

Sept. 2022

# SLUP

(STATE LEVEL UPGRADATION PLAN)

for

## TUENSANG DISTRICT IN THE STATE OF NAGALAND



Prepared by  
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## Executive Summary

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 rajma crop in the district are using advanced machinery and equipment like vibrating pre-cleaner, de-stoner, magnetic separator, gravity separator, color sorting machine, and packaging machine. All the enterprises in the district are manually processing the rajma crop in the traditional method without the usage of the machinery and types of equipment. It is estimated that approximately, only 55 to 60 tons of the total 4237 tons of crop produced in the district is primarily processed and the rest of the crop is used for household purposes and exported to other districts and states through wholesalers and retailers in the district. It is proposed to provide machinery like vibrating pre-cleaner, de-stoner, magnetic separator, gravity separator, color sorting machine, and packaging machine at subsidized prices under the PMFME scheme for processing rajma value-added products.

**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 food processing in the district. Due to the lack of proper transportation facilities in the district, there is a considerable loss in crop quality post-harvesting. 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 100 new entrepreneurs (Individual and Group units) 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 (Maize base products, thanami apple-based products, ginger-based products banana-based products, and Pickle based products)

**4. Lack of marketing facilities:** The rajma grown in the Nagaland state is known for their organic cultivation and the Tuensang district is the largest producers of rajma crops in the Nagaland state. Farmers and traders are selling the primarily processed rajma crop to the local traders and consumers without the brand. To overcome the problem and to support the processing enterprises in the district, it is proposed to create strong marketing linkages for the food processing enterprises in the district. A strong brand can be created for the rajma crop and the value-added products of the rajma crop which have huge demand in the domestic and international market. A fund of 1.3 cr. is proposed in the budget to create the brand and marketing linkages 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 received training related to food processing. It is observed that there are no training facilities available for the food processing enterprises 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 rajma flour and canned rajma, packaging practices, and training on branding and marketing of the processed products. A fund of 12 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 packed 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.

A total of INR 26 Cr. fund is proposed for the Tuensang district for the up-gradation of 121 existing and new units in the district. Among the total fund, INR 16.1 Cr. fund is proposed to upgrade the 110 individual units and 1.60 Cr. fund is proposed to upgrade the 11 groups in the district. It is proposed to establish one incubation center and one common infrastructure in the district. INR 1.2 Cr. and 0.12 Cr. fund is proposed for the branding and marketing and training and mentorship for the existing and new potential processing enterprises in the district.

Intervention	Target	Amount (Cr.)
Capital investment in plant and machinery (Individual units)	To upgrade and scale up the production process for 110 Micro Units (The average fund required per unit is 14.6 lakh)	16.10
Capital investment in plant and machinery (Group units)	To upgrade and scale up the production process for 11 Groups (The average fund required per unit is 14.6 lakh)	1.60
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.	4.00
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 128 individuals. ( 2 people to be trained from each enterprise/group)	0.12
<b>Total</b>		<b>26.00</b>

**Expected Government assistance:**

A total of INR 26 Cr. fund is proposed for the Tuensang district for the up-gradation of 121 existing and potential new units in the district. INR 11.07 Cr. is expected government assistance under the SLUP from the total fund proposed for the up-gradation of the food processing units.

Intervention	Target	Project cost	Total	Subsidy	Govt.
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	No. of units	per unit (Cr.)	Cost (Cr.)	per unit	assistance (Cr.)
Capital Investment in Plant and Machinery (Individual units)	110	0.146	16.10	0.35	5.64
Capital Investment in Plant and Machinery (FPO/SHG/ Cooperatives)	11	0.145	1.60	0.35	0.56
Common Infrastructure	1	4.00	4	0.35	1.4
Incubation Cum Custom Hiring Centre	1	2.75	2.75	1	2.75
Branding and Marketing (Total no. of Units/group)	121	0.010	1.20	0.5	0.6
Training and Mentorship (No. of the individual)	121	0.0010	0.12	1	0.12
<b>Total</b>			<b>26</b>		<b>11.07</b>

By 2025, with the support of the PMFME scheme, the processing percentage of respective commodities processing may go up. Nearly, 600 to 700 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 Tuensang district of Nagaland state of India.

### **Sampling Technique and Sample Size adopted**

Sampling Technique - Multistage random sampling technique was adopted.

### **Sample Size**

21 Kholar processing units are surveyed in the district

### **Nature and sources of data**

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

### **Primary Data**

India is one of the leading countries in the production of Rajma beans. It is locally called Kholar beans. The survey was conducted in various Kholar processing units located in the Tuensang district. In the process of the primary survey, we met different unit holders registered and unregistered, farmers, agriculture department officials, horticulture department officials, raw material suppliers, skilled labor, district industries center officials, farmer producer organizations, retailers, logistics officials concerned, 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 skilled labor 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, Indiatat.com, Journals and articles, and other internet sources to know the area, production, export, import of Kholar beans

## **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**

## I. Baseline Assessment studies

Tuensang is one of the districts of Nagaland that lies on the eastern fringe of the state with the international border running on the eastern side of the district. Tuensang is one of the original three districts, along with Mokokchung and Kohima formed at the time the Nagaland state was created. Over the decades, the district has gradually diminished in size with the carving out of Mon, Longleng, and Kiphire districts Tuensang district of Nagaland is bound by Mon and Longleng districts in the north and north east respectively, and Mokokchung lies in the north-west, Zunheboto district in the south-west and Kiphire District in the south. The international boundary with Myanmar is located on the eastern side. The district of Tuensang encompasses an area of 1,728 square kilometers. Tuensang is situated between latitudes 2506' to 2704' North and longitude of 93020' to 95015' East, with an altitude ranging from 800 to 3500m above the main sea level. 104 villages fall within the boundaries of the district of Tuensang.

### Demographics

According to the 2011 census Tuensang district has a population of 196,801, roughly equal to the nation of Samoa. This gives it a ranking of 590th in India (out of a total of 640). Tuensang has a sex ratio of 930 females for every 1000 males, and a literacy rate of 73.7 %. Changs, Sangtams, Yimchunger, and Khamniungans are the main indigenous tribes of this district. Besides, Aos and Semas form a significant part of the district's population. Christianity is the main religion though animistic beliefs are still practiced by a small minority, especially along the Myanmarese border.

Demographic Label	Value
Area	1,728 square kilometer
No. of Blocks	8
No. of Administrative Centre	
No. of Villages	104
Coordinates	26°14'N 94°49'E 26.233°N 94.817°E
Elevation	800 to 3500m above the main sea level
Density	92.18 per,sq.km
Official Language	
Time Zone	IST (UTC+05:30)
Average Rainfall	800-3500mm
Average Climate	5o C- 30o C

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

The district falls under Eastern Himalayan Agro Climatic Zone with a sub-alpine to sub-tropical climate. Though the district is endowed with rich natural resources, the traditional system of cultivation, lack of technological intervention, and communication bottlenecked are the major factors for the low pace of

development, particularly in agricultural production sectors. Owing the adverse effect of traditional agricultural practices, increasing population pressure, loss of biodiversity, soil erosion, water depletion, etc. threaten the sustainability of agriculture. A shift from conventional approaches to agriculture to modern and efficient approaches must be a must to promote the technically sound, economically viable, environmentally friendly, and socially acceptable use of natural resources for sustainable development of agriculture in the district. Due to these bottlenecks, the district lags in the pace of development with the other districts, especially in agriculture.

## ODOP

### i. Total production of the product in the district

#### Area and production of pulses, cereals, and oil seed crops in the district

S. No	Crops	Area (Ha)	% Share	Production (MT)	% Share
1	Maize	10154	22.4%	20150	19.3%
2	Jhum Paddy	10020	22.1%	19944	19.1%
3	WTRC Paddy	7510	16.6%	21732	20.8%
<b>4</b>	<b>Rajma/Kholar</b>	<b>6081</b>	<b>13.4%</b>	<b>7751</b>	<b>7.4%</b>
5	Soybean	2155	4.8%	2671	2.6%
6	Rapeseed Mustard	2122	4.7%	2162	2.1%
7	Tea Green	1544	3.4%	6878	6.6%
8	Pea	832	1.8%	922	0.9%
9	Small Millet	781	1.7%	881	0.8%
10	Rice bean/Nagadal	462	1.0%	533	0.5%
11	Sugarcane	370	0.8%	16135	15.4%
12	Tur/Arhar	360	0.8%	320	0.3%
13	Linseed	360	0.8%	290	0.3%
14	Sesamum	344	0.8%	213	0.2%
15	Wheat	341	0.8%	623	0.6%
16	Yam	258	0.6%	1884	1.8%
17	Perilla	254	0.6%	153	0.1%
18	Lentil	233	0.5%	190	0.2%
19	Beans	210	0.5%	289	0.3%
20	Mesta	162	0.4%	180	0.2%
21	Jobstear	151	0.3%	161	0.2%
22	Groundnut	104	0.2%	105	0.1%
23	Bajra	100	0.2%	110	0.1%
24	Ragi	80	0.2%	70	0.1%
25	sun-flower	80	0.2%	70	0.1%
26	Gram	70	0.2%	60	0.1%

S. No	Crops	Area (Ha)	% Share	Production (MT)	% Share
27	Black gram	70	0.2%	50	0.0%
28	Horsegram	40	0.1%	30	0.0%
29	Barley	30	0.1%	30	0.0%
30	Oats	30	0.1%	30	0.0%
31	Urd/Moong	30	0.1%	30	0.0%
32	Castor	20	0.0%	10	0.0%
	<b>Total</b>	<b>45358</b>	<b>100.0%</b>	<b>104657</b>	<b>100.0%</b>

### Area and production of fruit crops

S. No	Crops	Area (Ha)	% Share	Production (MT)	% Share
1	Maize	10154	22.4%	20150	19.3%
2	Jhum Paddy	10020	22.1%	19944	19.1%
3	WTRC Paddy	7510	16.6%	21732	20.8%
4	Rajma/Kholar	6081	13.4%	7751	7.4%
5	Soybean	2155	4.8%	2671	2.6%
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25	sun-flower	80	0.2%	70	0.1%
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27	Black gram	70	0.2%	50	0.0%
28	Horsegram	40	0.1%	30	0.0%

S. No	Crops	Area (Ha)	% Share	Production (MT)	% Share
29	Barley	30	0.1%	30	0.0%
30	Oats	30	0.1%	30	0.0%
31	Urd/Moong	30	0.1%	30	0.0%
32	Castor	20	0.0%	10	0.0%
	<b>Total</b>	<b>45358</b>	<b>100.0%</b>	<b>104657</b>	<b>100.0%</b>

### Area and production of vegetable crops

S. No	Vegetables	Area (Ha)	% Share	Production (MT)	% Share
1	Cabbage	680.00	16.8%	6540.00	16.7%
2	Tapioca	570.00	14.0%	6738.00	17.2%
3	Leafy Vegetables (Amaranths, Kashmiri Sag, Spinach, Celery, etc.)	516.00	12.7%	3923.00	10.0%
4	Beans (All Including Lab-lab)	515.00	12.7%	3919.00	10.0%
5	Green chilly	491.00	12.1%	3460.00	8.8%
6	Potato	303.00	7.5%	5083.00	13.0%
7	Arbi/Colocasia	211.00	5.2%	2350.00	6.0%
8	Tomato	190.00	4.7%	1589.00	4.1%
9	Sweet Potato	145.00	3.6%	2043.00	5.2%
10	Peas (Green)	98.00	2.4%	530.00	1.4%
11	Kaddu/Pumpkin	57.00	1.4%	618.00	1.6%
12	Onion	55.00	1.4%	618.00	1.6%
13	Radish	51.00	1.3%	450.00	1.1%
14	Cauliflower	46.00	1.1%	215.00	0.5%
15	Carrot	35.00	0.9%	459.00	1.2%
16	Cucumber	35.00	0.9%	330.00	0.8%
17	Brinjal	30.00	0.7%	243.00	0.6%
18	Mushroom	18.00	0.4%	7.00	0.0%
19	Okra/Ladies Finger	11.00	0.3%	95.00	0.2%
	<b>Total</b>	<b>4057.00</b>	<b>100.0%</b>	<b>39210.00</b>	<b>100.0%</b>

### Area and production of spice crops

S. No	Spices	Area (Ha)	% Share	Production (MT)	% Share
1	Ginger	370.00	50.1%	2128.00	84.4%
2	Cardamom Large	280.00	37.9%	113.00	4.5%
3	Red Chilly	55	7.5%	121	4.8%
4	Garlic	18.00	2.4%	95.00	3.8%
5	Turmeric	15.00	2.0%	65.00	2.6%
	<b>Total</b>	<b>738.00</b>	<b>100.0%</b>	<b>2522.00</b>	<b>100.0%</b>

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

S. No	Crops	Area (Ha)	% Share	Production (MT)	% Share
1	Kholar	6081	11.5%	7751	4.5%
2	Other pulses, cereals, and oil seeds	39277	74.2%	96906	56.7%
3	Fruits	2769.00	5.2%	24665.00	14.4%
4	vegetables	4057.00	7.7%	39210.00	22.9%
5	Spices	738.00	1.4%	2522.00	1.5%
	<b>Total</b>	<b>52922</b>	<b>100.0%</b>	<b>171054</b>	<b>100.0%</b>

**iii. Perishable nature of the produce**

Rajma crop is perishable and has less shelf life. Moisture content in the crop should be maintained between 5 to 18% to increase the shelf life of the crop.

