig producers, is between Rs 50,000 and Rs 70,000.

Due to breed and marketing, the value of piglets varies by location, case study shows that piglets are typically more expensive in the Aizawl district, most likely as a result of cheaper transportation; also the higher the quality of the breed, the more the price of the piglet can be higher; additionally, when farmers wish to sell

their piglets quickly, they lower the price. From the case study it is found that piglet marketing has become more difficult due to the increasing number of piglet farmers.

According to half of the respondents, the value of their piglets is between 6000 and 7000, case study shows that high-quality pigs typically have more consistent and higher values. According to the majority of respondents, fattening pigs are worth between Rs 30,000 and Rs 35,000. The value of fattening pigs varies depending on their weight and the time of sale, such as when there is a disease outbreak the value also decreases. From the case study conducted, it was reported that once they weigh between 45 and 60 kg, fattening pigs are often sold whole for between Rs 30,000 and Rs 40,000. Pig prices in core locations are greater than those in periphery areas, indicating a significant price differential. Piglets and pork are more effectively marketed in communities nearer Aizawl.

Few respondents raised inseminators for longer than 12 months, case study shows that regardless of whether it is done naturally or by injection, insemination costs Rs 2000. However, if the first attempt is unsuccessful, the cost of injection insemination is billed again; however attempts at natural insemination can be repeated for free until they are successful. Most farmers raised slaughter pigs for 6 to 12 months, the length of time spent raising pigs varies depending on the quality of the feed, as higher-quality feed allows for faster growth, and breed type also affects growth. Over 50% of the participants raised piglets for more than a year; they switch out the pigs when they believe they are too old or unfit to produce piglets. The primary source of pigsty material is self-purchase. The majority of responders cleaned their pigsty more than ten times each week, and some did so frequently in order to guard against disease. Pigsty is mostly cleaned by washing it with water and using a broom and sticks. Case study shows that in Aizawl district, cleaning with water is more common, whereas in Kolasib district, brooms and sticks are preferred. Due to a lack of water during the dry season, pigsties are frequently cleaned with a broom and stick.

Pigs are fed a variety of foods, most often a boiled mixture of rice, vegetables, leaves, pig feed, and kitchen waste. They typically feed twice a day, though some farmers also feed grass at midday. Daily Activities Schedule shows that after cleaning the pigsty, the pigs are often fed between 4:00 pm to 5:00 pm. Pig farmers typically used wet feeding, but very few used dry feeding. Since dry feeding appears to be more expensive, farmers frequently blend rice with pig feed. The

primary source of dry pig feed is the market, from PRA it is reported that there is a good supply of feed despite the lack of a feed shop in their own area, whereas the sources of fodder are the forest and kitchen waste. Water connection and Rain water harvesting are the main sources of water but Seasonal Diagram shows that during dry season purchase of water can be necessary due to water constraints. Manual is always used for collecting fodder and Owned vehicle is used for collecting dry feed.

Livelihood Assets Owned by Pig Farmers

The livelihood assets owned by pig farmers are classified into physical capital, natural capital, human capital, financial capital and social capital.

Physical Capital

Most of the respondents owned assets like Livestock (Pig, Cow, Poultry, etc), Bank Saving, Pigsty, Household Furniture, Cell Phone, House, Land for housing and Refrigerator, Television and Washing Machine. The highest value of assets owned is House (3598730), Four Wheeler (673056) and Bank Saving (203929). Majority of the respondents have One Pig Sty as mentioned earlier all of the farmers owned small scale farm, most of the respondents used Wood to construct pigsty due to financial problem, and more than half of the respondents have 50 to 100sq ft having Below 5 Blocks and most of them placed One Pig in one block. This finding is in contrast with the findings of (F. Mutua et al., 2010) where they found that most farmers did not have a pigsty. These farmers either lacked the funds to buy building supplies or lacked the skills necessary to construct the homes.

