Aug, 2022

SLUP

(STATE LEVEL UPGRADATION PLAN)

for

PEREN DISTRICT
IN THE STATE OF NAGALAND

Prepared by

TransGraph Consulting Pvt. Ltd

TRANSGRAPH
RESEARCH - CONSULTING - TECHNOLOGY
commodity market mentors

www.transgraph.com | www.transrisk.net

Table of contents

List of tables

List of figure

Executive Summary

In the Peren district, major crops cultivated are Paddy, Maize, Rapeseed Mustard, Pineapple, Passion fruit, cabbage, Tapioca, and Leafy vegetables.

In 2019-20, the total area under the crops in the districts is 41.1 thousand ha with the production of 198.4 thousand tons. Major crops like pulses, cereals, and oil seeds are cultivated in the area of 30.0 thousand ha with a production of 85.3 thousand tons. Fruit crops and vegetable crops are cultivated in the area of 4.69 thousand ha and 4.3 thousand ha with the production of 47.1 thousand tons and 51.7 thousand tons respectively. Spice crops are cultivated in an area of 1.2 thousand ha with a production of 10.8 thousand tons. Chili, Ginger, and Turmeric are the major spice crop in the district that are cultivated in the area of 360 ha, 420 ha, and 260 ha with the production of 2741 tons, 5396 tons, and 3141 tons respectively.

Naga chili is the ODOP and turmeric-based product, Pickle based products, Ginger based products, and Soybean-based products are the other potential processing enterprises in the district. 25 enterprises are surveyed in the district involved in processing Naga chili pickles and a few farmers and traders are involved in primary processing like sorting, grading, and packaging. Among the total 25 surveyed units, 8 units are operating at the household enterprise level and 17 units are operating at the micro-enterprise level. 151 employees are working in the food processing enterprises in the district. Among the total employees in the food processing industries in the district, 52 are working in household enterprises and 99 are working in micro-enterprises. Among the total employees in the food processing industry in the district, 70% of the employees are female and 30% of the employees are male.

Cluster- All the food processing enterprises are scattered in the district and were located in the villages like Poilwa Namchi, Mpai Namchi, New puilwa, Old Puilwa, Kipeuzang, Ngwalwa, Jalukie B, Heningkunglwa. 70% of the food processing industries in the district are operating as micro-enterprises.

Based on the primary observation of micro and small enterprises the major bottlenecks identified and recommendations/ Insights are briefed below-.

1. Lack of proper machinery for processing- None of the enterprises processing the Naga chili in the district are using the machinery and equipment for the pickle processing. All the units in the district are processed manually and in the traditional process. It is estimated that approximately only 60 to 70 tons of the total 2,738 tons of the crop produced in the district are processed into pickles which are only 2% of the total crop production in the district and the rest of the crop is exported to other districts and other states in the country. It is observed that there is considerable demand for chili pickles, powders, and oleoresins due to their aroma and pungency. It is proposed to provide machinery like a vegetable washing trough, Brine dipping tank, vegetable cutter, dryer, blending tank, and bottle filling machine at subsidized prices under the PMFME scheme for processing the chili pickle, powder, and oil.

2. Lack of common infrastructure facilities-It was observed that there are no common infrastructure facilities like cold storage, warehouses, and pack houses for the primary processing and secondary

processing in the district. Due to the lack of proper transportation facilities in the district, considerable crop losses are post-harvesting in the district. To minimize the post-harvest losses of agricultural commodities and to increase the shelf life of the processed commodities, it is suggested to establish common facilities like reefer vans, cold storage structures, and pack houses in the district headquarters.

3. Incubation center- From the primary survey, it is observed that approximately 84 new entrepreneurs are interested in the food processing sector but unable to due to a lack of proper guidance and facilities in the food processing sector in the district. We are proposing one incubation center in the district with common processing facilities with 3-4 processing lines (Ginger, Turmeric).

4. Lack of marketing facilities: Peren district is one of the largest producers of the king chili in the Nagaland state which is known for its pungency. Farmers and traders are selling the primarily processed chili and the processing enterprises are selling the pickles to the local traders and consumers without the brand. To overcome the problem and to support the enterprises in the district, there is a need of creating strong market linkages for the processed products in the district and state. A strong band can be created for the King chili which is grown in the district and is known for its size and pungency. A fund of 1.2 cr. is proposed in the budget to create the brand and marketing linkage for the products in the district.

5. Lack of skilled labor- From the primary survey it is observed that none of the employees working in the food processing enterprises are received training. It is also observed that there is a lack of testing facilities in the district. It is proposed to provide training to the employees working in the existing enterprises and to the potential entrepreneurs on handling the machinery and equipment, standardized process of processing the chili pickle and powder, packaging practices, and training on branding and marketing of the processed products. A fund of 13 lakhs is proposed under the PMFME scheme for training the employees in the food processing enterprises in the district.

6. Lack of testing facilities- From the primary survey it is observed that the majority of the enterprises in the district are selling the product without the FSSAI registration. There is no food testing lab in the district. It is proposed to establish a food testing lab in the proposed incubation center in the district.

Proposed fund allocation:

A total of INR 22 Cr. fund is proposed for the Peren district for the up-gradation of 112 existing and new units in the district. Among the total fund, INR 12.7 Cr. fund is proposed to upgrade the 102 individual units and 1.27 Cr. fund is proposed to upgrade the 10 groups in the district. It is proposed to establish one incubation center and one common infrastructure in the district. INR 1.2 Cr. and 0.11 Cr. fund is proposed for branding and marketing and training and mentorship respectively.

Proposed fund allocation Intervention	Target	Amount (Cr.)
Capital investment in plant and machinery (Individual units)	To upgrade and scale up in the production process for 102 Micro Units (The average fund required per unit is 12.50 lakh)	12.72
Capital investment in plant and machinery (Group units)	To upgrade and scale up the production process for 10 Groups (The average fund required per unit is 12.7 lakh)	1.27
Incubation center	One incubation center (IC) is proposed for the district. Cost per IC 2.75 Cr.	2.75
Common infrastructure	One common infrastructure facility (CIF) is proposed for the district. Cost for the CIF 4.0 Cr.	4
Branding and Marketing	Common Branding and Marketing for both Individual units and Groups	1.2
Training and Mentorship	Training and Mentoring for Entrepreneurship. Training on New Technology for a total of 112 individuals. (2 people to be trained from each enterprise/group)	0.11
Total		**22.05**

Proposed Government assistance under the SLUP:

A total of INR 22 Cr. fund is proposed for the Peren district for the up-gradation of 112 existing and potential new units in the district. INR 9.7 Cr. is expected government assistance under the SLUP from the total fund proposed for the up-gradation of the food processing units.

Proposed Government assistance under the SLUP					
Intervention	Target No. of units	Project cost per unit (Cr.)	Total Cost (Cr.)	Subsidy per unit	Govt. assistance (Cr.)
Capital Investment in Plant and Machinery (Individual units)	102	0.124	12.72	35%	4.45
Capital Investment in Plant and Machinery (FPO/SHG/ Cooperatives)	10	0.02	1.27	35%	0.44
Common Infrastructure	1	4	4.00	35%	1.4
Incubation Cum Custom Hiring Centre	1	2	2.75	100%	2.75
Branding and Marketing (Total no. of Units/group)	112	0.010	1.20	50%	0.60
Training and Mentorship (No. of	112	0.00010	0.11	100%	0.11

Proposed Government assistance under the SLUP					
Intervention	Target No. of units	Project cost per unit (Cr.)	Total Cost (Cr.)	Subsidy per unit	Govt. assistance (Cr.)
the individual)					
Total			**22.05**		**9.75**

By 2025, with the support of the PMFME scheme, the processing percentage of respective commodities processing may go up. Nearly, 400 to 550 new employments will be generated, the income level of micro and small entrepreneurs may increase by 10% to 20% (approximately), better price realization can be captured for processed commodities, and local products may reach different parts of India as well as the World.

Project Methodology

This chapter explains the study area, sampling techniques, and different tools and techniques used for analyzing the collected data. The methodology adopted for the present study is presented in the following sections.

1) Study area
2) Sampling Technique adopted
3) Nature and sources of data
4) Analytical tools and techniques used

Study Area

The study on State Level Up-gradation Plan is conducted in the entire Peren district of Nagaland state of India.

Sampling Technique and Sample Size adopted

Sampling Technique - Multistage random sampling technique was adopted.

Sample Size

25 food processing enterprises in the district are surveyed to collect the necessary information and to understand the status of the food processing enterprises in the district.

Nature and sources of data

Both primary and secondary sources of data are collected for this study.

Primary Data

Nagaland state is one of the leading producers of King Naga Chilly crops in India. The survey was conducted in various Pickle processing units located in the Peren district. In the process of the primary survey, we contacted registered and unregistered processing enterprises, farmers, agriculture department officials, horticulture department officials, raw material suppliers, laborers, district industries center officials, farmer producer organizations, retailers, logistics officials concerns, etc., and gathered the necessary information like the availability of raw materials, year on year production, problems facing by them, production process and the technology adopted by unit holders, availability of labors and their wages, range of products, value chain, the testing methodology adopted by them, packaging, marketing, exports and other information from them.

Secondary Data

The secondary data is collected from various sources like DICGS annual report, Nagaland Statistical Handbook, APEDA, Indiastat.com, Journals and articles, NIFTEM and IIFPT reports, and other internet sources to collect available technology, and the production process of the naga Chilly pickle and powder.

Analytical tools and techniques used

Tabulation of Collected Data, Percentage Analysis, and Graphical Solutions was used to get a comprehensive picture and analysis of the Data. After the data has been collected, it has been interpreted and presented to arrive at conclusions.

I. **Baseline Assessment studies:**

Popularly, Peren District is known as "the Green District of Nagaland," with the highest concentration of Flora and Fauna (Forest both reserve and unreserved Belt) of all districts in Nagaland. The district lies in the extreme South-West of Nagaland and it is 100 km from the capital of Nagaland Kohima via (K-L Road) and 95 km from Dimapur the Commercial hub and Gateway of Nagaland.

The total area of Peren District is 1,799 sq km with a density of 41 per sq. Km. There are 7 Administrative Hqs, 86 recognized Villages, and 21 settlements in the Peren district with a population of 94,954 as per the 2011 census. The district is bounded by Dimapur in the North, Kohima in the East, Manipur in the south, and Assam in the West. Peren district is the home of the Zeliang and Kuki Tribes.

Demographics of the district:

Table 1: Demographics of the district

Demographic Label	Value
Area	1,799 sq Km
Altitude	1,445 (Peren HQ)
Total Population (2011 Census)	94,954
Density	41/km2 (110/sq mi)
Important Festival	Meleinyi/Hega, Minkut, Chega Gadi
Number of recognized Villages	85 villages
Number of Unrecognized Villages	21 villages
Location	93'20'E-94' 00'42"E longitude25'33'55"N latitude

Subdivision and Blocks

Table 2: Sub-divisions and blocks

District HQ	Sub-Divisions	Blocks
Peren	Jalukie	Athibung
	Tening	Ngwalwa
		Nsong

A. **Agriculture Profiling of the Districts in the State**

The land is fertile for Agro base production and the people of the Peren district are mainly agrarian (80%) by occupation paddy is the livelihood of the populace, and Jalukie Valley is known as the Rice Bowl of Nagaland. Besides paddy, of late the people have taken up crops like Pineapple, yam, beans, ginger, Banana, and other Horticulture products, which supplement the crops.

In 2019-20, the total area under the crops in the districts is 41.1 thousand ha with the production of 198.4 thousand tons. Major crops like pulses, cereals, and oil seeds are cultivated in the area of 30.0 thousand ha with a production of 85.3 thousand tons. Fruit crops and vegetable crops are cultivated in the area of 4.69 thousand ha and 4.3 thousand ha with the production of 47.1 thousand tons and 51.7 thousand tons respectively. Spice crops are cultivated in an area of 1.2 thousand ha with a production of 10.8 thousand tons.

WTRC Paddy, Jhum paddy, and Maize are the major pulses and cereals crops cultivated in the area of 12 thousand ha, 6.3 thousand ha, and 3.1 thousand ha with the production of 35.1 thousand tons, 12.5 thousand tons, and 6.1 thousand tons respectively. Pineapple and the Passion fruit are the major fruit crops cultivated in the area of 1.6 thousand ha and 0.8 thousand ha with the production of 21.9 thousand tons and 2.2 thousand tons respectively. Cabbage and Leafy vegetables are the major vegetable crop cultivated in the area of 0.7 thousand ha and 0.52 thousand ha with the production of 14.1 thousand tons and 4.2 thousand tons respectively. Ginger is the major spice crop cultivated in the area of 0.42 thousand ha with a production of 5.3 thousand tons.

ODOP

i. Total production of the produce in the district

Area and Production of the Cereals, Pulses, and Oilseed crops in the district

In 2019-20, the total area under the major crops like pulses cereal, and oil seeds in the district is 30,070 ha with a production of 85,332 MT. Major crops in the district are WTRC paddy, Jhum paddy, Maize, Rapeseed, and Soybean cultivated in the area of 12,200 ha, 6,310 ha, 3,100 ha, 2,482 ha, and 1,083 ha with the production of 35,147 tons, 12,527 tons, 6,149 tons, 2,512 tons and 1,356 tons production respectively.

Table 3: Area and Production of the Cereals, Pulses, and Oilseed crops in the district

Crops	Area (Ha)	% Share	Production (MT)	% Share
WTRC Paddy	12,200	40.57%	35,147	41.19%
Jhum Paddy	6,310	20.98%	12,527	14.68%
Maize	3,100	10.31%	6,149	7.21%
Rapeseed Mustard	2,482	8.25%	2,512	2.94%
Soybean	1,083	3.60%	1,356	1.59%
Linseed	570	1.90%	470	0.55%

Table 3: Area and Production of the Cereals, Pulses, and Oilseed crops in the district				
Crops	Area (Ha)	% Share	Production (MT)	% Share
Sugarcane	522	1.74%	22,681	26.58%
Pea	492	1.64%	541	0.63%
sun-flower	480	1.60%	296	0.35%
Sesamum	445	1.48%	274	0.32%
Ricebean/Nagadal	432	1.44%	493	0.58%
Wheat	381	1.27%	692	0.81%
Tur/Arhar	230	0.76%	210	0.25%
Mesta	224	0.74%	250	0.29%
Beans	220	0.73%	299	0.35%
Lentil	182	0.61%	150	0.18%
Groundnut	94	0.31%	96	0.11%
Yam	93	0.31%	679	0.80%
Gram	90	0.30%	70	0.08%
Black gram	90	0.30%	80	0.09%
Barley	60	0.20%	60	0.07%
Oats	60	0.20%	60	0.07%
Horsegram	60	0.20%	70	0.08%
Urd/Moong	50	0.17%	50	0.06%
Bajra	40	0.13%	40	0.05%
Castor	40	0.13%	30	0.04%
Small Millet	20	0.07%	30	0.04%
Ramie	20	0.07%	20	0.02%
Total	**30070**	**100.00%**	**85332**	**100.00%**

Area and Production of fruit crops:

In 2019-20, the total area under the fruit crops in the district is 4,698 ha with a production of 47,146 tons. The major fruit crops cultivated in the district are pineapple, passion fruit, and banana which are cultivated in the area of 1,628 ha, 879 ha, and 578 ha with the production of 2,1980 tons, 2,209 tons, and 8,682 tons respectively.

Table 4: Area and Production of fruit crops				
Crops	Area (Ha)	% Share	Production (MT)	% Share
Pineapple	1,628	34.7%	21,980	46.6%
Passion Fruit	879	18.7%	2,209	4.7%
Banana	578	12.3%	8,682	18.4%
Kinnow/Mandarin Orange	520	11.1%	4,522	9.6%
Wild apple	245	5.2%	2,023	4.3%
Limes and Lemons	240	5.1%	1,810	3.8%

Table 4: Area and Production of fruit crops				
Crops	Area (Ha)	% Share	Production (MT)	% Share
Papaya	130	2.8%	1,869	4.0%
Mango	105	2.2%	755	1.6%
Lichi	101	2.1%	765	1.6%
Guava	59	1.3%	487	1.0%
Peach	35	0.7%	282	0.6%
Sweet Orange /Mosambi	33	0.7%	283	0.6%
Plum	28	0.6%	126	0.3%
Pomelo	26	0.6%	452	1.0%
Aonla/Gooseberry	25	0.5%	287	0.6%
Pear	23	0.5%	286	0.6%
Jackfruit	22	0.5%	200	0.4%
Pomegranate	11	0.2%	71	0.2%
Ber	10	0.2%	57	0.1%
Total	4,698	100.0%	47,146	100.0%

Area and Production of vegetable crops:

In 2019-20, vegetable crops are cultivated in the area of 4,351.23 ha with a production of 51,721.2 tons. The major vegetable crops cultivated in the district are Cabbage, leafy vegetables, and Tapioca in the area of 705 ha, 527 ha, and 478 ha with the production of 14,100 tons, 4,234 tons, and 6,690 tons respectively.

Table 5: Area and Production of vegetable crops				
Districts	Area (Ha)	% Share	Production (MT)	% Share
Cabbage	705	16.20%	14,100	27.26%
Leafy Vegetables (Amaranths, Kashmiri Sag, Spinach, Celery, etc.)	527	12.11%	4,234	8.19%
Tapioca	478	10.99%	6,690	12.93%
Green chili	**360**	**8.27%**	**2,741**	**5.30%**
Other vegetables Specify Crop in Remarks Column)	358	8.23%	4,545	8.79%
Potato	328	7.54%	4,620	8.93%
Peas (Green)	306	7.03%	1,011	1.95%
Tomato	265	6.09%	1,917	3.71%
Arbi/Colocasia	223	5.12%	3,566	6.89%
Sweet Potato	154	3.54%	2,310	4.47%
Beans (All Including Lab-lab)	138	3.17%	1,249	2.41%
Onion	87	2.00%	799	1.54%
Cauliflower	85	1.95%	668	1.29%

Table 5: Area and Production of vegetable crops				
Districts	Area (Ha)	% Share	Production (MT)	% Share
Brinjal	70	1.61%	594	1.15%
Carrot	50	1.15%	503	0.97%
Okra/Ladies Finger	44	1.01%	406	0.78%
Radish	42	0.97%	318	0.61%
Cucumber	41	0.94%	356	0.69%
Kaddu/Pumpkin	33	0.76%	296	0.57%
Ash Gourd/Petha	32	0.74%	587	1.13%
Bottle gourd	20	0.46%	140	0.27%
Bitter Gourd	3	0.07%	19	0.04%
Broccoli	2	0.05%	3	0.01%
Mushroom	0.23	0.01%	49.27	0.10%
Total	4,351.23	100.00%	51,721.27	100.00%

Area and Production of spice crops:

In 2019-20, spice crops are cultivated in the area of 1,243 ha with a production of 10,822 tons. Major spice crops cultivated in the district are Ginger, Turmeric, and Large cardamom in the area of 428 ha, 260 ha, and 210 ha with the production of 5,296 tons, 3141 tons, and 185 tons respectively.