**Table 1: Perishable nature of the produce**

S. No	Product	Shelf life
1	Fresh rajma	2-3 days
2	Dried rajma	2-3 years
3	Canned beans	3-5 years
4	Rajma flour	4-6 months

**iv. Production of ODOP Agriculture Produce in that district compared to other districts and states**

District	Area (Ha)	% Share	Production (MT)	% Share
<b>Tuensang</b>	<b>6,081</b>	<b>35.4%</b>	<b>7,751</b>	<b>35.3%</b>
Kiphire	3,310	19.3%	4,237	19.3%
Longleng	1,,948	11.3%	2,485	11.3%
Mon	1,287	7.5%	1,654	7.5%
Mokokchung	1,256	7.3%	1,612	7.4%
Zunheboto	942	5.5%	1,196	5.5%
Wokha	932	5.4%	1,186	5.4%
Kohima	757	4.4%	970	4.4%
Phek	657	3.8%	839	3.8%
<b>Nagaland</b>	<b>17,170</b>	<b>100.0%</b>	<b>21,930</b>	<b>100.0%</b>

**v. Number of workers engaged in the ODOP cultivation**

In 2019-20, the rajma crop is cultivated in the area of 6,081 ha with the production of 7,751 tons in the Tuensang district. The average land holding in the Nagaland state is 0.6 ha and the average household size is 5.

The number of households involved in the cultivation of the rajma crop in the district is 4,650 households and the number of workers involved in the cultivation of the rajma crop in the district is 23,253. It is estimated that 11 to 13% of the total population in the Tuensang district is involved in the cultivation of the rajma crop.

### Non-ODOP:

#### **i. Major crops are being cultivated apart from the chosen ODOP Product.**

Maize, Jhum paddy, WTRC paddy, Soybean, Rapeseed mustard, Tea green, Cabbage, Tapioca, Passion fruit, and ginger are the major crops cultivated in the district apart from the kholar rajma crop.

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

S. No	Crops	Area (Ha)	Production (MT)
1	Maize	10154	20150
2	Jhum paddy	10020	19944
3	WTRC paddy	7510	21732
4	Soybean	2155	2671
5	Rapeseed mustard	2122	2162
6	Tea green	1544	6878
7	Cabbage	680	6540
8	Tapioca	570	6738
9	Passion fruit	900	2119
10	Ginger	370	2128

#### **iii. Non-ODOP produce as a percentage of total agricultural produce of the district**

Large cardamom and ginger-based products are chosen as the non-ODOP products of the district based on the production of the produce and the number of units processing the commodity in the district.

S. No	Crops	Area (Ha)	% Share	Production (MT)	% Share
1	Pulses, cereals, and oil seeds	45358	85.7%	104657	61.2%
2	Fruits	2769	5.2%	24665	14.4%
3	vegetables	4057	7.7%	39210	22.9%
4	<b>Large cardamom</b>	<b>280.00</b>	<b>0.5%</b>	<b>113.00</b>	<b>0.1%</b>
5	<b>Ginger</b>	<b>370.00</b>	<b>0.7%</b>	<b>2128.00</b>	<b>1.2%</b>
6	Spices	88.00	0.2%	281.00	0.2%
	Total	52922	100.0%	171054	100.0%

**iv. Perishable nature of the Non-ODOP produce**

The perishable nature if the non-ODOP crops are listed below

S. No	Product	Shelf life
1	Cardamom seeds	3-4 years
2	Cardamom Powder	3-4 years
3	Cardamom oil	2 years
4	Fresh ginger	5 to 8 days
5	Dry ginger powder	2-3 years
6	Ginger paste	2-3 Months
7	Ginger oil	2-3 Months
8	Ginger candy	15-30 days

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

The total area under the non-ODOP cultivation in the district is 650 ha in 2019-20. It is estimated that approximately 1900 to 2200 employees are engaged in the cultivation of the non-ODOP crops in the district which is 1 to 2% of the total population in the district.

## **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

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
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

Policy and Incentives	Description
	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	<p><b>Stamp Duty Exemption</b></p> <p>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</p>
Employment Generation	<p><b>Manpower Subsidy</b></p> <p>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.</p>
Freight/Transport Subsidy	Not available
Others	<p><b>Subsidy for Feasibility Study Cost</b></p> <p>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</p>

Policy and Incentives	Description
	approved Industrial Consultants.
	<p><b>Subsidy Incentives for 100% Export Oriented Units (EOU)</b></p> <p>An additional 5% capital investment subsidy is subject to a maximum ceiling of Rs.3.00 lakh.</p>
	<p><b>Subsidy for Quality Control measures</b></p> <p>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.</p>

**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.

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 of SHG 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 of SHGs; 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 of SHGs 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 OF THE 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 Khezhe, Nodal Officer, PMFME Scheme, Directorate of Industries and Commerce (Michael)

### TransGraph

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

### Stakeholders

- M. Rollan Lotha, COO, NSRLM, Nagaland
- Lentinario, 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 9<sup>th</sup>, 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 State 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 NABARD and focusing on the creation of FPOs in Peren, Kiphire, and Kohima. 3 under the cooperative act under NABARD / NCDC and 10 under SFAC under the Companies Act. He further informed that at Block level 5 villages engage in the cooperative activity; hence they are trying to develop an Integrated Multipurpose Cooperative Society to tap the small group on their Aadhar 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. 13<sup>th</sup> 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**

**Industrial Scenario of Tuensang District**

S. No	Head	Unit	Particular
1	Registered industrial unit	No.	37
2	Total Industrial unit	No.	37
3	Registered medium and large unit	No.	Nil
4	Estimated average no of daily workers employed in small-scale Industries	No.	300
5	Employment in large and Medium Industries	No.	Nil
6	No. of Industrial area	No.	1
7	Turnover of small-scale Industries	In lakhs	1.5
8	Turnover of Medium & large scale Industries	In lakhs	Nil

*(Source-MSME)*

**2. Identifying Non-ODOP Products:**

Identified Non – ODOP products through a primary survey in the district are listed below table

S. No	Crop Name	Value added products
1	Ginger	Ginger Paste, Ginger Powder, Ginger Candy, Ginger oil
2	Large Cardamom	Powder, Dry Cardamom, Oleoresin

**4. District wise Industrial profiling based on secondary research**

The District Industries Center needs to be strengthened 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. Citronella distillation unit- 1
2. Citronella demonstration unit- 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:-

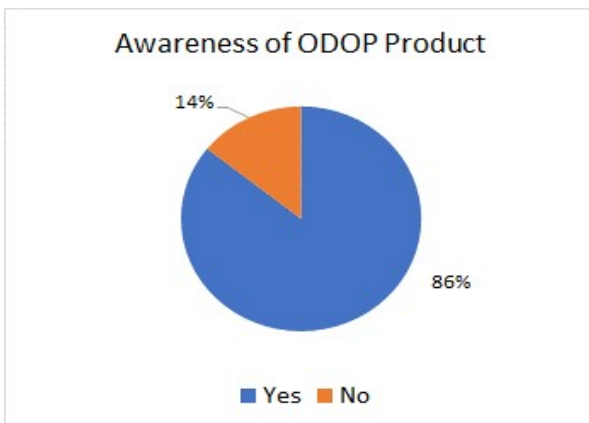
- a) Lack of basic infrastructure facilities, inadequate marketing support/ accessibility, and raw material supply.

- 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 poor return of bank loans.

### **i. Is the district recognized with the ODOP product?**

Based on the existence of households, small & micro-units, and the relevant commodity is grown largely in the district the ODOP product is identified by the state department and the Kholar bean is recognized as an ODOP product.

### **Awareness about the ODOP Product in Tuensang District**



From the primary survey, it is observed that among respondents 86 % of them are aware of ODOP products in the district and the remaining 14% of the respondents are not aware of ODOP products.

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

Kholar-based products which are the ODOP of the district are granted no Geographical indication by the GoI.

“Naga Mircha”, “Naga tree tomato”, and “Naga cucumber” are the three agricultural commodities granted the GI tag from Nagaland.

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

Kholar,’ is the local name for French beans or rajma has been the ‘manna’ to generations of the Yimchungru Naga tribe living in Tuensang and Kiphire districts and on the other side of the Indo-Myanmar border.

‘Kholar’ is grown extensively in the Shamator-Chessore belt of Tuensang district and Pungro sub-division in Kiphire district and it is the pulse or main source of sustenance and livelihood for many families in these two districts. During the mid-winter season, the hill ranges can be seen dotted with Kholar fields. According to local villagers, there are about 22 varieties of Kholar grown in the region with interesting names tagged (in Yimchungru dialect) to each variety, like ‘Jepshiak’ (pure yellow), ‘Aphimbea’ (flying), ‘Moho’ (irresistible), ‘Amurak’ (pure black) and ‘Amurum’ (dog’s liver). ‘Jepshiak’ comes on top of the price list for its unique flavor. A tin (13-15 kg) of ‘Jepshiak’ costs Rs. 500-600 compared to Rs. 350-400 per tin for other varieties.

‘Aphimbea’, the small white bean which becomes slippery after it is cooked is believed to have medicinal value and is recommended as a post-surgery diet as well as for replenishing bone marrow. Villagers say ‘Moho’ is so named as the crimson pods of ‘Moho’ are so enticing that thieves or strangers cannot resist the urge to pluck them.

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

Currently, people in the district cultivate the Kholar beans & sell them to traders in the village or Tuensang town. However, they are not processing the beans into canned bins or flour.

At present, only traditional methods are used for processing kholar by way of sun-drying and storing. All the village household farmers are engaged in the cultivation and production of the product at farm/home-based levels. There is surplus production of kholar in the District; however, there are no standard processing, value addition, and packaging facilities used. Therefore, there is a need to strengthen the processing sector of this product in the District.

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

Altogether 21 units for Kholar processing were surveyed in the district. Other industrial units include metal-based products, wood products, wool, and silk products. Detail of the rest of the units is given in below table:

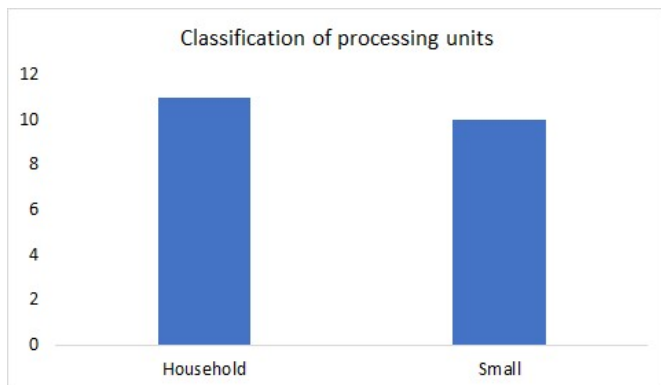
#### **Details of Existing Micro & Small Enterprises and Artisan units in the Tuensang District**

S. No	Type of Industry	No. of Units	Investment ( Lakh)	Employment
1	Agro Based	2	2	4
2	Others	35	25	73
	Total	37	27	77

*Source: Directorate of Economics & Statics, Govt of Nagaland*

#### **Classification of Processing Industries in Tuensang District**

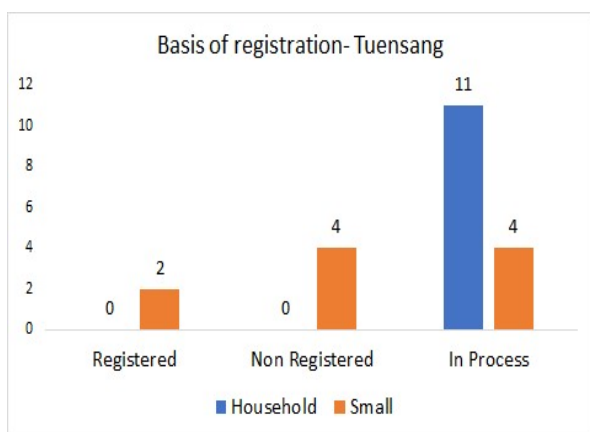
From the primary survey, it is observed that among 21 visited industries, 11 units are household units and 10 units were small units.



