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Value Chain Of Eri Silk “Ryndia”
in
Ri Bhoi District, Meghalaya

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January 2019: Shillong

ISSN:

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INTRODUCTION

Silk is a natural protein fiber which can be woven into textiles. The protein fiber of silk is composed mainly of fibroin and is produced by certain insect larvae to form cocoons. Silk is produced by several insects; but, generally, only the silk of moth caterpillars has been used for textile manufacturing. Silk is mainly produced by the larvae of insects undergoing complete metamorphosis (egg, larva, pupa, and adult).

Eri Silk is one of the purest forms of Silk that is a true and genuine product of the *Samia cynthia ricini* worm. Eri Silk is called the father of all forms of cultured and textured Silks. It is found in Northeast India (in Meghalaya in Ri Bhoi District, East Khasi Hills, West Khasi Hills, Assam and some parts of Arunachal Pradesh) and some parts of China, Japan, and Thailand. The word *Eri* is derived from the word 'erranda', the Assamese word for castor and is made from worms that feed on the leaves of the castor oil plant. Also known as Endi or Errandi, Eri is a multivoltine (producing several broods in one year) silk spun from open-ended cocoons. The silk has a matt appearance of wool or cotton. The castor silkworm and the mulberry silkworm are the only domesticated silkworms with both relying on human intervention to develop.

The cocoon of the Eri worm has a very unique characteristic and is different from other silkworms. While building the cocoon, Eri worm leaves an open end. When the pupae are allowed to develop into adults, only the open-ended cocoons are used for turning into silk. The woolly white silk is often referred to as the fabric of peace because it is processed without killing the silkworm. This process results in a silk called Ahimsa silk or Non violent silk. Moths leave the cocoon and then the cocoons are harvested to be spun.

ERI SILK IN MEGHALAYA

Eri silk is the main silk that is fully processed in the state of Meghalaya right from the rearing to the finished product. Meghalaya produces three out of the four varieties of silk available in the world. They are Eri, which is locally known as *Ryndia* from the castor plants or Sla Ryndia/Rynda, the silkworms feed on Muga and Mulberry. The Ri-Bhoi District is one of the main regions of Meghalaya where Eri-culture and Handloom Weaving is still practiced. It has a long tradition and is part of the culture and heritage of the community. Rearing of Eri silk is a household activity conducted exclusively by women within the State. Major portion of Eri cocoons produced in the region is locally spun through traditional devices like Takli and other spinning devices like CSTR I spinning wheels etc.

MANUFACTURING OF ERI SILK

1. Degumming

Degumming is the process of removing the sericin a sticky substance produced by the silkworm that holds the strands of silk together. It is also known as silk scouring. Removing the gum improves the sheen, color, hand, and texture of the silk. As much as one-third of the weight may be lost when the gum is removed. Because the gum can serve as a protective layer, it is typically left on the silk until it is ready to dye. In some cases, the fabric is woven to completion, and then degummed, to protect the yarn from abrasion on the loom.

A) Traditional process: The cocoons are loosely tied in cotton cloth and boiled in water for 45 minutes to 1 hour. This helps in holding the cocoons together and avoids the fibres from getting entangled during the stirring process. After boiling, individual cocoons are stretched or opened up in plain water into thin sheets which is dried and used for spinning in Takli.

B) Improved method: Eri cocoons are loosely tied in a porous cloth and the bundle is immersed in an alkaline solution of 10-12 g soap and 2-4 g Soda per litre of water and boiled for an hour. The cocoons are then washed and boiled again in fresh water for 15-30 minutes. After proper washing the cocoon shells are dried without disturbing the fibre layer and then utilized for spinning especially in CSTR I machines.

2. Spinning

Takli spinning

Traditional hand spun threads are made into fabrics that lasts for a long time. They are spun strongly to create the warp and weft threads. Traditional method of spinning gives Eri silk the feel of cotton. The takli consists of a spindle with disc like base. The spinner holds the cocoon cake in the left hand, drafts and then feeds the strand with the right hand to the spindle. The spindle is occasionally rotated by the right hand in order to wind the yarn to the spindle. The drawback with hand spinning or the takli sinning is that it is a very slow process.



The Takli

(<http://gammasalachai.blogspot.com/2017/03>)



The Takli

(<https://www.wandertrails.com/activities/meghalaya-tour-for-eri-silk-production>)

Improved spinning wheel

Although the Takli is very simple and cheap, its output is quite low. Improved spinning devices have been developed time to time in which CSTRI spinning wheel is the latest one. The production is around 120-150g/ person/ day with 70-80% recovery from the cocoon shell.



CSTRI Spinning wheel

Dyeing

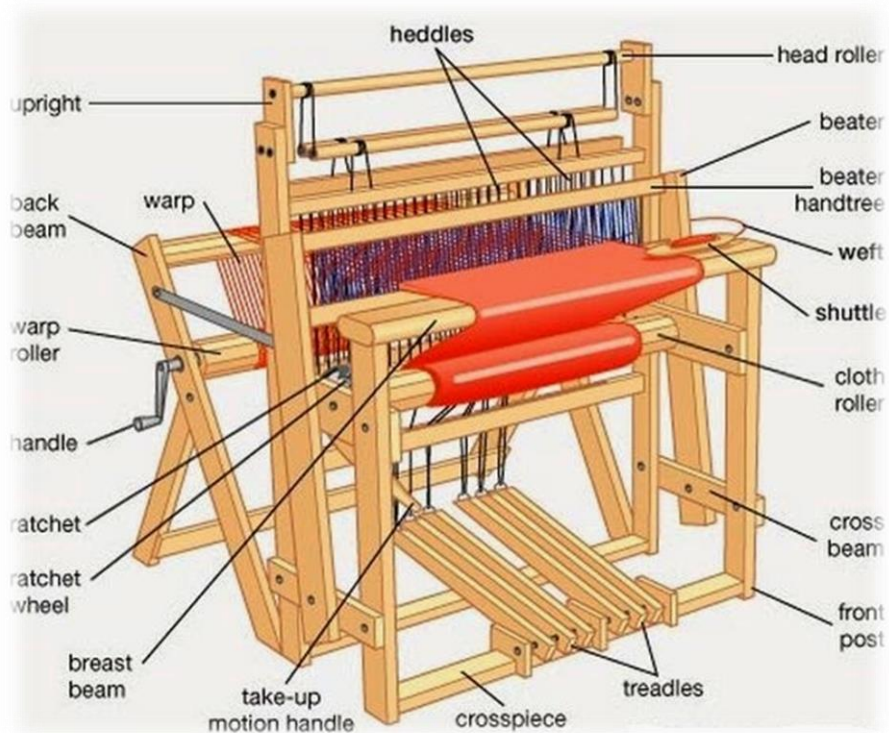
The art of dyeing with natural sources is one of the oldest known to man and India has a prosperous heritage for decorating textiles through dyeing or printing using natural dyes. The silk in Meghalaya has deep and strong natural colours. Natural dyeing is common and some of the traditional colours produced are red (lac), black (iron ore or ash) and yellow (turmeric). These natural dyes require a mordant (Sla kynjor) to create an affinity between the dye and the fibre.



Dyed Yarn

3. Weaving

Weaving is an ancient craft of the tribals of Meghalaya. It has a rich variety of hand-woven textiles, with unique characteristics that reflect the state and its skilled artisans. The state produces three varieties of silk – Eri (locally known as Ryndia from the castor plants the silkworms feed on), Muga and Mulberry. Weaving consists of two sets of yarn – warp (longitudinal or lengthwise yarn) and the weft (transverse or the filling yarn). The preliminary operation for weaving includes sizing and warping which is winding of the thread for warp. The processes are mainly manual. The warp is prepared section by section either in horizontal drum or in hand reel. The fabric can thus have the required width. The weft thread is fitted on a bobbin into a boat shaped shuttle. The finished fabric is wound on the cloth beam steadily.



The fly shuttle loom

VALUE CHAIN ANALYSIS (VCA)

A value chain is a model that was developed by Michael Porter used for describing the processes by which businesses receive raw materials, add value to the raw materials through various processes to create a finished product, and then sell the finished product to customers. Value Chain Analysis is conducted by looking at every production step required to create a product and identifying ways to increase the efficiency of the chain. The main goal of the Value Chain Analysis is to deliver maximum value or high-quality products at lower costs.

Value chain analysis is a process where a firm identifies its primary and support activities that add value to its final product. These activities include production, processing, marketing, distribution and consumption that is to bring a product or service from conception to delivery. The activities are then analyzed to reduce costs or increase differentiation. The value chain starts with the raw materials used to make the products and consists of everything added before the product is sold to consumers.

The value chain mapping is aimed at answering some key questions:

- i. Who are the key customers and what their product requirements are in terms of species, volume, quality, packaging, delivery schedules, as well as grades and standards?
- ii. Who are the key players in the chains and what are their respective roles?
- iii. What are the activities and processes along the chain?
- iv. What is the flow of product, information and payment along the chain?
- v. What are the logistics issues? and
- vi. What are the external influences?

By looking into these activities, the analysis will where a firm's competitive advantages or disadvantages are. The activities can be categorized as follows:

- a) **Primary Activities:** There are five primary activities that are essential in adding value and creating a competitive advantage. The first activity is *inbound logistics*, which includes receiving, warehousing and managing inventory of raw materials. The second activity is *operations* which includes all activities to convert raw materials into a finished product. The third activity is *outbound logistics* and this happens after

all operations are completed and the final product is ready for the customer. Delivering the product to the end user is also part of outbound logistics. The fourth activity is **Marketing and Sales** which includes all strategies to enhance the visibility of a product (advertising, pricing etc) and aid in the sale of the product. The fifth and final activity is **service** which includes all activities that create better experiences for the consumer. These services include customer service, refund, warranty, repair services etc.

- b) **Support Activities:** The support activities facilitate the efficiency of the primary activities. There are four support activities which includes procurement, technological development, human resource management and company infrastructure. Increasing the efficiency of any of the four support activities increases the benefit to at least one of the five primary activities.

The objectives of this study are as follows:

1. To assess the value chain of Eri silk;
2. To find out the present value of the products and to assess the market, costs and profitability of each chain;
3. To understand the areas of intervention on Eri silk weaves;
4. To establish a list of potential value added “Eri silk products” at the village level.



A weaver at work in Khweng

METHODOLOGY

The primary objective of conducting the “Value Chain Analysis of Eri Silk” is extremely necessary and it is very much required as it allows us to gain better understanding of the capabilities, the raw potential, opportunities and the areas for improvement in the Eri sector.

The survey started with the Value Chain Analysis of Eri Silk which involves the identification and understanding of its production process and noting the steps that can be eliminated or added which can result in cost saving or improved production.

To carry out the research, the sampling unit and the sample size was first decided. The sampling unit includes the rearers, spinners, dyers, weavers and traders. The sample size was 20 respondents for each village depending on the availability of the people. The interview scheduled was framed and potential villages were selected for data collection. The interview scheduled for the data collection prepared consisted of a set of questions related to the production of Eri Silk, i.e from the rearing of the silk worm to the end product and the processes in between. Information and data gathered were analyzed and depending on the general awareness and response of the individuals, the villages are then selected. Data collection were proceeded at Khweng and Liarsluid which falls under Bhoirymbong Block and Umsawoldhi, Umwang and Plasha which falls under Umling Block located in Ri-Bhoi District of Meghalaya.

Before proceeding with the data collection, the headman of each village act as the first point of contact and his approval, which is very significant, will determine the outcome of the survey and study.



Data collection at Umsawoldhi

The data collection was first conducted at Khweng village which is a small village of 106 HHs located in Ri-Bhoi District of Meghalaya under Bhoirymbong Block. It has a total number of 106 households. Majority of the population are engaged in farming which is the primary source of income. Besides farming; weaving, bamboo craft etc are the other means of generating income for the community. After completion of the general awareness programme, twenty six people were found to be engaged in the production of Eri Silk and further and detailed enquiry has confirmed that, there are five silkworm rearers, five spinners, two dyers and five weavers. The respondents were between the age group of 15 to 59 years and of the 26, only one was a male responder.

For objective 1, 2 & 3:

1. Research Design: Cross Sectional Research Design
2. Area of the study:- Value Chain of Eri Silk
3. Sampling Design:
 - a. Sampling unit: Rearers, Spinners, Dyers, Weavers
 - b. Sample size: 20 respondents (5 rearers, 5 spinners, 5 Dyers and 5 Weavers)
4. Methods of data collection:
 - a) Interview schedule for key respondents

For objective 4:

1. Research design :
2. Sampling Design:
 - a. Sampling unit: Random Sampling
 - b. Sample size : appropriate sample size will be decided
3. Methods of data collection : Stratified sampling (seller and buyer)

FINDINGS

The present study was done in five villages. All the villages are in Ri Bhoi district with the main ethnicity of the region being Bhoi. Umsawoldhi and Umwang had the highest number of respondents in the study contributing around or over 25% of the respondents with the rest less than 20%. But in terms of gender distribution except for a few male respondents from Khweng, the remaining respondents from all the villages were female.

Table 1: number of respondents

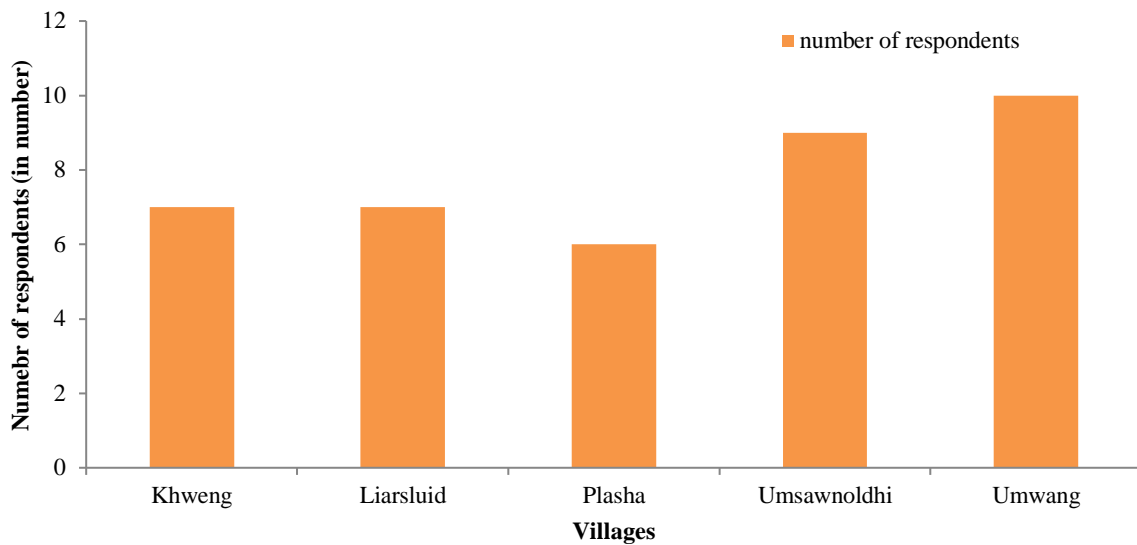


Figure 1: Number of respondents

Almost all the respondents are between 15 to 59 years old with only some in Liarsluid and Plasha being above 59 years old. It is the same regarding family type as well: majority of the respondents are from nuclear families excepting Khweng where majority of the respondents come from joint families. Thus the respondents from the different villages have similar demographic characteristics.