Table 6: Area and Production of Spice crops				
Districts	Area (ha)	% Share	Production (MT)	% Share
Ginger	428	34.43%	5396	49.86%
Turmeric	**260**	**20.92%**	**3141**	**29.02%**
Cardamom Large	210	16.89%	185	1.71%
Garlic	37	2.98%	343	3.17%
Black Pepper	14	1.13%	4	0.04%
Coriander Seed	7	0.56%	12	0.11%
Betelvine in Lakhs Number	4	0.32%	33	0.30%
Tamarind	1	0.08%	10	0.09%
Other Spices	282	22.69%	1698	15.69%
Total	**1,243**	**100.00%**	**10,822**	**100.00%**

Area and production of Plantation crops

In 2019-20, plantation crops are grown in the area of 756 ha with a production of 622 tons. 2650 lakh coconuts are produced in the district.

Table 7: Area and Production of plantation crops				
Districts	**Area (ha)**	**% Share**	**Production (MT)**	**% Share**
Cashew Nut	385	50.9%	128	3.9%
Coconut in Lakh numbers	330	43.7%	2,650	81.0%
Arecanut	41	5.4%	494	15.1%
Total	**756**	**100.0%**	**3,272**	**100.0%**

Area and Production of medicinal crops:

In 2019-20, lemon grass is cultivated in 32 ha with the production of 200 tons.

Table 8: Area and Production of medicinal crops		
Districts	**Area (Ha)**	**Production (MT)**
Lemon Grass	32	200

Area and Production of flower crops:

In 2019-20, flower crops are cultivated in the area of 1,500 sq with the production of 4 lakh per stem.

Table 9: Area and Production of flower crops				
Districts	**Area (Sq M)**	**% Share**	**Production (Per stem)**	**% Share**
Alstroemeria	5,000	33%	1,00,000	25%
Gerbera	5,000	33%	2,00,000	50%
Lilium	5,000	33%	1,00,000	25%
Total	**15,000**	**100%**	**4,00,000**	**100%**

ii. ODOP produce as a percentage of total agricultural production of the district

In 2019-20, the total area under the agriculture crops in the district is 41.1 thousand ha with the production of 198.4 thousand tons. Pulses, cereals, and oil seeds contribute 73.1% of the total crop area in the district with a production of 43%. Green chili is grown in 360 ha which is 0.9% of the total crop area in the district with the production of 2741 thousand tons which is 1.4% of the total crop production.

Table 10: ODOP produce as a percentage of total agricultural production in the district				
Crops	**Area (Ha)**	**% Share**	**Production (MT)**	**% Share**
Pulses, Cereals, and Oil seeds	30,070	73.1%	85,332	43.0%
Fruit crops	4,698	11.4%	47,146	23.8%
Green chili	**360**	**0.9%**	**2,741**	**1.4%**
Other vegetable crops	3,991.23	9.7%	48,980.27	24.7%
Spices	1243	3.0%	10,822	5.5%

Table 10: ODOP produce as a percentage of total agricultural production in the district				
Crops	Area (Ha)	% Share	Production (MT)	% Share
Plantation crops	756	1.8%	3,272	1.6%
Aromatic and Medicinal plants	32	0.1%	200	0.1%
Total	**41,150.23**	**100.0%**	**19,8493.27**	**100.0%**

iii. Perishable nature of the produce

The Naga King Chilli has a poor shelf life and deteriorates fast if stored under normal conditions for a long period. However, in cold storage, the product may be stored for 8-10 months.

Table 11: Perishable nature of chili value-added products		
S. No	**Produce**	**Shelf life**
1	Dried Chili	12 Months
2	Chili powder	12 Months
3	Chili pickle	12-15 Months

iv. Production of ODOP agriculture produce in that district compared to other districts and states

In Nagaland state, Kohima has the highest production and contributes 14% to total naga chili production in the state followed by Mon 13%, Phek at 11%, Wokha at 11%, Tuensang at 10%, and Peren at 8% respectively during 2019-20.

Table 12: Production of the Naga Chili crop in the Nagaland State		
District Name	**Production in MT**	**% Share of production**
Kohima	4,789	8.00%
Mon	4,500	14.00%
Wokha	3,727.5	6.00%
Phek	3,587	5.00%
Tuensang	3,456	13.00%
Dimapur	2,800	5.00%
Peren	**2,741**	**11.00%**
Zunheboto	2,525	8.00%
Kiphire	2,100	10.00%
Mokokchung	1,850	11.00%
Longleng	1,800	7.00%
Nagaland	**33,872.5**	**100.00%**

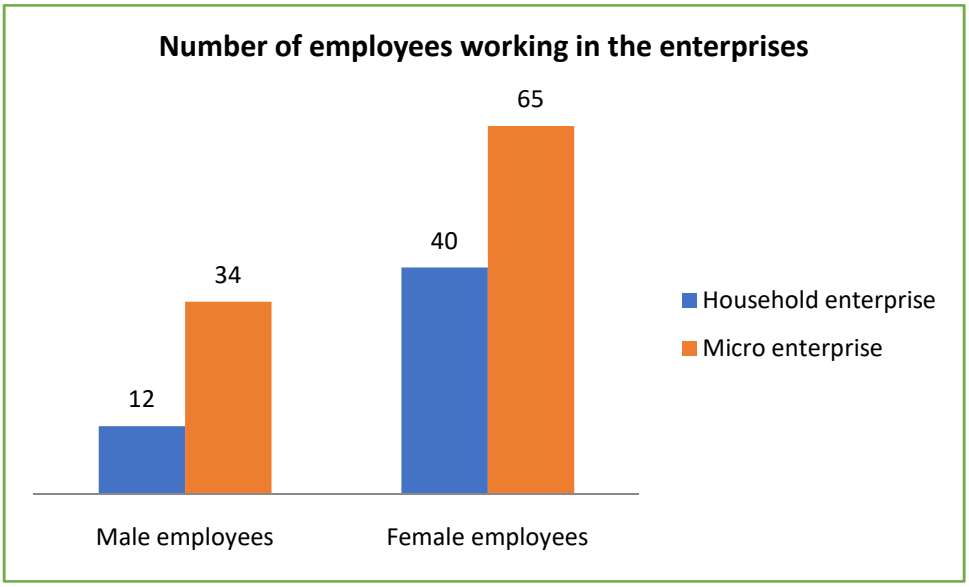
V. Number of workers engaged in the ODOP cultivation

From the primary survey, it is observed that 151 employees are working in the 25 food processing units in the district. Among the total employees working in the food processing enterprises, 46 are male

employees and 151 are female employees. 52 employees of the total employees are working in the household enterprises and 99 employees are working in the micro-enterprises.

Table 13: Number of workers engaged in the ODOP processing			
Enterprise	**Male employees**	**Female employees**	**Total**
Household enterprise	12	40	52
Microenterprise	34	65	99
Total	**46**	**105**	**151**

Figure 1: Number of workers engaged in the ODOP processing



It is estimated that there are 245 to 260 unregistered food processing industries in the district. Among the total unregistered industries, 90 to 100 units are engaged in processing the king chili crop. 2 to 4 individuals are engaged in processing the ODOP i.e. around 180 to 200 employees are engaged in the unregistered enterprises in the district. It is estimated that there is a total of 330 to 400 employees are engaged in processing the ODOP crop in the district.

Non-ODOP:

i. What other major crops are being cultivated apart from the chosen ODOP product.

WTRC paddy, Jhum paddy, Maize, Rapeseed Mustard, Soybean, Ginger, cashew nut, Cabbage, Leafy vegetables, Tapioca, Pineapple, Passion fruit, Banana, and kinnow/ Mandarin are the major crops cultivated in the district.

ii. Total Production of each of the Produces in the District:

In 2019-20, the total area under the crops in the districts is 41.1 thousand ha with the production of 198.4 thousand tons.

WTRC Paddy, Jhum paddy, and Maize are the major pulses and cereals crops cultivated in the area of 12 thousand ha, 6.3 thousand ha, and 3.1 thousand ha with the production of 35.1 thousand tons, 12.5 thousand tons, and 6.1 thousand tons respectively. Pineapple and the Passion fruit are the major fruit crops cultivated in the area of 1.6 thousand ha and 0.8 thousand ha with the production of 21.9 thousand tons and 2.2 thousand tons respectively. Cabbage and Leafy vegetables are the major vegetables cultivated in the area of 0.7 thousand ha and 0.52 thousand ha with the production of 14.1 thousand tons and 4.2 thousand tons respectively. Ginger is the major spice crop cultivated in the area of 0.42 thousand ha with a production of 5.3 thousand tons.

Table 14: Total production of the major crops in the district

S. No	Crop name	Area (Ha)	Production (MT)
1	WTRC Paddy	12,200	35,147
2	Jhum Paddy	6,310	12,527
3	Maize	3,100	6,149
4	Rapeseed Mustard	2,482	2,512
5	Pineapple	1,628	21,980
6	Soybean	1,083	1,356
7	Passion fruit	879	2,209
8	Cabbage	705	14,100
9	Banana	578	8,682
10	Leafy vegetables	527	4,234
11	Kinnow/ Mandarin	520	4,522
12	Tapioca	478	6,690
13	Ginger	428	5,396
14	Cashew nut	385	128

iii. Non-ODOP produce as a percentage of total agricultural production of the district:

Turmeric-based products are chosen as the Non ODOP products of the district based on the production of the produce and the number of units operating in the district.

In 2019-20, the turmeric crop is cultivated in the area of 260 ha which is 21% of the total crop area under the spices with the production of 3,141 MT which is 29% of the total spice crop production in the district

Table 15: Area and Production of spice crops

Districts	Area (Ha)	% Share	Production (MT)	% Share
Ginger	428	34.4%	5,396	49.9%
Other Spices (Specify Crop in Remarks Column)	282	22.7%	1,698	15.7%
Turmeric	**260**	**20.9%**	**3,141**	**29.0%**

Table 15: Area and Production of spice crops				
Districts	Area (Ha)	% Share	Production (MT)	% Share
Cardamom Large	210	16.9%	185	1.7%
Garlic	37	3.0%	343	3.2%
Black Pepper	14	1.1%	4	0.0%
Coriander Seed	7	0.6%	12	0.1%
Betelvine in Lakhs Number	4	0.3%	33	0.3%
Tamarind	1	0.1%	10	0.1%
Total	1,243	100.0%	10,822	100.0%

Area and Production of crops in the district:

In 2019-20, the total area under the crops in the districts is 41.1 thousand ha with the production of 198.4 thousand tons. Turmeric crop is cultivated in the area of 260 ha which is 0.6% of the total agricultural crop area with the production of 3141 tons which is 1.6% of the total crop production in the district.

Table 16: Area and production of crops in the district				
Crops	**Area (Ha)**	**% Share**	**Production (MT)**	**% Share**
Pulses, Cereals, and Oil seeds	30,070	73.1%	85,332	43.0%
Fruit crops	4,698	11.4%	47,146	23.8%
Vegetable crops	4,351.2	10.6%	51,721.2	26.1%
Turmeric	**260**	**0.6%**	**3,141**	**1.6%**
Other spice crops	983	2.4%	7,681	3.9%
Plantation crops	756	1.8%	3,272	1.6%
Aromatic and Medicinal plants	32	0.1%	200	0.1%
Total	**41,150.2**	**100.0%**	**1,98,493.2**	**100.0%**

iv. Perishable nature of the produce:

Table 17: Perishable nature of the produce		
S. No	**Particular**	**Shelf life**
1	Fresh turmeric	6-9 months
2	Dried turmeric	3-4 years
3	Turmeric powder	3-4 years

v. Number of workers engaged in the cultivation of each of the ODOP products.

The total area under Non-ODOP crops in the district is 260 ha in 2019-20 with a production of 3,141 MT. Approximately 433 households are engaged in Non-ODOP cultivation with a population of around 1,734.

B. Assessment of the existing Policy and Regulatory frameworks for FPI and FPI Micro Enterprises in the State:

i. Assessment of Food Processing Policies in the State:

Pradhan Mantri Kisan SAMPADA Yojana by MOFPI

The government of India (GOI) has approved a new Central Sector Scheme – Pradhan Mantri Kisan SAMPADA Yojana (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) with an allocation of Rs. 6,000 crores for the period 2016-20 coterminous with the 14th Finance Commission cycle. The scheme will be implemented by the Ministry of Food Processing Industries (MOFPI).

PM Kisan SAMPADA Yojana is a comprehensive package that will result in the creation of modern infrastructure with efficient supply chain management from farm gate to retail outlet. It will not only provide a big boost to the growth of the food processing sector in the country but also help in providing better returns to farmers and is a big step towards doubling farmers' income, creating huge employment opportunities, especially in the rural areas, reducing wastage of agricultural produce, increasing the processing level and enhancing the export of the processed foods.

The following schemes will be implemented under PM Kisan SAMPADA Yojana :

- Mega Food Parks
- Integrated Cold Chain and Value Addition Infrastructure
- Creation/ Expansion of Food Processing/ Preservation Capacities (Unit Scheme)
- Infrastructure for Agro-processing Clusters
- Creation of Backward and Forward Linkages
- Food Safety and Quality Assurance Infrastructure
- Human Resources and Institutions

Table 18: Nagaland State Government policy in FPI Policy and Incentives	Description
Name of Policy	State Industrial Policy-2000 (Revised-2004)
Nodal Agency	The Ministry of Food Processing Industries (MOFPI)
Single Window Clearance System	Not available

Table 18: Nagaland State Government policy in FPI	
Policy and Incentives	**Description**
Power/Electricity Subsidy	Subsidy on power will be provided at the rate of 30% and 25% for connected loads up to 1 MW and above 1 MW respectively for five years from the date of commercial production subject to a maximum ceiling limit of ` 2.00 lakh annually. This will be a reimbursement scheme for the actual consumption of power for the manufacturing process substantiated with requisite details.
	Drawal of Power Line: Cost of drawal of 33/11 KV line to eligible units located outside the notified areas shall be reimbursed for one time only subject to a ceiling of `2:00 lakh (now as per NEIIPP-2007, anywhere in the State)
Capital Subsidy	Not available
Interest Subsidy	Not available
VAT/CST/SGST/TAX Exemption/Reimbursement	**Stamp Duty Exemption** 50% Stamp Duty and Registration Fee for securing loans from Financial Institutions including Mortgage of fixed assets shall be exempted from the Stamp Duty Act for 5 (five) years
Employment Generation	**Manpower Subsidy** The government will reimburse up to 25% of the actual wage bill for local tribal employees employed by eligible units up to three years from the date of entertainment subject to a maximum ceiling of Rs.1.00 lakh annually. This grant would be for five years from the date of entertainment of such staff and would be given to those units where the investment in plant and machinery exceeds Rs.10.00 lakh and the number of employees engaged in the unit exceeds 20 (twenty) numbers and where the at least 50% of the employees are local tribal youth. Units availing subsidy under this scheme shall take all effective steps to ensure 75% employment of local youth over five years. This subsidy will be admissible on a reimbursement basis for only those employees who complete one year of regular employment in the unit.
Freight/Transport Subsidy	Not available

Table 18: Nagaland State Government policy in FPI	
Policy and Incentives	**Description**
Others	**Subsidy for Feasibility Study Cost** The subsidy will be available at the rate of 50% of the cost of Detailed Reports subject to a ceiling of Rs.1.00 lakh, which shall be eligible only for new units with investment in plant and machinery above Rs.25 lakh provided the report is prepared by a Government approved Industrial Consultants.
	Subsidy Incentives for 100% Export Oriented Units (EOU) An additional 5% capital investment subsidy is subject to a maximum ceiling of Rs.3.00 lakh.
	Subsidy for Quality Control measures The cost of laboratory equipment for quality control and ISI/BIS/ISO 9000 certification will be reimbursed subject to a maximum ceiling ofRs. 50,000/- in cases where it does not form part of the project cost for SSI and Rs.1.00 lakh in case of Large and Medium units.

ii. Assessment of ongoing and proposed Government programs of Nagaland Administration in the FPI and allied sectors:

Currently, there are no existing food processing policies in the state. Recently the Industry and Commerce department of Nagaland, Proposed One food processing policy named “Nagaland State food processing Industries policy (NSFPI).

iii. Assessment of existing Regulatory frameworks for FPI:

PM FME Scheme- PM Formalization of Micro Food Processing Enterprises Scheme-

Unorganized micro food processing units, need intensive hand-holding support for skill training, entrepreneurship, technology, credit, and marketing, across the value chain, necessitating active participation of the state government for better outreach. In the last decade, Central and State Governments have made intensive efforts to organize farmers in Food Processing Organizations (FPOs) and women’s Self-Help Groups (SHGs). SHGs have achieved considerable progress in thrift and their repayment record with a 97% NPA level is among the best. Governments have made efforts to enable SHGs to undertake various manufacturing and service sector activities including food processing. However, there are few Government schemes to support FPOs andSHGs to make investments and upscale their operations.

This scheme is a centrally sponsored scheme that is designed to address the challenges faced by micro-enterprises and to tap the potential of groups and cooperatives in supporting the up-gradation and formalization of these enterprises.