Category	No of Units
Household	11
Small	10
Grand Total	21

### Industries Registration in Tuensang District

From the primary survey, it is observed that 21 visited Kholar processing units in Tuensang district, 2 were registered under MSME.



Basis of Registration Tuensang				
Category	Registered	Non-Registered	In Process	Total
Household	0	2	11	13
Small	2	5	6	13
Grand Total	2	7	17	26

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

Though Kholar cultivation is more in the district, there is no such cluster defined for ODOP products i.e. Kholar in the district.

There are 4 major clusters identified in the district, however, these are majorly Wood Curving clusters. Details are as below:

**Name of the Cluster: - Wood Curving Cluster at Noklak.**

1	Principal products Manufactured in the cluster	Wood curving Artistic, Sponge, Plate for eating, etc
2.	Name of the cluster	20 Nos
3.	No. of functional units in the clusters	20 Nos
4.	Turnover of the clusters	1.50 lacs
5.	Value of exports from the clusters	Nil
6.	Employment in clusters	40 Nos
7.	Average investment in plant &Machinery	1.50 lacs
8.	Major issues/ requirement	Designing, Technology upgradation, etc
9	Presence of capable institutions	Local Craftsman association at Noklak
10	Thrust Areas	Capacity building,

**Name of the Cluster: - Wood Curving Cluster at Tuensang**

1	Principal products Manufactured in the cluster	Wood curving Artistic, Sponge, Plate for eating, etc
2.	Name of the cluster	20 Nos
3.	No. of functional units in the clusters	20 Nos
4.	Turnover of the clusters	1.50 lacs
5.	Value of exports from the clusters	Nil
6.	Employment in clusters	40 Nos
7.	Average investment in plant &Machinery	1.50 lacs
8.	Major issues/ requirement	Designing, Technology upgradation, etc.
9	Presence of capable institutions	Local Craftsman association at Noklak
10	Thrust Areas	Capacity building,

**Name of the Cluster: - Wood Curving Cluster at Panso**

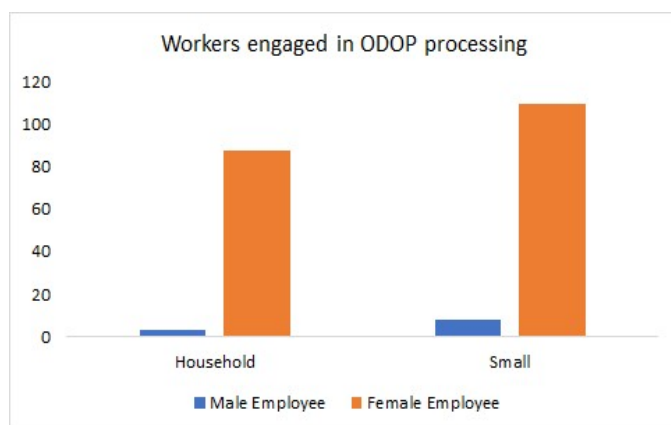
1	Principal products Manufactured in the cluster	Wood curving Artistic, Sponge, Plate for eating, etc
2.	Name of the cluster	20 Nos
3.	No. of functional units in the clusters	20 Nos
4.	Turnover of the clusters	1.50 lacs
5.	Value of exports from the clusters	Nil
6.	Employment in clusters	40 Nos
7.	Average investment in plant &Machinery	1.50 lacs

8.	Major issues/ requirement	Designing, Technology upgradation, etc
9	Presence of capable institutions	Local Craftsman association at Noklak
10	Thrust Areas	Capacity building,

**Name of the Cluster: - Wood Curving Cluster at chare**

1	Principal products Manufactured in the cluster	Wood curving Artistic, Sponge, Plate for eating, etc
2.	Name of the cluster	20 Nos
3.	No. of functional units in the clusters	20 Nos
4.	Turnover of the clusters	1.50 lacs
5.	Value of exports from the clusters	Nil
6.	Employment in clusters	40 Nos
7.	Average investment in plant & Machinery	1.50 lacs
8.	Major issues/ requirement	Designing, Technology upgradation, etc
9	Presence of capable institutions	Local Craftsman association at Noklak
10	Thrust Areas	Capacity building,

**vii. Number of workers engaged in the ODOP processing**



Category	Male Employee	Female Employee	Total
<b>Household</b>	3	88	91
<b>Small</b>	8	110	118
<b>Grand Total</b>	11	198	209

From the primary survey, it is observed that 44% of workers in Kholar processing are engaged in household units while 56% of workers are engaged in small units

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

Most of the growers sell their produce in the village, processors sell their product to nearby towns and districts. There is the involvement of a middleman in the supply chain. Due to poor road condition supply chain is also affected, and respondents are not much happy about it.

There is no such cluster defined for ODOP product i.e. Kholar in the district. However, there are few farmer's organizations for Non-ODOP products.

There is 2 farmers' organization in the district as below:

S. No	Name	Activities
1	Eastern Farming Society	Various agriculture crops
2	Orange Growers Society	Orange

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

Regarding the infrastructure for ODOP processing within the district, respondents mentioned road quality needs to improve, growers mentioned that if they get some financial assistance then they will think about the secondary processing of the Kholar beans. Right now, they are dealing with dried beans only.

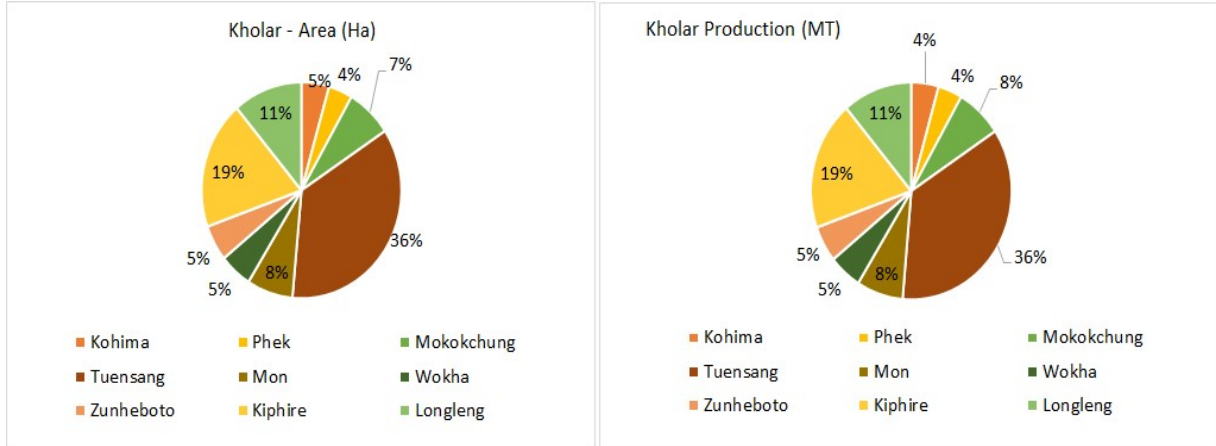
### x. Total production value of the ODOP product manufactured in the district and as % of total agricultural production.

Considering other agriculture production in the district, Kholar has a 6% contribution (7751 MT production) out of total agriculture produce.

Kholar was cultivated on 6081 hectares of land in Tuensang, with an annual production of 7,751 MT during the year 2019-20.

Tuensang district had the largest area under cultivation of Kholar contributing 36% of the entire area of Nagaland under Kholar cultivation.

In terms of production also, the Tuensang district contributes same 36% of the entire Kholar production of Nagaland during the year 2019-20.



**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**

Number of Kholar processing units in the district – 21

Kholar units are dealing with dried beans only they are selling dried beans only. They are not processing it into canning or bean flour.

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

Eastern Farming Society is engaged in the production activities of various crops. However, they are involved in basic drying, cleaning, grading, and sorting activities of the Kholar beans, there is no proper processing like canning or flouring of the beans.

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

If the production is less then the sale is confined to the village only, if bumper production occurs then the product is sold to nearby villages, Tuensang town markets, other districts, etc. Growers sell the produce to local traders/wholesalers etc

**5. Mapping the value chain aspects**



**Grower:** The Kholar growers undertake cultivation throughout the year.

**Aggregator/Trader:** 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 in and around the cluster.

**Processor:** Most of the processing units are small & micro categories. They are dealing with dried Kholar beans only. It involves cleaning, grading, sorting & packaging activities.

Besides the above stakeholders, the State Directorate of agriculture is responsible for providing extension services to the farmer including guidance on a package of practice, supply and distribution of organic fertilizers, and training on post-harvest management.

### 6. Understanding the Infrastructure constraints faced by Micro Enterprises:

Road quality is the basic infrastructure constraint in the district. Financial assistance requires basic machines for drying the beans & cleaning, grading, sorting, and packaging dried beans. As well as warehouses & cold storage require avoiding distress sales by the farmers.

For advanced processing like canned beans or bean flour more advanced machines & technology will require.

Infrastructure	Up-gradation proposals
<b>A) Public Infrastructure</b>	<ul style="list-style-type: none"> <li>Rajma crop growers and the rajma processing enterprises are facing product losses during transporting their produce to wholesalers and retailers in the district and other districts in the state.</li> <li>To overcome this issue it is suggested for the state and central government to construct better 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.</li> </ul>
<b>B) Common facilities</b>	<ul style="list-style-type: none"> <li>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.</li> <li>It is proposed to establish one Common processing facility center with machineries like Vibrating pre-cleaner, De-stoner, Magnetic separator, Gravity Separator, Coloring sorting machine, and Packaging machine in the district for the existing and new enterprises.</li> </ul>
<b>C) Testing facilities</b>	<ul style="list-style-type: none"> <li>There is no food testing lab in the district.</li> <li>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.</li> <li>It is proposed to set up the testing lab in the proposed incubation center for the existing and new enterprises.</li> </ul>

<b>D) Safety standards</b>	<ul style="list-style-type: none"> <li>• Most of the processor units in the district are not certified by the FSSAI.</li> <li>• 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.</li> </ul>
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**7. Mapping the market potential of FPI micro enterprises**

Currently, kholar is cultivated by local farmers in the district, and only pre-processing is done for the ODOP product i.e drying, sorting, and grading the product. In the district, kholar pre-processors are scattered across the district and selling the product to local villagers and traders.

S. No	Sectors	Gaps	Recommendations	Costing (Lakhs)
1	Skill training needs	<ul style="list-style-type: none"> <li>• There is no skilled labor in the food processing industries in the districts and there are no proper skill training facilities available in the district.</li> </ul>	<ul style="list-style-type: none"> <li>• Provide training to the existing enterprises (Primary processing) and new entrepreneurs on the standardized process of rajma processing, canned rajma, and rajma flour and training on the branding and marketing of the processed products.</li> <li>• Skill development training on handling advanced machinery and equipment like Vibrating pre-cleaner, De-stoner, Magnetic separator, Gravity Separator, Coloring sorting machine, and Packaging machine</li> </ul>	12
2	Manufacturing practices	<ul style="list-style-type: none"> <li>• Existing farmers/Traders' Enterprises are following the traditional method of rajma processing which affects the quality of the final product.</li> </ul>	<ul style="list-style-type: none"> <li>• It is proposed to set up one common processing facility that can be used for processing the products by the enterprises in the district.</li> </ul>	400
3	Technologies	<ul style="list-style-type: none"> <li>• There is no use of advanced technology or machinery in the district by</li> </ul>	<ul style="list-style-type: none"> <li>• Provide advanced machinery and equipment like machineries like</li> </ul>	1607.55

S. No	Sectors	Gaps	Recommendations	Costing (Lakhs)
		<p>the existing enterprises.</p> <ul style="list-style-type: none"> <li>Existing farmers/Traders and processing enterprises are following the traditional method of rajma processing (Sun drying, manual grading, and sorting).</li> </ul>	<p>Vibrating pre-cleaner, De-stoner, Magnetic separator, Gravity Separator, Coloring sorting machine, and Packaging machine at subsidized prices for the existing and new processing enterprises.</p>	
4	Access to finance	<ul style="list-style-type: none"> <li>Lack of financial support to 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.</li> </ul>	<ul style="list-style-type: none"> <li>The proposed incubation center can be used in attaining financial support for the enterprises by providing DPR and guiding the enterprises in attaining financial and technical support.</li> </ul>	275
5	Access to mentorship/ Services	<ul style="list-style-type: none"> <li>There is no access to mentorship/ service in the district</li> </ul>	<ul style="list-style-type: none"> <li>An incubation center is proposed to be set up in the district for guiding the existing and new enterprises in the district</li> </ul>	275



**II.**  
**Detailed cluster  
study**

## 1. Industry and Market Analysis

### 1.1 Introduction –

Common bean or kidney bean (*Phaseolus vulgaris*) is a major grain legume crop present all over the world, and third in importance after soybean and peanut. This is one of the most ancient crops, and the ancestors of *P. Vulgaris* appear to have spread in both North and South from a region centered in Ecuador and Northern Peru. Kidney beans then were brought to Europe and Africa during the sixteenth century by visiting Spanish and Portuguese explorers. Major producing countries for national consumption are Brazil and Mexico. The crop is also important in a range of developing countries in Central America, the Andean region of South America, and Eastern and Southern Africa. Common beans are both consumed as mature grain and immature seed. Common bean is also known as green bean, string bean, wax bean, snap bean, field bean, pinto bean, haricot, kidney bean, black bean, turtle bean, navy bean, and great northern bean in different parts of the world.