Table 1: Demographic profile in the study area

Demographic characteristics	Gender	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang Nongbah	
Gender	Male	14.3%	0.00%	0.00%	0.00%	0.00%	2.6%
	Female	85.7%	100.0%	100.0%	100.0%	100.0%	97.4%
Age group	15 to 59 age	100.0%	85.7%	83.3%	100.0%	100.0%	94.9%
	>59 age	0.00%	14.3%	16.7%	0.00%	0.00%	5.1%
Joint family	No	42.9%	85.7%	100.0%	100.0%	90.0%	84.6%
	Yes	57.1%	14.3%	0.00%	0.00%	10.0%	15.4%

Table 2: Average number family members who help in the activity related to Eri

Village	Mean	N	Std. Deviation
Khweng	1.86	7	.690
Liarsluid	1.57	7	1.618
Plasha	2.00	6	.632
Umsawoldhi	3.00	9	1.871
Umwang	5.10	10	3.814
Total	2.92	39	2.579

There is though some variation in the average number of people from the family who help the respondent with Eri. Umsawoldhi and Umwang had more number of people helping the respondent (> 3 persons) while in the remaining villages it was around two. This would suggest that the activity is comparatively more important in the first two villages. But when the average number of activities is considered the respondents cited around 2 activities apart from Eri.

Table 3: Distribution of additional activity in the study area

Importance	Activity	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
First Activity	Darning	14.3%	0.00%	0.00%	0.00%	0.00%	2.6%
	Farming	85.7%	100.0%	100.0%	100.0%	100.0%	97.4%
Second Activity	No Response	71.4%	71.4%	100.0%	100.0%	90.0%	87.2%
	Anganwadi Worker	0.00%	0.00%	0.00%	0.00%	10.0%	2.6%
	Daily Labourer	28.6%	14.3%	0.00%	0.00%	0.00%	7.7%
	Foraging	0.00%	14.3%	0.00%	0.00%	0.00%	2.6%
Third Activity	No Response	85.7%	100.0%	100.0%	100.0%	90.0%	94.9%
	SHG Worker	0.00%	0.00%	0.00%	0.00%	10.0%	2.6%
	Tailoring	14.3%	0.00%	0.00%	0.00%	0.00%	2.6%
Fourth Activity	No Response	100.0%	100.0%	100.0%	100.0%	90.0%	97.4%
	Hospital Staff, Guwahati	0.00%	0.00%	0.00%	0.00%	10.0%	2.6%

The other activities that the respondents are engaged in include farming, darning, anganwadi worker, daily labourer, SHG worker, tailoring, hospital staff, Guwahati. Of these farming is the most important. This suggests that the respondents are farmers who also work in Eri for supplementing their income.

SILK WORM REARERS

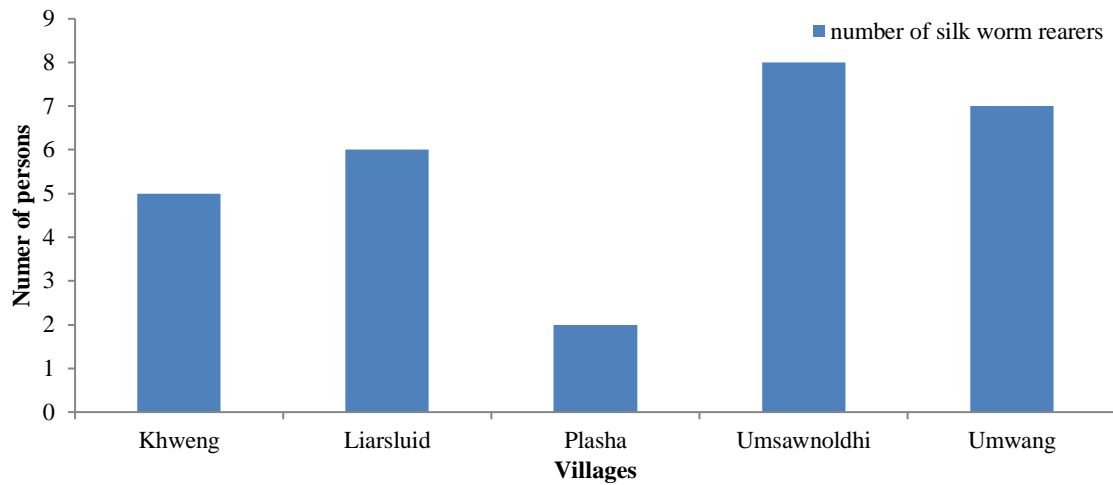


Figure 2: Number of silk rearers in the study area

The highest numbers of silk worm rearers were interviewed from Umsawoldhi and Umwang who contributed more than 25% of the respondents. The least were from Plasha, only two respondents (<10%).

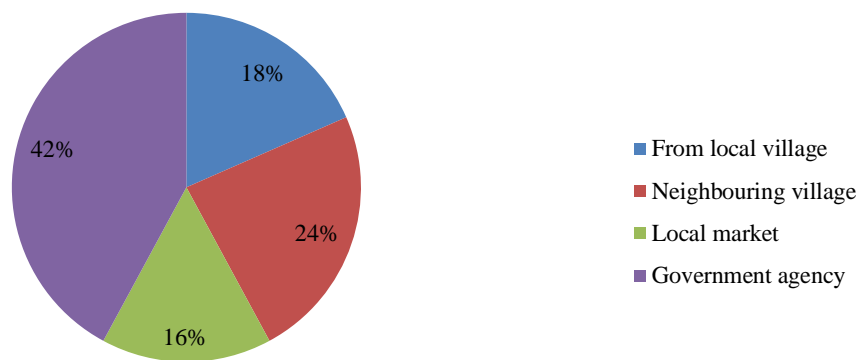


Figure 3: sources of silk worm larvae for the silk worm rearers

An overwhelming majority of these silk worm rearers reported that they do not have their own farm for the silk worm larvae. They usually get it from others' farms. In more than half of the cases, the larvae are sourced from the government. Farms located in the neighbouring village are the next important source with local market and other rearers from the local village itself being important.

Table 4: Price of silk worm larvae from different sources in the study area

SOURCE	PRICES	RESPONSES	VILLAGE					TOTAL
			Khweng	Liarluid	Plasha	Umsawoldhi	Umwang	
Local village	Last year price	No response	0.00%	66.7%	100.0%	100.0%	100.0%	75.0%
		Rs 10-30/packet	80.0%	0.00%	0.00%	0.00%	0.00%	14.3%
		Rs 20/packet	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
		Rs 40/packet	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%
	Current year price	No response	0.00%	66.7%	100.0%	100.0%	100.0%	75.0%
		Rs 10-30/packet	80.0%	0.00%	0.00%	0.00%	0.00%	14.3%
		Rs 20/packet	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
		Rs 40/packet	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%
Neighbouring village	Last year price	No response	0.00%	33.3%	100.0%	100.0%	100.0%	67.9%
		Rs 10-30/packet	80.0%	50.0%	0.00%	0.00%	0.00%	25.0%
		Rs 20/packet	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
		Rs 40/packet	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Current year price	No response	0.00%	33.3%	100.0%	100.0%	100.0%	67.9%
		Rs 10-30/packet	80.0%	50.0%	0.00%	0.00%	0.00%	25.0%
		Rs 20/packet	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
		Rs 40/packet	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
Market	Last year price	No response	100.0%	100.0%	50.0%	100.0%	28.6%	78.6%
		Rs 30/packet	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
		Rs 50/packet	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	Current year price	No response	100.0%	100.0%	50.0%	100.0%	28.6%	78.6%
		Rs 30/packet	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
		Rs 50/packet	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
Government agency	Last year price	No response	20.0%	66.7%	100.0%	0.00%	71.4%	42.9%
		Rs 30/packet	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
		Rs 40/packet	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%
		Rs 50/packet	80.0%	0.00%	0.00%	0.00%	28.6%	21.4%
	Current year price	No response	20.0%	66.7%	100.0%	0.00%	71.4%	42.9%
		Rs 40/packet	0.00%	33.3%	0.00%	100.0%	0.00%	35.7%
		Rs 50/packet	80.0%	0.00%	0.00%	0.00%	28.6%	21.4%

It was only in Khweng that silk worm rearers were able to find larvae from local farms located in the same village. The current and previous year price for purchasing these larvae remained constant at the rate of Rs 10 to Rs. 30 per packet. However some rearers in Liarsluid bought them at a much higher rate, Rs. 40 per packet. The rearers from Khweng also bought larvae from the neighbouring villages along with half of the rearers from Liarsluid at the same rate, i.e., Rs 10 to Rs. 30 per packet. Some from Liarsluid though were again buying larvae at a much higher rate, Rs. 40 per packet. Half of the rearers in Plasha and more than 70% in Umwang bought larvae from the market at the rate of Rs. 50 per packet and Rs. 30 per packet respectively. Government was an important source of larvae for rearers in Khweng, Liarsluid, Umsawoldhi and Umwang. The price for the larvae ranged from Rs. 40 to Rs. 50 per packet. The prices have remained the same for all the cases.

Thus, larvae bought from the farms located in the local village itself or in neighbouring villages are comparatively cheaper compared to those from the market and the government agency. Since rearers in Plasha, Umwang and Umsawoldhi mostly depend on the last two sources, they are paying a much higher for the larvae compared to Khweng and Liarsluid. These two villages do buy from the market and the government but they can get it from the local village itself or neighbouring village, diversifying their source and lowering the cost. For the other villages the only consolation is that there is no increase in prices from last year ensuring that there is no escalation of costs.

Table 5: Name of the neighbouring village where the farms for sourcing silk worm larvae are located

Source	Name of village	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Neighbouring village	No response	0.00%	33.3%	100.0%	100.0%	100.0%	67.9%
	Kdonghulu, Liarbang	80.0%	0.00%	0.00%	0.00%	0.00%	14.3%
	Khweng	0.00%	66.7%	0.00%	0.00%	0.00%	14.3%
	Liarsluid, Liarbang	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
market	No response	100.0%	100.0%	50.0%	100.0%	28.6%	78.6%
	Iew Nongpoh	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	Iew Umden	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
Government agency	No response	20.0%	66.7%	100.0%	0.00%	71.4%	42.9%
	Department of Sericulture and Weaving, Nongpoh	80.0%	33.3%	0.00%	100.0%	28.6%	57.1%

Khweng (mainly dependent on source from own village and neighbouring villages) is very important in terms of silk worm rearing which is demonstrated by the fact that Khweng was

the source of silk worm larvae for rearers from Liarsluid as well. As for themselves the rearers from Khweng sourced their larvae from Liarbang, Kdonghulu and Liarsluid. It would appear that these villages have developed a well established exchange network among themselves. They are located close to each other which are an added advantage. As for the markets, Iew Umden and Iew Nongpoh were important markets for Plasha and Umwang respectively. This again is primarily because of the proximity of these markets to the respective villages. Department of Sericulture and Weaving in Nongpoh is the government agency which supplies the larvae to the weavers.

Table 6: On monetary mechanism for getting silk worm larvae from different sources in the study area

Source	No monetary arrangements	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Local village	No response	100.0%	66.7%	100.0%	100.0%	71.4%	85.7%
	Exchange of the silkworm eggs	0.00%	0.00%	0.00%	0.00%	28.6%	7.1%
	Mother gives silk worm larvae to daughter who then given some back later for food	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%
Neighbouring village	Non monetary arrangement	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Market	Non monetary arrangement	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Government	Non monetary arrangement	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Apart from cash payment there are other non-monetary exchange mechanisms for getting silk worm larvae. In Umwang some silk worm rearers exchange their silk worm eggs with the larvae while in Liarsluid mothers gave the silk worm larvae to their daughters who later return some for consumption as food. Such arrangements help in reducing the costs to some extent. There are no such arrangements for buying larvae from neighbouring villages, market and the government.

Table 7: The nature of the rearing sheds in the study area

Nature of rearing shed	Village					Total
	Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Rears at home as no separate rearing shed	100.0%	83.3%	100.0%	0.00%	100.0%	67.9%
Received from Department of Sericulture and Weaving	0.00%	16.7%	0.00%	100.0%	0.00%	32.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 9 shows the ownership of rearing sheds. All the respondents in Khweng, Plasha and Umwang do not own any rearing sheds. The activity is performed within the confines of the house. Some of the respondents in Liarsluid own rearing sheds while the others perform the activity at home. Umwang is the only village with the respondents owning rearing sheds that are sponsored by the Department of Sericulture and weaving.

Table 8: The government agency, scheme and nature of assistance for building silk worm rearing sheds in the study area

Name of government agency/ scheme/ nature of assistance	Response	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Government department	No response	80.0%	83.3%	100.0%	0.00%	100.0%	64.3%
	Sericulture and Weaving	20.0%	16.7%	0.00%	100.0%	0.00%	35.7%
Scheme	No response	80.0%	83.3%	100.0%	0.00%	100.0%	64.3%
	CPS	20.0%	16.7%	0.00%	100.0%	0.00%	35.7%
Nature of assistance	No response	80.0%	83.3%	100.0%	0.00%	100.0%	64.3%
	Cash of Rs. 60,000/-	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
	Kind	20.0%	16.7%	0.00%	0.00%	0.00%	7.1%

Majority of the farmers except those from Umsawoldhi rears silk worm at home with no separate shed. All the rearers in the village with the remaining from other villages receive help from the Department of Sericulture And Weaving for building the rearing sheds. These are given under the CPS scheme of the government. The nature of assistance is in terms of kind and cash. Rearers in Umsawoldhi got a cash amount of Rs. 60,000/- for building the rearing sheds with rearers from the other villages, viz., Liarsluid, Umwang and some from Khweng getting assistance in kind. Thus kind seems to be the most common mode of assistance provided by the government for constructing the rearing sheds.

Table 9: The types of feed for silk worm larvae in the study area

Feed For Eri Worm Larvae	Village					Total
	Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Sla Ryndia	100.0%	100.0%	0.00%	100.0%	100.0%	92.9%
Sla Paiam	100.0%	50.0%	0.00%	0.00%	0.00%	28.6%
Sla Kynjor	100.0%	83.3%	50.0%	100.0%	100.0%	92.9%
Sla Phandieng	80.0%	16.7%	100.0%	0.00%	100.0%	50.0%
Sla Phankaro	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%

The feeds for silk worm larvae in the study area are Sla ryndia, Sla Paiam, Sla Kynjor, Sla Phandieng and Sla Phankaro. Of these sla ryndia and sla kynjor are the most important and are fed to silk worm by majority of the weavers in all the villages except in Plasha where sla

ryndia is absent from the diet of the silk worm. In Plasha sla phankaro is the main diet. The feed thus are very similar with weavers feeding more than one plant to the silkworm.

Table 10: Source of feed for silk worm larvae in the study area

Source of feed	Response	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Own garden	No	0.00%	0.00%	0.00%	0.00%	28.6%	7.1%
	Yes	100.0%	100.0%	100.0%	100.0%	71.4%	92.9%
Details	Both leaves are grown in the garden	0.00%	50.0%	0.00%	100.0%	0.00%	39.3%
	Cultivated in her own paddy field	0.00%	0.00%	100.0%	0.00%	0.00%	7.1%
	Leaves are foraged from the forest	0.00%	0.00%	0.00%	0.00%	28.6%	7.1%
	Sla Phandieng grown in the garden	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	Sla Rynda is grown in the garden	100.0%	50.0%	0.00%	0.00%	0.00%	28.6%

The source of feed for the silk worm larvae mostly comes from the plot of the weavers themselves. These can be home gardens or paddy fields which are grown for the purpose. It is only in Umwang that some weavers foraged feed from the nearby forest. This means that the weavers are not buying feed from the market or other external sources but source it from the local landscape.