Table 19 PMFME Scheme- PM Formalization of Micro Food Processing Enterprises Scheme

Scheme Component	Particulars
Support to individuals and groups of micro-enterprises	Individual micro food processing units would be provided credit-linked capital subsidy @35% of the eligible project cost with a maximum ceiling of Rs.10.0 lakh per unit. The beneficiary contribution should be a minimum of 10% of the project cost with the balance being a loan from the bank.
Farmer Producer Organizations (FPOs)/Producer Cooperatives	i) Grant @35% with credit linkage; ii) Training support; iii) Maximum limit of grant in such cases would be as prescribed.
Self-Help Groups (SHGs)	Seed capital: i) Seed capital @ Rs40,000/- per member ofSHG for working capital and purchase of small tools would be provided under the scheme; ii) Priority would be given to SHGs involved in ODOP produce in giving seed capital; iii) All the members of an SHG may not be involved in food processing. Therefore, seed capital would be provided at the federation level ofSHGs; iv) This would be given as a grant to the SHG federation by SNA/ SRLM. SHG federation would provide this amount as a loan to the members ofSHGs to be repaid to the SHG.
Support to individual SHG member	As a single unit of the food processing industry with credit linked grant @35% with the maximum amount being Rs 10 lakh.

iv. Stakeholder Mapping

MINUTES OFTHE MEETING (MOM) OF NAGALAND PMFME SLUP STAKEHOLDERS MEETING DTD 09-02-2022 HELD AT DIRECTORATE OF INDUSTRIES and COMMERCE, KOHIMA – ONLINE and OFFLINE MODE – REG

Industries and Commerce

- Kekhrievor Kevichusa, Commissioner and Secretary, Industries and Commerce department (Commissioner)
- Hokishe K Assumi, Director of Industries and Commerce (Director)
- Vitsutho Nyuthe, Additional Director of Industries and Commerce (Additional Director)
- Zakielatuo Yiese, Deputy Director, Industries and Commerce (Deputy Director)
- Mhasiphizo Michael Khezhie, Nodal Officer, PMFME Scheme, Directorate of Industries and Commerce (Michael)

TransGraph

- Dr. Abdul RahmanIlyas, Global Head and Vice President, TransGraph Consulting, Hyderabad
- Mr.DeekshitManchaiah, Analyst, TransGraph Consulting, Hyderabad

Stakeholders

- M. Rollan Lotha, COO, NSRLM, Nagaland
- Lentinaro, Program Manager, NSRLM
- Dr.Hiales Zeliang, Deputy Director, Veterinary, GoN
- Dr.Vimezo Kire, Deputy Director, Fisheries, GoN
- Sendong, Jr. Asst. Commissioner, Food Safety, GoN
- Meyasashi, Deputy Director Horticulture, GoN
- Bokato Hesso, Deputy Director, Cooperation department. GoN

The meeting was held in the Directorate of Industries and Commerce, Kohima on Feb 9th, 2022 which started at 11.15 Am and concluded at 1.30 Pm.

- The formal introduction was done by Michael who welcomed the offline and online participants, he was apprised about the PMFME scheme and the Stale Level Up gradation Plan (SLUP) and apprised the group that a state-level study was conducted by M/s. Transgraph Consulting prepares district-wise reports that were circulated to all the stakeholders and the objective of this meeting is to take suggestions from every stakeholder to be incorporated into the final report. He requested the attendees to introduce themselves and later requested Commissioner to give the keynote address.

- Commissioner presented the keynote and highlighted how important the PMFME scheme is for the State of Nagaland as it is bound to scale in the coming years in terms of increased support to the

food processing sector, he highlighted the objectives of the PMFME and requested all the stakeholders present to offer their recommendations and suggestions if any to be incorporated into the final SLUP report that will become a torchbearer to implement for the development of the food processing sector so the inputs from all are going to be very crucial and encouraged all to participate.

- Director spoke about ODOP and Non-ODOP and gave a summary that Nagaland the produce is same across all the districts, so not to be confused on the ODOP and Non-ODOP, while in certain districts based on the production of that particular product is high was chosen while in other districts the same stand as Non-ODOP. So PMFME would be looking at the clusters. Director further said TranGraph Consulting Hyderabad has done a good study and the reports have been submitted to all today they will be presenting the summary and key findings of the report for stakeholders' suggestions and feedback. He requested TrangGraph to go ahead and present the report.

- Dr. Abdul Rahman from TransGraph Consulting, Hyderabad gave a brief overview of the PMFME Scheme and SLUP, he acknowledged the support of the Commissioner and Director and his team, and various important stakeholders across Nagaland. He further presented the methodology adopted for the study and gave a detailed crisp presentation on each district and covered 11 districts.

- Mr. RollanLotha, NSRLM spoke about Peren district and informed that they have a 100kg per batch vacuum drier, 24 tray over bio mass solar drier with 250 MT Capacity. In Wokha he informed fishery sector is dominated by Men, whereas NSRLM also includes women, he further informed that a fish value chain project is being currently planned in partnership with ECOP, New Delhi. 1500 kg of fish is going out of Nagaland from the Dhyong River and he wanted to establish a fish processing unit. He further informed that they have been waiting to get cooperative status for their organization which is pending with the Coop Department and requested that it be expedited. So that buy-back arrangement can be extended with a corpus which is currently a bottleneck for them.

- BokatoHesso, Deputy Reg, Cooperation Department, GoN, informed the audience that there is skilled labor available for barista coffee and he has shared a list of 100 cooperatives with the DFPI. He informed that they are working on the 10,000 FPO national mandate driven by Nabardand focusing on the creation of FPOs in Peren, Kiphire, and Kohima. 3 under the cooperative act under Nabard / NCDC and 10 under SFAC under Companys Act. He further informed that at Block level 5 villages engage in cooperative activity, hence they are trying to develop an Integrated Multipurpose Cooperative Society to tap the small group on their Adhaar base.

- Mr.Ashish, Trangraph's Survey lead informed that the touch-based Cooperatives list given by the Department and a few of them are inactive and others have been contacted and information captured. He further said that as part of the cluster study all the existing cooperatives will be mapped.

- Deputy DOH informed us that there is a marketable surplus in Pineapple and Kiwi. For example, he said farmers throw 20-25 of their produce at farm level and do not even bother to value add because of lack of time similarly in Kiwi there is a 50% marketable surplus resulting out of grading as only Grade 'A' is bought by traders. So there is an immense opportunity to convert the marketable surplus into value-added products which is currently not happening. In the district Phek, the production is kiwi is small at the same time other districts also have small production areas of Kiwi such as Kohima, Zonhebato, and Tusenang for which an aggregation hub can be created.

- Michael took over and informed all the stakeholders present to send their suggestions and feedback earlier by Monday i.e. 13th February 2022 formally. So that their respective feedback can be captured in the final report. He also requested the online participants to send their feedback by email. He further requested Additional Director to give closing remarks.

- Add. Director Industries thanked TrangGraph for giving an elaborate presentation and also thanked the participants for giving their valuable feedback. He also informed me that the report is in finalization state all the feedback and suggestions given will be incorporated.

The meeting concluded at 13.30 hours.

C. Profiling of existing Micro Enterprises ecosystem:

1. Industrial Profile of the Districts in the State

There are 95 registered industries in the district and 190 employees are working in the registered district that is on average 2 members are working in each enterprise. There is only one small-scale industry in the district and there is no medium and large-scale industry in the district. There is also no industrial area in the district.

Table 20: Industrial Scenario of Peren District

S. No	Head	Unit	Particular
1	Registered industrial unit	No.	95
2	Registered medium and large unit	No.	Nil
3	Estimated average no. of daily workers employed in registered Industries	No.	190
5	No. of Industrial area	No.	Nil
Source: MSME, Nagaland			

2. Identifying Non-ODOP Products:

Turmeric and Ginger crops are the major spice crop grown in the district.

Table 21: Identifying Non-ODOP products

S. No	Crop Name	Value added products

1	Turmeric	Powder, Fingers

4. District wise Industrial profiling based on secondary research

The District Industries Center, Peren needs to be strengthened its extension work to achieve the growth envisaged by exploiting the estimated potential. The present position regarding the infrastructure available in terms of training centers, road networks, services centers, etc is inadequate and needs to be augmented to bring about a positive change in the climate. At present, the district has the following networks of centers/units.

1. Patchouli distillation Plant- 1
2. Geranium Distillation Plant- 1
3. Rural artisan project training unit- 1

To encourage prospective entrepreneurs to take up industrial activities, there are provisions to provide margin money/ seed money/ subsidy by the implementing agencies. However, several constraints may be highlighted:-

a) Lack of basic infrastructure facilities, inadequate marketing support/ accessibility, and raw material supply.
b) In-adequate power supply
c) Shortage of skilled /trained manpower
d) Lack of industrial experience, and non-availability of managerial, administrative, and technical experience among the local entrepreneurs.
e) High-cost raw materials and transportation
f) Lack of coordination among various development agencies
g) Credit flow is very low due to the poor return of bank loans.

i. Is the district recognized with the ODOP product?

Naga chili crop is recognized as the ODOP of the district based on the existence of household and micro-processing enterprises processing the commodity and the relevant commodity is grown largely in the district.

Awareness about the ODOP Product in Peren District

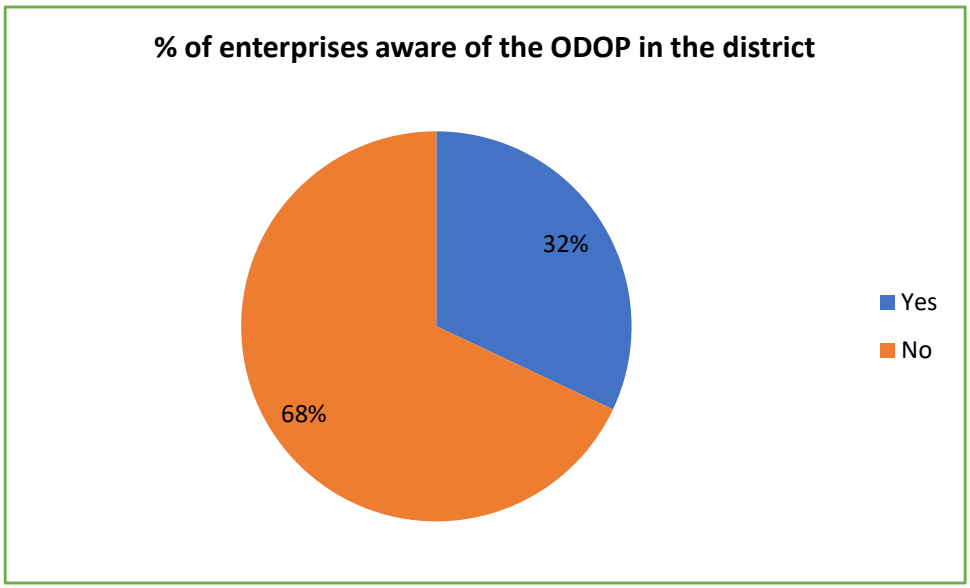
From the primary survey, it is observed that among the total surveyed sample of 25 enterprises, 17 enterprises are aware of the ODOP product of the district and 8 enterprises are not aware of the ODOP product of the district.

Table 22: Awareness of the ODOP produce in the district

Enterprises	Yes	No	Total
Household enterprise	4	4	8
Micro-enterprise	13	4	17

Table 22: Awareness of the ODOP produce in the district			
Enterprises	Yes	No	Total
Total	**17**	**8**	**25**

Figure 2: Percentage of enterprises aware of the ODOP in the district



ii. Has the product been granted Geographical Indication status by the Government of India

Naga chili which is grown in the Nagaland states is certified with the "GI tag".

Along with the Naga Mircha in the states, "Naga tree tomato", and "Naga cucumber" are the three agricultural commodities granted the GI tag from Nagaland.

Table 23: GI-certified crops in the Nagaland		
S. No	**GI Name**	**Registered entity**
1	Naga Mircha	Secretary, Department of Horticulture and Agriculture
2	Naga Tree tomato	NERAMAC
3	Naga cucumber	NERAMAC

iii. Special nature and relationship of the product with the district, uniqueness, history, etc?

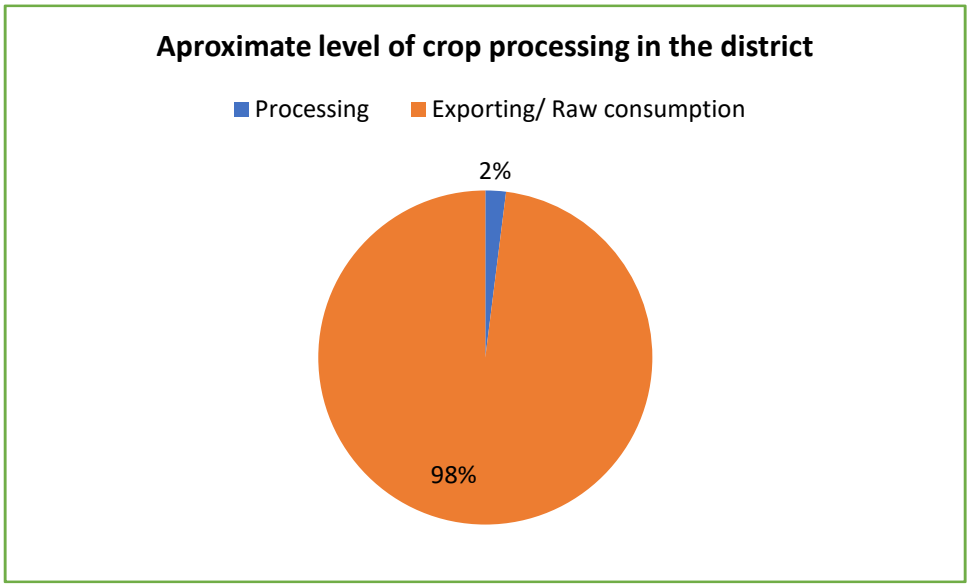
Naga King Chilli also locally called "Naga mircha", belongs to the genus "Capsicum" of the family "Solanaceae". Naga king chili has been considered the world's hotter chili and entered the "Guinness book of world records" (measuring 855,000 Scoville units) beating the "Mexican red Savana habaneros" (5, 77,000 Scoville units). It is grown in districts of Kohima, Mon, and Peren of Nagaland, and has also been cultivated in parts of Manipur (Tamenlong, Ukhrul, Churachanpur, etc.) and Assam(Golaghat and Tezpur districts).

King chili which contains more capsaicin (3-5%) than compared to any other Indian chili is a traditional food item of the people of Nagaland and is believed to be the original home. The State Government of Nagaland also got the patent rights of Naga king chili and got Geographical Indication (GI) from the Government of India under the Registration and Protection Act, 1999.

iv. Level of processing happening for ODOP in the district, in other districts, and outside the State.

From the primary survey, it is estimated that around only 60 to 70 tons of the total 2741 tons of the naga chili produced in the district is processed into pickles and the rest of the total crop is exported to other districts and other states in India with primary processing. King chili crop is also exported to other countries in the world.

Figure 3: Approximate level of crop processing



v. Mapping of the Micro, Small, Medium, and Large Industries in the District (Total number of Units).

Altogether 214 units are there in the Peren district. Maximum units are manufacturing fabricated metal products. 31 units are there for wood and wooden products.

Details of the units are given in below table:

Table 24: Existing Micro and Small Enterprises and Artisan units in the Peren District

S. No	Type of Industry	No. of Units	Investment (Lakh)	Employment
1	Agro based	4	400.00	80
2	Other industry	210	2000	1220
	Total	**214**	**2400**	**1300**

Source: Directorate of Economics and Statics, Govt. of Nagaland

Classification of the mode of operation of food processing Industries in the District

From the primary survey, it is observed that among the surveyed 25 enterprises in the district, 8 units are operating at the household level and 17 units are operating as micro-enterprises. All the units in the district are operating manually and selling the products through existing sales channels in the district.
It is estimated that there are 240 to 260 unregistered food processing units in the district.

Table 25: Mode of operation	
Category	**No. of Units**
Household enterprises	8
Micro Processing units	17
Total	**25**
Source-Primary survey analysis	

vi. Number of clusters engaged in the processing of this product

There is no such cluster for Naga King chili processing as all the processing units are scattered in the district and the production of the crop is also distributed all over the district.

However, clusters are available for Handloom, Bamboo, Wood curving, Charcoal, etc.

Peren District Major cluster are Handloom Cluster at Peren, Jalukie etc

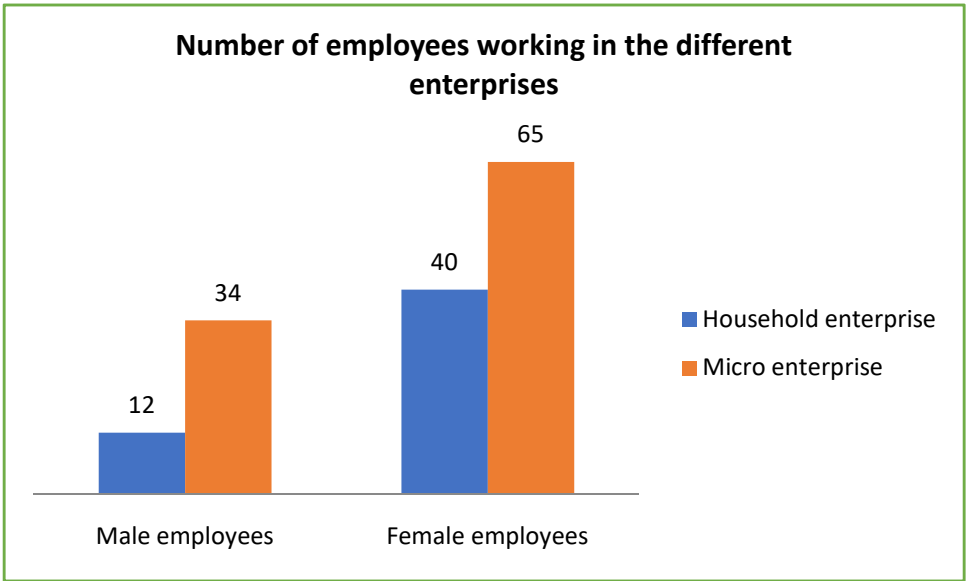
Table 26: Handloom cluster		
1	Principal products manufactured in the Cluster	Handloom products
2	Name of the SPV	Nagaland Khadi Udyog bhandar, DhopiNulla,Peren
3	No. of Functional units in the cluster	20
4	Turnover of the clusters	8.00 lacs
5	Value of Exports from the cluster	Nil
6	Employment in cluster	1000
7	Average investment in plant and Machinery	1.20 Lacs
8	Major issues / requirements	Design, Skill up-gradation,
9	Presence of capable Institutions	NKUB, Peren
10	Thrust areas	Capacity building, Thrust CFC
11	Problems and constraints	Raw materials, Financials, etc

vii. Number of workers engaged in the ODOP processing

From the primary survey, it is observed that 151 employees are working in the 25 food processing enterprises in the district. Among the total employees, 52 are working in household enterprises and 99 are working in the micro-enterprises. 105 female employees and 46 employees are males engaged in the food processing enterprises in the district.