### Market Drivers

- Minimal cooking time: Hectic lifestyle of consumers has led to reduced available time for cooking. Food choices are increasingly based on cost, taste, convenience, quality, and cooking time. Canned beans being precooked offer the convenience of easy preparation and minimal preparation time.
- High shelf life
- Convenient packaging
- Effective marketing strategies
- Growth of the organized retail sector in developing countries

### 1.2 Benefits of the product

#### Nutritive Value and Health Benefits of the product

Nutritional components	Value per 100 grams
Vitamin A	313.9 µg
Vitamin B1 (Thiamine)	0.1 mg
Vitamin B2 (Riboflavin)	0.1 mg
Vitamin B3 (Niacin)	0.5 mg
Vitamin B9 (Folic Acid)	161.7 µg
Vitamin C	14.7 mg
Calcium	136.9 mg
Iron	2.4 mg
Magnesium	78.6 mg
Phosphorous	178.6 mg
Sodium	34.5 mg

Nutritional components	Value per 100 grams
Potassium	634.2 mg
Zinc	1.8 mg

**Health benefits of Kholar**

- Have anti-inflammatory properties.
- Rich source of protein.
- Prevent constipation.
- Boost immunity.
- Lowering the blood pressure.
- Promoting Healthy Skin.
- Consumption of rajma helps in reducing LDL (bad) cholesterol.
- Preventing the symptoms of diabetes.

**1.3 Global Market for the Product:**

The Global Canned Beans Market size is projected to reach approximately USD 1.46 Billion by 2026, at a CAGR of 3.47% from 2020 to 2026.

The global pulses market to reach a volume of 148.5 Million Tons by 2026, exhibiting moderate growth during the forecast period (2021-2026). In 2019, the Indian pulses market reached a volume of 27.5 million tons. Vegetarians account for a sizable portion of the Indian population, and pulses are the primary source of protein in their diets. Pulses are high in carbohydrates, vitamins, minerals, fatty acids, dietary fibers, and other nutrients. In addition, India's large consumer base is a major driver of the pulses market. India's population is expected to surpass 1.5 billion by 2030, up from 1.3 billion in 2018. This is expected to result in a significant increase in food demand during this time, driving up pulse consumption in the country. Pulses have also found uses in the food processing industry, in addition to being a staple food for people.

Europe is the largest market for canned beans and pulses in the world, accounting for more than half of world imports. Large importing and consuming markets such as the United Kingdom, Germany, and France offer you the best opportunities. A main driver of demand is the growing consumer interest in vegetable substitutes for meat protein, as well as additive-free and convenience products.

The United Kingdom, Germany, and France offer you the best opportunities, because of their large size. Growing markets such as the Netherlands, Romania, and Denmark also offer opportunities.

**Kidney bean Importing countries**

In 2019, Brazil was at the top to import kidney beans with 150 thousand MT quantity, followed by Turkey, Italy, and Mexico.

S. No	Country	Qty (MT)	Value (000USD)
1	Brazil	1,50,394	94,999
2	Turkey	1,34,716	1,25,552
3	Italy	1,26,392	1,41,551
4	Mexico	1,21,923	1,03,153
5	India	1,14,783	1,04,496
6	U K	1,00,031	95,313
7	Pakistan	83,067	59,522
8	Canada	52,029	44,717
9	Spain	48,599	57,194
10	France	35,787	49,989

*Source: UN Comtrade*

#### 1.4 Indian Market and Valuation for the Product

Changes in lifestyle, a rise in the working population, and increasing demand for healthier food and easy consumption coupled with growing health concerns are the key factors driving the market growth.

Beans are a popular form of nutritional value and also one of the most planted species in the world. However, instant foods have taken the food industry by storm and food packaging turns out to be one of the lucrative businesses within the food and beverages sector. Modern consumer demands and industrially processed beans have gained wide attention owing to the rise in consumer needs for the consumption of processed canned beans. Canned beans can prove as a good substitute for preparing dry packaged beans that comprise solids and liquids termed brine that enhances the sodium content when consumed in minute quantities. In addition, the consumption of dried beans develops a good diet quality and minimizes health risks. However, many consumers are unfamiliar with the concept of dried beans.

Canned beans are also a form of dry beans having a high share of starch, fibers, vitamins, and minerals. Beans have a culinary aspect that enables them to be viable alternatives to fulfill the demand of consumers across the world, thus adding value to the food and reducing cooking times. The nutrient composition for canned beans mainly involves edibility levels without the addition of sodium and fat before cooking. On a commercial basis, pricing for canned beans is mostly based on the nutrient levels offered.

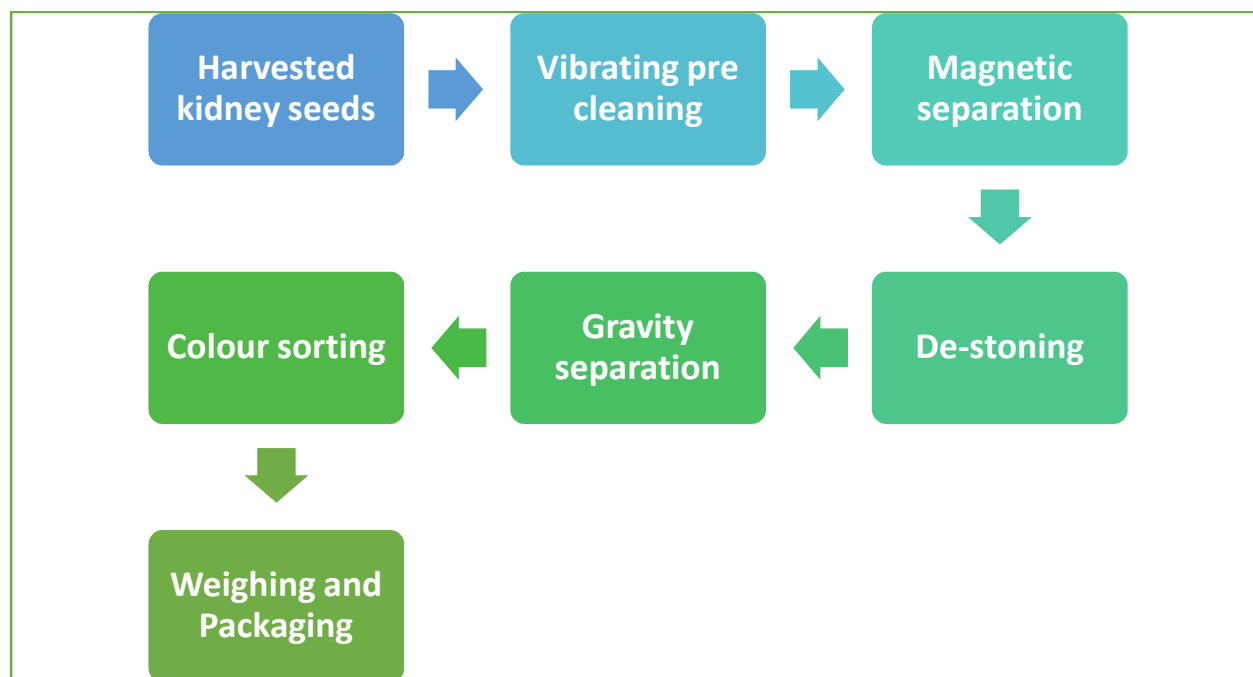
#### Countries importing Kidney beans from India

India exported maximum kidney beans of 4565 thousand MT to Nepal in 2020-21, followed by the USA, Qatar, Canada, and China.

S. No	Country	Quantity (MT)	Value (000 USD)
1	Nepal	45,65,638	24,15,14,694
2	U S A	5,92,706	7,44,19,510
3	Qatar	4,00,349	3,54,22,609
4	Canada	2,75,082	2,70,41,281
5	China P Rp	2,88,000	1,34,40,708
6	U K	1,44,905	1,23,74,827
7	Sri Lanka Dsr	1,66,280	87,65,773
8	Singapore	65,337	78,64,786
9	U Arab EMTs	74,902	77,61,985
10	Vietnam Soc Rep	76,585	50,59,698

Source: DGCIS Annual Export

### 1.5 Manufacturing Process



**Machinery and equipment- Capacity 300 kg/ hr**

S. No	Machine	Unit	Price (lakhs)
1	Vibrating Pre-cleaner	1	1.50
2	De-stoner	1	1.75
3	Magnetic separator	1	1
4	Gravity separator	1	1.30
5	Color sorting machine	1	6
6	Packaging machine	1	3.80
7	Other materials- Bins, trolleys, conveyors, Silos, weighing machines, bucket elevators, etc.	1	3.50

**1.6 Test is done for the Product**

*At present pre-processors are not practicing qualitative and quantitative tests for the product. Here we are explaining what are all tests and parameters required for testing. Information is provided based on our primary interaction with FSSAI officials and also through secondary research.*

The quality of specific dry bean lots is kept in check by following food safety standards and programs like:

- Good Agricultural Practices (GAPs)
- Good Manufacturing Practices (GMPs)
- ISO 9000
- Hazard Analysis Critical Control Points (HACCP)
- Safe Quality Food (SQF) standards

Post-harvest losses critically and extensively influence product quality. These are substantiated by biological and environmental factors like pests, microorganisms, rodents, storage temperature, time, and moisture.

**A) Specific Quality Factors associated with Dry Beans**

**Moisture Content** - The moisture levels between 15 to 18% during the packaging and storage are recommended to ensure superior quality of the product

**Extraneous Matter** - The term accounts for the presence of mineral or organic matter in the final product Less than 1 % extraneous matter is permissible wherein mineral component must not exceed 0.25% while the organic matter must be less than 0.10%

**Seed Discoloration** - Tannins and polyphenols are the major influencing factors in the deterioration of color, flavor, and nutritional quality of pulses and legumes catalyzing the precipitation of alkaloids,

gelatine as well as protein enzymatic oxidation of polyphenols is also associated with the development of hard to cook beans

**Mould Development and toxins** - High moisture content, high relative humidity, and high temperature during storage result in mould growth on beans. Microbial factors like bacterial bloom and root rot during the crop cultivation and development also influence mould growth post-harvest

*Cladosporium, Aspergillus amstelodami, Aspergillus dimorphicus, and Penicillium cyclopium* are the most common fungal strains infecting kidney beans during storage and the severity of the situation is further escalated by aflatoxin production

Aflatoxins are carcinogenic secondary metabolites produced by *Aspergillus* fungi commonly associated with food poisoning and liver damage.

**Heavy Metals** - The presence of heavy metals in the final product at a range above the permissible limit may cause severe health issues to the consumers. According to WHO standards, the concentration of heavy metals must not be higher than 10 mg/kg

**Pesticide Residue** - The maximum residue limit (MRL) for pesticides is as per the standards of the Joint FAO/WHO Food Standards Programme of Codex Alimentarius Commission wherein the MRL of dry beans is 0.4 mg/Kg.