Table 11: Source of feed for silk worm larvae other than own gardens in the study area

Feed for silk worm	Response	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Source of feed	No response	0.00%	33.3%	100.0%	100.0%	28.6%	50.0%
	Local village	100.0%	50.0%	0.00%	0.00%	71.4%	46.4%
	Neighbouring village	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
Name of the source of feed	No response	0.00%	83.3%	100.0%	100.0%	100.0%	78.6%
	Khweng	100.0%	0.00%	0.00%	0.00%	0.00%	17.9%
	Khweng and Thadnongjau	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
Details	No response	0.00%	33.3%	100.0%	100.0%	28.6%	50.0%
	Exchange leaves with the silkworm	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Sla Kynjor and Sla Paiam are foraged from the forest	60.0%	50.0%	0.00%	0.00%	0.00%	21.4%
	Sla Kynjor and Sla Ryndia are foraged from the forest	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	Sla Kynjor, Sla Phandieng and Sla Paiam are foraged from the forest	40.0%	0.00%	0.00%	0.00%	0.00%	7.1%

But apart from own garden or paddy fields the weavers also source feed from other sources. Local village in most of the cases and neighbouring village or in some (in Liarsluid) are the other important sources of feed. The neighbouring village is Khweng and Thadnongiaw reinforcing the importance of Khweng in terms of source materials for Eri (silk worms' larvae and now feeds). The other ways in which the feeds are sourced are exchanging silk worm larvae for the feed in Liarsluid and foraging from the forest in Khweng, Liarsluid and Umwang. This means that Plasha and Umsawnewldhi depend entirely on their own gardens for feeding their silk worm.

Table 12: Duration from larvae to moth stages of silk worm in the study area

Stages	Duration	Village					Total
		Khweng	Liarsluid	Plasha	Umsawnewldhi	Umwang	
Larvae To Worm	1 Month	100.0%	0.00%	50.0%	0.00%	100.0%	46.4%
	24 Days To 30 Days	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
	3 Weeks	0.00%	100.0%	0.00%	0.00%	0.00%	21.4%
	3-4 Weeks	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
Worm To Cocoon Duration	1 Week	0.00%	0.00%	100.0%	0.00%	71.4%	25.0%
	28 Days	0.00%	100.0%	0.00%	100.0%	28.6%	57.1%
	3 To 4 Days	100.0%	0.00%	0.00%	0.00%	0.00%	17.9%
Cocoon To Moth Duration	1 Month	100.0%	0.00%	50.0%	0.00%	100.0%	46.4%
	2 To 3 Weeks	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%
	2-3 Weeks	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	3 Weeks	0.00%	66.7%	0.00%	100.0%	0.00%	42.9%

The larvae took the longest duration, i.e., a month to become a worm in Khweng and Liarsluid. The shortest was in Liarsluid and Plasha where it took only 3 to 4 weeks. The journey from worm to cocoon however took the shortest in Khweng where it was only 3 to 4 days. Liarsluid and Umsawnewldhi recorded the longest duration of 28 days. The duration from cocoon to moth took the shortest in Plasha, Liarsluid and Umsawnewldhi (2 to 3 weeks).

Khweng again recorded the longest duration, 1 month, alongwith Umang for the transformation from cocoon to moth. In all, the silk worm took the longest to progress from larvae stage to the moth stage in Khweng and Umwang (more than 2 months) while it took the least time in Plasha (less than a month). This suggests that the rearing process in Plasha highly accelerates the development process of the silk worm life cycle.

Table 13: The amount of silk worm larvae reared in one cycle in the study area

Amount of silk worm	Village					Total
	Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
1 kg	0.00%	0.00%	50.0%	0.00%	71.4%	21.4%
2 kg to 5 kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
3 kg	40.0%	0.00%	50.0%	0.00%	0.00%	10.7%
3 kg to 5 kg	0.00%	0.00%	0.00%	0.00%	28.6%	7.1%
5 kg	40.0%	83.3%	0.00%	100.0%	0.00%	53.6%
7 kg	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

But when it comes to amount of silk worm larvae reared in one cycle Plasha rears around 1 kg to 3 kg which is the least among all the villages. On the other hand, Khweng, Liarsluid and Umsawoldhi rears 5 kg which is the second highest after 7 kg among some rearers in Khweng. The comparatively greater amount of silk worm larvae reared in these villages compared to Plasha (where growth is highly accelerated) suggests that they have tried to compensate the slower growth with greater quantity.

Table 14: The colour of silk worm cocoon in the study area

Colour of cocoon	Response	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
White	Yes	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	No	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Rust	No response	0.00%	66.7%	100.0%	0.00%	100.0%	46.4%
	No	60.0%	16.7%	0.00%	0.00%	0.00%	14.3%
	Yes	40.0%	16.7%	0.00%	100.0%	0.00%	39.3%
Details	No response	0.00%	16.7%	100.0%	100.0%	100.0%	64.3%
	If Sla Kynjor is fed to the worms then rust colour cocoon is obtained	0.00%	66.7%	0.00%	0.00%	0.00%	14.3%
	Rust colour is obtained if silkworm is fed with other leaves along with Sla Rynda	100.0%	16.7%	0.00%	0.00%	0.00%	21.4%

The colour of silk worm cocoon is white from all the villages. It is only in Khweng, Umsawoldhi and to some extent in Liarsluid that rust coloured cocoons are also found. The cause for this difference however is not the same in the two villages. According to rearers in Khweng the cocoon becomes rust in colour when Sla ryndia is fed with other leaves to the silk worm. In Liarsluid, however, the rust colouration is claimed to form if the leaves of Sla kynjor is fed to the worms.

Table 15: The price of silk worm in the study area

Prices	Rate	Village					Total
		Khweng	Liarfluid	Plasha	Umsawoldhi	Umwang	
Last year price	Rs 200/kg	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	Rs 220/kg	0.00%	0.00%	100.0%	0.00%	0.00%	7.1%
	Rs 240-Rs 250/kg	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
	Rs 250/kg	100.0%	16.7%	0.00%	0.00%	28.6%	28.6%
	Rs 280/kg	0.00%	83.3%	0.00%	0.00%	0.00%	17.9%
Current year price	Rs 250/kg	0.00%	0.00%	100.0%	0.00%	71.4%	25.0%
	Rs 260-Rs 280/kg	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
	Rs 300/kg	100.0%	100.0%	0.00%	0.00%	28.6%	46.4%

The price of silk worm has increased in the last one year for all the villages. For example, in Khweng the rearers got Rs. 250 per for one kilogram of silk worm. In the current year they got Rs. 300 per kg. This is repeated for all the villages (from Rs. 280 per kg to Rs. 300 per kg etc.) which mean that there has been a increase of revenue from the sale of silk worm in the study area. The pattern is repeated for the price the rearers are getting for the cocoon as well. Except for Khweng which got the same price for the cocoon as last year, Rs. 800 per kg, the other village are receiving 100 rupees more for the cocoon compared to the previous year. For example, rearers in Plasha are currently getting Rs. 700 to Rs. 800 per kg as against the previous rate of Rs. 600 to Rs. 700 per kg from last year. All of this means that the revenue of rearers in terms of sale of silk worm and cocoon has experience an increase from the last year.

Table 16: The price of cocoon in the study area

Prices	Rates	Village					Total
		Khweng	Liarfluid	Plasha	Umsawoldhi	Umwang	
Last year price	Rs 500-Rs600/kg	0.00%	16.7%	0.00%	100.0%	71.4%	50.0%
	Rs 600-Rs 700/kg	0.00%	0.00%	100.0%	0.00%	0.00%	7.1%
	Rs 600/kg	40.0%	0.00%	0.00%	0.00%	28.6%	14.3%
	Rs 800/kg	60.0%	83.3%	0.00%	0.00%	0.00%	28.6%
Current year price	Rs 1000/kg	0.00%	83.3%	0.00%	0.00%	0.00%	17.9%
	Rs 600-Rs700/kg	0.00%	0.00%	0.00%	100.0%	71.4%	46.4%
	Rs 700- Rs 1000/kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Rs 700-Rs 800/kg	0.00%	0.00%	100.0%	0.00%	0.00%	7.1%
	Rs 700/kg	0.00%	0.00%	0.00%	0.00%	28.6%	7.1%
	Rs 800/kg	100.0%	0.00%	0.00%	0.00%	0.00%	17.9%

The silk reares in the study are sell their cocoon to five types of different buyers, viz., buyers from local village itself, neighbouring village, government, middlemen and the market. of all these middlemen are the most important buyer with almost all the weavers selling their cocoon to them. Very few sold to the local markets since the middlemen come and buy

directly from them. A significant number of weavers still sell to buyers from the local village and neighbouring village highlighting the importance of networks based on proximity. Government being an important agency for assistance is also an important buyer of the cocoon for some silk rearers in the study area.

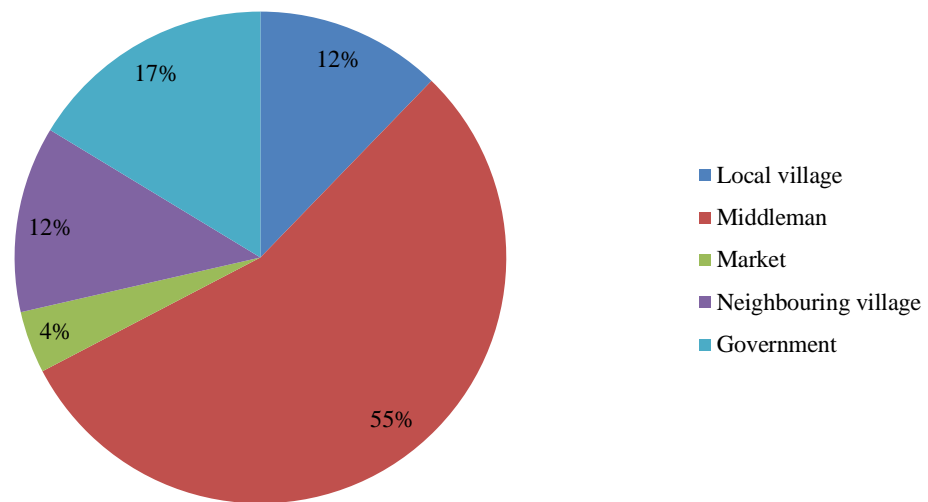


Figure 4: Buyers of cocoon in the study

The importance of middleman is mainly due to the fact that the prices weavers receive are higher compared to other buyers. Weavers sell their cocoon to middleman at the rate of Rs. 800 to Rs. 1000 per kg which increased from Rs. 800 per kg. Umwang which receiving the lowest rate from middlemen also saw an increase in the selling price from Rs. 500 to Rs. 600 per kg to Rs. 600 to Rs. 700 per kg. These middlemen come from Assam. In fact except for those weavers who sell to buyers from the local village itself the prices for cocoon has increased. In Khweng and Liarsluid the selling price to buyers from local village has remained the same from the last year, i.e., Rs. 800 per kg and Rs. 500 to Rs. 600 per kg respectively. The low price could be because of inter-personal relationships that exist in the village. Weavers in Plasha and Umsawoldhi have seen the prices of their cocoon sold to Iew Nongpoh (the main market of Ri Bhoi) increased from Rs. 600 - Rs. 700 per kg to Rs. 700 - Rs. 800 per kg and Rs. 250 per kg to Rs. 300 per kg respectively. Such low prices esp. for Umsawoldhi might be another explanation why weavers don't sell their cocoon to the local markets. The selling price to buyers from neighbouring village has also gone up from Rs. 600 to Rs. 800 per kg in Khweng but has remained the in Liarsluid, Rs. 500 to Rs. 600 per kg. Weavers sell their cocoon to the neighbouring village of Mawbri and Liarbang while

Liarsluid sell to buyers from Khweng. Only weavers from Umsawoldhi are found to sell their cocoon the government department of Sericulture in Nongpoh. The price has increased from Rs. 500 per kg to Rs. 600 per kg.

Table 17: The selling price of cocoon in the study

Prices	Rates	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Sold to local village							
Last year price	No response	0.00%	83.3%	100.0%	100.0%	100.0%	78.6%
	Rs 500- Rs 600/kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Rs 600/kg	40.0%	0.00%	0.00%	0.00%	0.00%	7.1%
	Rs 800/kg	60.0%	0.00%	0.00%	0.00%	0.00%	10.7%
Current year price	No response	0.00%	83.3%	100.0%	100.0%	100.0%	78.6%
	Rs 500- Rs 600/kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Rs 800/kg	100.0%	0.00%	0.00%	0.00%	0.00%	17.9%
Sold to middle man							
Last year price	No response	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	Rs 500-Rs 600/kg	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	Rs 600-Rs 700/kg	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	Rs 600/kg	0.00%	0.00%	0.00%	100.0%	28.6%	35.7%
	Rs 700/kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
Current year price	No response	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	Rs 1000/kg	40.0%	100.0%		0.00%	0.00%	28.6%
	Rs 600-Rs 700/kg	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	Rs 700-Rs 800/kg	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	Rs 700/kg	0.00%	0.00%	0.00%	100.0%	28.6%	35.7%
Rs 800 to Rs 1000/kg	60.0%	0.00%	0.00%	0.00%	0.00%	10.7%	
Sold to market							
Last year price	No response	100.0%	100.0%	50.0%	100.0%	85.7%	92.9%
	Rs 250/kg	0.00%	0.00%	0.00%	0.00%	14.3%	3.6%
	Rs 600-Rs 700/kg	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
Current year price	No response	100.0%	100.0%	50.0%	100.0%	85.7%	92.9%
	Rs 300/kg	0.00%	0.00%	0.00%	0.00%	14.3%	3.6%
	Rs 700-Rs 800/kg	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
Neighbouring village							
Last year price	No response	0.00%	83.3%	100.0%	100.0%	100.0%	78.6%
	Rs 500- Rs 600/kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Rs 600/kg	100.0%	0.00%	0.00%	0.00%	0.00%	17.9%
Current year price	No response	0.00%	83.3%	100.0%	100.0%	100.0%	78.6%
	Rs 500- Rs 600/kg	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Rs 800/kg	100.0%	0.00%	0.00%	0.00%	0.00%	17.9%
Sold to government							
Last year price	No response	100.0%	100.0%	100.0%	0.00%	100.0%	71.4%
	Rs 500/kg	0.00%	0.00%	0.00%	100.0%		28.6%
Current year price	No response	100.0%	100.0%	100.0%	0.00%	100.0%	71.4%
	Rs 600/kg	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%

With the selling price seeing an increase from the last year (except those that sell to buyers from local village) the returns for the weavers has seen an increase. But the fact that the weavers are selling to multiple sources indicates that they want to diversify their buyers as well so that they can have options in case a particular source fails. This seems all the more

probable by the fact that though the price has remained the same for selling to buyers from the local village itself weavers still maintain these connections.

In terms of monthly income silk worm rearers from Umsawoldhi earn the most, between Rs. 200 to Rs. 3000 per month. The lowest income was recorded in Plasha and Liarsluid where rearers earned below Rs. 1000 per month. The majority of the weavers however earn between Rs. 1000 to Rs. 2000 per month.

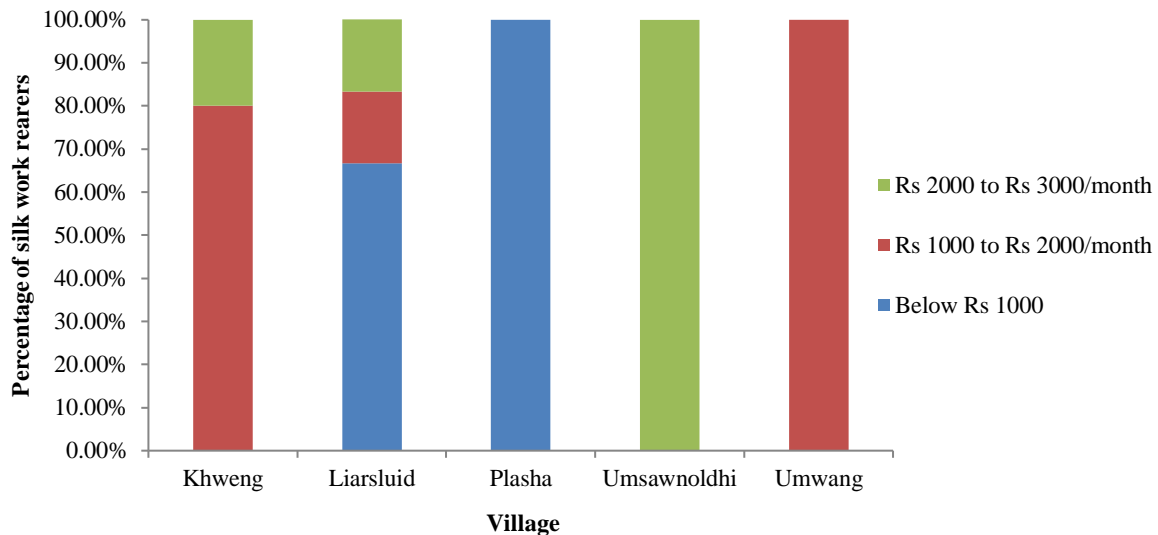


Figure 5: The monthly income of silk rearers in the study

When this is compared to the amount of money that rearers spent in a month for the activity it is found that there is a profit of around Rs. 700 to Rs. 1400. This surplus is very important for the household who depend on it especially since most of the weavers are engaged in this activity at a regular basis, every day in a month. This activity is in fact one of the most sources of income for the respondents in these villages.