Table 27: Number of workers engaged in the ODOP processing			
Enterprise	**Male employees**	**Female employees**	**Total**
Household enterprise	12	40	52
Microenterprise	34	65	99
Total	**46**	**105**	**151**

Figure 4: Number of employees working in the food processing enterprises



viii. Marketing linkages within the district, state, and outside

Naga king chili has very high market demand both in the domestic and international markets. The State Department of Agriculture has developed marketing linkages with ITC Pvt. Ltd., Spices Limited, Spices Board of India, and the International Competence Centre for Organic Agriculture (ICCOA) Bangalore for marketing of dried Naga king chili outside the state.

Currently, none of the processing units in the district are following any of the specialized marketing practices like advertisement or digital marketing. The processing enterprises in the district are selling processed pickles to local retailers or the local consumer. Middleman plays important role in the aggregation of the crop from the growers and selling to retailers or wholesalers in the other taluka and villages. After the primary processing, it goes to the consumer through a network of wholesalers and retailers.

It is proposed to provide training on branding and marketing of the processed products to the existing and new enterprises in the district to create a brand and market for the pickles within the district and outside the district and state.

ix. Level of infrastructure for ODOP processing within the district, in other districts, and in States

There are no common infrastructure facilities like pack houses, warehouses, cold storage, and common processing facilities in the district. There is no FSSAI-accredited food testing lab in the district.

All the processing units in the district are manually or traditionally processing the pickles without any usage of the machinery and types of equipment. It is proposed to set up one common processing facility with 3-4 processing lines in the district. An incubation center is also proposed in the district for training and handholding support for the food processing enterprises. It is proposed to provide the machinery and equipment at subsidized prices to the existing and new processing enterprises to increase crop processing in the district.

Infrastructure in other districts:

There are only 2 cold storage structures in the district of capacity 6150 MT in the district.

Table 28: Cold storage in the Dimapur district

S. No	Name and Address	Capacity in MT	Sector	Commodity
1	MARCOFED cold storage, Dimapur	1,150	Cooperative	Multipurpose
2	L. Doulo Builders and Suppliers Co (P) Ltd, Dimapur	5,000	Private	Multipurpose
	Total	**6,150**		

Source- APEDA

x. Total production value of the ODOP product manufactured in the district and as % of total agricultural produce.

Green chili crop is cultivated in the area of 360 ha with a production of 2,741 tons. Per kilogram of king chili in the district is sold at a price of approximately 300 to 400 which is INR 8,223 lakhs to 10,964 lakhs worth of king chili crop produced in the district. Among the total king chili produced in the district only 2% of the crop is processed into chili pickles in the district. It is estimated that INR worth 161 to 200 lakhs of revenue is generated by processing the naga chili pickle in the district.

xi. Number of enterprises involved in the processing of this product and as a % share of the total number of micro food processing enterprises in that district

25 enterprises are involved in food processing in the district. Among the total food processing industries in the district, 8 units are operating at the household level, and 17 units are operating at the micro-enterprises level.

A list of food processing enterprises in the district is attached in the annexure.

xii. Number of Self Help Groups and Farmer Producer Organizations engaged in the Processing of this product.

Horticulture Department has developed an FPC in the District under the name, 'Naga Organic Spices Producer Company Ltd.' which has 500 nos. of registered members.

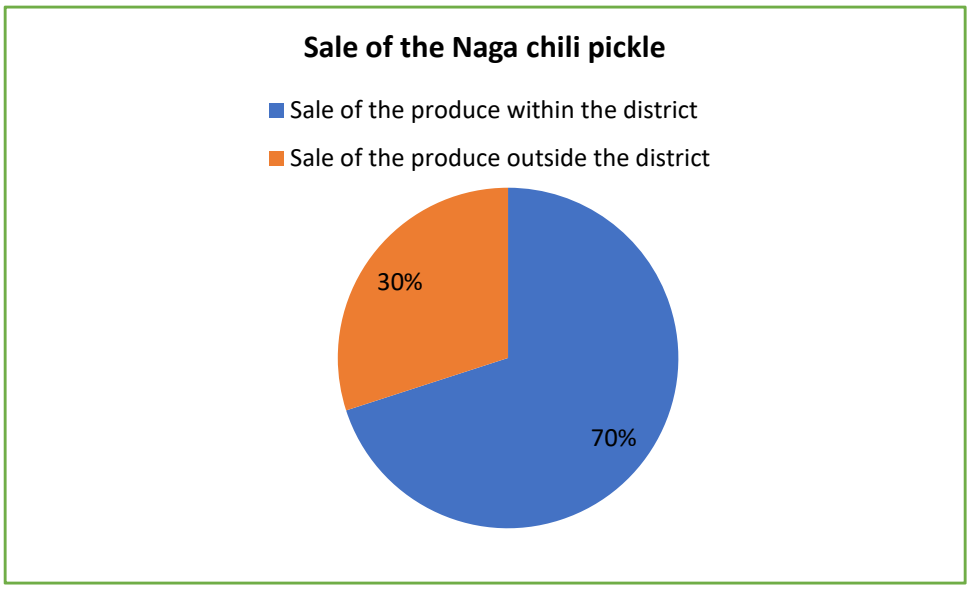
Under the District, the State Government has promoted an FPO namely, 'Peren District Organic Farmers Co-operative Society Ltd.' with 1306 farmers registered as members.

A list of SHGs and the FPOs is attached in the Annexure

xiii. Sale of this product to other districts, and states and exported to other countries

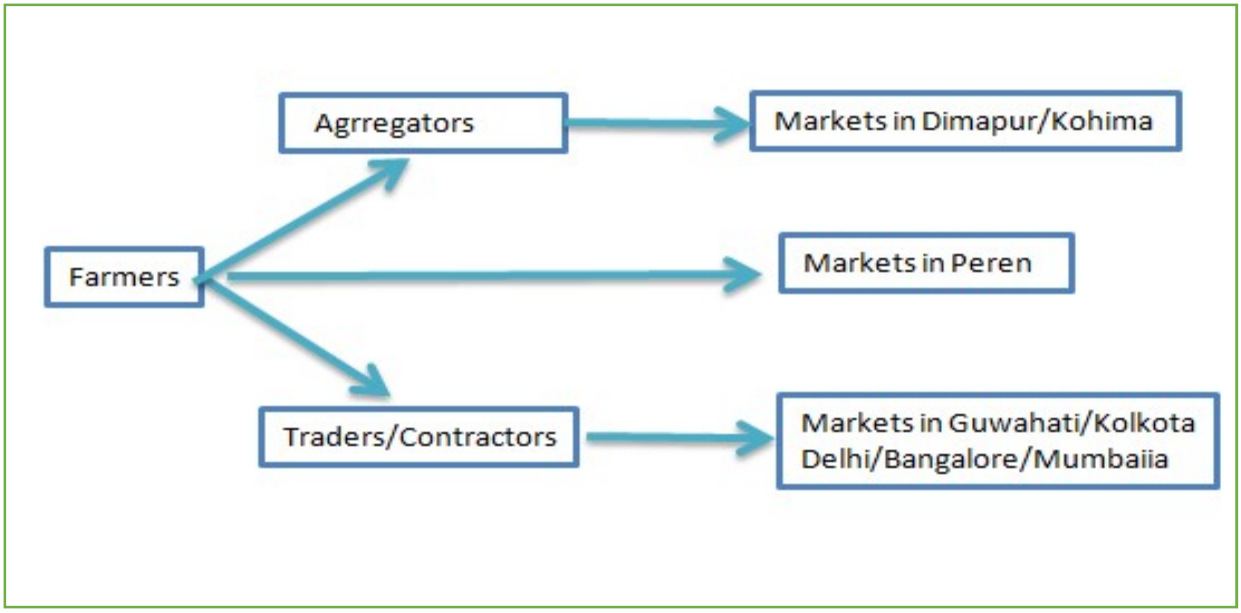
From the primary survey, it is estimated that 25 to 30% of the total 60 tons of the pickles processed in the district are sold outside the district through wholesalers and aggregators. The majority of the pickle processed in the district is sold within the district through retailers in the district. It is estimated that 70% of the pickle i.e. 40 to 45 tons of the pickle processed in the district is sold within the district.

Figure 5: Sale of the Naga chili pickle in the district



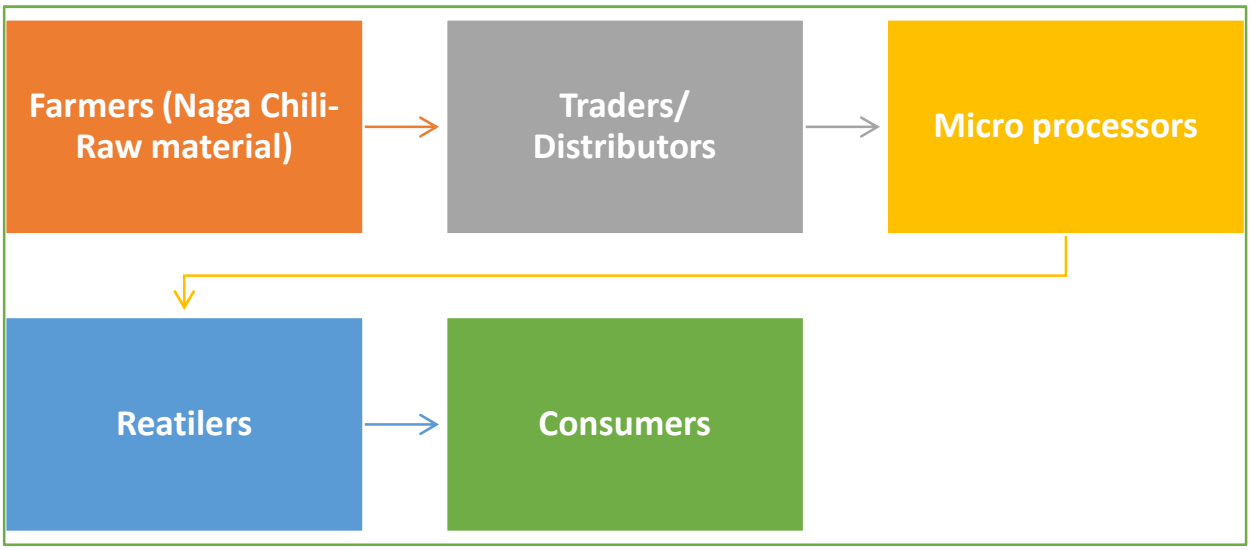
5. Mapping the value chain aspects

Figure 6: Marketing Channel of Naga Chili crop in the district in Nagaland-Peren



Naga chili crop produced in the district is sold to other districts and other states in the country through trades and aggregators in the district. Farmers are selling the crop to traders and aggregators.

Figure 7: Market channel for the Naga pickle in the district



A very simple value chain is present in the district. Generally, a major quantity of the pickles is made on a pre-order basis. Currently, the pickling pickle processing is very small scale when compared to the quantity of the crop produced in the district. The majority of the pickles processed in the districts are sold within the district and taluka. Only 25 to 30% of the total pickle processed in the district is sold to other districts in the state.

6. Understanding the Infrastructure constraints faced by Micro Enterprises:

The quality and connectivity of the roads are the basic infrastructure constraint in the district. Financial assistance requires for the purchase and up-gradation of the machinery and equipment for the pickles processing enterprises. Skill development training is required regarding the quality parameters of the processed products, FSSAI certification, and new technology developed related to commodity processing. Food processing enterprises in the district are lacking in awareness about government-promoting schemes and recent developments in the food processing industry in the state and the county.

Table 29: Infrastructure constraints faced by Micro-enterprises

Infrastructure	Up-gradation proposals
A) Public Infrastructure	• Pickle processors are facing product losses during transporting their produce to retailers and other districts in the state. • To overcome this issue it is suggested for the state and central government to construct good roadways to connect nearby districts as well as to other states, which will reduce the crop loss post harvesting and also encourage existing enterprises to expand their business and new entrepreneurs to come into the sector.
B) Common facilities	• There is no common infrastructure like pack houses, warehouses, and cold storage in the district for the processing enterprises and the farmers for primary processing. • It is proposed to establish one Common processing facility center with machinery like Vegetable washing trough, Brine dipping tank, vegetable cutting machines, Dryer, Gas operated kettle, Blending/ Mixing tank, and Bottle filling machines in the district for the existing and new enterprises.
C) Testing facilities	• There is no food testing lab in the district. • Due to poor public infrastructure and lack of common infrastructure facilities, the scale of the industry is very small in the district and the majority of the enterprises are not centerfield by the FSSAI. • It is proposed to set up the testing lab in the proposed incubation center for the existing and new enterprises.
D) Safety standards	• Most of the processor units in the district are not certified by the FSSAI. • Regular safety standards and quality checks for the processed product are required to ensure the quality of the product processed by the enterprises in the district.

D) Mapping the firm-level issues:

Table 30: Mapping Firm level issues

S. No	Sectors	Gaps	Recommendations	Costing (Lakhs)
1	Skill training needs	• There is a shortage of skilled labor in the pickle processing industry and there are no proper skill training facilities available in the district.	• Provide training to the existing enterprises and new entrepreneurs on the standardized prickle processing and training on the branding and the marketing of the processed products. • Skill development training on handling the advanced machinery and equipment like machinery like Vegetable washing trough, brined dipping tank, vegetable cutter, dryer, gas operated kettle, blending/ mixing tank, and bottle filling units.	11
2	Manufacturing practices	• Existing farmers/Traders' Enterprises are following the traditional method of chili drying and chili pickle processing which affects the quality of the final product.	• It is proposed to set up one common processing facilities that can be used for processing the products by the enterprises in the district.	400
3	Technologies	• There is no use of advanced technology or machinery in the district by the existing enterprises. • Existing farmers/Traders' Enterprises are following the traditional method of chili drying and chili pickle processing.	Providing advanced machinery like Vegetable washing trough, brined dipping tank, vegetable cutter, dryer, gas operated kettle, blending/ mixing tank, and bottle filling units at subsidized prices.	1272.5
4	Access to	• Lack of financial support to	• The proposed incubation	275

Table 30: Mapping Firm level issues				
S. No	**Sectors**	**Gaps**	**Recommendations**	**Costing (Lakhs)**
	finance	the processing units due to lack of food processing policies in the state and constraints faced by the unit holders in exhibiting the collateral to the banks and preparing the DPR.	center can be used in attaining financial support for the enterprises by providing DPR and guiding the enterprises in attaining financial and technical support.	
5	Access to mentorship/ Services	• There is no access to mentorship/ service in the district	• An incubation center is proposed to be set up in the district for guiding the existing and new enterprises in the district	275

II)
Detailed cluster study for ODOP products

1. Industry and Market Analysis

Naga king chili is famous for its pungency, aroma, and flavor in the world. It is consumed in fresh or dried form and used for its distinct flavor and aroma in various culinary preparations. In recent years this crop is gaining importance because of its high contents of capsaicin (3-5%) as compared to any other Indian chili.

1.1 Introduction

In the Northeastern states of India, one of the most popular spices grown is the king chili (C. chinense). It is grown in the state of Manipur, Assam, and Nagaland. King chili which contains more capsaicin (3-5%) than compared to any other Indian chili is a traditional food item of the people of Nagaland and is believed to be the original home.

King Chilli also known as ghost pepper, ghost chili, naga Jolokia, and bhoot Jolokia is among one of the hottest chilies in the world.

The Naga Chilli is the traditional food item of the Naga community. It is believed to have originated in Nagaland and the State Government obtained GI rights for the product in 2008. It has a distinct taste and pungency and is used in many forms - fresh, dried, powdered, and pickled. Major identified naga chili production clusters are Kohima, Peren, and Dimapur.

Nagaland Naga Chili is also known as 'Raja Merja' at the local level. The identified major production clusters are Kohima, Peren, and Dimapur districts. Production Practices

1.2 Benefits of the products

Nutritive value of Dry King Chilli

Table 31: Nutritive value of Dry King chili		
S. No	**Parameters**	**Nutritive value**
1	Fiber	8.90%
2	Fat	3.30%
3	Protein	4.46%
4	Ascorbate	6.26 mg/g
5	Capsaicin	7.65%
6	Proline	75.82 µmol/g
7	Carotenoid	3.99 mg/g
Source: NIFTEM Report		

The common properties of chili are Vitamins C, A, B, and B 6 They contain a high percentage of potassium, magnesium, and iron as well as anti-ulcer properties

Benefits of the product

Health Benefits of Pickles

- High antioxidant Properties
- Improves Digestion
- Supply essential minerals and vitamins
- Improves insulin sensitivity
- Protects liver
- Reduce ulcers
- May ease muscle cramps

1.3 Global Market for the Product:

As per the latest news of 28th July, 2021 Naga king chilly was exported first time after it received the GI tag. Naga king chili was exported to London via Guwahati by air. It was sourced from the Peren district itself. Over 250 kilograms of Naga King Chilli, was exported to London on 28th July,2 021.

Demand for Naga Chilly has risen in the recent past in not only Asian markets but also in European markets. European imports have increased by more than two-fold and the major contributors causing this rise are Morocco and Turkey. Other countries include France, the UK, Spain, and Romania.

Pickle exports-

Pickle exports are one of the largest export sectors in India. As of 2019, the global trade share of the pickle industry contributed to about 0.012%, making a staggering USD 2.18 billion. In the Middle East, the United Arab emirate, and other nations with a sizeable Indian population, homemade pickles are in high demand. India's pickle exports have grown significantly during the past decade. The overall value of pickle exports worldwide in 2019 was USD 544.3 million, a 2.7 percent rise from 2015.