### **B) Specific Quality Factors associated with Canned Beans**

The quality of canned beans and pulses is evaluated through several characteristics. Some of the most important are:

**Color, look, flavor and taste:** These are among the most important quality criteria for canned beans and pulses. Quality can be judged according to the number of defects present in the beans, such as loose skin, color variations, the number of broken beans, as well as the presence of beans (in green beans), pods (in other beans), and blemishes.

**Size:** Canned beans and pulses should be uniform in size. Sizing is optional but frequently performed.

**Cut:** For green beans, there are different types of cuts such as short, sliced lengthwise, or diagonal.

**Brine:** The composition and taste of the brine or filling sauce is also evaluated.

**Weight:** Minimum drained weight is defined for green peas and green beans. For other types of canned beans and pulses, the minimum drained weight is not defined.

S. No	Physio-Chemical Test	Microbial Test
1	Brix	Total plate count
2	pH	Yeast and Mold
3	Acidity	E-coli
4		Salmonella

## 2. District Profiling

There are 113 Grampanchayat in the district. There are almost 21 units of Kholar processing in the district. However, there is no cluster for Kholar processing in the district.

### 2.1 Demographic and Socio-economic profiling

According to the 2011 census Tuensang District has a population of 196801. Tuensang has a sex ratio of 930 females for every 1000 males, and a literacy rate of 73.7%.

S. No	Particular	Year	Unit	Statistics
<b>1</b>	Geographical features			
<b>A</b>	Geographical Data			
	i) Latitude			25Degree 6' to 27 Degree 4' North
	ii) Longitude			93 Degree 20' to 95 Degree 15' east
	iii) Geographical Area		Hectares	172800
<b>B</b>	Administrative units			
	i) Sub Divisions			10
	ii) Tehsil			3
	iii) Sub-Tehsil			4
	iv) Patwar circle			10
	v) Panchayat Simitis			
	vi) Nagar Nigam			4
	vii) Nagar Palika			
	viii) Gram Panchayats		Nos	113
	ix) Revenue Villages		Nos	113
	x) Assembly Area		Nos	7
<b>2</b>	Population			196801
<b>A</b>	Sex wise			
	i) Male (Urban)	2011	Nos	19492
	ii) Female (Urban)	2011	Nos	17349
<b>B</b>	i) Male (Rural)	2011	Nos	82485

S. No	Particular	Year	Unit	Statistics
	ii) Female (Rural)	2011	Nos	77475
<b>3</b>	<b>Agriculture</b>			
<b>A</b>	<b>Land Utilization</b>			
	i) Total Area	2011	Ha	172800
	ii) Forest cover		Ha	3357
	iii) Non-Agriculture Land		Ha	120588
	iv) Cultivation of Barren Land		Ha	48855
<b>4</b>	<b>Forest</b>		Ha	4228
	<b>Railways</b>			
	i) Length of the rail line	2010-11	Km	Nil
	<b>Roads</b>			
	a) National Highway	2010-11	Km	250
	b) State Highway	2010-11	Km	150
	c) Main District highway	2010-11	Km	308
	d) other districts	2010-11	Km	520.50
	e) Rural Road/Agriculture marketing Board Roads	2010-11	Km	148.50
	f) Kachacha Road	2010-11	Km	977
	<b>Communication</b>			
	a) Telephone connections	2010-11	Nos	3500
	b) Post offices	2010-11	Nos	27
	c) Telephone Centre	2010-11	Nos	200
	d) Density of Telephone	2010-11	Nos/1000 person	1968
	e) Density of Telephone	2010-11	Nos/KM	N/A
	f) PCO	2010-11	Nos	250
	g) PCO-STD	2010-11	Nos	350
	h) Mobile	2010-11	Nos	55000
	<b>Public Health</b>			
	a) Allopathic Hospital (District Hospital)	2010-11	Nos	1
	b) Beds in Allopathic Hospital	2010-11	Nos	250
	c) Ayurvedic Hospital	2010-11	Nos	Nil
	d) Beds in Ayurvedic Hospital	2010-11	Nos	Nil
	e) Unani Hospitals	2010-11	Nos	NA
	f) Community Health Center	2010-11	Nos	2

S. No	Particular	Year	Unit	Statistics
	g) Primary Health Centre	2010-11	Nos	11
	h)Dispensaries	2010-11	Nos	20
	i)Sub-Health center	2010-11	Nos	39
	j)Subsidiary Health Centre	2010-11	Nos	1
	k)Private Hospitals	2010-11	Nos	2
	<b>Banking Commercial</b>			
	a)Commercial Bank	2010-11	Nos	6
	b)Rural Bank products	2010-11	Nos	1
	c)Co-operative bank products	2010-11	Nos	1
	d)PLDB Branches	2010-11	Nos	
	<b>IX)Education</b>	2010-11	Nos	
	a)Primary School	2010-11	Nos	350
	b)Middle Schools	2010-11	Nos	265
	c)Secondary and Senior Secondary Schools	2010-11	Nos	27
	d)Colleges	2010-11	Nos	1
	e) Technical University	2010-11	Nos	Nil

### 2.3 Industrial Profiling

In the Tuensang district, there are altogether around 37 industrial units. The average annual turnover of Kholar processing units is in the range of Rs. 1 lakh

### 3. Cluster Analysis

- About 21 Kholar processing units studied located in the villages like Tuensang district kutur village, Nokyan, Chessore village.
- Almost 209 workers in the Tuensang district are working in Kholar processing units
- Most of the processors are not aware of government schemes & subsidies available for ODOP
- Growers do only primary processing like cleaning, grading & packing of Kholar dry beans. They are not doing secondary forms of processing like canning or flouring of the beans.
- Canned beans have a huge market internationally, and processors need financial assistance for such kind of advanced processing
- There is a need to graduate processors regarding the processing of the product. Training required to use advanced technology, machines, methods, etc
- Clusters are available for other commodities however, there is no cluster for Kholar processing. There is a strong need to form a cluster to bring together all Kholar processing units in the district under one cluster.

## Turnover and Employment

- The average annual turnover for small & micro units is in the range of Rs. 1 lakh
- About 21 Kholar processing units are there in the district which gives employment to around 209 workers in the district.
- 95% of workers are female workers engaged in the processing units.

## 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

#### Machinery and equipment- Capacity 300 kg/ hr

S. No	Machine	Unit	Price (lakhs)
1	Vibrating Pre-cleaner	1	1.50
2	De-stoner	1	1.75
3	Magnetic separator	1	1
4	Gravity separator	1	1.30
5	Color sorting machine	1	6
6	Packaging machine	1	3.80
7	Other materials- Bins, trolleys, conveyors, Silos, weighing machines, bucket elevators, etc.	1	3.50

*Source: NIFTEM Manual*

1. Destoner	2. Magnetic separator
	
3. Colour sorting machine	4. Packaging machine
	

### 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)**—There is no common facility cold storage, reefer van, warehouses, and pack houses in the district. 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, only a few tons of the crop produced in the district is processed (Primary processing) and the majority of the growers are selling the crop directly to the traders and the wholesalers in the district. It is proposed to provide advanced machineries like Vibrating pre-cleaner, De-stoner, Magnetic separator, Gravity Separator, Color sorting machine, and Packaging machine, 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 material

### 3.5.1 The vital raw materials and all the added materials along with that

Rajma is the major raw material in rajma processing. 90% of the rajma is recovered from the rajma processing. 10% of the wastage includes split grains, stones, metals, other metals, etc.

### 3.5.2 The quality parameters being checked for all the raw materials

Beans shall be sound, clean, sweet, dry, wholesome, and free from admixture of unwholesome substance. It shall also conform to the following standards, namely:

S. No	Particulars	Standards
1	Moisture	Not more than 14 percent by weight (obtained by heating the pulverized grains at 130oC-133oC for two hours).
2	Foreign matter (Extraneous matter)	Not more than 1 percent. by weight of which not more than 0.25 percent. by weight shall be mineral matter and not more than 0.10 percent. by weight shall be impurities of animal origin.
3	Other edible grains	Not more than 0.5 percent by weight.
4	Damaged grains	Not more than 5 percent by weight.
5	Weevilled grains	Not more than 3 percent by count.
6	Uric acid	Not more than 100 mg. per kg.
7	Aflatoxin	Not more than 30 micrograms per kilogram.

Provided that the total of foreign matter, other edible grains, and damaged grains shall not exceed 6 percent by weight.

### 3.5.3 Whether the raw materials are perishable

The rajma crop is semi perishable

**Table 2: Perishable nature of the produce**

S. No	Product	Shelf life
1	Fresh rajma	2-3 days
2	Dried rajma	2-3 years
3	Canned beans	3-5 years
4	Rajma flour	4-6 months

### 3.6 Production Process

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

### 3.7 Product Range

In the district, only dried bean processing exists. The other possible forms of kholar are listed below

- Canned beans
- Bean flour
- Baked beans
- Rehydrated beans
- Refried beans

**3.8 Technology**

Farmers and processors are following the traditional method of drying, sorting, and grading the rajma crop in the district. It is suggested to provide the new machinery and equipment like vibrating pre-cleaner machine, de-stoner, magnetic separator, gravity separator, color sorting machine, and packaging machine at the subsidized price for the new and existing enterprises in the district to increase the quantity of crop processing.

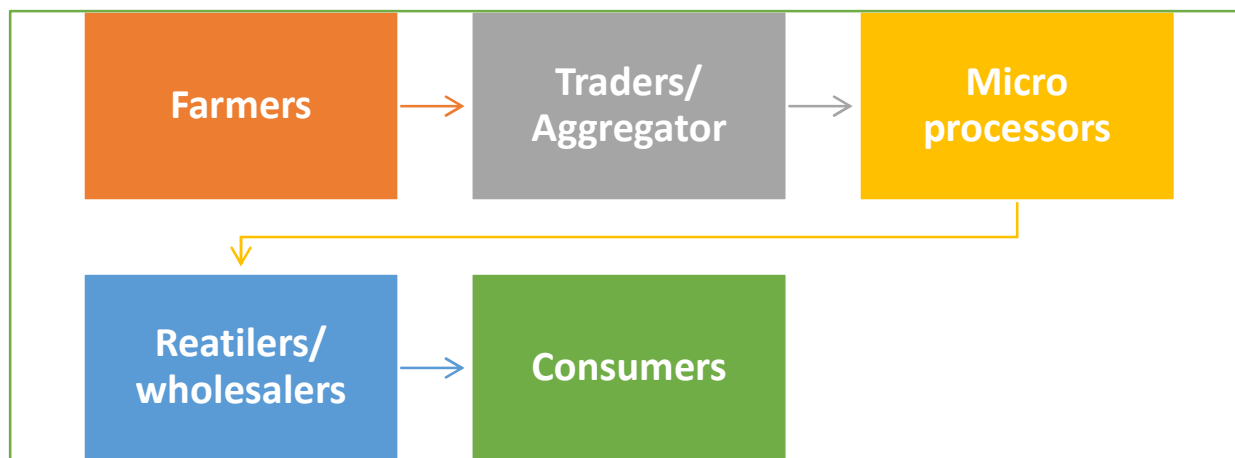
**3.9 Marketing**

Farmers or traders are processing (primarily processing) the rajma crop 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. None of the primary processing enterprises are selling products with a specific brand name.

From the primary survey, it is observed that almost 50 to 60% of the total processed rajma is sold within the district through local retailers and approximately only 40 to 50% of the produce is exported to other districts in the state through the wholesalers.

**Table 3: Existing sales channels in the district**



**3.10 Human Resource**

As the business volume will increase human resources will require and which is available in the district that takes care of the operations management, labor, accounts, and other departments. Approximately 209 laborers are working in 21 units.

### 3.11 Skill Development

There is a shortage of skilled labor in the rajma 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 primary processing and secondary processing (Rajm flour, canned rajma). Skill training is required regarding the use of advanced technology and machinery like Vibrating pre-cleaner, Destoner, Magnetic separator, Gravity Separator, Colour sorting machine, packaging machine, etc. It is suggested to provide the training and skill development on creating the branding and marketing of the produce.

### 3.12 Testing

The majority of the processing enterprises in the district are selling packed rajma 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 packed rajma are mentioned in section 1.6 (Test done for the produce)

### 3.13 Institutional Support

#### **Agriculture infrastructure fund:**

#### **Implementation period:**

The Scheme will be operational from 2020-21 to 2029-30. Disbursement in four years starting with a sanction of Rs. 10,000 crores in the first year and Rs. 30,000 crores each in the next three financial years. The moratorium for repayment under this financing facility may vary subject to a minimum of 6 months and a maximum of 2 years.