Table 18: Resources spent per month in terms of money and time for the silk worm rearers

Resources spent	Responses	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
Money spent per month	No response	0.00%	16.7%	0.00%	0.00%	100.0%	28.6%
	Rs 200-Rs 300	100.0%	50.0%	100.0%	100.0%	0.00%	64.3%
	Rs 300	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	Rs 65	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
Time spent per month	1 month	100.0%	0.00%	100.0%	100.0%	28.6%	60.70%
	2 weeks	0.00%	66.7%	0.00%	0.00%	0.00%	14.3%
	1 week	0.00%	0.00%	0.00%	0.00%	71.4%	17.9%
	3 weeks	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%

The most important problem faced by rearers is the difficulty in getting leaves for the silk worms. This is especially so in Khweng, Plasha and Umwang. For the rearers in Plasha the lack of rearing shed is the biggest problem they face. Liarsluid and Umwang also face the similar problem. The fact the rearers have to also engage in other livelihood activities, farming and daily wage labour is also an important problem for rearers in Plasha. For Umsawoldhi the immature death of silkworms is a concern. Sale of cocoon at low rates is cited as a concern by some rearers in Liarsluid but because many sell to the middleman who give higher price compensates for the problem. Therefore, the biggest problem the weavers face is providing the feed for their silk worms. If this is solved this will bring great relief and benefits to those who practice this activity in the study area.

Table 19: problems faced by the silk worm rearers in the study area

Degree of importance	Problems	Village					Total
		Khweng	Liarsluid	Plasha	Umsawoldhi	Umwang	
First important problems	Immature death of silkworms	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
	Leaves are not easily available	100.0%	16.7%	100.0%	0.00%	100.0%	53.6%
	No rearing shed	0.00%	83.3%	0.00%	0.00%	0.00%	17.9%
Second important problem	No response	100.0%	16.7%	100.0%	100.0%	85.7%	78.6%
	Also engage in other activities so she cannot devote her time fully to rearing	0.00%	0.00%	0.00%	0.00%	14.3%	3.6%
	Immature death of the worms	0.00%	33.3%	0.00%	0.00%	0.00%	7.1%
	Leaves are not easily available	0.00%	50.0%	0.00%	0.00%	0.00%	10.7%
Third important problem	No response	0.00%	0.00%	0.00%	100.0%	0.00%	28.6%
	Also engage in other activities so she cannot devote her time fully to rearing	0.00%	0.00%	50.0%	0.00%	0.00%	3.6%
	Firewood not available	80.0%	0.00%	0.00%	0.00%	0.00%	14.3%
	Lack of space for rearing	0.00%	83.3%	50.0%	0.00%	100.0%	46.4%
	Need for mosquito net to keep mosquitoes and flies away from the worms	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%
	No rearing shed	20.0%	0.00%	0.00%	0.00%	0.00%	3.6%
Fourth important problem	No response	100.0%	83.3%	100.0%	100.0%	100.0%	96.4%
	The cocoon sold to the locals is at a lower rate than that sold to middlemen	0.00%	16.7%	0.00%	0.00%	0.00%	3.6%

The most common problem in Khweng, Plasha and Umwang is the non-availability of the leaves which is the source of feed for the silkworms. In Umwang and Plasha some of the respondents raise their problem of not being able to devote their time fully to this rearing as they also have other activities to complete. 83 % of the respondents in Liarsluid do not have rearing shed. This affects their work as they cannot perform the activity to its full potential.

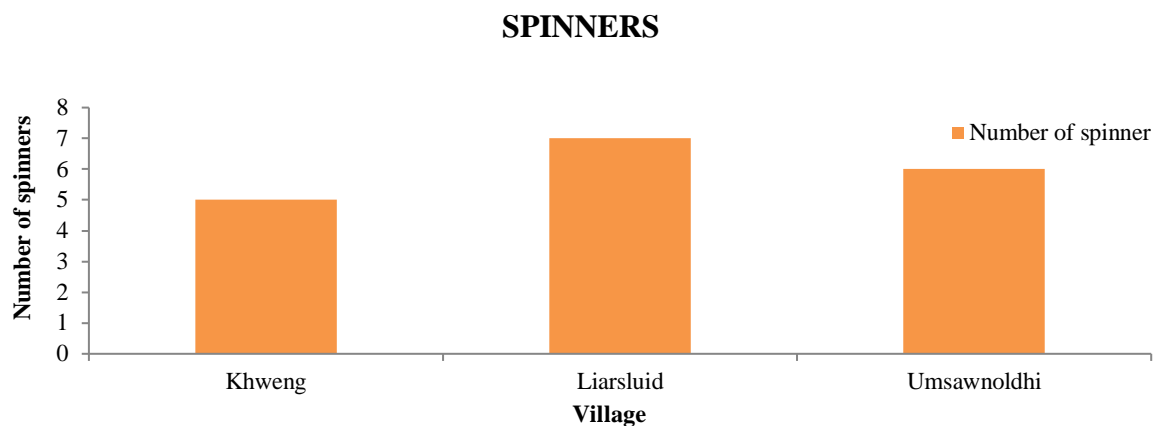


Figure 6: Number of spinners in the study area

Figure 6 shows the number of spinners in Khweng, Liarsluid and Umsawoldhi. In Plasha and Umwang, none of the respondents are engaged in Spinning. In Khweng 20% of the respondents engaged in spinning buy their cocoon from external sources while the other 80% use their own cocoon for spinning. In Liarsluid 14.3 of the respondents buy their cocoon from external sources while the other 85.7% use their own cocoon for spinning, whereas 100% of the respondents in Umsawoldhi use their own cocoon for spinning.

Table 20: The price of the cocoon for the spinners in the study area

Prices	Rates	Village			Total
		Khweng	Liarsluid	Umsawoldhi	
Buy from local village					
Last year price	No response	0.00%	71.4%	100.0%	61.1%
	Rs 1000/kg	0.00%	14.3%	0.00%	5.6%
	Rs 500/kg	20.0%	0.00%	0.00%	5.6%
	Rs 600-rs 700/kg	80.0%	14.3%	0.00%	27.8%
Current year price	No response	20.0%	71.4%	100.0%	66.7%
	Rs 1000/kg	0.00%	14.3%	0.00%	5.6%
	Rs 600-rs 700/kg	60.0%	14.3%	0.00%	22.2%
	Rs 600-rs 800/kg	20.0%	0.00%	0.00%	5.6%
Buy from neighbouring village					
Last year price	No response	20.0%	100.0%	100.0%	77.8%
	Rs 600-rs 700/kg	60.0%	0.00%	0.00%	16.7%
	Rs 600-rs 800/kg	20.0%	0.00%	0.00%	5.6%
Current year price	No response	20.0%	100.0%	100.0%	77.8%
	Rs 600-rs 700/kg	60.0%	0.00%	0.00%	16.7%
	Rs 600-rs 800/kg	20.0%	0.00%	0.00%	5.6%

In comparison to the silk worm rearers the number of spinners is quite lesser, 18 spinners against 28 rearers. They are again found only in 3 villages, viz., Khweng, Liarsluid and Umsawoldhi. Of these an almost equal number of respondents were chosen for personal interview. And according to almost all of them they have their own cocoon. There are however some spinners from Khweng and Liarsluid who get it from others. They get their cocoon from the local sellers at the rate of Rs. 600 – Rs. 700 per kg. This price has remained constant since the last year. Some spinners in Khweng get their cocoon from the neighbouring village as well, viz., Liarbang, Liarsluid and Mawbri at the same rate. However in majority of the cases the spinners have their own cocoon and even if they buy the stability in price means that the cost of production hasn't gone up.

Table 21: The tools used for spinning and its price in the study area

Tool And Price	Response	Village			Total
		Khweng	Liarsluid	Umsawoldhi	
Tool	Takli	100.0%	100.0%	100.0%	100.0%
Price	No Response	0.00%	85.7%	100.0%	66.7%
	Rs 100/Piece	40.0%	0.00%	0.00%	11.1%
	Rs 50/Piece	60.0%	14.3%	0.00%	22.2%

Majority of the spinners in Khweng and Liarsluid get 750 grams of yarn from one kilogram of cocoon. In Umsawoldhi it is lesser, 350 grams. However in terms of price they all pay the same rate, Rs. 2000 per kg. This means that spinners in Umsawoldhi are losing some money when they purchase yarn compared to those from Khweng and Liarsluid.

Table 22: The amount of yarn spinner receive from one kilogram of cocoon in the study area

Yarn from one kg	Village			Total
	Khweng	Liarsluid	Umsawoldhi	
300 grams	20.0%	0.00%	100.0%	38.9%
70-800 grams	20.0%	0.00%	0.00%	5.6%
725 grams	0.00%	14.3%	0.00%	5.6%
750 grams	60.0%	85.7%	0.00%	50.0%
Total	100.0%	100.0%	100.0%	100.0%

The spinners sell their yarn to dyers (38.89%), weavers (38.89%), and other buyers from their own village (27.78%) and neighbouring villages (61.11%). Of these the neighbouring village is very important with almost all the spinners in Khweng and Liarsluid finding buyers from the neighbouring villages of Mawbri and Khweng respectively. Irrespective of who they sell, however, the past (last year) and present prices spinners get for the yarn has remained the same, Rs. 2000 per kg. Some of the spinners got less than Rs. 2000 per kg for their yarn in

the previous year but in the current year all the spinners get the same rate. In Umsawnewoldhi the arrangement is a little. Instead of cash the spinners exchange their yarn for fabric from weavers which is an example of the barter system still being prevalent in the area.

Table 23: Customers of the yarn sold by the spinners in the study area

Prices	Rates	Village			Total
		Khwenq	Liarsluid	Umsawnewoldhi	
Sold to dyers					
Last year price	No response	0.00%	71.4%	100.0%	61.1%
	Rs 1500/kg	0.00%	14.3%	0.00%	5.6%
	Rs 1600/kg	20.0%	0.00%	0.00%	5.6%
	Rs 2000/kg	80.0%	14.3%	0.00%	27.8%
Current year price	No response	0.00%	71.4%	100.0%	61.1%
	Rs 2000/kg	100.0%	28.6%	0.00%	38.9%
Sold to weaver					
This year price	No response	0.00%	71.4%	100.0%	61.1%
	Rs 1500/kg	0.00%	14.3%	0.00%	5.6%
	Rs 1600/kg	20.0%	0.00%	0.00%	5.6%
	Rs 2000/kg	80.0%	14.3%	0.00%	27.8%
Current year price	No response	0.00%	71.4%	100.0%	61.1%
	Rs 2000/kg	100.0%	28.6%	0.00%	38.9%
Sol to Local village					
This year price	No response	0.00%	100.0%	100.0%	72.2%
	Rs 1600/kg	20.0%	0.00%	0.00%	5.6%
	Rs 2000/kg	80.0%	0.00%	0.00%	22.2%
Current year price	No response	0.00%	100.0%	100.0%	72.2%
	Rs 2000/kg	100.0%	0.00%	0.00%	27.8%
Sold to neighbouring village					
This year price	No response	0.00%	14.3%	100.0%	38.9%
	Rs 1600/kg	20.0%	0.00%	0.00%	5.6%
	Rs 1800/kg	0.00%	71.4%	0.00%	27.8%
	Rs 2000/kg	80.0%	14.3%	0.00%	27.8%
Current year price	No response	0.00%	14.3%	100.0%	38.9%
	Rs 2000/kg	100.0%	85.7%	0.00%	61.1%

There are differences in income earned among the spinners in the study area. Because spinners in Umsawnewoldhi exchange the yarn for fabric they earn no cash income from this activity. This is not so for spinners from Khwenq and Liarsluid who sell their yarn for money. In this majority of the Khwenq spinners reported to their income to be Rs. 5000 while for those from Liarsluid it was below Rs. 1000. This discrepancy points to some systemic problems in Liarsluid which prevents them for earning higher income as in Khwenq.

Table 24: Time and money resources spent by spinners in a month in the study area

Time and money Resources	Responses	Village			Total
		Khwenq	Liarsluid	Umsawnewoldhi	
Money per month	No response	0.00%	0.00%	100.0%	33.3%
	Rs 100	100.0%	71.4%	0.00%	55.6%
	Rs 200	0.00%	28.6%	0.00%	11.1%
Time per month	No response	0.00%	71.4%	100.0%	61.1%
	1 month	0.00%	28.6%	0.00%	11.1%
	2 to 3 weeks	80.0%	0.00%	0.00%	22.2%
	3 weeks	20.0%	0.00%	0.00%	5.6%

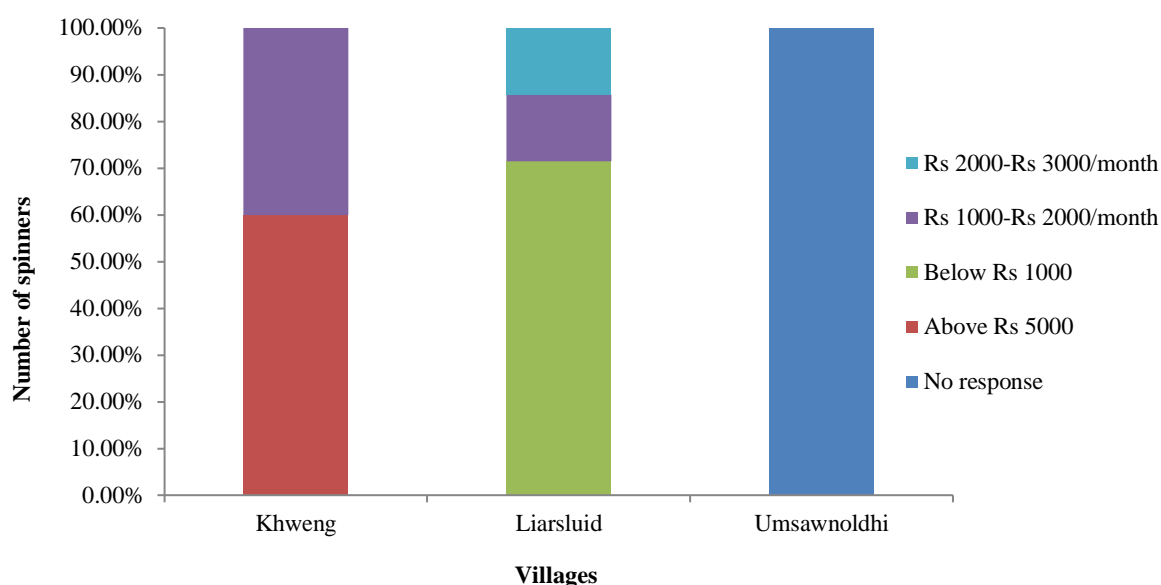


Figure 7: Monthly incomes of the spinners in the study area

The only consolation for spinners who earn less income is that the amount of money spent on the activity is not very high i.e., Rs. 100 per month. For some it goes to Rs. 200 per month but not more than that. As for the time 1-2 hours in a day is what spinners give to the activity. These are distributed across three to four weeks in a month. Thus, in times of money it may not be exorbitant but the activity demands a lot of time.