Pickles can be exported through a variety of channels. India exports pickles to 54 countries with a total value of USD 31.45 million. However, the top 5 exports account for a total of 21.46 USD million in export value. This export value represents 68.24% of the overall export value. India's pickle exports have seen a considerable increase. The entire pickle exports in 2009 were USD 15.76 million. In contrast, exports were worth USD 30.31 million in 2018, an increase of 30.03%

1.4 Indian Market and Valuation for the Product

The Naga chili has immense scope in domestic as well as international market due to its remarkably high capsaicin content. Since the Naga chili is cultivated in an unorganized sector in different parts of northeastern India, no authentic estimates are available on the area and production.

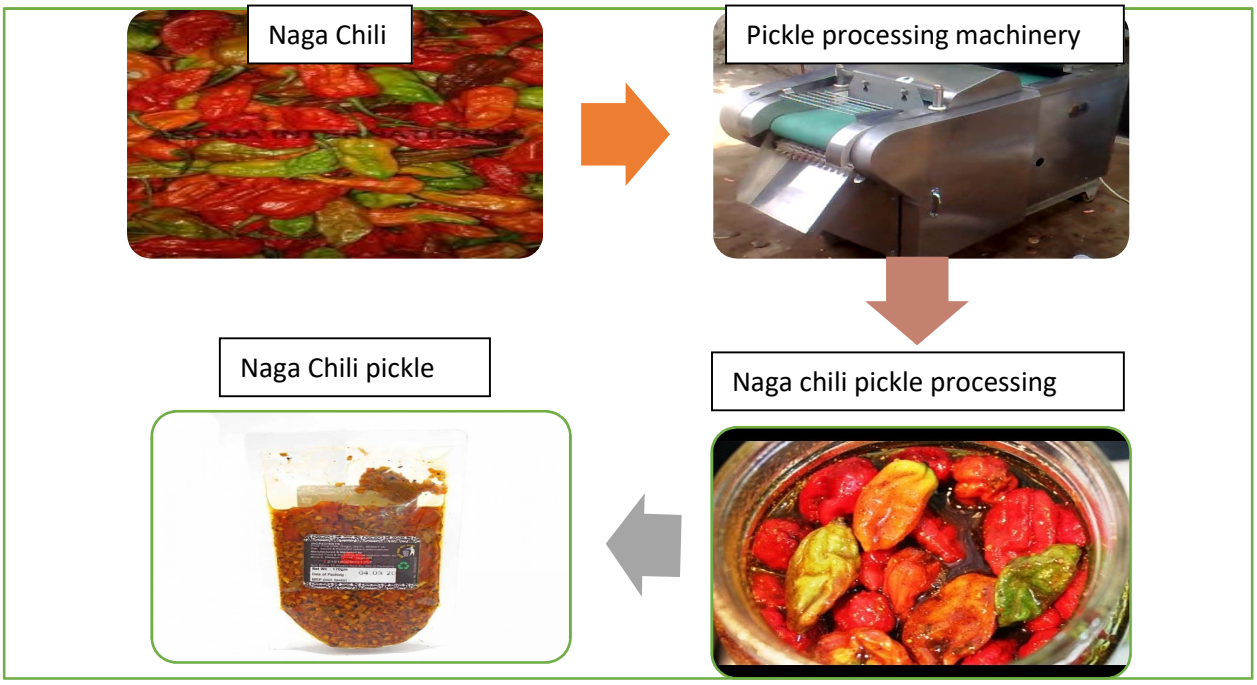
According to a rough estimate, 1000 tones of Naga chili is produced every year in northeastern India, which under favorable weather conditions could increase up to five times. (Steve, personal communication, March 2010)

Most of the chili species and varieties cultivated in India contain around 1% capsaicin but Naga chili has around 2–4% capsaicin as reported by various researchers. Consequently, a high capsaicin output per unit weight of dry powder lowers the cost of extraction of capsaicin from this chili.

It is consumed in a different form than normal chili but has special demand on national and international markets for its extra powerful pungency and aroma.

1.5 Manufacturing Process

Figure 8: Manufacturing process of the Naga chili pickle



Source: Primary survey and India Mart

Figure 9: Naga Chili Pickle preparation Flow Chart-

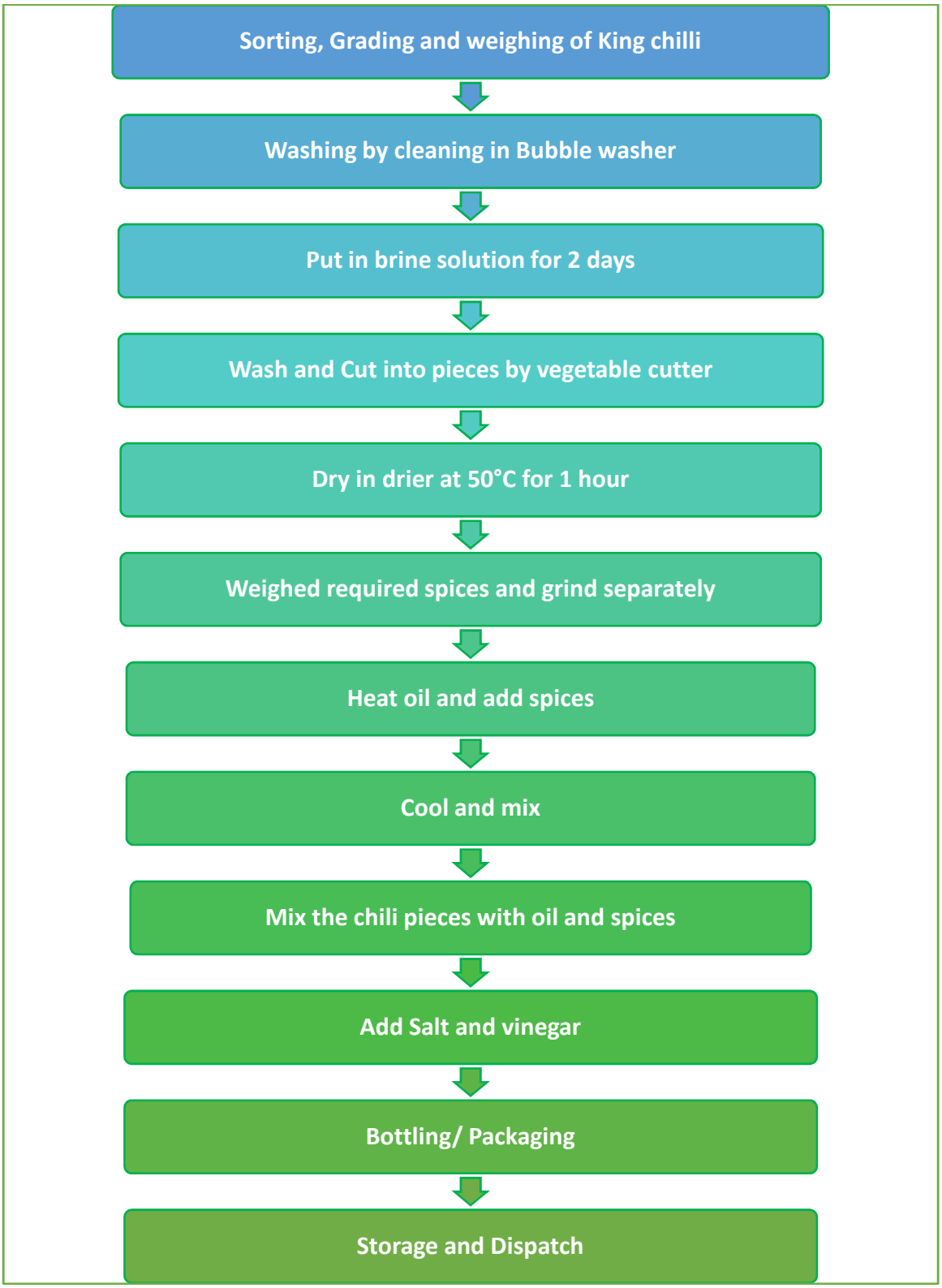
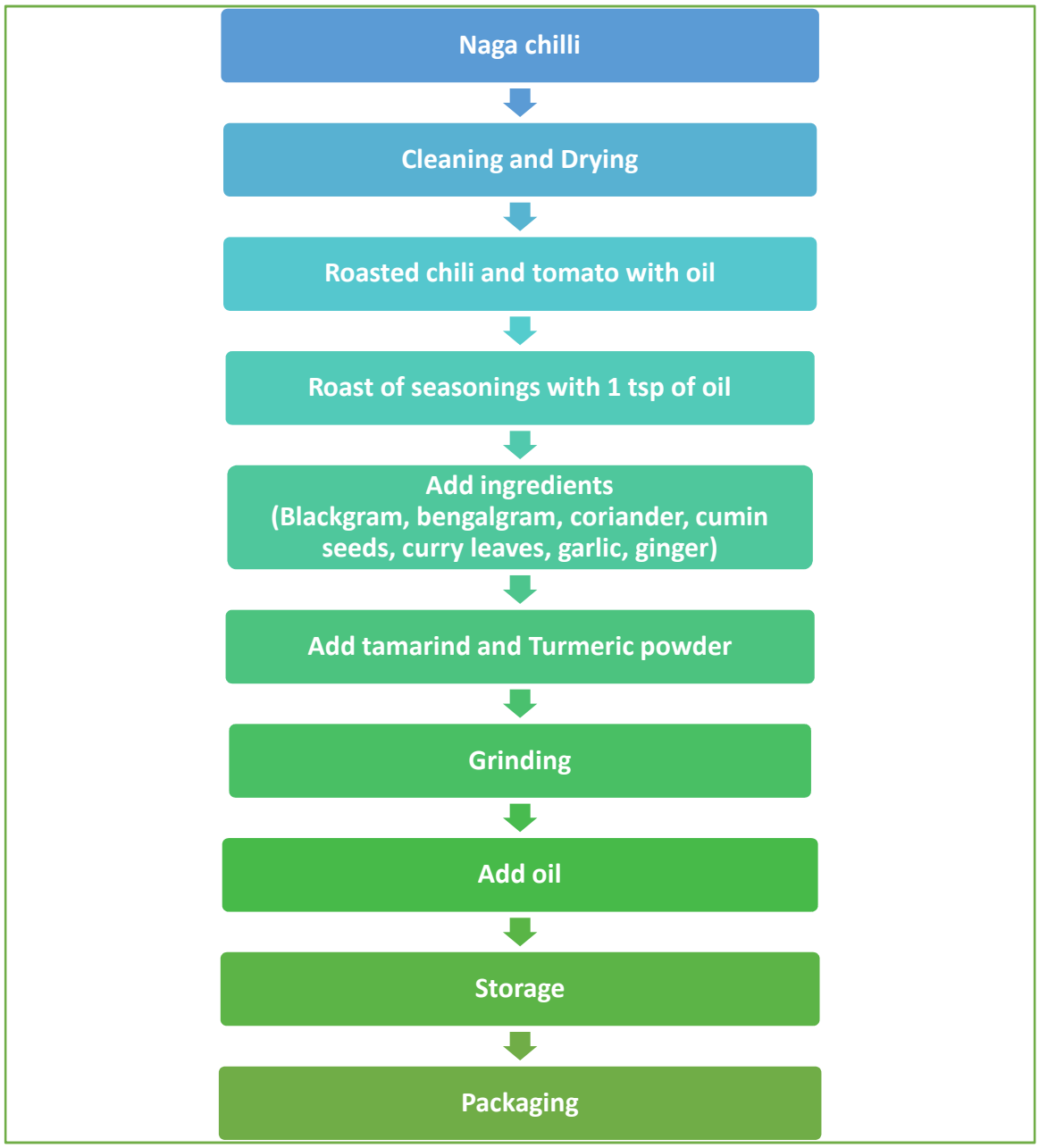


Figure 10: Flow Chart for Naga Chili Curry Paste



1.6 Test is done for the Product

Currently, the majority of the units in the district are not certified by the FSSAI.

Table 32: Agmark standards for the whole chili								
	Organic extraneous	Inorganic extraneous	Unripe and	Broken fruits and	Moisture % (m/m)	Total ash %	Acid insoluble	Capsaicinoid content

Table 32: Agmark standards for the whole chili								
	matter % (m/m) (Max.)	matter %(m/m) (Max.)	marked fruits % (m/m) (Max.)	fragments % (m/m) (Max.)	(Max.)	(m/m) (Max.)	ash %(m/m) (Max.)	%(m/m) (Max.)
Special	0.8	0.2	2.0	5.0	10.0	7.0	1.25	0.3 Not
Standard	4.0	1.0	5.0	15.0	12.0	8.0	1.25	specified

FSSAI standards:

Pickles may be of combinations as given below:

I. Pickles in citrus juice or brine conforming to the following requirements:

a) Drained weight Not less than 60.0%

b) Sodium Chloride content, when packed in brine, is not less than 12%

c) Acidity as citric acid when packed in citrus juice not less than 1.2%

II. Pickles in Oil

a) Drained weight not less than 60%

b) Fruit and vegetable pieces shall practically remain submerged in oil

III. Pickles in Vinegar

Drained weight not less than 60%

The acidity of vinegar as acetic acid is not less than 2%

IV. Pickle without medium means the pickles may contain onion, garlic, ginger, sugar jaggery, edible vegetable oil, green or red chilies, spices, spice extract/ oil, lime juice, vinegar/acetic acid, citric acid, dry fruits, and nuts.

Table 33: Preservatives used for the pickle processing		
S. No	**Particulars**	**Quantity**
1	Benzoic acid	250 ppm
2	Sulfur dioxide	100 ppm
3	Calcium chloride, calcium carbonate	350 ppm
4	Acetic, citric, malic acid	GMP
Source: FSSAI manual, 2011		

2. District Profiling

There are 105 Grampanchayat in the district. There are 25 King Chilli processing enterprises in the district. However, there is no cluster for King chili processing in the district.

2.1 and 2.2 Demographic and Socio-economic profiling

According to the 2011 census Peren District has a population of 94,954. Peren has a sex ratio of 917 females for every 1,000 males, and a literacy rate of 79%.

Table 34: Demographic and Socio-economic profiling

S. No	Particular	Year	Unit	Statistics
1	Geographical features			
A	Geographical Data			
	i) Latitude			25 N to26 N
	ii) Longitude			93 E to 94 E
	iii) Geographical Area		Hectares	2,30,000
B	Administrative units			
	i) Sub Divisions			3
	ii) Tehsil			3
	iii) Sub-Tehsil			18
	iv) Patwar circle			6
	v) Panchayat Simitis			
	vi) Nagar Nigam			2
	vii) Nagar Palika			
	viii) Gram Panchayats		Nos	105
	ix) Revenue Villages		Nos	105
	x) Assembly Area		Nos	2
2	Population			94,954
A	Sex wise			
	i) Male (Urban)	2011	Nos	7,706
	ii) Female (Urban)	2011	Nos	7,095
B	i) Male (Rural)	2011	Nos	41,824
	ii) Female (Rural)	2011	Nos	38,329
3	Agriculture			
A	Land Utilization			
	i) Total Area	2011	Ha	230000
	ii) Forest cover		Ha	20883.40
	iii) Non-Agriculture Land		Ha	179811.60
	iv)Cultivation of Barren		Ha	29305

Table 34: Demographic and Socio-economic profiling				
S. No	**Particular**	**Year**	**Unit**	**Statistics**
	Land			
4	Forest		Ha	20883.40
	Railways			
	i) Length of the rail line	2010-11	Km	Nil
	Roads			
	a)National Highway	2010-11	Km	Nil
	b) State Highway	2010-11	Km	123.07
	c) Main District highway	2010-11	Km	154
	d) another district	2010-11	Km	85.50
	e) Rural Road/Agriculture Marketing Board Roads	2010-11	Km	406.80
	f) Kachacha Road	2010-11	Km	679.77
	Communication			
	a)Telephone connections	2010-11	Nos	35,000
	b)Post offices	2010-11	Nos	16
	c) Telephone Centre	2010-11	Nos	250
	d) Density of Telephone	2010-11	Nos/1000 person	94.95
	e) Density of Telephone	2010-11	Nos/KM	
	f) PCO	2010-11	Nos	350
	g) PCO-STD	2010-11	Nos	320
	h) Mobile	2010-11	Nos	35,000
	Public Health			
	a)Allopathic Hospital(District Hospital)	2010-11	Nos	1
	b) Beds in Allopathic Hospital	2010-11	Nos	134
	c)Ayurvedic Hospital	2010-11	Nos	Nil
	d) Beds in AyurvedicHospital	2010-11	Nos	Nil
	e) Unani Hospitals	2010-11	Nos	Nil
	f) Community Health Center	2010-11	Nos	1
	g) Primary Health Centre	2010-11	Nos	8
	h)Dispensaries	2010-11	Nos	Nil
	i)Sub-Health center	2010-11	Nos	16
	j)Subsidiary Health Centre	2010-11	Nos	4
	k)Private Hospitals	2010-11	Nos	NA
	Banking Commercial			

Table 34: Demographic and Socio-economic profiling				
S. No	**Particular**	**Year**	**Unit**	**Statistics**
	a)Commercial Bank	2010-11	Nos	3
	b)Rural Bank products	2010-11	Nos	Nil
	c)Co-operative bank products	2010-11	Nos	1
	d)PLDB Branches	2010-11	Nos	Nil
	IX)Education	2010-11	Nos	
	a)Primary School	2010-11	Nos	109
	b)Middle Schools	2010-11	Nos	30
	c)Secondary and Senior Secondary Schools	2010-11	Nos	23
	d)Colleges	2010-11	Nos	1
	e) Technical University	2010-11	Nos	Nil

2.3 Industrial Profiling

In the Peren district, there are altogether around 95 industrial units. All kinds of small, large, and medium industries employ 350-400 people.

3. Cluster Analysis

3.1 Location of the cluster

Considering the number of food processing units operating in the district, Poilwa Namchi, Mpai Namchi, New puilwa, Old Puilwa, Kipeuzang, Ngwalwa, Jalukie B, Heningkunglwa are the potential cluster for the naga chili in the district. 25 units are operating in the potential clusters involved in processing naga chili pickles and selling to consumers and local retailers through the existing sales channels. There are no common facilities like warehouses, cold storage, and pack houses in the cluster.