#### **Eligible organization/ Individuals:**

- Agricultural Produce Market Committee
- Agri-Entrepreneur
- Central sponsored Public-Private Partnership Project
- Farmer
- Farmer Producers Organization
- Federation of Farmer Produce Organizations
- Joint Liability Groups
- Local Body sponsored Public-Private Partnership Project
- Marketing Cooperative Society
- Multipurpose Cooperative Society
- National Federations of Cooperatives
- Primary Agricultural Credit Society
- Self Help Group

- Federations of Self-Help Groups
- Start-Up
- State Agencies
- State Federations of Cooperatives
- State-sponsored Public-Private Partnership Project

### **Eligible projects:**

The scheme will facilitate the setting up and modernization of key elements of the value chain including

#### **A. Post Harvest Management Projects like:**

- I. Supply chain services including e-marketing platforms
- II. Warehouses
- III. Silos
- IV. Packaging units
- V. Assaying units
- VI. Sorting and grading units
- VII. Cold stores and cold chains
- VIII. Logistics facilities
- IX. Primary processing centers
- X. Ripening Chambers
- XI. Waxing plants

#### **B. Viable projects for building community farming assets including –**

- I. Organic inputs production
- II. Bio-stimulant production units
- III. Infrastructure for smart and precision agriculture.
- IV. Projects identified for providing supply chain infrastructure for clusters of crops including export clusters.
- V. Projects promoted by Central/State/Local Governments or their agencies under PPP for building community farming assets or post-harvest management projects.

### **Size of financing facility and eligible beneficiaries:**

Rs. 1 Lakh Crore to be provided by banks and financial institutions as loans to Primary Agricultural Credit Societies (PACS), Marketing Cooperative Societies, Farmer Producers Organizations(FPOs), Self Help Group (SHG), Farmers, Joint Liability Groups (JLG), Multipurpose Cooperative Societies, Agri-entrepreneurs, Startups and Central/State agency or Local Body sponsored Public Private Partnership Projects.

PACS that have adopted digitization for handling their operations will be given preference under this scheme.

**Participating institutions:**

All scheduled commercial banks, scheduled cooperative banks, Regional Rural Banks (RRBs), Small Finance Banks, Non-Banking Financial Companies (NBFCs), and National Cooperative Development Corporation (NCDC) may participate to provide this financing facility, after the signing of the Memorandum of Understanding (MoU) with National Bank for Agriculture and Rural Development (NABARD)/DACandFW.

**Sector-specific focus:**

24% of total grants-in-aid under the scheme should be utilized for SC/ST entrepreneurs (16% for SC and 8% for ST). Besides this, lending institutions will ensure adequate coverage of entrepreneurs belonging to women and other weaker segments of society. It has to be ensured that the benefits of the scheme are inclusive and accrue to the intended beneficiaries.

S. No	Crops	Eligible PHM and Primary processing activities	Not eligible under AIF
1	Cereals (Wheat, Paddy, etc.)	<ul style="list-style-type: none"> <li>➤ Cleaning</li> <li>➤ De-stoning</li> <li>➤ Sorting and grading</li> <li>➤ Hulling</li> <li>➤ Milling</li> <li>➤ Pounding</li> <li>➤ Grinding</li> <li>➤ Tempering</li> <li>➤ Parboiling</li> <li>➤ Soaking</li> <li>➤ Drying</li> <li>➤ Sieving</li> <li>➤ Irradiation</li> </ul>	<ul style="list-style-type: none"> <li>➤ Fermentation</li> <li>➤ Baking</li> <li>➤ Puffing</li> <li>➤ Flaking</li> <li>➤ Frying</li> <li>➤ Extrusion</li> <li>➤ Blending</li> <li>➤ Roasting</li> </ul>
2	<b>Fruits and Vegetables</b>	<ul style="list-style-type: none"> <li>➤ Washing</li> <li>➤ Cleaning</li> <li>➤ Drying</li> <li>➤ Sorting</li> <li>➤ Grading</li> <li>➤ Blanching for primary processing</li> <li>➤ Cooling</li> <li>➤ Waxing</li> </ul>	<ul style="list-style-type: none"> <li>➤ Dehydration</li> <li>➤ Concentrated products</li> <li>➤ Canning</li> <li>➤ Juice extraction</li> <li>➤ Sterilization</li> </ul>

S. No	Crops	Eligible PHM and Primary processing activities	Not eligible under AIF
		<ul style="list-style-type: none"> <li>➤ Conditioning</li> </ul>	
3	<b>Oilseeds</b>	<ul style="list-style-type: none"> <li>➤ Cleaning</li> <li>➤ De-stoning</li> <li>➤ De-husking (decorticating machines)</li> <li>➤ Winnowing</li> <li>➤ Oil extraction (Ghani, hydraulic press, etc.</li> </ul>	<ul style="list-style-type: none"> <li>➤ By-product utilization</li> <li>➤ Refining</li> <li>➤ Neutralization</li> <li>➤ Bleaching</li> </ul>
4	<b>Pulses</b>	<ul style="list-style-type: none"> <li>➤ Cleaning</li> <li>➤ De-stoning</li> <li>➤ Drying</li> <li>➤ Sorting and grading</li> <li>➤ De-husking</li> <li>➤ Splitting</li> <li>➤ De-hulling</li> <li>➤ Milling</li> <li>➤ Irradiation</li> </ul>	<ul style="list-style-type: none"> <li>➤ Canning</li> <li>➤ Besan</li> <li>➤ Papads</li> <li>➤ Pulse based foods</li> <li>➤ Puffed chickpea</li> <li>➤ Pulse polishing</li> </ul>
6	<b>Sugarcane</b>	<ul style="list-style-type: none"> <li>➤ Cane unloading</li> <li>➤ Cleaning</li> <li>➤ Cane breaking</li> <li>➤ Cane milling</li> <li>➤ Straining</li> <li>➤ Evaporators</li> <li>➤ Centrifugation</li> <li>➤ Storage tanks</li> <li>➤ Dryers</li> </ul>	
7	<b>Spices</b>	<ul style="list-style-type: none"> <li>➤ Cleaning</li> <li>➤ Drying</li> <li>➤ Sorting</li> <li>➤ Boiling</li> <li>➤ Polishing</li> <li>➤ Grinding</li> <li>➤ Packaging</li> <li>➤ Storage</li> <li>➤ Irradiation</li> </ul>	<ul style="list-style-type: none"> <li>➤ Roasting</li> <li>➤ Sterilizing</li> <li>➤ Thermal treatment</li> </ul>
8	<b>Coffee</b>	<ul style="list-style-type: none"> <li>➤ Cleaning</li> </ul>	<ul style="list-style-type: none"> <li>➤ Roasting</li> </ul>

S. No	Crops	Eligible PHM and Primary processing activities	Not eligible under AIF
		<ul style="list-style-type: none"> <li>➤ Drying of cherries</li> <li>➤ Washing</li> <li>➤ Hulling</li> <li>➤ Pulping</li> </ul>	<ul style="list-style-type: none"> <li>➤ Grinding</li> <li>➤ Extraction</li> </ul>
9	Cashew	<ul style="list-style-type: none"> <li>➤ Cleaning</li> <li>➤ Streaming in boiler</li> <li>➤ Shell cutting</li> <li>➤ Drying</li> <li>➤ Peeling</li> <li>➤ Grading</li> <li>➤ Packaging</li> </ul>	

### 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 rajma crop quality 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 rajma crops. There are no harmful bi-products released in processing the rajma crop in the district.

### **3.17 Cluster Actors**

#### **No. of skilled and semi-skilled Workers**

Altogether about 98154 workers are available in the district. Out of which 52931 are male & 45223 are female workers available in the district.

Almost 209 workers are engaged in the Kholar processing units out of which 95% are female workers

#### **Manufacturers**

Kholar processing units are operating at the micro level in the district. The majority of the units are operating at the proprietorship level and marketing the products within the district. There is no export of the products out of India from the district.

**Unit Owners** – approximately 21

#### **Raw Material Supplier-**

- Kholar Growers are the main raw material suppliers
- Wholesalers or traders in the village or Tuensang town supply the material to processing units in the district.
- An ample amount of raw material i.e. Kholar beans are available in the district

#### **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.

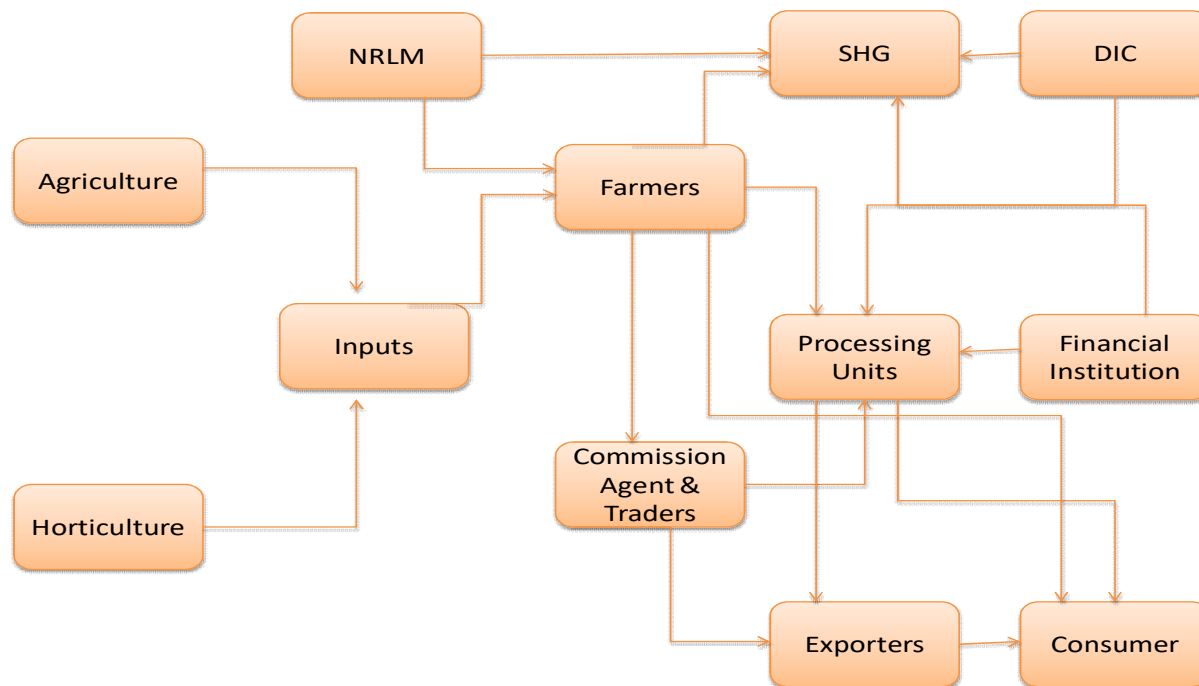
#### **Marketing Players**

There are no major marketing players in the district. Farmers are selling the produce across the district 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 point number 2.1, 2.2 & 2.3 of this document.

### 3.19 Cluster Map



### 3.20 Value chain

The farmers are selling the produce to the local retailers and the traders in the district at discounted prices (25 to 30 INR Per Kg) and the traders are further selling the produce to the wholesalers (30 to 35 INR Per Kg). Processing enterprises are purchasing from the traders or the wholesalers in the district at the average price of INR 40 per kilogram and selling the processed products to the retailer (INR 100 to 105 Per Kg) in the district and retailers in other districts. A retailer in the district sells the produce to the consumer (105 to 110 INR per Kg) in the district.

S. No	Particulars	Activities	Purchasing price (Per Kg)	Selling price (Per Kg)	Difference in (Rs)
1	Farmer	Cultivation		25 to 30	
2	Trader	Primary processing, Storage, and Transport	25 to 30	30 to 35	5 to 10
3	Microprocessor	Processing (10% crop waste (Split grains, stones, other metals, etc.)	35 to 40	100 to 105	65-70
4	Retailer	Storage and distribution	100 to 105	105 to 110	5-10

*Source- Primary survey*

### 3.21 Product Cost Analysis

It is estimated that INR 72.5 expenditure was incurred in processing the 1-kilogram rajma crop processing. Revenue generated by selling a 1-kilogram rajma crop is INR 100. Net profit incurred in the processing of 1 Kg rajma crop is INR 27.5 with a B: C ratio of 1.4. 90% of the whole rajma is recovered in processing the rajma crop.