Table 25: Problems faced by spinners in the study area

Degree of importance	Problems	Village			Total
		Khweng	Liarsluid	Umsawoldhi	
First important problems	No response	0.00%	14.3%	0.00%	5.6%
	Health issues (back pain, shoulder pain, eye problem)	0.00%	57.1%	100.0%	55.6%
	Health issues (back pain)	80.0%	14.3%	0.00%	27.8%
	Less amount of cocoon because of the middleman	20.0%	0.00%	0.00%	5.6%
	Time consuming	0.00%	14.3%	0.00%	5.6%
Second important problems	No response	80.0%	100.0%	100.0%	94.4%
	If there is an urgent need for money, rearers have to sell their cocoons to the middlemen	20.0%	0.00%	0.00%	5.6%

There is however problems associated with this activity. Spinners in Khweng, Liarsluid and Umsawoldhi complain of health issues with activity. These problems are back pain, shoulder pain, eye problem. These could have major implications of the medical bills of the spinners. Another major problem is when they face urgent need of money man some spinners have reported of selling their cocoon to the middlemen thus depriving them of the raw material required for the activity. To ensure that spinners are able to maximize their returns from the activity these problems need to be tackled immediately.

DYERS

Table 26: Number of dyers in the study area

Villages	Frequency	Percent
Khweng	2	28.6
Liarsluid	1	14.3
Plasha	4	57.1
Total	7	100.0

Compared to the silk worm rearers and spinners, the number of dyers is comparatively lesser. As such the number of dyers interviewed here is also less, only 7 persons. Of these more than half are from Plasha with the rest coming from Khweng or Liarsluid.

Table 27: Source of yarn for the dyers in the study area

Own Yarn	Village			Total
	Khweng	Liarsluid	Plasha	
No	50.0%	0.00%	100.0%	71.4%
Yes	50.0%	100.0%	0.00%	28.6%
Total	100.0%	100.0%	100.0%	100.0%

The dyers in Plasha however do not have their own yarn but have got it under a yarn grant from the government. Those from Khweng who also had no own yarn however had to buy it from other private individuals. Dyers from Liarsluid however have an advantage over both the villages as their dyers have their own source of yarn.

Table 28: Price of yarn for the dyers in the study area

Prices	Rates	Village			Total
		Khweng	Liarsluid	Plasha	
Buy from Local village					
Last year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 1800 to Rs 2300/kg	50.0%	0.00%	0.00%	14.3%
Current year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 1800 to Rs 2300/kg	50.0%	0.00%	0.00%	14.3%
Buy from neighbouring village					
Last year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 1800 to Rs 2300/kg	50.0%	0.00%	0.00%	14.3%
Current year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 1800 to Rs 2300/kg	50.0%	0.00%	0.00%	14.3%
Buy from market					
Last year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 2300 to Rs 3500/kg	50.0%	0.00%	0.00%	14.3%
Current year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 2300 to Rs 3500/kg	50.0%	0.00%	0.00%	14.3%
Buy from government					
Last year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 2300	50.0%	0.00%	0.00%	14.3%
Current year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 3500/kg	50.0%	0.00%	0.00%	14.3%

The dyers from Khweng buy their yarn from individuals from their own local village, neighbouring village, market and the government. The other two villages do not purchase

from any of these sources. The price that the dyers from Khweng have to pay is the same for the yarn from the first two, Rs. 1800-2300 per kg which has remained the same since last year. The neighbouring villages from which the dyers of Khweng purchase their yarn are Liarsluid and Bhoirymbong. At the same time they also buy yarn from the market in Guwahati but at a much higher rate, Rs. 2300-3500 per kg. This is also the same price at which the dyers in Khweng get their yarn from the department of sericulture and weaving. Thus it seems that yarn is cheaper if they are bought from the local village itself or the nearby villages. But limited availability must have compelled the dyers to look towards the market and the government.

Table 29: Type of dyes used by the dyers in the study area

Type Of Dye	Village			Total
	Khweng	Liarsluid	Plasha	
Sla_Piat	100.0%	0.00%	100.0%	85.7%
Sla_Sohkhu	50.0%	0.00%	0.00%	14.3%
Shynrai	100.0%	100.0%	100.0%	100.0%
Laha	100.0%	100.0%	100.0%	100.0%
Snepdieng	50.0%	0.00%	0.00%	14.3%
Eitnar	0.00%	100.0%	0.00%	14.3%

There are 6 types of dyes which are used by the dyers in the study area. They are sla piat, sla sohkh, shynrai, laha, snepdieng and eitnar. Of these shynrai and Laha are the most important with dyers from all villages using them regularly. Sla piat is also important but dyers in Liarsluid don't prefer while the remaining ones are used in only one village (Sla Sohkh and Snepdieng in case of Khweng and eitnar in case of Liarsluid). Except for some exceptions the dyes used are thus very common.

Except for Liarsluid who have their own production of shynrai which they use as a dye, none majority or all of the dyers in the other villages have to acquire the dyes they require from sources other than their own production, the market. Apart from the market the other important sources of dye are private individuals like Bah Jalong from Khweng and the department of sericulture and weaving of Laha and Eitnar respectively.

Table 30: Source of dye from own production for the dyers in the study area

Source of the dyes	Type Of Dye	Village			Total
		Khweng	Liarsluid	Plasha	
Own production	Sla_Piat	50.0%	0.00%	0.00%	14.3%
	Sla_Sohkhu	50.0%	0.00%	0.00%	14.3%
	Shynrai	0.00%	100.0%	0.00%	14.3%
	Laha	0.00%	0.00%	0.00%	0.00%
	Snepdieng	50.0%	0.00%	0.00%	14.3%
	Eitnar	0.00%	0.00%	0.00%	0.00%

Table 31: Price of shynrai, laha for the dyers in the study area

dye	prices	rates	village			Total
			Khweng	Liarsluid	Plasha	
shynrai	Buy from own village					
	Last year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 20- Rs 30/kg	50.0%	0.00%	0.00%	14.3%
	this year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 20- Rs 30/kg	50.0%	0.00%	0.00%	14.3%
	Buy from neighbouring village					
	Last year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 20- Rs 30/kg	50.0%	0.00%	0.00%	14.3%
	this year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 20- Rs 30/kg	50.0%	0.00%	0.00%	14.3%
	By from market					
	Last year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 30- Rs 40/kg	50.0%	0.00%	0.00%	14.3%
	this year price	No response	50.0%	100.0%	100.0%	85.7%
Rs 30- Rs 40/kg		50.0%	0.00%	0.00%	14.3%	
laha	Buy from own village					
	Last year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 300- Rs 400/kg	50.0%	0.00%	0.00%	14.3%
	this year price	No response	50.0%	100.0%	100.0%	85.7%
		Rs 300- Rs 400/kg	50.0%	0.00%	0.00%	14.3%
	Buy from neighbouring village					
	Last year price	No response	50.0%	100.0%	0.00%	85.7%
		Rs 300- Rs 400/kg	50.0%	0.00%	100.0%	71.4%
	this year price	No response	50.0%	100.0%	0.00%	85.7%
		Rs 300- Rs 400/kg	50.0%	0.00%	100.0%	71.4%
	By from market					
	Last year price	No response	50.0%	100.0%	100.0%	85.7%
		600/kg	50.0%	0.00%	0.00%	14.3%
	this year price	No response	50.0%	100.0%	100.0%	85.7%
600/kg		50.0%	0.00%	0.00%	14.3%	
Sla Piat	By from market					
	Last year price	No response	50.0%	100.0%	0.00%	28.6%
		Rs 25/kg	0.00%	0.00%	100.0%	57.1%
		Rs 30/kg	50.0%	0.00%	0.00%	14.3%
	this year price	No response	50.0%	100.0%	0.00%	28.6%
		Rs 25/kg	0.00%	0.00%	100.0%	57.1%
Rs 30/kg		50.0%	0.00%	0.00%	14.3%	

Dyers from Khweng buy shynrai from their village, neighbouring village and the market. Compared to the markets, Iew Bhoirybong and Iew Umden, the price is lower from the first two sources. From the market the dyers buy it for Rs. 30-40 per kg while it is available at a lower price of Rs. 20-30 kg from the local village and the neighbouring village of Bhoirybong. The prices from all these sources however have remained stable with no increase or decrease. It is very similar for laha as well except that it is more expensive than shynrai. The price ranges from Rs. 300-400 per kg from local and neighbouring village of Mawlong to Rs. 600 kg from the market in Assam. Prices have also remained stable. The only difference is that, apart from Khweng, dyers from Plasha also bought laha from the neighbouring village of Mawlong. Sla piat is bought only from the market, Iew Bhoirybong and Iew Umden. The price however varies with dyers from Khweng buying it at the rate of

Rs. 30 per kg while those from Plasha get it at Rs. 25 per kg. What becomes clear is that sla piat, shynrai and laha are very important dyes for the dyers necessitating their purchase from the market.

There are three types of mordants used by the dyers. They are, viz., sla sohkhru, dieng dong and dieng wait pyrthat. Dyers in Khweng use all three of them. However, the supply from own garden of these mordants is not sufficient. As a result, the dyers have to forage from the forest to collect sufficient amount to fulfil the requirements. Lirasluid and Plasha have to exclusively forage these mordants from the forest. Thus dyers in Khweng may not entirely self-sufficient in terms of supply of the plants required for making the mordants they are in a better position than the other two villages. The respondents in Khweng use all the three types of mordants, while in Liarsluid only Sla Sohkhru is used as a mordant. Half of the source of the mordant in Khweng is grown in the garden while the other half if foraged from the forest. Liarsluid and Plasha, however, foraged all the three types of mordant from the forest.

Table 32: Colours produced by the dyers in the study area

Colour	Village			Total
	Khweng	Liarsluid	Plasha	
Turmeric	100.0%	100.0%	100.0%	100.0%
Maroon/red	100.0%	100.0%	100.0%	100.0%
Green	100.0%	0.0%	100.0%	85.7%
Black	100.0%	100.0%	0.0%	42.9%
Orange	50.0%	0.0%	0.0%	14.3%
Pink	50.0%	0.0%	0.0%	14.3%
Chocolate	0.0%	0.0%	100.0%	57.1%

Seven colours, viz., turmeric, maroon/red, green, black, orange, pink are chocolate are produced by the dyers in the study area. However, only dyers from Khweng produce almost all the colours. Dyers in Liarsluid do not make green colour while black is not available from Plasha. Again, orange and pink colours that is not available from dyers from either Liarsluid or Plasha. However, Plasha is the only village where dyers produce chocolate coloured dye. The variety of colours thus differs depending on dyers from particular village. This is due to personal preference, or long term specialisation.

Table 33: Other expenses incurred by the dyers in the study area

Other Expenses	Responses	Village			Total
		Khweng	Liarsluid	Plasha	
Fuel Wood	Rs 2500 Per Year	50.0%	0.0%	0.0%	14.3%
	Rs 3400 Per Year	50.0%	0.0%	0.0%	14.3%
	Rs200 Per Bundle	0.0%	100.0%	100.0%	71.4%
Fuel	40 Per Litre	50.0%	100.0%	100.0%	85.7%
Utensils	Rs. 1700	0.0%	100.0%	100.0%	71.4%

There are many other expenses that dyers have to consider for their activity. The most important among them is the supply of firewood. Dyers in Khweng buy firewood per truckload whose price can go up to Rs. 3400 per year. In contrast, Liarsluid and Plasha buy smaller amount and pay around Rs. 200 per bundle. The cost of fuel is however the same, Rs. 40 per litre. In the two villages the dyers also spend Rs. 1700 on utensils for preparing their dyes. Dyers in Khweng thus have higher expenses compared to those in Plasha and Liarsluid.

Table 34: The duration of dyeing in the study area

Duration	Village			Total
	Khweng	Liarsluid	Plasha	
1 To 2 Hours	0.0%	100.0%	100.0%	71.4%
3 Hours (Depends On The Quality Of The Yarn)	50.0%	0.0%	0.0%	14.3%
One Day	50.0%	0.0%	0.0%	14.3%
Total	100.0%	100.0%	100.0%	100.0%

Khweng spends more time in dyeing as compared to Liarsluid and Plasha. This is because some of the dyers in Khweng are full time dyers.

Table 35: Customers of the dyes produced by the dyers in the study area

Price	Rate	Village			Total
		Khweng	Liarsluid	Plasha	
Last year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 2500-Rs 2800/kg	50.0%	0.0%	0.0%	14.3%
Last year price	No response	50.0%	100.0%	100.0%	85.7%
	Rs 2500-Rs 2800/kg	50.0%	0.0%	0.0%	14.3%

Only the dyers from Khweng responded when asked about the customers who buy their dyes. The customer in this case is Bah Jalong, a local resident, who has been buying their dye at the rate of Rs. 2500-2800 per kg for the last two years. The non-response of dyers from Liarsluid and Plasha means that they are using their dye for their own purposes. What this also reveals that Eri has become highly specialised activity in Khweng with different parties involve in the different stages of production. On the other hand, Liarsluid and Plasha are doing the activity mostly for self-consumption and not exclusively for the market. The second appears to have become more important in Khweng.

Table 36: Monthly incomes of the dyers produced by the dyers in the study area

Monthly Income	Village			Total
	Khweng	Liarsluid	Plasha	
No response	0.0%	100.0%	100.0%	71.4%
Above Rs 5000	50.0%	0.0%	0.0%	14.3%
Rs 3000	50.0%	0.0%	0.0%	14.3%
Total	100.0%	100.0%	100.0%	100.0%

The monthly income of the dyers in Khweng is between 3000 and 5000 above. This varies for between the respondents depending upon their engagement in the activity.

Table 37: Time and money resources spent by dyers in a month in the study area

Resource Per Month	Response	Village			Total
		Khweng	Liarsluid	Plasha	
Money	No response	50.0%	0.0%	0.0%	14.3%
	Rs 2000	50.0%	0.0%	0.0%	14.3%
	Rs1800	0.0%	100.0%	100.0%	71.4%
time	No response	50.0%	0.0%	0.0%	14.3%
	2-3 weeks	50.0%	0.0%	0.0%	14.3%
	One month	0.0%	100.0%	100.0%	71.4%

As a result of selling their dye to Bah Jalong the dyers are able to earn an income of upto Rs. 5000 and above. However at the same time the dyers have to spend at least Rs. 1800-200 per month on their activity. The time required however is lesser. Dyers in Liarslud and Plasha spend the whole month on dyeing while in Khweng the activity does not exceed more the three weeks in a month. The activity is thus highly streamlined in Khweng while in Plasha and Liarslud it is done a more leisured pace.

Table 38: Problems faced by dyers in the study area

Problems	Village			Total
	Khweng	Liarsluid	Plasha	
A Person Has Be To Hired To Forage The Sla Sohkh	50.0%	0.0%	0.0%	14.3%
Marketing	50.0%	0.0%	0.0%	14.3%
Sla Sokhu Is Not Easily Available	0.0%	100.0%	100.0%	71.4%
Total	100.0%	100.0%	100.0%	100.0%

The importance of market for the dyers in Khweng is further confirmed by the fact that half of them have reported of marketing being a problem for them. Also while concern about the limited availability of an important source of dye, sla sohkh, is shared by everyone in the three villages, dyers in Khweng hire others to forage for the plant from the forest. The dyers in Khweng thus are highly market-oriented compared to their counterparts from Plasha and Liarslud and their problems are more related to the economic viability of the activity. In the other villages, the problem may exist but not to the extent experienced in Khweng.