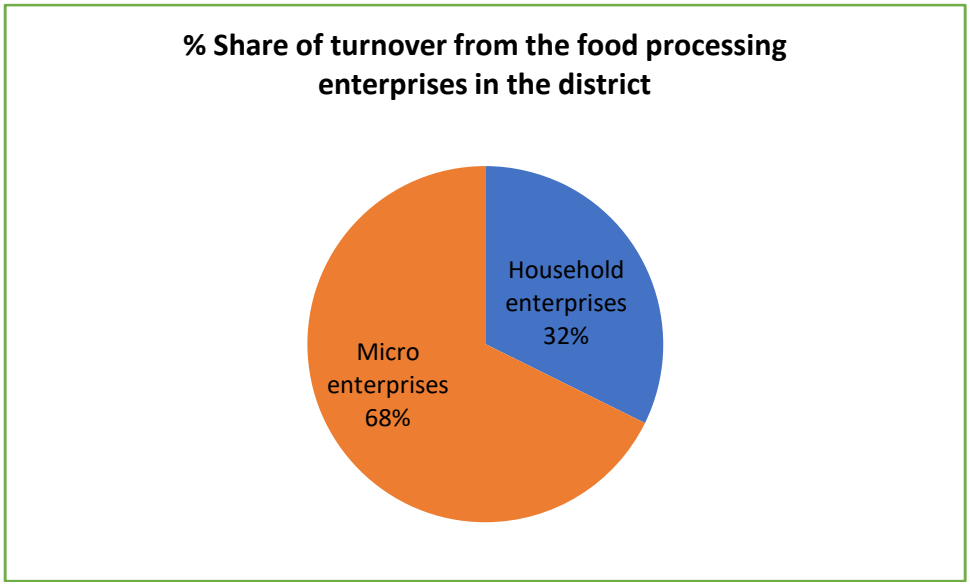
Clusters are available for other commodities however, there is no formal cluster for King chili processing. There is a strong need to form a cluster to bring together all processing units in the district under one cluster.

3.2 Turnover and Employment

From the primary survey, it is observed that 161 to 185 lakhs turnover is generated from the 25 enterprises in the district. Among the total turnover in the district from the food processing enterprises, 32.2% is contributed by the household enterprises, and 67.7% is contributed by the micro food processing enterprises.

Table 35: Turnover of the food processing enterprises		
Enterprises	Turnover (Lakhs)	% Share
Household enterprises	52	32.3%
Micro enterprises	109	67.7%
Total	**161**	**100.0%**

Figure 11: % Share of the type of enterprises in the total turnover



Employment:

From the primary survey, it is observed that 151 employees are working in the food processing enterprises in the district. Among the total employees in the food processing enterprises, 99 employees are working in the micro food processing enterprises and 52 are working in the household enterprises. 70% of the employees working in the food processing industries in the district are female and 30% of the employees are male.

3.3 Social Economic Profiles of the ODOP Producers

- It is observed from the primary survey that most of the unit owners belong to the age group of 35 to 60 years and their education level lies from intermediate to post-graduation
- Workers' age group lies between 20 years to 60 years and they have education up to intermediate.

3.4 Infrastructure

3.4.1 Essential amenities required for the production of the product

Machines and equipment required for chili pickles manufacturing

Table 36 Chili pickle: Capacity 150 MT/Per year

S. No	Equipment	capacity	Quantity	Price (Lakhs)
1	Cold store Sq. Meter	1	1500 Kg	4
2	Vegetable washing trough	1	500 Liter	0.65
3	Brine dipping tank	1	500 Liter	0.65
4	Vegetable cutter	1	80 Kg/Hr	0.25
5	Dryer	1	120 Kg/ Batch	2.2
6	Gas operated kettle	1	80 Liters /Hr	0.75
7	Blending/Mixing tank	1	300 liters	1.4
8	Bottle filling unit	1	400 PPH	1.5
9	Induction sealer	1	Suitable	0.3
10	Shrink tunnel	1	Suitable	0.35
11	Batch coding machine	1	Suitable	0.12
12	Weighing balance	1	Suitable	0.006
13	Accessories	1	Suitable	0.5
				12.73

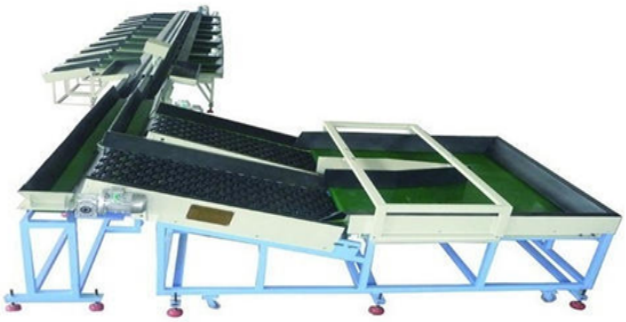
Source: IIFPT Manual

Table 37: Chili powder: Capacity 500 MT / Per day

S. No	Equipment	Capacity	Quantity	Unit cost	Amount (Lakhs)
1	Micro pulverizer with 10 HP motor	1 Mt/ Hr	1	260000	2.60
2	Hanging weighing scale	100 Kg	1	17000	0.17
3	Digital weighing machine	100 Kg	2	4300	0.09
4	Band sealer		2	2159	0.04
5	Packaging machinery	2000 Pack/ Hr	1	650000	6.50
6	Sieving machine	15 Kg/ Hr	2	82000	1.64
7	Miscellaneous		1	10000	0.10
	Total				**11.14**

Source: IIFPT Manual

Figure 12: Machinery used for the Naga chili pickle processing

1. Vegetable grading and sorting machine	2. Mixture
	
3. Vegetable cutter	4. Packaging machine
	

Source: Primary Survey and India Mart

3.4.2: Existing infrastructure

There is no common infrastructure like cold storage and pack houses in the district for the processors. There is no incubation center and common processing center to encourage the new entrepreneurs to enter the food processing sector and to support the existing enterprises.

3.4.3 Additional infrastructure required

- **Common infrastructure facility (Cold storage and Reefer van)–**Considering the perishability of king chili, it is necessary to have cold storage to prolong its shelf life. It is proposed to establish common infrastructure facilities like cold storage, warehouses, and pack houses for the processing enterprises in the district to reduce post-harvest crop losses.

- **Incubation center**- There is no incubation center for processing enterprises in the district. It is proposed to set up an incubation center in the district for training and handholding the existing and new processing enterprises in the district.

- **The machinery required-** Currently, few king chili growers in the district are involved in the primary processing of the crop, and the food processing enterprises operating in the district are engaged in secondary processing like pickling of the chili with the traditional/ manual method. It is proposed to provide advanced machinery like vegetable cutters, bottle machines, mixture, grading, and sorting machinery at subsidized prices for the existing and new entrepreneurs.

- **Good quality Roads -** Good quality roads are the basic infrastructure required for the processing industry in the district. There is a lack of good road connectivity within the district and to other districts in the state. It is suggested to increase road connectivity to decrease post-harvest crop losses and to increase the sale of processed products to other districts in the state.

3.5 Raw materials

3.5.1: The Vital Raw materials

King chili, oil, salt, and spices are the vital raw materials required for processing the king chili pickle. The major ingredients required for processing one kilogram of the pickle are listed below.

Table 38: Key raw material for the pickle processing

S. No	Ingredients	Quantity
1	King chili	1 kilogram
2	Salt	100 kilogram
3	Mustard oil	350 ml
4	Garlic chopped	50 gm
5	Fenugreek powder	25 gm
6	Nigella seed	15 gm

Table 38: Key raw material for the pickle processing		
S. No	**Ingredients**	**Quantity**
7	Aniseed powder	25 gm
Source: IIFPT Manual		

3.5.2 The Quality parameters

There are various quality parameters to be considered for the raw material used in the processing. The quality parameters for the whole chilies are listed below:

Table 39: Chili quality parameters		
S. No	**Standards**	**Whole chilies**
1	Extraneous matter	Not more than 1% by weight
2	Unripe and marked fruits	Not more than 2% by weight
3	Broken fruits and seeds	Not more than 5% by weight
4	Moisture content	Not more than 11% by weight
5	Total ash on a dry basis	Not more than 8% by weight
6	Hydrochloric acid insoluble ash on a dry basis	Not more than 1.3% by weight
Source: FSSAI manual		

Mustard oil:

The quality parameters of the mustard oil are listed below:

Table 40: Mustard oil quality parameters		
S. No	Standards	Mustard oil (Values)
1	Refractive index at 40°C	1.465 to 1.467
2	Iodine value	105 to 126
3	Saponification value	182-193
4	Unsaponifiable matter	Not more than 20g/ kg
5	Acid value	Not more than 0.6
6	Bellier test	Not more than 19.0°C
7	Test for Argemone oil	Negative
8	Test for Hydrocyanic acid	Passes the test
Source: FSSAI manual		

3.5.3 Perishable nature of the raw material:

All the ingredients used in the pickle processing are semi-perishable. The ingredient's shelf life is listed below.

Table 41: Perishable nature of the key raw materials		
S. No	**Particulars**	**Shelf life**
1	Dried Chili	1 year
2	Mustard oil	9-12 months
3	Garlic chopped	3-5 months
4	Fenugreek powder	1-2 years
Source: Secondary Research		

3.6 Production Process

The detailed production process is explained in point number 4.5 i.e. manufacturing process

3.7 Product Range

The list of value-added products of the naga chili is listed below:

- Pickles
- Dried chili
- Chili powder
- Chili Paste
- Chili sauce
- Oleoresin

3.8 Technology

Pickles and Chutney:

Plant and Machinery-

Principal equipment: Mixing units, mechanical dryer, spice grinding mill, heat sealing machine, frying pan, and container and stainless steel knives.

Auxiliary equipment: Storage barrels, SS topped working tables, weighing scales, etc.

Technology/ Manufacturing process-

Fully matured fresh raw chilies/mangoes/limes/other fruits and vegetables are washed and cut into uniform sizes, brine-cured at optimal conditions, or can be used directly for mixing salt and other ingredients and preparing the pickle. Cleaned and dried spices like red chilies, turmeric, and mustard are ground separately and are mixed with the cured or select edible oil (with seasoning added and fried in it), garlic, ginger paste, and vinegar, etc. The prepared fresh pickles have to be cured for a week in plastic carboys or wooden barrels. Periodical mixing will help for quick and uniform salt equilibration. The cured pickles are then packed in dry bottles, sealed with caps and labeled, packed in CFB boxes, and dispatched for sale. The fruit chutney is made by cooking the prepared pieces with sugar, spice

extractives, etc. to the required consistency, sugar percentage, and acidity, finally finishing it with the required quantity of vinegar. Then packed in bottles as in the case of pickles. F.P.O License has to be obtained and the production has to be done under good manufacturing practice.

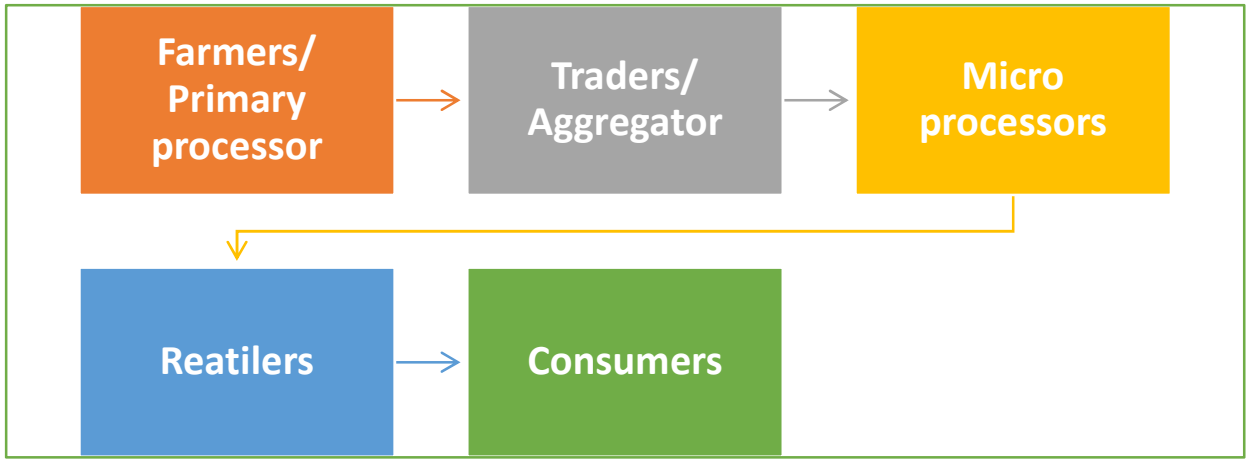
3.9 Marketing

Farmers or traders are processing (primarily processing) the chili and selling it to the local trader or the retail outlets or the consumer. There is no special marketing like an advertisement or digital marketing by the processor in the district. The majority of the enterprises are selling products with a specific brand name.

Enterprises involved in secondary processing like pickle processing are selling to the local consumers through the retailers in the district.

From the primary survey, it is observed that almost 70 to 80% of the pickles produced in the district are sold within the district through local retailers and approximately 20 to 30% of the produce is exported to other districts in the state through the wholesalers.

Figure 13: Existing sales channel of the produce



3.10 Human Resource

Among the 25 surveyed samples, 17 enterprises are operating at the micro-enterprises level and 8 enterprises are operating at the household level. Among the total enterprises, 23 enterprises are registered and 2 enterprises are unregistered in the district.

151 employees are working in the 25 food processing enterprises. Among the total employees, 105 employees are female and 46 employees are male. 34% of the employees are working in the household enterprise and 66% of enterprises are working in microprocessing enterprises.

3.11 Skill Development

There is a shortage of skilled labor in the pickle processing industry and there are no proper skill training facilities available in the district. It is proposed to provide training to the existing enterprises and new entrepreneurs on the primary processing and secondary processing (Naga chili pickle and Naga chili powder). Skill training is required regarding the use of advanced technology and machinery like Vegetable cutter, Sorting and grading machine, Brine dipping tank, vegetable washing trough, dryer, blending/ mixing tank, and bottle filling unit and also on creating the branding and marketing of the produce.

3.12 Testing

The majority of the units in the district are selling pickles without FSSAI registration. There are no testing facilities in the district. It is proposed to set up the testing lab in the proposed incubation center for the existing and new enterprises in the district. The FSSAI standards for the whole chili and the chili pickle are mentioned in section 1.6 (Test done for the produce)

3.13 Institutional Support

I. Assistance scheme for spices export:

Eligibility criteria:

All the registered exporters who have registered their brands with the Board, Spice House Certificate (SHC), Logo holders, and organic certification holders are eligible to avail of the benefits of the scheme. The recognized research institutions are also eligible to apply for this assistance scheme.

Assisted Area under the Scheme:

- Utilization of the services of international or national research institutes for the development of new spice products and applications or for establishing traditional and non-traditional values.
- In-house research programs by entities with sufficient infrastructure facilities.
- Clinical trials to establish and verify the therapeutic properties of the spices through reputed third parties.
- Patenting and product registration in consuming countries.
- Spices Board would examine the application forms and on satisfying the proposal, the Board will accord 'in-principle' approval to the project proposal on merit to proceed with the project further.

The scale of assistance:

Under this scheme, the subsidy is provided at 50% of the cost subject to a maximum amount of Rs.25 lakhs per beneficiary during the plan period that is provided to meet the cost of product research and development. In this case, clinical trials and patents are also involved in the program; the ceiling amount

will be up to Rs.1 crore. All payments under the assistance schemes by the Board would be in the form of a crossed cheque or Bank transfer.

II. Spice development agency (SDA):

The government of India has notified the formation of 11 Spice Development Agencies (SDAs) in the main Spice growing regions for the overall development of spices grown in the region. These agencies will be chaired by the Chief Secretary of the concerned State Government and consist of members from the Ministry of Commerce and Industry, the State / Central Agriculture / Horticulture Ministry, other related Central / State organizations, and Agri. University, Member of Spices Board from the region and various stakeholders of the Industry viz. growers, traders, and exporters of spices. The Agency will identify the issues and formulate programs relating to production, domestic marketing, and quality and export promotion of Spices in the region. Spices Board's offices have been restructured for facilitating the formation of SDAs and effectively implementing various programs formulated by the SDAs.Accordingly,12 Regional Offices (ROs) of the Board have been established in major spice-growing centers in the country. The programs identified by the SDAs will be implemented by the Regional Office (RO) of the Board, attached to the SDAs in coordination with the State Government subject to the approval of the Board. The SDAs will function under the overall authority, supervision, and control of the Spices Board.

III. Spices Park:

A Spices Park can be defined as an industrial park for processing and value addition of Spices and Spices products which offers processing facilities at par with international standards. The Regional crop-specific Spices Park is a well-conceived approach to having an integrated operation for cultivation, post harvesting, processing for value addition, packaging, storage, and exports of spices and spice products by meeting the quality specifications of the consuming countries.

Facilities at Spices Parks:

The basic objective of the concept is to provide common infrastructure facilities for both post-harvest and processing operations of spices and spice products, which also aims at backward integration by providing rural employment. All the Spices Park will have processing facilities at par with international standards in which the produces could undergo cleaning, grading, sorting, grinding, packing, warehousing, etc. Apart from the above facilities, the Board will develop common infrastructure facilities like Roads, Water supply systems, Power stations, Firefighting and Control systems, Weighing bridges, effluent Treatment Plants, Quality Lab for checking basic parameters, Bank and Post office counters, Restaurant, Business centers, Guest house, etc.

Spices Park will also render educative services to the farming/trading community. It provides training programs on Good Agricultural Practices (GAP), post-harvest operations, advanced processing practices, global food safety and quality standards and issues, etc. The establishment of Spices Park in the country is a major initiative of the Government as part of its commitment that any growth in the country should

be more agriculture-specific and pro-farmers. Spice Park will ensure better pricing for the produce by shortening the channels in the supply chain system currently followed locally. The common processing facilities available in Spice Park can be utilized by the farming community for primary processing for improving the quality of their product and thereby they can directly sell to the exporters.

3.14 Support Infrastructure

There are no common infrastructure facilities and incubation centers in the district for processing enterprises. There is a measurable loss in chili crop and aroma during transportation due to the lack of road connectivity within the district and to other states. Road connectivity needs to be improved with the initiatives from the state and central government in the district. The electricity and water supply need to be concentrated in the processing enterprises.

It is proposed to establish a common infrastructure facility and incubation center in the district for the handholding support of food processing enterprises in the district.

3.15 Financial Linkages

NRLM facilitates building a bridge for universal access to affordable cost effective reliable financial services to the poor through their SHGs and their federations. These include financial literacy, bank account, savings, credit, insurance, remittance, pension, and counseling in financial services.