S. No	Particulars	Cost per Kg
<b>Expenditure</b>		
<b>I</b>	Variable cost	
<b>i</b>	Raw material- Kidney Beans	45.0
	Processed rajma (90% recovery)	49.5
	Total	49.5
<b>ii</b>	Wages	5.6
<b>iii</b>	Electricity bill	1.2
<b>iv</b>	Packaging material	10.0
<b>v</b>	Transportation (Loading and Unloading charges)	5.0
	Total Variable cost	71.3
<b>II</b>	Miscellaneous	1.2
	Total expenditure (Variable cost+ Miscellaneous)	72.5
<b>Revenue</b>		
	The selling price of the Processed rajma	100.0
	Revenue	100.0
	Profit (Revenue- Expenditure)	27.5
	<b>B: C Ratio</b>	<b>1.4</b>

### 3.22 SWOT Analysis

Strength	Weakness
<ul style="list-style-type: none"> <li>• Abundant availability of the raw material in the district</li> <li>• Organic production of the rajma crop in the district</li> <li>• Strong domestic demand for processed rajma crops in the district.</li> </ul>	<ul style="list-style-type: none"> <li>• The industry is small, unorganized, and scattered.</li> <li>• Lack of awareness about the government promoting schemes and policies for the processors in the district</li> <li>• Lack of funds and financial support to purchase advanced machineries and equipment like vibrating pre-cleaner, De-stoner, Magnetic separator, Gravity Separator, Color sorting machine, and packaging machine.</li> <li>• Processing the district is only confined to</li> </ul>

	<p>primary processing. Lack of secondary processing like rajma flour, canned rajma, etc.</p> <ul style="list-style-type: none"> <li>• No formal organization or cluster for the rajma processing in the district.</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Opportunity to create the brand for the rajma based products in the district</li> <li>• Opportunity to upgrade the existing units with the support of schemes implemented by the state and central government</li> <li>• Tremendous scope for secondary processing like rajma flour and canned rajma.</li> <li>• The product can be sold through exhibitions, events, online stores, and distributor networks.</li> <li>• There is tremendous scope to cater to foreign markets for the export of value-added products of the rajma crop.</li> </ul>	<ul style="list-style-type: none"> <li>• Competition from the settled brands in the market.</li> <li>• The quality and the safety standards of the micro-processing units are a challenge</li> <li>• Huge fluctuation in the raw material cost.</li> </ul>

#### 4. Benchmark Studies

##### Success Story of A Producer Company Owned by Rural Women in Uttarakhand

**Name of the FPOS:** - Devbhumi Natural Products Producer Company Limited (DNPPCL)

DEV BHUMI NATURAL Products Producers Co. Ltd (DNPPCL) is a community-owned company with a vision to create conservation through enterprise. It works towards this goal by actively promoting its core activities — such as sericulture, organic honey, organic spices, and eco-tourism — in some of the remote villages of Uttarakhand. DNPPCL works closely with 4,500 primary producers, including 3,500 shareholders who're also involved in the commercial cultivation of some of these products. These activities are spread out over 450-odd remote villages in the five districts of Rudraprayag, Chamoli, Tehri, Uttarkashi, and Pauri Garhwal in Uttarakhand. DNPPCL's pioneering efforts to develop infrastructure in all these areas have enabled the primary producers to actively move up the value chain and also enabled the company to post a turnover of Rs. 1.7 million in 2011-12. Because of this initiative, 4,500 primary producers "mostly women" now get better prices for their produce, aided by innovative steps like the setting up of primary processing facilities for organic spices, organic honey production, and in sericulture. These processes have improved the capacity of primary producers and helped in value addition, improved processing, sorting and grading, hygienic storage, and transportation. The company has created a strong marketing network across the country and is continually working towards establishing a national and global presence for its certified organic produce from the Himalayan region. This has brought rural produce from the remote hill regions to the mainstream market. Once the

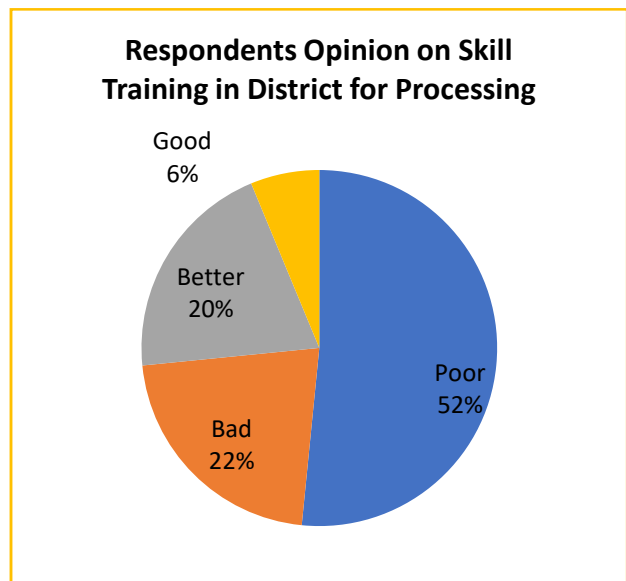
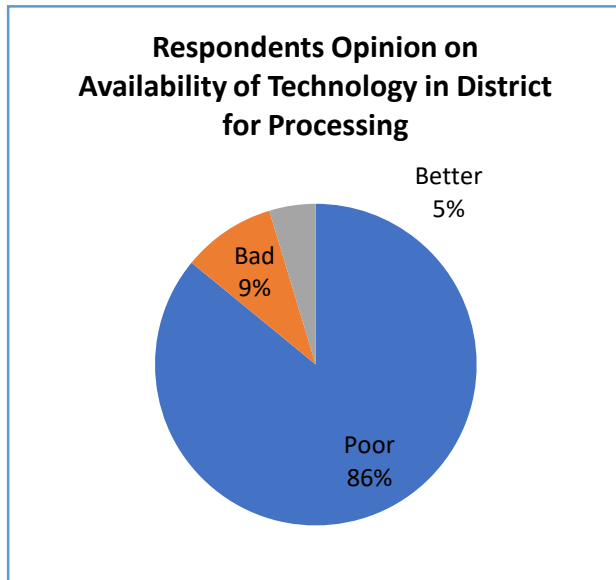
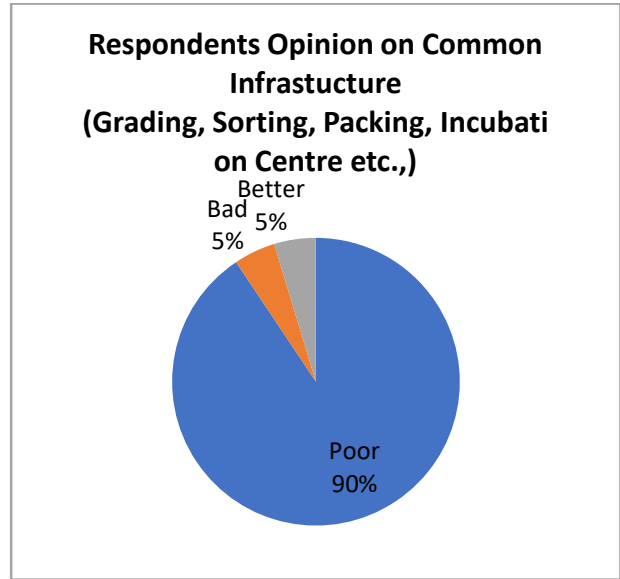
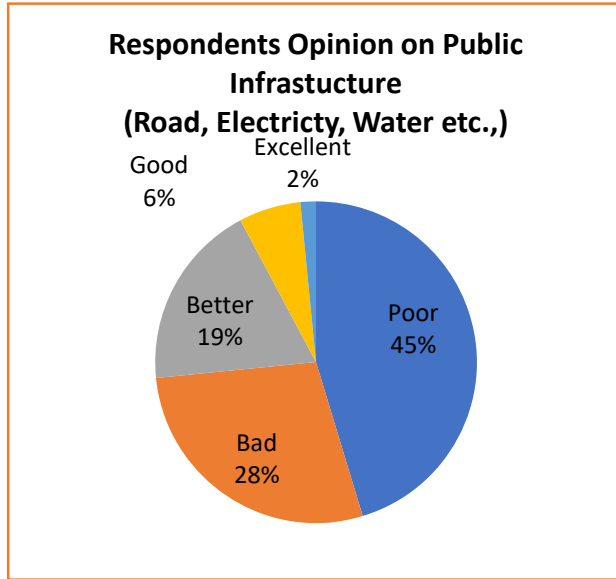
producers start cultivating commercial crops, such as honey, spices, and other items, they become the DNPPCL shareholders; and the company then helps the primary producers across various stages of the value chain so that they don't just limit themselves to the supply aspect of it. This movement across the growth of the value chain has ensured economic returns of Rs. 2,000- 5,000 per month. The producer company provides doorstep support in collection, storage, transportation as well as primary processing of the produce, and offers the required infrastructure for effectively undertaking these value chain-based activities. Thanks to the firm's pioneering work in marketing its products, the DevBhumi brand name is well-recognized and readily available in the market — especially in certified organic honey. Also, the company's sericulture wing (which involves rearing and processing cocoons into yarn) weaves a unique blend of "oak tussar" — used to make a variety of designer shawls, stoles, and scarves — which is widely popular. Highly-priced organic spices and rajma (kidney beans) — indigenous to the Himalayan regions — are also grown, processed, and marketed by the company. Its eco-tourism section allows the visitors to experience the lifestyle, culture, and natural wealth of rural Uttarakhand without compromising on comfort or luxury, along with minimal damage to the delicate ecological balance of this region. Thus, it can easily be said that DNPPCL has put in place a viable model of agribusiness for the market-oriented growth of small farmers. This is both relevant and suitable due to its focus on sustainable market development for marginalized farmers. Agriculture in remote regions creates challenges that prevent farmers from entering mainstream markets. By creating a strong supply chain — along with operational and managerial support — several small farmer-producer organizations (FPOs) now can create a strong presence in a highly competitive market and be at par with the best. The model has also been able to leverage the financial resources needed for working capital to assist primary producers from the National Bank for Agriculture and Rural Development (NABARD) and Friends of Women's World Banking (FWWB).

### **5. Stakeholder Consultation**

#### **Individual Meetings –**

A Survey of 21 Kholar processing units is done through face-to-face meetings. To understand their perspective about business & other factors related to processing industries. All the information mentioned in the questionnaire is filled in individual meetings.

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 & discussions**

The 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 small processors have adopted the traditional method of processing.
- The availability of new technology or modern method of processing (using semi-automated and automated machinery) is lacking.
- There is no availability of common infrastructure facilities such as incubation center, grading, sorting, and packing units
- Transportation is a huge problem in the district
- The marketing of products is a challenge in the district due to logistic problem
- There is a huge scope for organic kholar products in the district as well as in nearby districts
- There is a high requirement for skill training and development for micro and small processors
- 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

Gaps	Remarks
Secondary Processing	<ul style="list-style-type: none"> <li>• Kholar processing in the district is confined only to the primary processing i.e. drying, cleaning, grading sorting, and packaging of the dry beans.</li> <li>• It is suggested to increase awareness among the processors about the secondary processing lines like rajma flour, and canned rajma which have huge demand in the domestic and international market.</li> <li>• It is suggested to promote the Kholar crop produced in the district as 'Organic produce' and can cater premium segment of the market</li> </ul>
Technology	<ul style="list-style-type: none"> <li>• There is no use of advanced technology or machine-like Vibrating pre-cleaner machine, De-stoner, Magnetic separator, Gravity Separator, Color sorting machine, and packaging machine.</li> <li>• It is suggested to provide the machinery for the processing enterprises at subsidized processes to increase the quantity of crop processing in the district.</li> </ul>
Public Infrastructure	<ul style="list-style-type: none"> <li>• The good quality road is the basic infrastructure required for the processing enterprises in the district.</li> <li>• Due to poor quality of roads, transportation for the product is getting affected.</li> <li>• It is suggested to construct better roads to increase the exporting of rajma crops and processed rajma-based products from the districts to other districts and states.</li> </ul>
Testing Facilities	<ul style="list-style-type: none"> <li>• There are no proper testing labs in the Tuensang district. The majority of the enterprises in the district are not certified by the FSSAI.</li> <li>• It is proposed to set up the FSSAI testing lab in the district.</li> </ul>
Skill Training	<ul style="list-style-type: none"> <li>• There is a shortage of skilled labor in the processing industries.</li> </ul>