Financial Capital

The majority of respondents have household savings of between 1 to 2 lakhs (206820), and nearly half of them have per capita savings of between 20000 to 50000. Since banks are not available in most areas Cash in hand is the most frequent method of saving. It is challenging for them to regularly save money because the majority of them do not have a monthly salary and are dependent on seasonal products like livestock and agriculture. The majority of respondents have bank savings between 1 to 5 lakh, with a mean value of 203929. Near communities have greater bank savings values (213371) than far communities (193542). The mean value of insurance is 2891, and the value of insurance is higher in far areas (3280) than in near communities (2537), almost all of the respondents say they have never held insurance.

Social Capital

Cooperative membership is uncommon because most localities lack cooperative societies or those that do exist are not operating effectively. As a result, only a small percentage of respondents are members of cooperative societies and have been for more than five years, with the majority of members being under 20. The government's assistance and health care facilities are the primary reasons for joining a society. The majority of them play member roles at their yearly meetings. The majority has not received any advantages from the society and has not participated in any training or programs offered by the cooperative society.

Few respondents are members of Self-Help Groups (SHGs), which are affiliated with the government and comprise groups of five to eight people. In Far villages, there are more SHG members than in Near areas. Training and the development of saving habits are the primary goals of joining a SHG. They typically contribute between Rs 50 and Rs 100 each month, and SHG contributions in far communities are higher than those in near communities. The majority of respondents have been SHG members for five to ten years, and far communities have longer SHG membership durations than near communities. The majority of them play member roles at their weekly meetings. The majority of members did not participate in SHG training or programs. Even though the majority of them have not received training, the most frequent benefits obtained from Self-Help Groups (SHGs) are training and the development of saving habits. This is because SHGs are not very helpful to farmers, so training and the development of saving habits are the most common benefits obtained from SHGs. Of those who have attended government-sponsored training, the majority of respondents say they have never attended any.

Farmers learn how to raise pigs through family traditions, which are a widespread source of knowledge and information. Nearly every respondent stated that they had never received assistance from the government, and the most frequent form of assistance that the government offers is through health care providers (VFAs).

Natural Capital

The majority of responders have a land settlement certificate and a temporary/VC pass. Since LSC is used to build homes and Temporary/VC Pass is primarily used for agriculture, nearly all of the respondents work in agriculture, and they frequently own land, including Temporary/VC Passes and Land Settlement

Certificates. The typical land value for dwelling is 198552, and the majority of respondents have land worth between 1 lakh and 5 lakh. The land's value cannot be as high as it would be in a city because of its rural position.

Due to easy management and requires less money than other livestock, poultry is the most widely raised livestock. The number of livestock owned by the respondents is that almost half of the respondents owned Below 5. The majority of responders have cattle valued between one lakh and five lakh. Livestock (cows, pigs, poultry, etc.) has an average value of 149562. The value of livestock (poultry, pigs, cows, etc.) is higher in near communities (195414) than in far communities (99126). This could be due to the fact that the near towns have more marketing options because they are closer to the city, where they can readily sell their goods.

Nearly half of the respondents utilised forests as a source of fodder, gathering it from their agricultural land, whereas nearly all of the respondents never used forests as a supply of materials for pig sty. The primary sources of water are rainwater gathering and water connections; most farmers had trouble keeping their pigsty under control during the dry season. The majority of respondents never used waterholes or spring wells as a source of water, and the majority of respondents never had access to groundwater.

Human Capital

More than half of the respondents family is a Medium (4 to 6 Members) size family. Aside from agriculture, livestock farming is the primary source of income for rural residents, so people have positive experience farming. The majority of respondents have five to fifteen years of experience raising pigs, with pig rearing experience being higher in far communities (12 years) than in near communities (11 years). This finding is similar with the findings of (Osagie & Osabuohien, 2021) where they found that majority of respondents in Nigeria had 6–15 years of experience in pig farming.

The majority never received any training, but among those who did, the most common training acquired by pig farmers was in healthcare, disease management, and feeding. According to the farmers, the majority of the trainings are ineffective since they are not relevant to them. A study conducted by (Petrus et al., 2011) they mentioned that most farmers believed that pig production had potential if they could receive adequate instruction in husbandry skills and assistance in obtaining high-quality breeds and better feed to grow their units. Training is essential for increasing

the production. Payeng et al., (2013) also found that the trained farmers profit more from their farming as compared to untrained farmers, and the organized farmers are more knowledgeable about farming than the unorganized and profit is more for the organized farmers.