WEAVERS

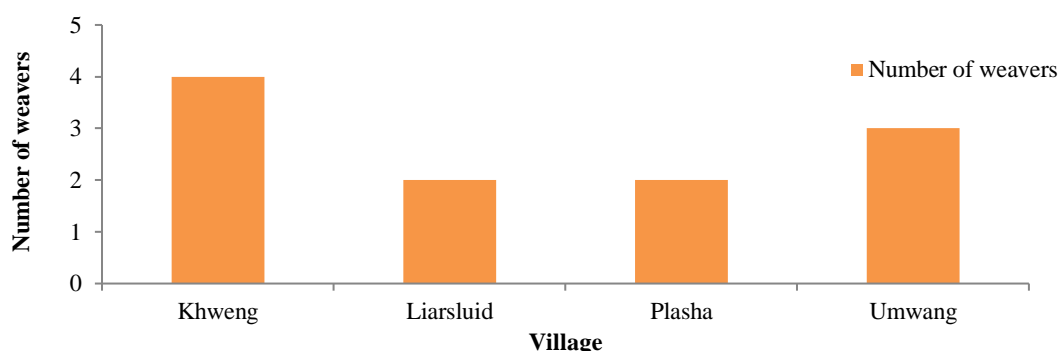


Figure 8: Number of weavers in the study area

The figure shows the number of weavers in the study area. From the figure it is clearly seen that Khweng has the highest number of weavers, with Umwang next in line. Liarsluid and Plasha have more or less the same number of weavers.

Table 39: Source of yarn for the weavers in the study area

Own Yarn	Village				Total
	Khweng	Liarsluid	Plasha	Umwang	
Un-Dyed Yarn	100.0%	100.0%	50.0%	0.0%	63.6%
Dyed Yarn	50.0%	50.0%	0.0%	0.0%	27.3%

All the villages except Umsawoldhi had weavers in the village. The highest number of weavers (36%) interviewed was from Khweng while the lowest are from Liarsluid and Plasha (18%). As for the source of the yarn Umwang do not have their own yarn dyed or undyed. As for the other villages at least half of the weavers have their own yarn except dyed yarn for Plasha who has to depend on other. Compared to other villages, Umwang thus is disadvantaged in terms of availability of yarn not having their own source.

Table 40: Price of undyed yarn for the weavers in the study area

Price	Rates	Village				Total
		Khweng	Liarsluid	Plasha	Umwang	
Un-dyed yarn bought from local village						
Last Year Price	No Response	100.0%	50.0%	100.0%	100.0%	90.9%
	Rs 2000/Kg	0.0%	50.0%	0.0%	0.0%	9.1%
Current Year Price	No Response	100.0%	50.0%	100.0%	100.0%	90.9%
	Rs 2000/Kg	0.0%	50.0%	0.0%	0.0%	9.1%
Un-dyed yarn bought from neighbouring village						
Last year price	No response	75.0%	100.0%	100.0%	100.0%	90.9%
	Rs 2300-Rs 2500/kg	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Price	No response	75.0%	100.0%	100.0%	100.0%	90.9%
	Rs 2300-Rs 2500/kg	25.0%	0.0%	0.0%	0.0%	9.1%
Undyed yarn bought from market						
This year price	No response	75.0%	100.0%	100.0%	0.0%	63.6%
	Rs 2000/kg	0.0%	0.0%	0.0%	100.0%	27.3%
	Rs 3500/kg	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Price	No response	75.0%	100.0%	100.0%	0.0%	63.6%
	Rs 2000/kg	0.0%	0.0%	0.0%	100.0%	27.3%
	Rs 3500/kg	25.0%	0.0%	0.0%	0.0%	9.1%

For those weavers who do not have their own yarn, particularly undyed yarn, they get it from spinners from the local village or neighbouring village. The price however differs with the yarn being more expensive from the neighbouring than own village. Weavers from Plasha buy the undyed yarn from Mr. Basanti Sohshen (own village) at the rate of Rs. 2000 per kg while those in Khweng buy it from Mr. Wanlam Pyngrope from Bhoirybong at the rate of Rs. 2300 to 2500 per kg. The price however is highest for the weavers from Khweng who buy the undyed yarn from Fabric Plus Company from Guwahati for Rs. 3500 per kg. Weavers from Umwang though get it cheaper, Rs. 2000 per kg from the local market of Bhoirybong. The

price of undyed yarn has remained the same over the last two years ensuring that no additional costs are incurred by the weavers. For half of the weavers in Plasha apart from these sources they have received a grant for undyed yarn from the Department Of Agriculture And Weaving, Government of Meghalaya. the financial burden on weavers in Plasha thus is considerably lesser than compared to weavers from other villages.

Table 41: Type of loom available to the weavers in the study area

Type of loom	village				Total
	Khweng	Liarluid	Plasha	Umwang	
Floor loom	75.0%	50.0%	0.0%	100.0%	63.6%
Back strap	50.0%	0.0%	0.0%	0.0%	18.2%
Fly shuttle	100.0%	50.0%	100.0%	0.0%	63.6%

There was no information given on the source of dyed yarn though many weavers in all the villages do not have their own source for it. This means that people generally buy undyed yarn and then dye it themselves.

Table 42: Price of loom for the weavers in the study area

Price	Rates	Village				Total
		Khweng	Liarluid	Plasha	Umwang	
Loom Bought From Neighbouring Village						
Last Year Price	No Response	100.0%	100.0%	0.0%	100.0%	81.8%
	Rs 2000	0.0%	0.0%	100.0%	0.0%	18.2%
Current Year Price	No Response	100.0%	100.0%	0.0%	100.0%	81.8%
	Rs 2000	0.0%	0.0%	100.0%	0.0%	18.2%

The weavers use three types of loam, viz., floor loom, back strap, fly shuttle. However not all villages have all the looms. Backstrap is only available in Khweng while floor loom and flyshuttle is not used by weavers in Plasha and Umwang respectively. The skill for using these looms have been the skill passed through generations, training from private individuals like Kong Marboh from Thadnongiaiw village, the Department of Sericulture and Weaving and from Mawrbi.

Table 43: Types of garments produced by the weavers in the study area

Types of garment	village				Total
	Khweng	Liarluid	Plasha	Umwang	
shawl	100.0%	100.0%	100.0%	100.0%	100.0%
stoles	100.0%	50.0%	100.0%	0.0%	63.6%
muffler	50.0%	0.0%	0.0%	0.0%	15.2%
jainsem	25.0%	0.0%	50.0%	0.0%	18.2

Only Khweng has all the types of loom and this suggest that since among the weavers those in Khweng have more than one type of loom they are doing this activity with the primary intention to sell the product for the market rather than just self-consumption. In fact while all the villages have only one look each, in Khweng 25% of the weavers have six looms each.

This confirms that the weavers in the village have market as the main concern. The other villages have their own distinct loom which must have developed based on local conditions.

The raw materials used for making the loom are bamboo, wood, nails, log and screw. The cost for these may range from Rs. 20 to Rs. 1500. These are bought from Khweng, Bhoirybong. The accessories required are loom, shuttle and bobbin. These are available from Thadnongiaiw. Weavers in Plasha buy loom from the neighbouring village of Diwon for the price of Rs. 2000. They claimed that the price was actually Rs. 15000 but they got it cheaper. Half of the weavers from the same village received a loom from the department of sericulture and weaving, Nongpoh and IIE Guwahati after completing the training.

Table 44: Price of garments produced by the weavers in the study area

Price	Rates	Village				Total
		Khweng	Liarsluid	Plasha	Umwang	
Shawl						
Last Year Price	Rs 2000	0.0%	50.0%	0.0%	0.0%	9.1%
	Rs 2500-Rs 3000	100.0%	50.0%	100.0%	100.0%	90.9%
Current Year Price	Rs 2000-Rs 2500	0.0%	100.0%	0.0%	0.0%	18.2%
	Rs 2500-Rs 3000	50.0%	0.0%	100.0%	100.0%	63.6%
	Rs 400	50.0%	0.0%	0.0%	0.0%	18.2%
Stoles						
Last Year Price	No Response	0.0%	50.0%	0.0%	100.0%	36.4%
	Rs 1500-Rs 2000	0.0%	50.0%	100.0%	0.0%	27.3%
	Rs 1800	25.0%	0.0%	0.0%	0.0%	9.1%
	Rs 2000-Rs 2500	25.0%	0.0%	0.0%	0.0%	9.1%
	Rs 250	50.0%	0.0%	0.0%	0.0%	18.2%
Current Year Price	No Response	0.0%	50.0%	0.0%	100.0%	36.4%
	Rs 1500-Rs 2000	0.0%	50.0%	100.0%	0.0%	27.3%
	Rs 1800	25.0%	0.0%	0.0%	0.0%	9.1%
	Rs 2000-Rs 2500	25.0%	0.0%	0.0%	0.0%	9.1%
	Rs 250	50.0%	0.0%	0.0%	0.0%	18.2%
Muffler						
Last Year Price	No Response	50.0%	100.0%	100.0%	100.0%	81.8%
	Rs 1000	25.0%	0.0%	0.0%	0.0%	9.1%
	Rs 1200	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Price	No Response	50.0%	100.0%	100.0%	100.0%	81.8%
	Rs 1000	25.0%	0.0%	0.0%	0.0%	9.1%
	Rs 1200	25.0%	0.0%	0.0%	0.0%	9.1%
Jainsem						
Last Year Price	No Response	75.0%	100.0%	50.0%	100.0%	81.8%
	Rs 2500-Rs 3000	0.0%	0.0%	50.0%	0.0%	9.1%
	Rs 5000-Rs 6000	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Price	No Response	75.0%	100.0%	50.0%	100.0%	81.8%
	Rs 2500-Rs 3000	0.0%	0.0%	50.0%	0.0%	9.1%
	Rs 5000-Rs 6000	25.0%	0.0%	0.0%	0.0%	9.1%

Every weaver from all the villages makes shawls meaning it is the most common items produced. Other products are not made by everyone. Weavers from umwang don't make stoles while mufflers are only made by weavers from Khweng who again with Plasha are the only ones make Jainsem. In terms of price received for these items there are some differences. Prices for shawls for weavers from Plasha and Liarsluid remained the same but

prices have reduced for weavers from khweng. All the weavers from all the villages except Liarsluid got Rs. 2500-3000 during the last year but in the current year half from Khweng those got only Rs. 400 for the shawls. These weavers worked in Bah Jalong's centre in the village itself. On the other hand, weavers from Liarsluid improved their earnings from Rs. 2000 to Rs. 2000-2500. In general the weavers produced around 20-30 pieces every year.

Table 45: Quantity of garments produced by the weavers in the study area

Price	Rates	Village				Total
		Khweng	Liarsluid	Plasha	Umwang	
Shawl						
Last Year Quantity	10 Pieces	25.0%	50.0%	0.0%	66.7%	36.4%
	10-15 Pieces	0.0%	0.0%	0.0%	33.3%	9.1%
	180 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
	20 Pieces	50.0%	50.0%	50.0%	0.0%	36.4%
	50 Pieces	0.0%	0.0%	50.0%	0.0%	9.1%
Current Year Quantity	10 Pieces	25.0%	50.0%	0.0%	66.7%	36.4%
	10-15 Pieces	0.0%	0.0%	0.0%	33.3%	9.1%
	180 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
	20 Pieces	50.0%	50.0%	50.0%	0.0%	36.4%
	50 Pieces	0.0%	0.0%	50.0%	0.0%	9.1%
Stoles						
Last Year Quantity	No Response	0.0%	50.0%	0.0%	100.0%	36.4%
	10 Pieces	25.0%	0.0%	50.0%	0.0%	18.2%
	180 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
	20 Pieces	50.0%	50.0%	0.0%	0.0%	27.3%
	30 Pieces	0.0%	0.0%	50.0%	0.0%	9.1%
Current Year Quantity	No Response	0.0%	50.0%	0.0%	100.0%	36.4%
	10 Pieces	25.0%	0.0%	50.0%		18.2%
	180 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
	20 Pieces	50.0%	50.0%	0.0%	0.0%	27.3%
	30 Pieces	0.0%	0.0%	50.0%	0.0%	9.1%
Muffler						
Last Year Quantity	No Response	50.0%	100.0%	100.0%	100.0%	81.8%
	10 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
	300 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Quantity	No Response	50.0%	100.0%	100.0%	100.0%	81.8%
	10 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
	300 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
Jainsem						
Last Year Quantity	No Response	75.0%	100.0%	50.0%	100.0%	81.8%
	2-3 Pieces	0.0%	0.0%	50.0%	0.0%	9.1%
	4 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Quantity	No Response	75.0%	100.0%	50.0%	100.0%	81.8%
	2-3 Pieces	0.0%	0.0%	50.0%	0.0%	9.1%
	4 Pieces	25.0%	0.0%	0.0%	0.0%	9.1%

The same story is repeated for stoles. While majority or all of the weavers in Liarsluid and Plasha priced their stoles for around 1500-2000, majority of weavers in Khweng got only Rs. 250-1800 for them. Production of stoles ranged from 20-30 pieces per year. Price and production remained the same for stoles from the last year. Thus it would seem that Khweng got lesser price for both shawls and stoles compared to weavers from other villages. However when it comes to Jainsems Khweng gets a much better price compared to Plasha who is the

only village that also produces the item. While weavers from Khweng got Rs. 5000-6000 for the Jainsems, weavers from Plasha got half of it, Rs. 2500-3000. The production is much lesser compared to the other times, only 2-4 pieces in a year. And finally, mufflers 10-300 pieces are produced only by weavers in Khweng for a price of Rs. 1000-1200. From all this it reveals that weavers from Khweng produce more for the market than local self-consumption, more variety of products.

Table 46: Designs incorporated by the weavers in the study area

Design Incorporated	Village				Total
	Khweng	Liarluid	Plasha	Umwang	
Draw Boy	25.0%	0.0%	0.0%	0.0%	9.1%
Jacquard	25.0%	0.0%	0.0%	0.0%	9.1%
Plain	100.0%	100.0%	100.0%	100.0%	100.0%

Khweng is the village that sells the most number of Shawls, Stoles, Mufflers and Jainsems. This is because the production of Eri Silk products is continuous.

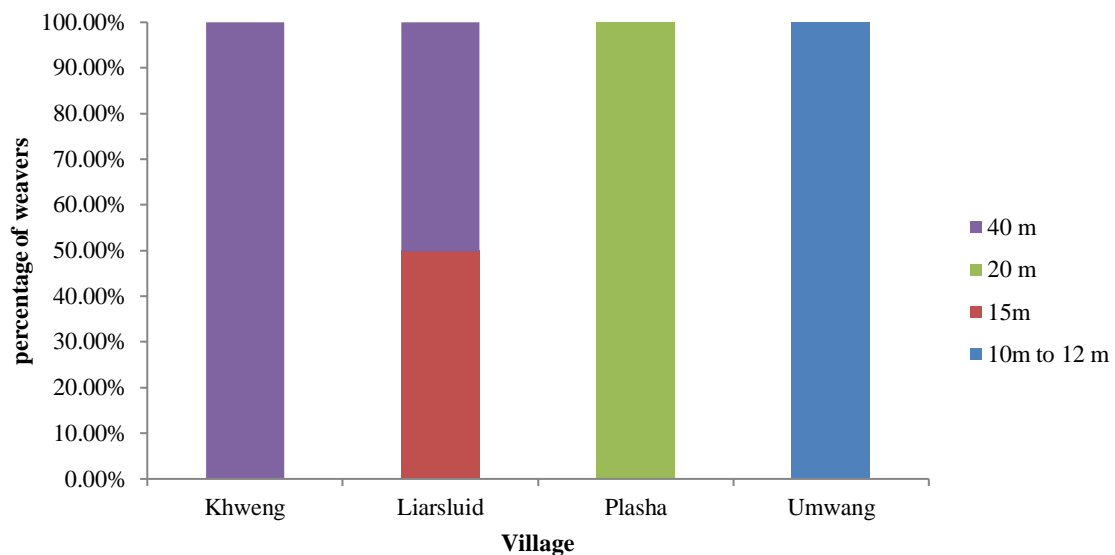


Figure 9: Lengths of garments produced by the weavers in the study area

Three types of design are used by the weavers of which plain is the only common one across the villages. The designs incorporated into the plain garments are chequered, striped, plain diamond, floral. As for the other two designs drawboy and jacquard only weavers from Khweng were producing them. There is thus a great deal of variation being incorporated into the designs by weavers in Khweng. This is probably for exploiting the different markets that exist for different designs.