Capitalizing institutions of the poor-

NSRLM provides Revolving Fund and Community Investment Fund (CIF) as Resources in Perpetuity to the institutions of the poor for meeting their credit needs for both consumption purposes and also for investment in livelihoods promotion. This fund is a corpus /capital resource for institutions of the poor. Largely this fund is used for on-lending to the SHGs for providing financial assistance. This also strengthens their institutional and financial management capacity and builds their track record to attract mainstream bank finance.

- Revolving Fund (RF) is provided to SHGs as a corpus to meet the members' credit needs directly and as catalytic capital for leveraging repeat bank finance. RF is given to SHGs that have been practicing 'Panchasutra' (Regular meetings; Regular savings; regular inter-loaning; Timely repayment; and Up-to-date books of accounts).

- Community Investment Fund is provided as Seed Capital to SHG Federations at the Cluster level to meet the credit needs of the members through the SHGs/Village Level Organizations and to meet the working capital needs of the collective activities at various levels.

- Vulnerability Reduction Fund (VRF) is provided to SHG Federations at the Village level to address vulnerabilities like food security, health security, etc., and to meet the needs of the vulnerable persons in the village.

Access to credit-

NSRLM expects that the investment in the institutions of the poor would leverage the bank credit of at least Rs.1,00,000 /- accessible to every household in repeat doses over the next five years. For this, SHGs go through Micro-Investment Plan (MIP)/Micro Credit Plan (MCP) process periodically. MIP/MCP is a participatory process of planning and appraisal at household and SHG levels. The flow of the funds to members/SHGs is against the MIPs. The rural poor need credit at a low rate of interest and in multiple doses to make their ventures economically viable. To ensure affordable credit, DAY-NRLM has provided interest subvention for all eligible SHGs to get loans at 7% per annum from mainstream financial institutions. Further, an additional 3% interest subvention is available only on prompt repayment by SHGs in most backward 250 districts. Making poor the '*preferred clients of the banking system and mobilizing bank credit*' is core to the DAY-NRLM financial inclusion and investment strategy.

SHG Credit linkage-

To facilitate bank linkages, State Level Bankers' Committees (SLBC) have constituted an exclusive sub-committee for SHG bank linkages and financial inclusion in NSRLM activities. Similarly, District Level Coordination Committees and Block Level Coordination Committees review SHG-Bank linkages and NSRLM.

SHG members are fostered as Bank Facilitators (Bank Sakhi) to drive Financial Inclusion in their community. They facilitate close interaction between the community and the Bank Branch in addressing the financial needs of the SHGs, and for 100% recovery of loans through Community Based Recovery Mechanism (CBRM) positioned in the banks. CBRM is monitored by the 'Sub Committee on Bank Linkage and Recovery of Loans' under the Village Level Organization.

To ensure banking services is delivered at the doorstep of unbanked and underbanked area, SHG members are engaged as Business Correspondent (BC) as an alternate banking solution for the rural community.

NSRLM works towards increasing the portfolio of products of savings, credit, insurance (life, health, and assets), and remittance through the institutions of the poor directly or in partnership with mainstream financial institutions using various institutional mechanisms and technologies.

Source-"Nagaland State Rural Livelihoods mission", GoN.

3.16 Environmental Impact

There is no negative impact on the environment in processing chili pickles and powders. There are no harmful bi-products released in processing the chili pickles and powder in the district.

3.17 Cluster Actors

Number of skilled and semi-skilled Workers

Approximately, 61390 workers are available in the district for the processing enterprises. Out of which 32249 are male and 29141 are female workers available in the district.

Almost 151 workers are engaged in the King chili processing units out of which 70% are female workers

Manufacturers

King chili growers and the processing units are scattered throughout the district.

Unit Owners – 25 units are engaged in food processing in the district. Among the total processing industries, 17 units are micro-processing enterprises and 8 are household enterprises.

Raw Material Supplier-

- King chili Growers are the main raw material suppliers
- Aggregators, traders, contractors, and wholesalers are engaged in supply chain activities.
- There is scope to increase the area under cultivation of king chili as now it is exported to European markets as well.

Enterprise Promotion Councils

An enterprise promotion council does not exist in the district.

Financial Institutions

Nationalize banks are extending loans to purchase the machinery as well as towards working capital to the unit holders.

Marketing Players

There are no major marketing players in the district. Farmers are selling the produce across districts and traders buy the produce from farmers and distribute it to other districts and states.

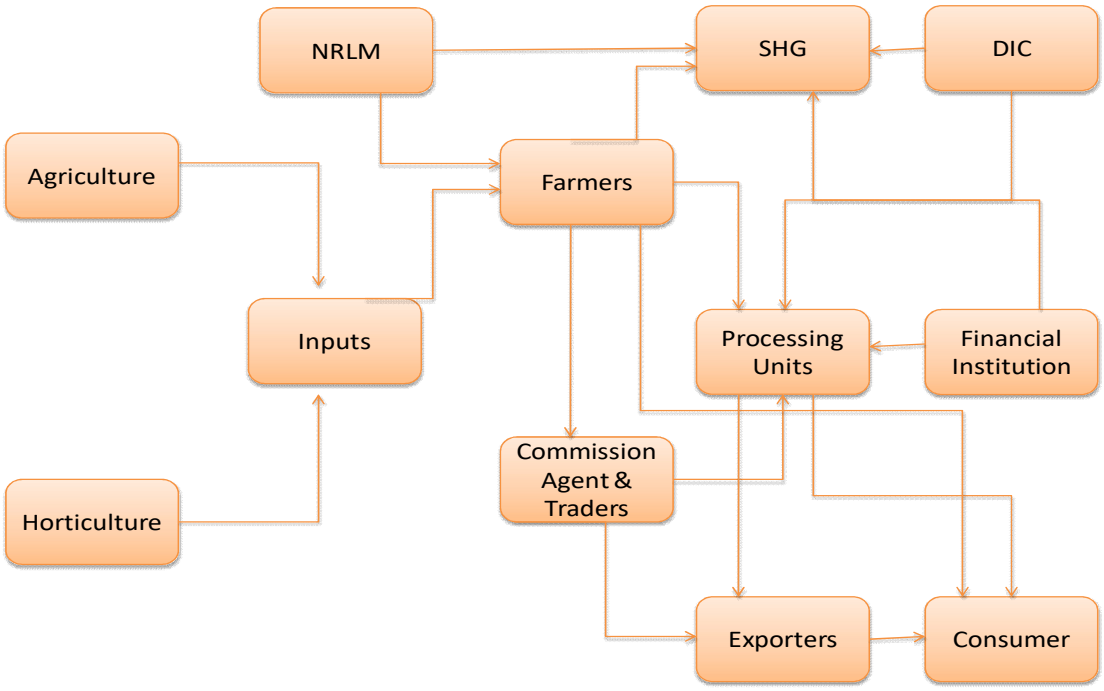
3.18 Existing Government Schemes

All schemes from MOFPI, Nagaland government, and PMFME are mentioned in detail in points number 2.1, 2.2, and 2.3 of this document.

3.19 Cluster Map

Farmers, traders, and retailers are involved in the cultivation, processing, and selling of processed products in the district. Famers are supplying the raw materials to the traders. Traders after the primary processing, sell the produce to the wholesalers and the retailers in the other districts and states. Processing enterprises in the district are manufacturing the chili pickle and selling the produce to the retailers in the local who are future selling the produce to the consumers in the district.

Figure 14: Cluster Map



3.20 Value Chain

The following channels are followed for chili marketing:

1. Farmer/Growers-aggregator-Wholesaler-Retailer-Consumer (Local Market)
2. Farmer/s-Trader/Contractor-Wholesaler (in Kolkata, Delhi, Mumbai, Bangalore, etc.)- Retailer-Consumer (Dry Chilli)

Grower: The King chili growers undertake cultivation throughout the year.

Aggregator/Trader/Contractor: Considering the small quantum of produce at the individual level the aggregator/trader plays a key role in ensuring the product reaches the semi-urban/urban markets and other states as well.

Processor: Most of the processing units are small and micro categories. They are dealing with dried king chili only. It involves cleaning, grading, sorting, drying, and packaging activities.

The below-mentioned table illustrates the value of the crop through different stages in the district

Table 42: Value chain of the produce					
S. No	Particulars	Activities	Purchasing price (Per Kg)	Selling price (Per Kg)	Difference in (Rs)
1	Farmer	Cultivation		220-250	
2	Trader	Primary processing, Storage, and Transport	220-250	270-300	20-50
3	Microprocessor	Processing (95% pulp recovery)	270-300	560-600	250-300
4	Retailer	Storage and distribution	560-600	630-650	30-50
Source- Primary survey					

3.21 Product Cost analysis

It is estimated that INR 457.9 expenditure was incurred in processing a 1 kilogram Naga chili pickle. Revenue generated by selling the processing pickle is INR 600. Net profit is INR 142.1 with a 1.2 B: C ratio. 1.1 Kilograms of Naga chilies are required to produce 1 kilogram of chili pickle.

Table 43: Product cost analysis		
S. No	**Particulars**	**Cost Per Kg**
A	**Expenditure**	
I	**Variable cost**	
i	**Raw material**	
	Naga Chili (300 Per kg)	330
	Mustard Oil (150/kg)	30
	Spices	50
	Total	**410**
ii	Wages	8.8
iii	Electricity bill	0.5
iv	Packaging material	30
v	Transportation (Loading and Unloading charges)	5
	Total Variable cost	**454.3**
II	Miscellaneous charges	3.6
	Total expenditure (Variable cost+ Miscellaneous Charges)	**457.9**
B	**Revenue**	
	The selling price of the pickle	600
	Revenue	600
	Profit (Revenue- Expenditure)	142.1
	B: C Ratio	**1.3**
Source: Primary Survey and NIFTEM Manual		

3.22 SWOT Analysis

Table 44: SWOT analysis

Strength	Weakness
• Naga King chili is famous for its pungency, unique flavor, and aroma in the world. • Production of organic produce in the district. • Strong domestic demand for the pickles • Health benefits are associated with the consumption of the produce.	• The processing industry is small and scattered • Only a few farmers and traders are involved in the primary processing i.e. cleaning, grading, sorting, drying, and packaging of dry chili. • Lack of other processing lines like chili powder, and oleoresins in the district. • No awareness about government support and schemes for the processors in the district • Lack of common infrastructures like cold storage, warehouses, and pack houses in the district. • No formal organization or cluster is available for King chili processing units.
Opportunities	**Threats**
• Opportunity to create the brand for the pickles produced in the district. • Opportunity to upgrade the existing unit with the support of schemes implemented by state and central government. • Tremendous scope for other processed chili products like chili sauce, paste, chili powder, capsaicin, oleoresin, etc. • Products can be sold through exhibitions, online stores, and distributor networks. • There is huge scope to export fresh, dry, and processed chili products to a foreign market.	• Competition from settled brands in the market. • The quality and safety of the product are a challenge. • Huge fluctuation in the raw material cost. (Oil cost, Spices and fruits, and vegetable cost)

4. Benchmarking studies

A Case Study on Pickle Manufacturer in Dadra and Nagar Haveli

This is the story of Shankar Pickles, a micro-unit from Silvasa Head Quarters in Dadra and Nagar Haveli Union Territory.

Table 45: Success story of Shankar pickles	
Name of the Organization	Shankar Pickle
Founded By	Shankar Patel
Started In	2001
Number of Persons Involved	5
Manufacturer	Praveen Shankar Patel, Dhokwadi, Silvasa, Dadra, and Nagar Haveli
Formed and Support By	None (Individually Established)
Training Received On	None
Turn Over Per Annum	Rs.8,00,000
Net Profit Per Annum	Rs. 2,50,000 to 3,00,000

Shankar pickles were founded in 2001 by Shankar Patel with family members in Dhokwadi, Silvasa headquarters in Dadra, and Nagar Haveli U.T, he started the business on his own without any support from the government. Now his son Praveen Shankar Patel is looking towards the business with his family and they are doing a transaction of Rs.8,00,000 per annum with a net profit of Rs.2,50,000 to Rs. 3,00,000. They use to sell the pickles in polythene covers without packaging, labeling, and branding.
Types of Pickles and Average Monthly Sale of Pickles

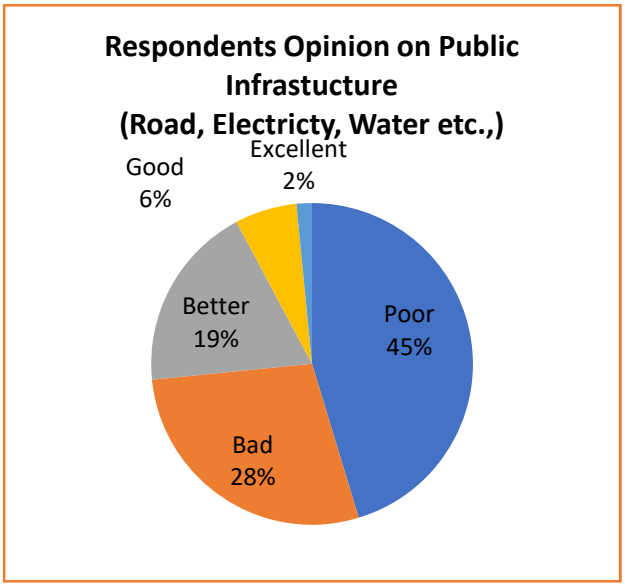
S. No	Type of Pickle	Average Monthly sale (in Kgs)	Price (Rs./Kg)	Monthly Turnover (Rs.)
1	Mango	350	120	42,000
2	Lemon	120	120	14,400
3	Chilli	150	120	18,000
4	Mixed	100	120	12,000
5	Total	720		86,000

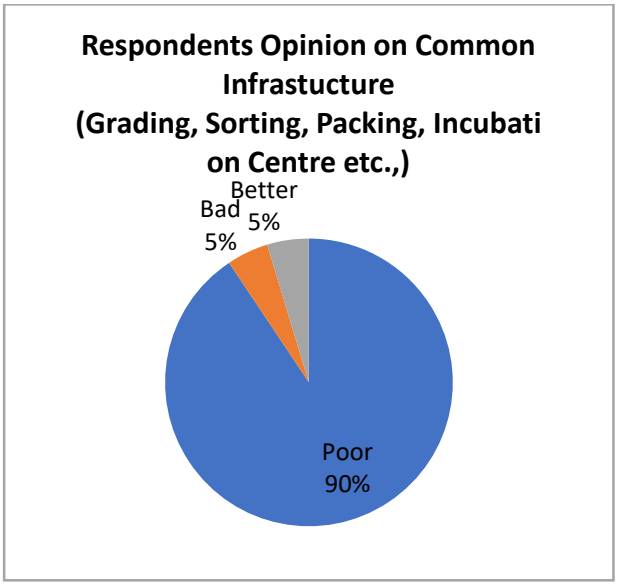
5. Stakeholder Consultation

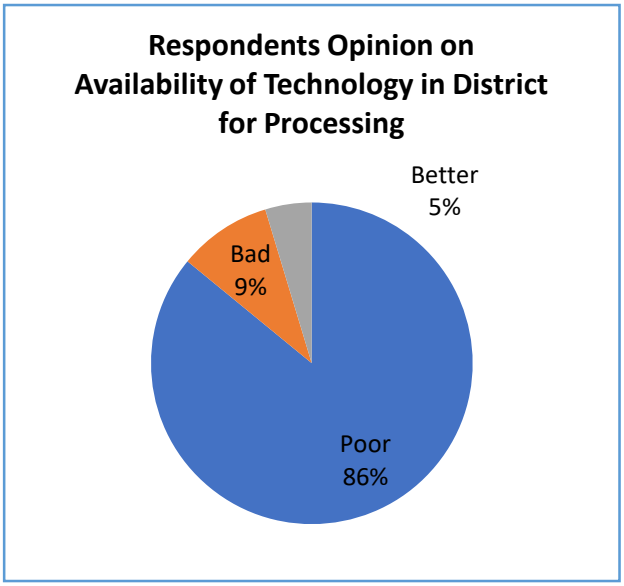
Individual Meetings –

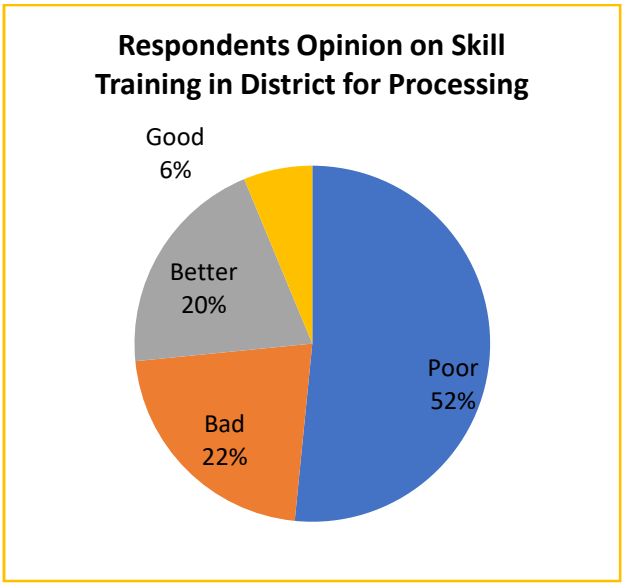
A Survey of 25 King chili processing units is done through face-to-face meetings. To understand perspective about their business and other factors related to processing industries. All the information mentioned in the questionnaire is filled in individual meetings.

The below pie chart is prepared based on the opinion of respondents on existing public infrastructure, common infrastructure, availability of technology, and skill training for processing ODOP products.









Agenda Points and discussions

Points discussed are

- Availability of technology
- Scope for processing
- Common Infrastructure facilities
- Logistic
- Branding and Marketing

Minutes of Meeting with Various Stakeholders:

- The processing is happening at a very small scale and the majority of the processors have adopted the traditional method of processing.
- The availability of new technology or modern method of processing (using semi-automated and automated machinery and packaging machinery) is lacking.
- There is no availability of common infrastructure facilities such as incubation centers, grading, sorting, and packing units for agricultural commodities.
- Transportation is a huge problem in the district.
- The marketing of products is a challenge in the district due to logistic problems and transportation issues.
- There is a huge scope for organic chili and the chili-based pickles and powder in the district as well as in nearby districts
- There is a high requirement for skill development training for micro and small processing enterprises.
- The majority of the micro and small processors are selling value-added products without brand. They require training and exposure to build the brand, logo, and knowledge on labeling and packing of the produce.