The majority of respondents had two to three family members who care for the pigs, and it is more common for remote villages to have three family members working on a pig farm than near communities, which only have two. According to the majority of respondents, there are less than three male members working on pig farms; this is because most of them only own a few pigs. Compared to Near areas, there are more men employed on pig farms in Far communities. The availability of family labour may play a significant role on pig production involvement (Toan et al., 2012). The majority of respondents have fewer than three female family members employed on pig farms; in Far areas, there are more female employees than in Near communities. Few respondents in the Near communities say they have male hired labourers, whilst those in the Far areas say they have no hired labourers.

Living Condition of Pig Farmers

Largest number of respondents has Monthly Household Income of 25000 to 50000, the mean Monthly Household Income is 49724. The Near communities has higher Monthly Household Income (51603) compared to Far communities (47656). Largest number of respondents has Per capita Household Income of 5000 to 10000, the mean Per capita Income is 11863. The Per Capita Income is higher in Near communities (15673) as compared to Far communities (7672).

The highest household expenditure is on Pig Farming and Food. In the Far communities the expenditure on Pig farming is 20792 and in the Near communities the expenditure on Pig farming is 50790. Due to high cost of concentrated feed farmers have to spend more money on pig farming. Largest number of respondents has Per Capita Expenditure of 5000 to 10000, the mean Per Capita expenditure is 15489.

Relationship between Livelihood Endowment and Living Condition

Natural capitals such as Nature of Household Saving, Household Saving, Value of Bank Saving and Per Capita Saving have significant relationship with Per Capita Household Income, Household Expenditure and Per Capita Household Expenditure. This shows that when there is an increase in livelihood assets then the Per Capita Household Income and expenditure also increases.

Physical Capital such as Household Assets, Value of Household Assets, Area of Pig Sty (Area in sq foot) and Number of pig sty have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that the higher the values of physical capital then the expenditure are also increasing. Household Assets and Types of Pigsty have significant relationship with Household Income; this shows that when the value of assets and pigsty increases then the Household Income also increases.

Social Capital such as Source of Training, Source of Knowledge, Membership in Cooperative Society, Membership in SHG, Government Support, Duration of Cooperative Society members and Duration of SHG members have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that in order to increase social capital then the expenditure has to be high.

Human Capital such as Frequency of Training, Number of Hired labour and Size of Family have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that the higher the family size then the expenditure also increases and when training are attended the expenditure also increase. Number of Hired labour and Pig Rearing experience in years have significant relationship with Household Income, this shows that higher income family have a practice of hiring labour and more experience in pig farming. Number of family members working has significant relationship with Per Capita Household Income and Household Expenditure, the higher the family members involving in farming then the income and expenditure also increases.

Natural capital such as Land Ownership, Size of Land Ownership, Value of Land for housing, Value of Livestock (Pig, Cow, Poultry, etc), Ownership of Livestock, Number of Livestock, Sources of Fodder and Forest and Forest as Sources of materials for pig sty have significant relationship with Household Expenditure and Per Capita Household Expenditure. This indicates that when the natural capital is high then the expenditure is also increases. Number of Livestock has significant relationship with Household Income and Forest as Sources of materials for pig sty have significant relationship with Per Capita Household Income. This shows that the more the livestock the farmers owned and when they make use of natural resources then the income is higher.

Relationship between Challenges and Coping Strategies

Financial related challenges such as Lack of capital, High cost of management, Lack of insurance, Increase expenditure due to disease, High cost of Transportation, Non remunerative price and High cost of Labour used coping strategy such as Collect fodder from forest, Purchased Water, Loan from Bank, Financial support from Cooperative, Financial support from SHGs, Healthy practice from disease, Medical treatment from VFA/Doctor, Medical treatment given by self, Improve quality of feed, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Vaccination and Use of internet for information and market. This indicates that financial help from bank, cooperative and SHG help them cope with their financial challenges, as the cost of VFA and Self is lower than private doctors they usually manage sick animal through this which can reduce financial challenges, also vaccination help them prevent from disease where they need not to spent money for managing diseases. Earning extra income through using manure and cultivating vegetables help them in coping with financial challenges. The farmers make use of internet for learning management about pig farming.