Table 47: Prices of garments produced by the weavers in the study area

Price	Rates	Village				Total
		Khweng	Liarsluid	Plasha	Umwang	
Sold To Local Village						
Last Year Price	No Response	0.0%	50.0%	100.0%	100.0%	54.5%
	Rs 2000	0.0%	50.0%	0.0%	0.0%	9.1%
	Rs 2000-Rs3000	50.0%	0.0%	0.0%	0.0%	18.2%
	Rs 400	50.0%	0.0%	0.0%	0.0%	18.2%
Current Year Price	No Response	0.0%	50.0%	100.0%	100.0%	54.5%
	Rs 2000	0.0%	50.0%	0.0%	0.0%	9.1%
	Rs 2000-Rs3000	50.0%	0.0%	0.0%	0.0%	18.2%
	Rs 400	50.0%	0.0%	0.0%	0.0%	18.2%
Sold To Market						
Last Year Price	No Response	100.0%	100.0%	0.0%	100.0%	81.8%
	Rs 2500-Rs 3000	0.0%	0.0%	100.0%	0.0%	18.2%
Current Year Price	No Response	100.0%	100.0%		100.0%	81.8%
	Rs 2500-Rs 3000	0.0%	0.0%	100.0%	0.0%	18.2%
Sold To Government And Other Agencies						
Last Year Price	No Response	75.0%	50.0%	100.0%	100.0%	81.8%
	Rs 1500-Rs 2000	0.0%	50.0%	0.0%	0.0%	9.1%
	Rs 2000-Rs3000	25.0%	0.0%	0.0%	0.0%	9.1%
Current Year Price	No Response	75.0%	50.0%	100.0%	100.0%	81.8%
	Rs 1500-Rs 2000	0.0%	50.0%	0.0%	0.0%	9.1%
	Rs 2000-Rs3000	25.0%	0.0%	0.0%	0.0%	9.1%

As for the length of the garments produced in a month, Khweng and half of the weavers in Liarsluid produced the longest garment, 40 m, while the weavers from other villages produce garment of lesser length. Umwang produce the shortest garment, 10-12 m. As for the buyers of these garments Khweng and Liarsluid sold their garments to buyers in their own village itself and to the government department like Department of Sericulture and Weaving and NGOs like NESFAS. The prices the weavers got have remained stable during the last two years but there are variations in the sales.

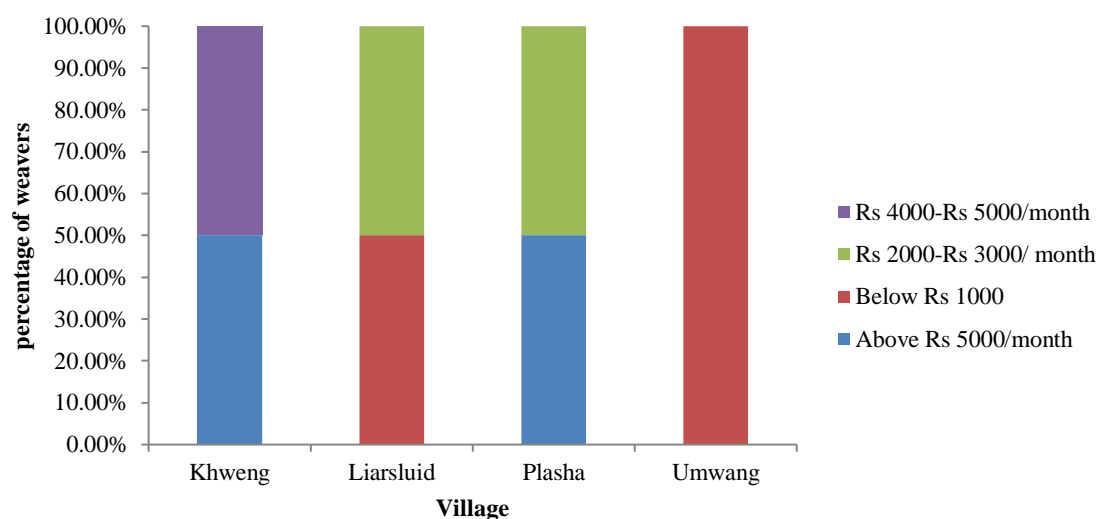


Figure 10: Monthly income of the weavers in the study area

Weavers in Khweng got a higher price for their garments, Rs. 2000-3000 while those from Liarsluid got Rs. 2000. This was again the case when they sold to the government and non-governmental organisations. Weavers from Khweng got Rs. 2000-3000 while Liarsluid got Rs. 1500-2000. This means that weavers from Khweng are earn relatively more compared to Liarsluid. But they again earn lesser than weavers from Plasha who get Rs. 2500-3000 for their product when they sell it to Iew Nongpoh. This means that sale in market brings more returns compared to other buyers and should be explored by the weavers from other villages.

Table 48: time and money resources spent by weavers in a month in the study area

Resources	Responses	Village				Total
		Khweng	Liarsluid	Plasha	Umwang	
Money per month	No response	100.0%	100.0%	50.0%	100.0%	90.9%
	Rs 1500	0.0%	0.0%	50.0%	0.0%	9.1%
Time per month	No response	25.0%	0.0%	0.0%	0.0%	9.1%
	1 month	0.0%	100.0%	100.0%	100.0%	63.6%
	1/2 month	75.0%	0.0%	0.0%	0.0%	27.3%

Inspite of Plasha getting the better price, it was weavers from Khweng who earned the most from the activity. All the weavers had a monthly income of more than Rs. 4000. Weavers from other village earned lesser than it with those from Umwang having an income of less than Rs. 1000. A lot of intervention is therefore needed in Umwang to raise their income.

Table 49: problems faced by weavers in the study area

Degree of importance	Problems	village				Total
		Khweng	Liarsluid	Plasha	Umwang	
First important problems	Eye problem	0.0%	50.0%	0.0%	0.0%	9.1%
	Jacquard machine required to speed things up	0.0%	0.0%	50.0%	0.0%	9.1%
	Marketing issue	0.0%	0.0%	50.0%	0.0%	9.1%
	No fly shuttle loom	25.0%	0.0%	0.0%	0.0%	9.1%
	No weaving shed	75.0%	50.0%	0.0%	100.0%	63.6%
Second important problems	No response	75.0%	0.0%	50.0%	33.3%	45.5%
	Accessories not according to the loom	25.0%	0.0%	0.0%	0.0%	9.1%
	Health issues	0.0%	50.0%	0.0%	66.7%	27.3%
	Rusting of the loom	0.0%	0.0%	50.0%	0.0%	9.1%
	Shortage of yarn	0.0%	50.0%	0.0%	0.0%	9.1%
Third important problems	No response	100.0%	50.0%	50.0%	100.0%	81.8%
	Financial support to purchase yarn	0.0%	50.0%	0.0%	0.0%	9.1%
	Marketing issue	0.0%	0.0%	50.0%	0.0%	9.1%

As for the money and time spend on the activity, weavers from Plasha spend around Rs. 1500 per month and the whole month of the activity. This is the same for all villages except Khweng where weavers spend only half a month of the activity. Efficiency is thus higher in Khweng compared to other villages.

There are differences regarding the problems faced by the weavers. Among the problems faced by the weavers in Khweng, Liarsluid and Umwang not having a weaving shed and fly shuttle loom is a big concern. For those in Plasha though marketing is a bigger problem. Apart from these in Liarsluid health risks and yarn shortage is also a problem for weavers. These problems are faced by weavers in Umwang as well. Lastly, problems of rusting and lack of financial support to purchase yarn are also faced by weavers in Plasha. Thus diversified strategy is required to deal with the different problems in the different villages. Not everyone has the same concern and therefore will not require the same solutions.



Looming of the Eri yarn

INTER-VILLAGE VARIATIONS

In general the source of the larvae (or the silkworm eggs) is either from among the community members, or the community people from the neighboring villages like Liarsluid, Liarbang and Kdonghulu and also from the Department of Sericulture and Weaving Nongpoh. The price of the larvae bought from the local village and the neighboring villages varies between 10 – 30 rupees per packet, whereas that bought from the Department of Sericulture and Weaving is at a much higher rate of 50 rupees per packet.

The silk worm rearing is mostly done at home in the confines of the bedroom or the kitchen which is a hindrance due to the lack of space, which affects the production and inhibits the activity to develop any further. It was found out there are a few who availed the CPS Scheme from the Department of Sericulture and Weaving which gives them the opportunity to have the rearing shed constructed and upon completion its has been found out the sheds were not used as intended for the said purpose. Follow up and thorough check up by the state department to prevent such acts is found to be lacking and this in turn create feelings of despair among the others who are deserving of such opportunities.



Weaver at Khweng

According to Kong Rikynti, a weaver who owns a Weaving Centre at Khweng village, weavers have drastically declined for a number of reasons and at the moment she is on a mission to revive this activity once again. She presently has a weaving centre which trains and pays community members to weave Eri silk and cotton products. Even though, the services are paid, she continuously faces issues of man power as the weavers who are trained refuse to proceed with their service for one reason or another.

Like Khweng, the silk worm rearers in Liarsluid (neighbouring village) buy the larvae from the local as well as the neighboring villages (Khweng) and also from the Department of Sericulture and Weaving. The cocoon produced is sold to the spinners and weavers of Khweng village and also to the middleman from Assam, who comes to the village to buy the cocoon. The cocoon is mostly sold at the rate of 800 rupees to the spinners and weavers but

Liarsluid is the only village that is able to sell the cocoon at the rate of 1000 rupees to the middlemen. Upon further enquiry, only the lower quality cocoon is sold to the middlemen. The weavers of Liarsluid have received training from Department of Sericulture and Weaving and also from Kong Rikynti of Khweng village. Some of the weavers are still undergoing training which is organized by NIFT in Kong Rikynti's Weaving Centre in Khweng.

The other villages selected are Umsawoldhi, Umwang Nongbah and Plasha. These villages fall under Umling Block. In Umsawoldhi, the silkworm larvae are bought from the Government at 40 rupees per packet. According to the information received from the data collected, Umsawoldhi is the only village that have received the most number of rearing shed from the Government under the CPS Scheme. The amount received for constructing the shed is 60,000 rupees and as an arrangement, the silk worm rearers sell their cocoon to the government at the rate of 600 rupees per kg and also to the middlemen at the same rate. But the drawback of buying the larvae from the Government is that there is an immature death of the silkworm. When questioned about the reason for this, the rearers replied by saying that the possible reason might be that the larvae or the eggs are hybrids. The spinners in this village do not sell the yarn to external sources but exchange the yarn with the weavers in return for the fabric. The fabric is used for the personal use.

In Umwang, the larvae are bought from the local village and also from Iew Nongpoh and the rearing is done at home. Initially, some few years back, a centre for weaving was constructed but when Umwang was divided into Umwang Nongbah and Umwang Them, the centre was demolished and taken down and all the weaving equipments and accessories were taken by the residents of Umwang Them. So since then there has been no intervention on the part of the government. During the general awareness, the community members expressed their need to form an SHG for the weavers as they have realized the importance of weaving and want to revive their tradition and their culture. Since most of the weavers, spinners and rearers are married and have a family; their main concern is that the youth might forget about their tradition. So their main target is to form an SHG for the youth who will be trained by the females of the community. The weavers in this village use both Eri Silk and cotton for weaving and the yarn is purchased from the market. But majority of the weavers prefer cotton for weaving as it is cheaper compared to Eri Silk. The sad thing about this village is that the cocoon is exchanged with dried fish between the rearers and the middlemen. Upon

questioning the reason for this exchange, they replied saying that they do not know any other way to sell their cocoon. So their only option is to sell to the middlemen.

The last village selected for the study was Plasha. According to the information gathered, all the women of this village have to learn the skill of weaving as part of their tradition. The women are highly skilled in this craft and the design produced by them is exquisite. Like Umwang, the main yarn used by them is cotton and their traditional attire is woven with the cotton yarn. However, Eri Silk yarn is also used for weaving different kinds of products ranging from shawls to stoles to Jainsems. A few of the weavers in the village have received yarn grant from the Government under the NERTPS Scheme. Under the supervision of the Government, the weavers had to weave certain products and were paid only the weaving charge or the labour cost. Two of the weavers have also received a weaving shed under the same scheme. The Eri Silk weavers undertake orders from the weavers of Umden which includes Jainsems, Shawls, Stoles, Mufflers etc and these orders depends upon the market and the needs of the customers.



From the data collected, it is found that the number of people engaged in this activity is declining and the main reason is that the times are changing and most of the youth are pursuing their

studies. When it comes to the silkworm rearers, the lack of space is the main problem which limits the production of the cocoon. Most of the silkworm reares sells their cocoon to the middlemen because of urgent need for money to purchase other items. So because of this they have no option but to sell to the middlemen. Therefore it will be important to improve marketing prospects.

SUMMARY OF FINDINGS

The summary of findings from the study is given below:

- i. Umwang had the highest number of respondents and Plasha had the least number of respondents. According to the findings, Khweng is the only village with a male respondent whereas the respondents in the other villages belong to the female gender. The male respondent is a full time worker who owns a weaving centre in the village. His family is also engaged in the activity and help in some way or the other. When interacting with his wife, Kong Rikynti Syiem, she expressed her concern for the Eri Silk production declining. According to her, she has tried reviving the craft by giving training to the youth (with a stipend) in her centre but once the training is done, after the youth have received the training, they do not continue with the craft. The only solution, according to her, is to form an SHG group that focuses mainly on Eri Silk Weaving and this will take time as it is difficult to mobilize the community. But compared to the other villages that were selected for the study, Khweng is the only village with the highest production of Eri Silk.
- ii. Another finding is that the respondents in Khweng, Umsawoldhi and Umwang are between the age group of 15 to 59, whereas Liarsluid and Plasha had respondents between age group of 15 and 59 above. There are a few people in some villages that are above the age group of 59, who in the previous years, were engaged in the activity but due to the decline in their health and old age, have discontinued the activity. They have also not been able to pass on their skills to their children because most of their children are pursuing their studies
- iii. The type of family in Plasha and Umsawoldhi are all nuclear family while the types of family in the other three villages are a mixture of both joint and nuclear. Since majority of the respondents in Plasha and Umsawoldhi are from nuclear families, the number of family members who help in the activity is also less. While Umwang had the highest number of family members who help with the activity. The other activities besides Eri Silk production that are practiced by the households in the villages include farming, darning, anganwadi worker, daily labourer, SHG worker, tailoring, hospital staff, Guwahati. Of these, farming is the most important. Plasha is

the village with the least number of activities practiced by the households and Umwang with the highest number of activities practiced by the households.