6. Need Assessment and Gap Study

Table 46: Gap Study

Gap	Remark
Post-harvest Processing	King Chili processing in the district is confined to post-harvest processing i.e. drying, cleaning, grading, sorting, and packaging of the dry chili. Few processors are involved in chili pickle manufacturing. There is a need to focus on other chili processing like chili sauce, chili powder, paste, capsaicin, oleoresin, etc. Value-added products have a huge market globally. It is suggested to promote King chili as 'Organic' produce and can capture the premium market segment.
Technology	There is no usage of advanced technology or machine-like vegetable cutter, bottling machine, dryers, brine dipping tanks, vegetable washing troughs, etc. It is suggested to provide the machinery for the processing enterprises at subsidized prices to increase the quantity of

Table 46: Gap Study Gap	Remark
	crop processing in the district.
Infrastructure	The poor quality road is the basic constraint in infrastructure, almost every respondent mentioned about quality and connectivity of roads. Due to the poor quality of roads, transportation is getting affected and there is a measurable loss of crop quality and aroma.
Testing Facilities	There are no proper testing labs in the Peren district. The majority of the enterprises in the district are not certified by the FSSAI. It is proposed to set up the FSSAI testing lab in the district.
Skill Training	There is a shortage of skilled labor in the Peren processing industry The areas to be covered in Training and marketing are: Standardized process of processing, Packaging of the produce, branding, and marketing of the processed products, Handling the advanced machinery and equipment like a dryer, vegetable cutter, brine dipping tank, and packaging machine, and Processing the products according to the FSSAI standards.
Marketing	There is a strong need of marketing the product through various channels like events, exhibitions, online marketing, etc. Currently, only 20 to 30% of the pickle processed in the district is sold outside the district through a middleman network. For branding, there is an umbrella brand, being driven by NSAMB, i.e “Naturally Nagaland”, which is a way of promoting the “Organic” brand of Nagaland. King chili needs to be pushed aggressively within this brand, (which is not seen much now), and also independently, promoting the strengths of Nagaland King chili
Cluster	All the food processing industries in the district are scattered in the district. There is no formal cluster for the king chili processing in the district as there is no existing infrastructure. There is enough scope for King chili processing in the district due to the abundant availability of the raw material and demand for the king chili pickle and powder in the district and the country.

Rating of Response Count (Based on Primary Survey)

Rating 1 is considered as poor and Rating 5 is considered excellent.

Table 47: Responses rating on the infrastructure

S. No	Particular	Response Count						Total
	Ratings	1	2	3	4	5	Not Responded	
1	Public infrastructure such as roads for backward and forward linkages	23	2	0	0	0	0	25
2	Access to common facilities such as grading, sorting, packaging, cold chain facilities, etc.	25	0	0	0	0	0	25
3	Access to testing facilities	25	0	0	0	0	0	25
4	Compliance with standards and the frequency of inspections from the safety regulators	25	0	0	0	0	0	25
5	Skill training needs	18	7	0	0	0	0	25
6	Manufacturing practices	15	10	0	0	0	0	25
7	Technologies Available	18	7	0	0	0	0	25
8	Access to finance	11	14	0	0	0	0	25
9	Access to mentorship/ service	23	1	1	0	0	0	25
10	Awareness of Govt Policies among micro /small manufactures	24	1	0	0	0	0	25
11	Awareness of ODOP products in the District	19	6	0	0	0	0	25
12	Marketing/sales facilities	12	13	0	0	0	0	25
13	Facilities for the workers	20	5	0	0	0	0	25

Public infrastructure such as roads for backward and forward linkages – The majority of the respondents rated 1, which implies low public infrastructure facilities in the district for the food processing enterprises.

Access to common facilities such as grading, sorting, packaging, cold chain facilities, etc – Common facilities like cold storage, warehouses, and pack houses are not available

Access to testing facilities –All the enterprises in the district mentioned that there are no testing facilities available for the food processing enterprises in the district.

Compliance with standards and the frequency of inspections from the safety regulators – The majority of respondents expressed that they are not undergone any kind of inspection concerning safety regulators.

Skill training needs – The need for training rated on a 1stand 2nd scale, means there is a need for training for the workers engaged in King Chili processing

Technologies Available – Lack of technology and lack of advanced machines in the units.

Access to finance – Financial assistance is very important almost for every respondent to expand their existing units as well as to purchase advanced machines.

Access to mentorship/ service – The majority of the respondents mentioned that there they need mentorship and guidance in upgrading their business.

Awareness of Govt. Policies among micro /small manufacturers –There is no awareness about the central and state government-promoted schemes in the district.

Awareness of ODOP products in the District –The majority of respondents are aware of ODOP in the district.

Marketing/sales facilities – The majority of the respondents suggested that there is no facility for marketing processed products.

7. **Recommendations**

7.1 Project strategy and intervention.

Context of ODOP Processing (Naga Chilli)

As part of our primary survey, we interviewed the above 25 food processing units, whose primary activity is naga chili production, drying, packing, and selling. The core business activity of the units is to dry the Naga chilies and process them into pickles and sell the product to the local retailers and traders or directly to the consumer within the state. Few enterprises are exporting the products to the neighboring districts and states.

Table 48: Proposed number of enterprises

S. No	Particulars	Commodities	Number of units
1	**ODOP (Existing Enterprises)**	Naga chili	25
2	**Non-ODOP (Individual Potential Enterprises)**	Pickles- Naga chili, bamboo pickle, Fish pickle, and Meat pickle. Turmeric-based products. Soybean-based products. Bakery based products	77
3	**Non-ODOP (Group Potential Enterprises)**	Pickles- Naga chili, bamboo pickle, Fish pickle, and Meat pickle. Turmeric-based products. Soybean-based products. Bakery based products	10
	Source-Primary Survey		

Proposed fund allocation:

A total of INR 22 Cr. fund is proposed for the Peren district for the up-gradation of 112 existing and new units in the district. Among the total fund, INR 12.7 Cr. fund is proposed to upgrade the 102 individual units and 1.27 Cr. fund is proposed to upgrade the 10 groups in the district. It is proposed to establish one incubation center and one common infrastructure in the district. INR 1.2 Cr. and 0.11 Cr. fund is proposed for branding and marketing and training and mentorship respectively.

Table 49: Proposed fund allocation

Intervention	Target	Amount (Cr.)
Capital investment in plant and machinery (Individual units)	To upgrade and scale up in the production process for 102 Micro Units (The average fund required per unit is 12.50 lakh)	12.72

Table 49: Proposed fund allocation		
Intervention	**Target**	**Amount (Cr.)**
Capital investment in plant and machinery (Group units)	To upgrade and scale up the production process for 10 Groups (The average fund required per unit is 12.7 lakh)	1.27
Incubation center	One incubation center (IC) is proposed for the district. Cost per IC 2.75 Cr.	2.75
Common infrastructure	One common infrastructure facility (CIF) is proposed for the district. Cost for the CIF 4.0 Cr.	4
Branding and Marketing	Common Branding and Marketing for both Individual units and Groups	1.2
Training and Mentorship	Training and Mentoring for Entrepreneurship. Training on New Technology for a total of 112 individuals. (2 people to be trained from each enterprise/group)	0.11
Total		**22.05**

Proposed Government assistance under the SLUP:

A total of INR 22 Cr. fund is proposed for the Peren district for the up-gradation of 112 existing and potential new units in the district. INR 9.7 Cr. is expected government assistance under the SLUP from the total fund proposed for the up-gradation of the food processing units.

Table 50: Proposed Government assistance under the SLUP					
Intervention	**Target No. of units**	**Project cost per unit (Lakhs)**	**Total Cost (Lakhs)**	**Subsidy per unit**	**Govt. assistance (Lakhs)**
Capital Investment in Plant and Machinery (Individual units)	102	12.48	1272.96	35%	445.536
Capital Investment in Plant and Machinery (FPO/SHG/ Cooperatives)	10	1.27	127	35%	44.4
Common Infrastructure	1	400	400	35%	140
Incubation Cum Custom Hiring Centre	1	275	275	100%	275
Branding and Marketing (Total no. of Units/group)	112	1.1	120	50%	60
Training and Mentorship (No. of the individual)	112	0.10	11	100%	11
Total			**2205.9**		**975.9**

Individual units (Existing and Potential enterprises) – From the primary survey, (existing individual and potential units) it is observed that approximately 84 new potential enterprises are interested in the food processing business in the district.

Respondents of individual units expressed that there is a lack of funds for upgrading the existing units and a lack of guidance and the necessary funding for the new enterprises to enter the food processing business in the district.

Groups – There are no FPOs or cooperatives involved in processing the Naga chili crop in the district. Few SHGs are actively involved in drying the Naga chili crop and selling it to local retailers. 1.2 Cr. fund is proposed for the groups in the district to purchase the new machinery, skill development, branding, and marketing of the produce.

Common infrastructure – Common infrastructure facilities like cold storage structures, warehouse facilities, and pack houses are essential for the processing enterprises (Primary processing and secondary processing)

A fund of 400 lakhs is proposed to establish the common facility center in the district.

Marketing and branding- the majority of the processing units in the district are not selling the pickles and dry chilies through brand and there is no special marketing for the processed produce. All the units in the district are selling the products through the existing sales channel only.

A fund of 120 lakhs is proposed to create the brand and marketing for the processed products in the district.

Training and skill development- Through the primary survey, we have observed that none of the naga chili processing enterprises received training on processing the crop. Skill development training is essential in handling the machinery, and the standardized process of processing and packaging the produce.

A fund of 11 lakhs is proposed for the skill development of the employees working in the local food processing enterprises.

7.2 Vision Statement and Key Objectives for SLUP

Vision Statement: To increase the quantity of King Chili processing from the existing 2% of the total crop processing to 10 to 15% of the total crop production in the coming 3 to 5 years.

Objectives:

- Training and financial support to the existing individual and group units in the district.
- Promoting new enterprises in cardamom processing.
- Creating branding and marketing opportunities for processed products in the district.
- Creating a common facility center for the processing units.

7.3 Strategy for Integrated Development

Integration of stakeholders such as agriculture, horticulture, marketing, financial institution, industries, associations, testing agencies, traders, farmers, and processors are necessary to start the cluster.

Table 51: Strategy for integrated development

Particulars	Requirement	Supporting Department/Agencies
Marketing	• Training and Skill Development on branding and marketing of the processed products and packing of the produce. • Qualitative and Quantitative testing of the produce.	• DIC could conduct training on the branding and marketing of the processed product. • FSSAI should involve in the certification and licensing of the processing enterprises.
Infrastructure	• Common infrastructure for the primary processing (Sorting, grading, cold storage, and pack houses) and secondary processing for the processing enterprises in the district.	• Support from DIC, the state agriculture department, and financial institutions are required for the establishment of the required infrastructure.
Workers	• Training on post-harvest management, standardized process of processing, and handling the machinery and equipment to the employees in the individual and group enterprises.	• DIC should train the workers in handling machinery. • Agriculture, Horticulture, and NRLM could train the workers on post-harvest management and processing technology.

7.4 Proposed Interventions

We have proposed a total fund of 22 cr. for the up-gradation of existing and new enterprises and the setting of a common facility center and incubation center in the district. We have proposed a budget of 1.2 cr. for the branding and marketing support for the group and individual units in the district.

Table 52: Proposed interventions

S. No	Particulars	Recommendations	Cost (Cr.)
1	Infrastructure	Proposed one incubation center in the district with 3-4 processing lines and hand-holding support for the existing and new enterprises in the district.	2.75
2	Technology	Proposed up-gradation of the 112 enterprises in the district (Group and Individual units)	12.7
3	Common facilities	Proposed one common facility center and one incubation center in the Peren district to increase the quantity of crop processing in the district and to reduce crop loss post harvesting.	4.00
4	Marketing support	Proposed training on marketing and branding of processed products in the district.	1.2

	Total		**20.65**

8. Key Impacts

Table 53: Key Impacts	
Particulars	**Impact**
Opportunity to increase processing activity	• Through support under the PMFME scheme, there is a possibility of an increase of 10% to 15% in the processing of total crop production in the district in the next three years
Employment	• Each unit will employ 4-5 members on average i.e. approximately 450-600 employments will be created in the next three years with the help of the PMFME scheme.
Income	• Through proper branding and marketing, the net profit of units will increase by 25%-35 %
Reduce waste	• Through processing and common infrastructure, farm-level waste might reduce to 5 % from current 10 %
Better Profits	• Micro Units can expect a 25 % increase in profits with Better market linkages and Branding
Better Price Realization	• An export window will be opened to micro and small entrepreneurs. Better price realization can be observed by micro and small entrepreneurs' by exporting turmeric powder to major importing countries in the world.

Annexure:

Table 54: Detail List of FPOs for assessment under PM-PME in Peren District

S. No.	Name of the FPO	Location	Contact details	Total No of Registered members	Produces/ Products manufactured
1	Hepui MPCS Ltd.	Mhainamtsu village, Peren	Peihaupeung 08132865048	50	Fruit juices. Mustard oil/spices
2	Jonglong MPCS Ltd.,	New Jalukie village, Peren	N. Kenbonbou 08729978518	45	King Chilli Processing and juice making
3	United MPCS Ltd.,	ADC Colony, Peren Town, Peren	Kengimpeuding Hegui 09436212340	50	Vegetables and fruit processing
4	Namphan fruit Processing CS Ltd.	Nzau Namsang, Peren	Zangdi Domta 09436609606	35	Goose Berry and Orange Juice Making
5	Nanglhun Agri and Allied CS Ltd.	Lilen village, Peren	Paosat Hangsing 08787658855	25	Spices making viz ginger powdering, king chili powdering, etc

The Nagaland State Co-Operative Marketing and Consumers' Federation (Marcofed) Ltd., H.O. Dimapur

The Nagaland State Co-operative Marketing and Consumers' Federation Ltd. popularly known as MARCOFED is an Apex Level Co-operative Institution for Marketing Agricultural produces and distribution of essential commodities in the State which was established in the year 1968 under the sponsorship of the State Govt. as a public sector undertaking with its Registration No. NL/0222 Dt. 17-08-1968 and based in Dimapur as its Head Office, Nagaland.

List of co-operatives

Table 53 List of cooperatives in the district																
S. No	Type of Society	Kma	Dmp	Mkg	Tsg	Wka	Zbto	Phk	Mon	Peren	Kpre	Lglg	Mba	Pftr	Stk	Total
A		State Level Societies														
1	Nagaland State Cooperative Bank Ltd.		1													1
2	MARCOFED Ltd.		1													1
3	Nagaland State Coop. Union		1													1
4	Nagaland Apex Weavers Federation		1													1
5	Nagaland State Piggery Federation		1													1
6	Nagaland State Dairy Federation	1														1
7	The Nagaland State Entrepreneurs Associates Thrift and Credit Coop. Federation Ltd.	1														1
		2	5													7
B		District Level Societies														
1	Kohima Dist. Milk Union	1														1
2	Dimapur Dist. Milk Union		1													1
3	Mokokchung Dist. Milk Union			1												1
		1	1	1												3
C		Primary Cooperative Societies (District Wise)														
1	Lamps C.S. Ltd.	-	1	-	-	-	-	-	-	-	-	-	-			1
2	Consumer C.S. Ltd.	68	24	24	31	9	25	21	12	6	11	2	7	1	-	241
	1. Petrol Pump C.S. Ltd.	-	-	1	-	-	-	-	-	-	-	-	1	-	-	2
3	Service C.S. Ltd.	-	37	16	-	9	4	2	1	6	-	-	4			79
	Institution C.S. Ltd.	-	1	-	-	-	1	-	-	-	-	-	-			2
	Transport C.S. Ltd.	-	2	1	2	-	-	-	-	-	-	-	-			5
	Canteen C.S. Ltd.	-	-	1	-	-	-	-	-	-	-	-	-			1

Table 53 List of cooperatives in the district																
S. No	Type of Society	Kma	Dmp	Mkg	Tsg	Wka	Zbto	Phk	Mon	Peren	Kpre	Lglg	Mba	Pftr	Stk	Total
	Education and Training C.S. Ltd.	1	-	-	-	-	-	-	-	-	-	-	-			1
	Dry Cleaners	1	-	-	-	-	-	-	-	-	-	-	-			1
4	Multi-Purpose C.S. Ltd.	854	974	320	249	426	287	231	97	104	160	35	118			3855
5	Marketing C.S. Ltd.	10	28	19	28	5	9	13	3	2	5	1	1			124
	Trading	-	-	1	-	-	-	-	-	-	-	-	-			1
6	Weaving and Handloom/Knitting /Handicraft /Industrial C.S. Ltd.	127	155	37	49	43	76	34	40	22	26	12	7	-		628
7	Dairy C.S. Ltd.	37	58	13	25	6	20	30	17	7	9	1	2		1	226

List of SHGs in Peren District

Table 55 List of SHGs in the district

S.No.	Block	SHG Name	Name of SHG Head	Mobile No. of SHG Head	No. of Members Engaged In Food Processing	Processing Facilities Available (Machine/ Tools/. Equipments)	Additional Processing Facilities Required, If Any (Name Of Machine/ Tool)	Where Is The Product Sold - Local Village Market/ Town Market	Anticipated Markets
1	Peren	Keba SHG	Akaina	9436610375	8	Oven, Grinder, Mixer Blender,Bakingmoulds	Weighing Scale, Bigger Size Oven	Town Market	Peren
2	Tening	Zanna SHG	Ilamgongle	6909007835	1	Oven, Generator,Grinder, Mixer Blender,Bakingmoulds	Vacuum Machine, Labelling And Sealing Machine, Weighing Scale	Town Market	Jalukie, Tening
3	Jalukie	Yi-Ndeu SHG	Pausuizeule	9366194998	7	Mixer and Juice, Sealing Machine, Aluminum Pot	Tables, Mixer and Juicer	Town Market	Jalukie
4	Peren	Kemha Maa SHG	Adaile	9402284263	6	Dryer Machine	Sealing Machine, Weighing Scale, Packaging Material, Table, and Still Crates	Local Village and Town Market	Poilwa,Kohima, Peren, Jalukie