Health and disease related challenges such as Diseases, Inability to sell pigs due to disease, Unhealthy Pigs, Death of Pig/Piglet and Infertility in pigs used coping strategies such as Loan from bank, Financial support from SHGs, Burrowed from relatives and friends, Healthy practice from disease, Government support, Vaccination, Medical treatment from VFA/Doctor, Medical treatment given by self, Purchased Water, Improve quality of feed, Claiming Insurance, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Training and orientation and Use of internet for information and market. In order to cope with health related challenges farmers maintain cleanliness to keep their animals free from disease where they have to use more water and even purchased water, when the pigs get sick they call VFA or treat them by self. Case study shows that when it comes to healthcare, the majority of farmers use Veterinary Field Assistants (VFAs) to treat sick pigs, while others choose private physicians because they are more accessible and provide better care. Depending on the treatment, visits might cost from Rs 300 to Rs 1000. In general, VFAs are less expensive than private physicians. This livelihood is less secure in communities where livestock farming is common because medical services are frequently

insufficient. Through attending training and orientation and using internet they coped their challenges related to health where they received information about the management and consequences of disease.

Feed and Water related challenges such as Fodder Scarcity, High cost of Feed/Fodder, Non availability of Feed, Water Scarcity and Lack of fuel/wood used coping strategies such as Collect fodder from forest, Vaccination, Purchased Water, Improve quality of feed, and Use of internet for information and market. The farmers make use of forest to collect fodder as mixture of grass is commonly given to pigs and they also focus on providing quality feed to increase production, purchasing water is also necessary during scarcity of water. The farmers use internet to get information in order to provide healthy balance of feed as well as for ordering concentrated feed.

Infrastructure related challenges such as Irregular marketing, Poor implementation of govt scheme, Scarcity of land and Poor quality of pig sty used coping strategies such as Loan from bank, Financial support from SHGs, Healthy practice from disease, Medical treatment from VFA/Doctor, Medical treatment given by self, Piping water from waterhole, Improve quality of feed, Claiming Insurance, Additional income from bi product as manure, Cultivation of vegetable near pig sty for additional income, Training and orientation, Distribution of pamphlet and Use of internet for information and market. In order to cope with infrastructure related challenges they received aid through bank, SHG, insurance, VFA and they also take water from waterhole and they focus on providing quality feed. Training, Pamphlets and Internet played a role in coping with these challenges as knowledge and information are received through these channels.

Service related challenges such as Scarcity of piglet, Poor quality of Piglet supplied, Lack of Health Care Facilities, Non availability of labour and Lack of knowledge and skills used coping strategies such as Financial support from Cooperative, Financial support from SHGs, Healthy practice from disease, Medical treatment from VFA/Doctor, Medical treatment given by self, Piping water from waterhole, Improve quality of feed, Additional income from bi product as manure. Most of the farmers in the study area lack veterinary health care institution so they cope these challenges by getting help from VFA and taking care of the pigs by self. They also seek financial help through Cooperative and SHG and they focus on improving feed that they provided to pigs. From the PRA it is found that many

communities are forced to use their neighbours for banking and healthcare services because these are not available in their own localities.

Vulnerability Context of Pig Farmers

Vulnerability context is the seasonality, patterns, and shocks that have an impact on people's livelihoods.

One of the vulnerable settings that come with shocks is disease, when farmers lose their valuable assets and have no control over them. They also lack adequate insurance or compensation to replace their losses, which puts their livelihood at risk.

ASF is one of the most prevalent illnesses; Seasonal Diagram shows that during the summer and monsoon seasons, disease outbreaks are frequent. KII shows that ASF often causes sudden death, leaving farmers with little opportunity to care for sick animals. From KII it is reported that the primary cause of ASF outbreaks is attributed to the importation of pigs from other regions. Farmers often prioritize quality breeds without verifying the health history or origin of the piglets, inadvertently introducing the disease to their local area.