- iv. When it comes to the silkworm Plasha has the least number of silkworm rearers and Umsawoldhi with the highest number of silkworm rearers. The source of the silkworm larvae Majority of these silk worm rearers reported that they do not have their own farm for the silk worm larvae. They usually get it from others' farms or from other silk worm rearers. For most of the rearers, the source of the larvae is sourced from the government. It was only in Khweng that silk worm rearers were able to find larvae from local farms located in the same village. The current and previous year price for purchasing these larvae remained constant at the rate of Rs 10 to Rs 30 per packet. However some rearers in Liarsluid bought them at a much higher rate of Rs. 40 per packet. Half of the rearers in Plasha and more than more than half of the rearers in Umwang bought larvae from the market at the rate of Rs. 50 per packet and Rs. 30 per packet respectively. Government was an important source of larvae for rearers in Khweng, Liarsluid, Umsawoldhi and Umwang. The price for the larvae ranged from Rs. 40 to Rs. 50 per packet. So the price of the larvae bought from the Government is more expensive as compared to that bought from other sources
- v. There are other non-monetary exchange mechanisms for getting silk worm larvae where in Umwang some silk worm rearers exchange their silk worm eggs with the larvae while in Liarsluid mothers give the silk worm larvae to their daughters who later return some for consumption as food.
- vi. All the respondents in Khweng, Plasha and Umwang do not own any rearing sheds. The activity is performed within the confines of the house. Some of the respondents in Liarsluid own rearing sheds while the others perform the activity at home. Umwang is the only village with the respondents owning rearing sheds that are sponsored by the Department of Sericulture and weaving under the CPS Scheme. A few silkworm reares from villages like Khweng have received rearing shed from the Government but these sheds have not been used for the purpose intended for. They have been converted into storage spaces, so this creates a feeling of being neglected among the other rearers who have worked diligently on this activity.
- vii. The feeds for silk worm larvae in the study area are Sla ryndia, Sla Paiam, Sla Kynjor, Sla Phandieng and Sla Phankaro. Of these sla ryndia and sla kynjor are mostly fed to the silkworms majority of the weavers in all the villages except in

Plasha where sla ryndia is absent from the diet of the silk worm. The source of these feed are grown either in their gardens, or their paddy fields and some are foraged from the forest. These leaves are not bought from the market or any other source so no amount of money is spent for buying the feed.

- viii. The duration for the life cycle of larvae varies from village to village. According to the rearers in Khweng, the period for conversion of the eggs into the worm took about one month while in Plasha it took only about 3-4 weeks. The transformation depends on the weather. The warmer the place the faster it is for the eggs to hatch into worms. The second stage of the life cycle i.e worm to cocoon however took the shortest in Khweng where it was only 3 to 4 days. Liarsluid and Umsawnoldhi recorded the longest duration of 28 days. The duration from cocoon to moth took the shortest in Plasha, Liarsluid and Umsawnoldhi which was about 2 to 3 weeks while Khweng took the longest of about 1 month.
- ix. The colour of silk worm cocoon is white in all the villages except in Khweng, Umsawnoldhi and Liarsluid that rust coloured cocoons are also found. The reason for the colour discoloration is that the silkworms are fed on Sla Kynjor, but in Khweng the cocoons becomes discolored even if the silkworm are fed to Sla Ryndia (which is the original source of feed for the silkworms). The reason, according to the respondents is that, the larvae that they receive or buy from the government are hybrids hence the colour discoloration.
- x. The price of silk worm ranges between 250 to 300 rupees per kg. The silkworms are sold as a source for their diet. The price of the cocoon, however, ranges from 600 – 800 rupees. In Liarsluid, the rearers are able to sell the cocoon to the middlemen at 1000 rupees. The cocoons are sold to either the spinners in the local and neighbouring villages the government, the middlemen or sold in the market. But majority of the rearers sells their cocoon to the middlemen because they receive the money on the spot as compared to that if sold to the spinners in the local village and even the other villages because they have to wait for quite some time. So this is the reason that the cocoons are sold mostly to the middlemen because of the urgent need of money. In terms of monthly income silk worm rearers from Umsawnoldhi earn the most and the lowest income was recorded in Plasha and Liarsluid.
- xi. There were a number of problems faced by rearers, the most common one, being the difficulty in getting the source of feed for the silk worms. The lack of rearing shed is another major problem faced by the rearers followed by the immature death of

silkworms. This happens mostly with the larvae that the rearers receive from the government. The other problem raised by the respondents is that they cannot devote their time fully to rearing as they are also engaged in other activities which provides an income to them like farming.

- xii. When it comes to the spinners, they either buy the cocoon or they use their own cocoon. Umsawoldhi is the only village with 100 % of the spinners using their own cocoon. For most of the respondents in Khweng, spinning of the yarn is done on the way to the paddy fields when they go for cultivation or harvesting. They also hand spin when they have the social gatherings. However the problem that most of the spinners go through is health issues like back pain etc. Spinning is the activity in the Eri Silk production that yields more income because for some of the spinners they sell their yarn at approximately 2000 rupees per kg as compared to the cocoons which are being sold at 600 to 1000 rupees per kg.
- xiii. Compared to the silk worm rearers and spinners, the number of dyers is comparatively lesser. The dyers from Khweng buy their yarn from spinners from their own local village, neighbouring village, market and the government. But the yarn bought from the Government is mill spun yarn.
- xiv. For the dyers, the standard colours that are used are yellow, red, black and green. However other colours are also produced by a mixture of the dyes together. The main problem for obtaining the red colour is that the dye, which is obtained from Lac, is not easily available and is more expensive compared to the other dyes. Colours like indigo have been used for dyeing but the pigment is too light. So as suggested by a few dyers, information regarding indigo dyeing is one aspect that they want training in.
- xv. As for the weavers, Khweng is the village that has the highest number of weavers, with Umwang next in line. Liarsluid and Plasha have more or less the same number of weavers. In Plasha almost all the women knows the skill of weaving as this is part of their culture and tradition. However, cotton is the main yarn used for weaving. There are a few women in Plasha that also use Eri Silk for weaving.
- xvi. The loom that most of the weavers use is the fly shuttle loom. Although the traditional floor loom is still being used, the weavers prefer the fly shuttle loom for weaving as it less time consuming as compared to the floor loom. The Eri Silk product woven on a floor loom is more expensive but the quality if the fabric is better in the floor loom.

A GLIMPSE OF ERI-WEAVES IN RI-BHOI





CONCLUSION AND RECOMMENDATIONS

Conclusion

To conclude the study, value chain analysis is an essential process that helps the organisation focus on value-creating activities and eliminates wasteful ones. It also helps bring more benefits to the organization. The main purpose of this value chain analysis is to increase profit. Through this analysis, crucial aspects have been identified to achieve strength and competency. The key activities involved in Eri Silk production were identified and each activity was assessed.

There was a difference in the costs of the silkworm larvae among the villages. For villages like Khweng and Liarsluid, the rate of the silkworm larvae was between 10-30 rupees per packet where the source of the larvae was from the local village. However, villages like Plasha and Umwang buy the larvae either from the market or the Government at the rate of 40-50 rupees a packet. According to the silkworm rearers, the larvae seeds bought or received from the government caused immature death of the silkworms. This poses a problem because there is a loss not only in terms of money but labour as well. This has hampered the production and monetary benefits to the rearers. Most of the silkworm rearers sell the cocoon to the middleman rather than the spinners because the middlemen are able to make immediate payment for the cocoons whereas it takes a longer time for the spinners to pay for the cocoons.

There is a huge shortage of variety of dyes. The main colours that the dyers can produce are red, yellow, green, black and white. The red and black dye, which is Lac and iron ore respectively, is difficult to be obtained. The dyers are keen on learning to produce other colours but they find no possibility from any quarter. The designs incorporated in the Eri Fabrics are also limited and the designs produced are mostly checks and floral designs. The study was also able to bring out the list of potential value added “Eri silk products”. These are, viz., handbags; clutches; neckties and pocket squares; key chains (from the waste materials); jewelry; embroidery on jainsems; wall hangings; and souvenirs.

The youth of Khweng village were more enthusiastic and were very keen on learning about the age old art of weaving. Most of them are undergoing training in Kong Rikynti’s centre. In the training, they are taught dyeing and weaving. They are also encouraged to come up with their own designs. However, the youth in the other four villages were not very keen and this

art is only practiced by the elder women. This creates concern among the mothers and elders as their tradition and culture is slowly starting to decline. As suggested by a few of the village members, an SHG for weaving can be formed for the youth. The elders will guide them and impart knowledge to the youth. If this can be done, then the tradition can be revived.

Scope for Intervention

1. The possible intervention to solve the issue is to allow the rearers to buy the silkworm larvae from the local or neighbouring villages since the larvae yields better silkworms as compared to those bought from the Government. Space is another issue that most of the silkworm rearers faced. It is advisable that rearers use racks mounted on walls for rearing the larvae and mosquito nets to eliminate the problem from rats, ants and other insects. The quality of the cocoons can also be improved. This can be done through research and finding possible ways to improve the quality.
2. The rearers can be instructed to plant the leaves, which are the source of feed for the silkworms, in their own gardens instead of going to the forest for collection of the leaves which are slowly beginning to diminish.
3. The rearers and the spinners can form an agreement for buying and selling the cocoons between them at a fixed rate that will not affect either side.
4. More colours can be developed or produced for dyers. This can be done by calling in experts who are experienced in the field of dyeing and organizing training programmes.
5. Lac is one of the most used dyes used for obtaining red colour. However, the production or the availability of Lac is still very low. So, a training programme can also be organized by inviting a resource person to teach and demonstrate about the cultivation of Lac.
6. More designs can be created and incorporated into the Eri products also taking into account the colour combinations.
7. The Eri fabric can be diversified into other products that will yield more monetary value
8. The Eri yarn can be used for making jewelry and ornaments.
9. Formation of SHG for the youth especially in Umwang and Khweng.
10. The skilled weavers of Plasha can train the weavers in the other villages.

11. The finishing and packaging can be improved. Weavers can also add labels to their products.

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Appendix A

VALUE CHAIN STUDY INTERVIEW SCHEDULE

OBJECTIVES:

1. To assess the value chain of Eri silk.
2. To find out the present value of the products and to assess the market, costs and profitability of each chain.
3. To understand the areas of intervention on Eri silk weaves.
4. To establish a list of potential value added “Eri silk products” at the village level.

DEMOGRAPHIC PROFILE

Sl No.	Name of the respondents	Age	Gender	Village	Relationship	Whether they help with the activity		Other income generating activity
						Yes	No	
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								

SILK WORM REARERS

1. Source of the silkworm larvae:

Own farm	Yes	No	Details

If not own farm:

sources	Price		Name of the village/ area	Non – monetary arrangement (if applicable)
	Last year	Present year		
Local village				
Neighboring villages				
Market				
Government agencies				

2. Rearing shed:

Own	Yes	No	Total Expenditure	Details

If not own shed:

Agency	Scheme	Name of the agency	Subsidy (kind or cash)
Government			
NGO's			
Other party			

3. Types of plants used for feeding the silkworm:

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____

4. Source of the feed:

Own garden	Yes	No	Details

If not own garden:

Source	Price		Name of the village/area	Details
	Last year	Present year		
Local village				
Market				
Neighboring villages				
Government agencies				

5. Duration (from seed to moth)

- a) Seed to worm: _____

b) Worm to cocoon: _____

c) Cocoon to moth: _____

6. Amount of the silkworm seed reared (in kg for one cycle): _____

7. Colour of the cocoon:

Colour	White	Rust	Details

8. Amount of cocoon produced (in kg for one cycle): _____

9. Price of the Silkworm and the cocoon/kg:

	Price/kg		Remarks
	Last year	Present year	
Silkworm			
Cocoon			

10. Cocoon sold to:

Buyers	Price		Name of the village/area/agency	Remarks
	Last year	Present year		
Local village				
Middleman				
Market				
Neighboring villages				
Government agency				

11. Monthly income:

Below 1000		1000 to 2000		2000 to 3000	
3000 to 4000		4000 to 5000		Above 5000	

12. How much of the resources spent on this activity:

Resources	Daily	Monthly	Yearly
Money			
Time			

13. Any other problems:

Serial number	
1	
2	
3	
4	
5	
6	
7	

SPINNERS

1. Source of the cocoon:

Own cocoon	Yes	No	Details

If not own cocoon:

	Price	Name of the village/ area	Non – monetary arrangement (if applicable)
Local village			
Neighboring villages			
Market			
Government agencies			

2. Tools used for spinning:

Tools	Yes	No
Takli		
CSTRI Spinning wheel		

3. Whether bought:

Tools	Price	Name of the person/ market bought from
Takli		
CSTRI Spinning wheel		

4. Whether received:

Tools	Name of the person/ market received from
Takli	
CSTRI Spinning wheel	

5. How much yarn from 1kg of cocoon: _____

6. Price per kg: _____

7. Yarn sold to:

Buyers	Price		Name of the village/area/agency	Remarks
	Last year	Present year		
Dyers				
Weavers				
Local village				
Middleman				
Market				
Neighboring villages				
Government agency				

8. Monthly income:

Below 1000		1000 to 2000		2000 to 3000	
3000 to 4000		4000 to 5000		Above 5000	

9. How much of the resources spent on this activity:

Resources	Daily	Monthly	Yearly
Money			
Time			

10. Any other problems:

Serial number	
1	
2	
3	
4	
5	
6	
7	

DYERS

1. Source of the yarn:

Own yarn	Yes	No	Details

If not own yarn:

Source	Price		Name of the village/ area	Non – monetary arrangement (if applicable)
	Last year	Present year		
Local village				
Neighboring villages				
Market				
Government agencies				

2. Types of dyes used:

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____
- vi. _____

3. Source of the dye:

Own dye	Yes	No	Details

If not own dye:

areas	Types of dyes	Price		Name of the village/ area	Non – monetary arrangement (if applicable)
		Last year	Present year		
Local village					
Neighboring villages					
Market					
Government agencies					

4. Mordant used:

- i. _____
- ii. _____
- iii. _____
- iv. _____

5. Source of the mordant:

Own garden	Yes	No	Details

If not own garden:

area	Name of the mordant	Price		Name of the village/ area	Non – monetary arrangement (if applicable)
		Last year	Present year		
Local village					
Neighboring villages					
Market					
Government agencies					

6. Colours produced:

- i. _____
- ii. _____
- iii. _____
- iv. _____
- v. _____
- vi. _____
- vii. _____

7. Other expenses incurred:

Materials	Price	Remarks
Firewood		
Fuel		
Water		
Others		

8. Duration for dyeing: _____

9. Dyed yarn sold to:

Buyers	Price		Name of the village/ area	Non – monetary arrangement (if applicable)
	Last year	Present year		
Weavers				
Local village				
Neighboring villages				
Middleman				
Market				
Government agencies				

10. Monthly income:

Below 1000		1000 to 2000		2000 to 3000	
3000 to 4000		4000 to 5000		Above 5000	

11. How much of the resources spent on this activity:

Resources	Daily	Monthly	Yearly
Money			
Time			

12. Any other problems:

Serial number	
1	
2	
3	
4	
5	
6	
7	

WEAVERS

1. Source of the yarn:

Source	Type of yarn	status	Details
Own yarn	Undyed yarn		
	Dyed yarn		

If not own yarn:

Persons	area	Price of undyed yarn		Price of dyed yarn		Name of the village/ area	Non – monetary arrangement (if applicable)
		Last year	Present year	Last year	Present year		
Spinners	Local village						
Dyers							
Spinners	Neighboring villages						
Dyers							
Spinners	Market						
Dyers							
Spinners	Government agencies						
Dyers							

2. Type of loom used:

Type loom	Yes	No	Details
Floor loom			
Back strap			
Fly shuttle			

3. Source of the loom:

	name	Price	Name of the village/area/market
Raw materials			

Accessories			

If not own loom:

Source	Price		Name of the village/ area	Non – monetary arrangement
	Last year	Present year		
Local village				
Neighboring villages				
Market				
Government agencies				

4. Number of looms: _____

5. Types of products produced:

Products	Yes	No	Price		Quantity produced		Details
			Last year	Present year	Last year	Present year	
Shawls							
Stoles							
Mufflers							
Lungi							
Others							

6. Designs incorporated:

	Yes	No	Details
Drawboy			
Jacquard			
Plain			

7. How many meters woven in a month and the duration: _____

8. Sold to:

Buyers	Price		Name of the village/ area	Non – monetary arrangement
	Last year	Present year		
Local village				
Neighboring villages				
Middleman				
Market				
Government agencies				

9. Monthly income:

Below 1000		1000 to 2000		2000 to 3000	
3000 to 4000		4000 to 5000		Above 5000	

10. How much of the resources spent on this activity:

Resources	Daily	Monthly	Yearly
Money			
Time			

11. Any other problems:

Serial number	
1	
2	
3	
4	
5	
6	
7	

Date:

Place:

Signature of interviewer

()

Signature/thumb impression of respondents

()