The mean number of pigs lost to sickness is 3.1, and a sizable portion of responders lost one to ten. Farmers have to deal with the loss of pigs as a result of the lack of treatment. The disease spreads swiftly and spreads so quickly that farmers are unable to treat the afflicted pigs in time; case study reveals that communities like Sihphir, Sumsuih, and Sialsuk are more vulnerable, and the Aizawl district as a whole is at a higher risk of illness. Meanwhile, some contend that hotter weather could lower illness prevalence; there is a perception that hot places may contain more disease agents. However, from KII most localities agree that ASF outbreaks do not follow a specific seasonal pattern. Some farmers have lost all of their pigs to sickness; the value of pigs lost to disease varies from Rs 50,000 to Rs 500,000.

Since self-diagnosis and self-management are the most popular methods of disease diagnosis and treatment, pig farmers are ultimately responsible for all diagnosis and treatment of their sick animals. This is because the farmers did not want the medical professional to come to them because of the disease outbreak because they can spread the disease by visiting a lot of pig farms and they know that there is no proper treatment available, so they feel it is better to take care of them themselves rather than paying for it. The most popular way to treat illness is with medication, and sick pigs are disposed of when illness is identified. In some places,

pigs were treated using a traditional method that involved soaking them in mud. It was said that this could cure the pigs' ailments. Other methods mentioned in case study and KII includes that pigs are frequently treated with bleaching powder and Tui sen to control and prevent infections; some farmers also employ dirt, smoke, and sodium chloride. The most frequent outcome of sickness is pig death, which also raises costs because farmers must pay for medical consultations and medication. Dead pigs are buried close to the home after being treated with bleaching powder.

Pig farmers most frequently faced challenges like lack of capital, high management costs, and high feed/feeder costs. Even though concentrated feed is expensive, farmers use it to help pigs develop and fatten. Piglet producer are more expensive in management because they require more care to create healthy offspring, and they are given vitamins and more food in addition to their regular diet. Disease-preventive measures include cleaning the pigsty frequently, washing it with a liquid insecticide since insects can transfer disease, avoiding people who keep pigs, and changing clothes both before and after visiting the pigsty. From the case study it was reported that in order to stop the spread of disease, including the consumption of infected pigs, access to pigsties is restricted during disease outbreaks, and pork from other locations is prohibited.

Since one of the biggest obstacles is the high cost of feed and fodder, most of them work in agriculture, gathering fodder from the forest is their primary coping mechanism because it is convenient for them. Seasonal Diagram shows that concentrated feed is accessible all year round, but transportation issues may occur during the rainy season. In contrast, fodder and water are plentiful throughout the rainy season and during dry season farmers faced fodder scarcity.

In order to cope with these challenges, cooperative society or association can play an important role but KII report shows that Cooperative societies or associations for pig farmers are not active in the localities. Farmers generally prefer to work independently, as the farming cycle for a single pig is relatively short. However, they often assist one another informally when needed. Most farmers have not received compensation or support from the government and are largely unaware of the schemes or projects available to them.

Conclusion

The study provides an in-depth study of the socio demographic characteristics, farming methods, resources, and vulnerabilities encountered by pig

farmers in rural Mizoram. The results emphasise how important pig farming is to the community's economy and culture, particularly in rural areas where it serves as the main source of earnings and livelihood for many households.

The majority of pig farmer households are small scale farmers who depend mainly on self-investment, typically keeping less than five pigs. The source of piglet in the near community is own farm production and far community depend on local breed. The far community have more experience in number of years but the near communities have more number of pigs, pig sties, and land area used for pig farming is also larger in the near communities. The material used for building pig sty is mainly wood and few concrete which was purchased by pig farmer household in both the near and far communities. Pig feed from market and leaves from forest are used more in the near community while rice and kitchen waste are used more in the far community which are mostly wet feed usually twice a day. The number of livestock and values of pig owned is also higher among the near communities. Near community reared pig for piglet production that have a significant higher number of piglets given for sale whose transaction is mainly done by self while the far community reared pig for fattening for sale and produce more meat for sale through meat seller. Livelihood assets viz., Physical Capital, financial capital, natural capital, social capital, and human capital are better in near communities. Therefore the living condition of pig farmer in a form of monthly household income and expenditure is also higher among near communities.

The level of output restricts the possibility for profit and shows a dependence on regional breeds, which are thought to be more disease-resistant and more suited to the climate in the area. Farmers that produce on a small scale, however, might not have the economies of scale required for profitability and resilience to environmental and market shocks. Pig farmers confront vulnerabilities in certain form viz., shock, trend and seasonality. Limited access to cooperative societies, veterinary care, and financial services were the main challenges faced even though they profit from locally accessible resources like fodder, water, and community support. Disease management has been noted as a significant concern, especially given the frequency of swine diseases such as African Swine Fever (ASF). Significant livestock losses brought on by ASF outbreaks have a negative effect on household income and the financial stability of the community. Due to a lack of access to reliable veterinary care, many farmers diagnose and treat illnesses using their personal experience and

their community's knowledge. Despite its resourcefulness, this self-sufficiency is eventually not suitable when general outbreaks happen on a large scale, as it is evident from the annual loss of pig by household farmers. This vulnerability is made worse by the lack of efficient insurance and compensation systems, which force farmers to shoulder the entire financial burden of disease outbreaks and there is limited support from the government and other institutions.

The study additionally highlights the resource limitations faced by pig farmers, particularly with regard to feed and water. Many farmers gather forest resources or use kitchen waste to cut costs because feed costs account for a large amount of their expenses. Pig growth rates, reproductive success, and total output may all be impacted by this method, which may save money but may also lead to variable nutritional quality. Daily activities are made more difficult by seasonal conditions, such as transportation problems during the monsoon and water scarcity during the dry season. Farmers find it difficult to sustain output and guarantee the well being of their animals in the absence of consistent access to water, feed, and veterinary supplies. In spite of these challenges, producers do profit from periods of high demand, especially during the holidays when there is a notable increase in pork consumption. Pig producers have a great chance to increase their revenue and get higher prices due to this demand. However, because farmers frequently rely on local purchasers rather than larger, possibly more profitable markets, the absence of organised market structures hinders their ability to fully benefit on these seasonal variations.

One of the common issues faced by pig farmer is the lack of institutional support. The only available institutional support for many pig farmers household is through Health care Provider (VFA) which is also not regular. In Mizoram, farmers have limited access to official training programs, government support, and cooperative groups. When they do exist, cooperative organisations give little assistance, and Self-Help Groups (SHGs), which may be able to provide resources for training and savings, are not being used to their full capacity to meet the requirements of pig farmers. The government-sponsored training that is available is frequently broad and does not specifically address the particular methods and difficulties associated with pig farming, and many farmers express a lack of knowledge or confidence in it.

In summary, this study underscores the essential yet vulnerable nature of pig farming in Mizoram. Pig farming is at the household level and more related to culture as majority do not rear pig for commercial purposes. While farmers demonstrate resourcefulness and adaptability in sustaining their livelihoods, the livelihood and living condition of pig farmers in the rural areas is not positively impacted by pig farming. On the other hand the industry faces significant challenges in disease control, financial stability, and resource access. To realize the full potential of pig farming as a sustainable livelihood, a coordinated approach involving government agencies, NGOs, and local communities as institutional support is almost absent in Mizoram. Vulnerabilities in the form of veterinary care, financial risk management, cooperative support, and market access are not addressed by various institutions and through government programmes and policy. So the pig farmers in Mizoram addressed these vulnerabilities at the household level with limited resources. Although pig farming is deeply rooted into the Mizo culture especially in the rural areas, it partially constituted as livelihood options as it practised at a small scale and serves only as a kitchen waste management strategy. Therefore the livelihood assets and living condition are not enhanced significantly and the economic contribution of pig farming to rural livelihood is not sustainable.

The results indicate that strategic interventions may significantly improve the resilience, productivity, and profitability of pig farming in Mizoram. Social Work Intervention can be offered at different level where micro level intervention may be at policy development to address vulnerabilities, financial support and marketing system. The mezzo level intervention may include developing institution and infrastructure in the rural areas for support. Micro level intervention may be at household and individual level including enhancement of knowledge and development of skills required for pig farming. These recommendations tackle both critical problems and enduring enhancements to foster a sustainable pig farming sector especially in the rural areas.

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