Gaps	Remarks
	<ul style="list-style-type: none"> <li>The areas to be covered in Training and marketing are the Standardized process of processing, Packaging of the produce, branding, and marketing of the processed products, and Handling the advanced machinery and equipment like Vibrating pre-cleaner machine, De-stoner, Magnetic separator, Gravity Separator, Color sorting machine, and packaging machine and processing the products according to the FSSAI standards.</li> </ul>
Marketing	<ul style="list-style-type: none"> <li>The majority of the products processed in the district are consumed in the district itself. There are no marketing facilities available for processing enterprises in the district.</li> <li>There is a strong need to market the product through various channels like events, exhibitions, online marketing, etc.</li> <li>It is proposed to create a brand and market for the products in the district.</li> <li>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.</li> </ul>
Cluster	<ul style="list-style-type: none"> <li>All the food processing industries in the district are scattered in the district. There is no formal cluster for rajma processes in the district as there is no existing infrastructure.</li> <li>There is enough scope for rajma processing in the district due to the abundant availability of raw materials and demand for canned rajma and rajma flour in the district and the country.</li> </ul>

### Rating of Response Count (Based on Primary Survey)

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

S. No	Particular	Response Count					Not Responded	Total
		1	2	3	4	5		
1	Public infrastructure such as roads for backward and forward linkages	26	0	0	0	0	0	26
2	Access to common facilities such as grading, sorting, packaging, cold chain facilities, etc.	25	1	0	0	0	0	26
3	Access to testing facilities	26	0	0	0	0	0	26

4	Compliance with standards and the frequency of inspections from the safety regulators	25	1	0	0	0	0	26
5	Skill training needs	24	2	0	0	0	0	26
6	Manufacturing practices	25	1	0	0	0	0	26
7	Technologies Available	25	1	0	0	0	0	26
8	Access to finance	25	1	0	0	0	0	26
9	Access to mentorship/ service	24	2	0	0	0	0	26
10	Awareness of Govt Policies among micro /small manufactures	25	1	0	0	0	0	26
11	Awareness of ODOP products in the District	26	0	0	0	0	0	26
12	Marketing/sales facilities	25	1	0	0	0	0	26
13	Facilities for the workers	25	1	0	0	0	0	26

**Public infrastructure such as roads for backward and forward linkages** – All respondents rated it on a scale of 1, which means it is in poor condition & needs to look into it on a priority basis.

**Access to common facilities such as grading, sorting, packaging, cold chain facilities, etc** – Facilities like the warehouse is not available

**Access to testing facilities** – The majority of respondents mentioned there is a dire need for testing facilities in the district

**Compliance to 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 the 1<sup>st</sup> and 2<sup>nd</sup> scale, means there is a need for training for the workers engaged in Kholer processing

**Technologies Available** – Lack of technology & 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** – most of the respondents mentioned the need for mentorship to upgrade their business & livelihood.

**Awareness of Govt Policies among micro /small manufacturers** –There is no awareness of any government schemes.

**Awareness of ODOP products in the District** –The majority of respondents are not aware of ODOP in the district.

**Marketing/sales facilities** – Most of them expressed that they need proper training in marketing & branding to improve their business.

## 7. Recommendations

### 7.1 Project Strategy and Interventions

**Before devising the intervention strategy, let us understand the context of processing in the district.**

#### Context of ODOP Processing (Kholar)

The total area under kholar in Tuensang district is 5980 ha and the district produced around 7751 MT of kholar in 2019-20, of which a major portion of it is consumed as fresh within the district as well as nearby districts and states.

As part of our primary survey, we interviewed the above 21 units, whose primary activity is kholar production, pre-processing, packing, and selling. The core business of active units is to produce kholar and sell the product (pre-processed) within the district to local retail shops, and traders and also directly to consumers and also export to neighboring districts and states.

S. No	Particulars	Commodities	Number of units
1	ODOP (Existing Enterprises- Primary processing)	Rajma-based products	21
2	Non-ODOP (Individual Potential Enterprises)	Pickles- Naga chili, bamboo pickle, Fish pickle, and Meat pickle. Honey Based products Large cardamom-based products Thanamir apple products Ginger based products Gooseberry based products Mango based products	89
3	Non-ODOP (Group Potential Enterprises)	Pickles- Naga chili, bamboo pickle, Fish pickle, and Meat pickle. Honey Based products Large cardamom-based products Thanamir apple products Ginger based products Gooseberry based products Mango based products	11

S. No	Particulars	Commodities	Number of units
	<i>Source-Primary Survey</i>		

**Proposed fund allocation:**

A total of INR 26 Cr. fund is proposed for the Tuensang district for the up-gradation of 121 existing and new units in the district. Among the total fund, INR 16.1 Cr. fund is proposed to upgrade the 110 individual units and 1.60 Cr. fund is proposed to upgrade the 11 groups in the district. It is proposed to establish one incubation center and one common infrastructure in the district. INR 1.2 Cr. and 0.12 Cr. fund is proposed for the branding and marketing and training and mentorship for the existing and new potential processing enterprises in the district.

Intervention	Target	Amount (Cr.)
Capital investment in plant and machinery (Individual units)	To upgrade and scale up the production process for 110 Micro Units (The average fund required per unit is 14.6 lakh)	16.10
Capital investment in plant and machinery (Group units)	To upgrade and scale up the production process for 11 Groups (The average fund required per unit is 14.6 lakh)	1.60
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.	4.00
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 128 individuals. ( 2 people to be trained from each enterprise/group)	0.12
<b>Total</b>		<b>26.00</b>

**Expected Government assistance:**

A total of INR 26 Cr. fund is proposed for the Tuensang district for the up-gradation of 121 existing and potential new units in the district. INR 11.07 Cr. is expected government assistance under the SLUP from the total fund proposed for the up-gradation of the food processing units.

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)	110	0.146	16.10	0.35	5.64
Capital Investment in Plant and Machinery (FPO/SHG/ Cooperatives)	11	0.145	1.60	0.35	0.56

Common Infrastructure	1	4.00	4	0.35	1.4
Incubation Cum Custom Hiring Centre	1	2.75	2.75	1	2.75
Branding and Marketing (Total no. of Units/group)	121	0.010	1.20	0.5	0.6
Training and Mentorship (No. of the individual)	121	0.0010	0.12	1	0.12
<b>Total</b>			<b>26</b>		<b>11.07</b>

**Individual existing** – During the primary survey respondents (existing individual and potential units) expressed that they are interested in making processed kholar products.

Respondents of individual units expressed that they need funds for the purchase of new machinery grain dryer, warehouse machine, sortex machine, and packing machine.

**Individual new** – During the primary survey, we have asked new/potential entrepreneurs (large farmers) if they are willing to enter into processing, and if yes, into which products. New/potential entrepreneurs expressed that they are interested in kholar flour.

**Groups** – There are no FPOs/ cooperatives for ODOP processing in the district, but few SHGs are active in dry kholar making. The fund requirement for an SHG is for the purchase of new machinery, skill development, branding, and marketing. It was emerging from the primary survey that SHGs are willing to expand and they need funds. PMFME scheme can fill this gap.

**Common infrastructure** – Common infrastructure facilities such as grading, sorting, drying yard, and warehouse for storage of products are required in major kholar producing villages such as Tuensang village, Chessore village, and Kutur Village in Tuensang district. Approximately 0.75 crores of funds are required to establish mentioned common infrastructure facilities. This is can be established by the state agriculture department or DIC.

**Marketing & branding-** There is a need for mass advertisement and campaigning for ODOP products in the district to create awareness about local products, and here we are specifically talking about indigenous kholar beans

Through primary survey observed that the majority of the respondents expressed that they are willing to produce processed kholar products but they don't know where to sell the processed products. Once the marketing channel is well established more new entrepreneurs will enter into the processing activity.

- The brand needs to establish. There is huge scope and demand for indigenous variety across India as well as outside India. Most people are not aware of the specialty and uniqueness of kholar beans in India, to reach more people mass marketing and branding are required. This is can be achieved through exhibitions and kholar fest once a year across India.

Approximately 20 lakhs of funds are required to establish branding and marketing. This can be achieved with the integrated approach of the state marketing board, agriculture department, and DIC.

**Training and skill development-** Through the primary survey we observed that majority of kholar producers are not involved in post-processing activities and only they are involved in drying and packing dried beans. If training on new technologies and modern way of processing which is machine-oriented, training and skill development on types of machinery and equipment, branding and marketing is given then may show interest to enter into processing activities such as kholar bean flour and this can be done through PMPME scheme.

**7.2 Vision Statement and Key Objectives for SLUP**

**Vision Statement:** To increase the quantity of rajma crop processing from the existing 2% of the total crop processing to 5 to 10% of the total crop production in the district 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.

Particulars	Requirement	Supporting Department/Agencies
Marketing	<ul style="list-style-type: none"> <li>• Training and Skill Development</li> <li>• Packaging, Labeling, and Branding</li> <li>• Qualitative and Quantitative Testing</li> </ul>	<ul style="list-style-type: none"> <li>• DIC and Financial institutions should support Packing, labeling, and branding.</li> <li>• FSSAI should involve in the certification and licensing of the product.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• Common infrastructure such as grading, sorting, drying yard, and warehouse for storage is required.</li> </ul>	<ul style="list-style-type: none"> <li>• Support from DIC, the state agriculture department, and financial institution is required for the establishment of the required infrastructure.</li> </ul>
Employees	<ul style="list-style-type: none"> <li>• Training on Post Harvest Management, Processing Technology, and Handling of pieces of machinery</li> </ul>	<ul style="list-style-type: none"> <li>• DIC should train the workers in handling machinery.</li> <li>• Agriculture, Horticulture, and NRLM should train the workers on post-harvest management and processing technology.</li> </ul>

## 7.4 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 121 enterprises in the district (Group and Individual units)	16.6
3	Common facilities	Proposed one common facility center and one incubation center in the Tuensang 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.	1.3
	<b>Total</b>		<b>24.65</b>

## 8. Key Impacts

Particulars	Impact
Opportunity to increase processing activity	<ul style="list-style-type: none"> <li>Through support under the PMFME scheme, there is a possibility of an increase of 10% to 15% processing of total crop production in the district in the next three to five years.</li> </ul>
Employment	<ul style="list-style-type: none"> <li>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.</li> </ul>
Income	<ul style="list-style-type: none"> <li>Through proper branding and marketing, the net profit of units will increase by 25%-35 %</li> </ul>
Reduce waste	<ul style="list-style-type: none"> <li>Through processing and common infrastructure, farm-level waste might reduce to 5 % from current 10 %</li> </ul>
Better Profits	<ul style="list-style-type: none"> <li>Micro Units can expect a 25 % increase in profits with Better market linkages and Branding</li> </ul>
Better Price Realization	<ul style="list-style-type: none"> <li>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.</li> </ul>

## Tuensang District Up gradation Plan | 2022

### Annexure:

#### Detail List of FPOs for assessment under PM-PME in Tuensang District

S. No	Name of the FPO	Location	Contact details	Total No. of Registered members	Produces/ Products manufactured
1	Thanjam Edou farming CD Ltd., NL/8390 Dt. 04.05.2016	Tuensang Town, Tuensang	Mongba 8974532298	35	Ginger & fruits
2	Life Elaichi Agri & Allied CS Ltd., NL/8806 Dt. 31.05.2018	3rd NAP Sector, Tuensang	Patsoi	35	Cardamon, pulses
3	Ngangpong farming CS Ltd NL/6648 Dt. 27.07.2009	Ngangpong village, Tuensang	Chukangba 8974677383	35	Rice, Cardamon
4	Sangmei FPO Agri & Allied CS Ltd., NL/9123 Dt. 27.08.2019	Noksen, Tuensang	A. Thungti 8415827473	25	Cereals, Rice & fruits
5	Singru-Luh Farmers producers CS Ltd., NL/9104 Dt,12.07.2019	Chare, Tuensang	Tsingthrongse 9862116758	25	Vegetables & fruits
6	Rhododendrom valley farmers producers CS Ltd. NL/9103 Dt.12.07.2019	Longkhim, Tuensang	Thsangso 8414984345	40	Vegetables & fruits
7	Niyiyong MPCS Ltd., NL/3462 Dt. 05.07.1996	Chare Town, Tuensang	Lichem 8787371504	50	Cardamon
8	Anganba Village VDB MPCS Ltd., NL/6315 Dt. 01.04.2007	Anganba village	Setchachum 8837002486	60	Cardamon & Ginger
9	Longkhitpeh Village integrated MPCS Ltd., NL/8866 Dt. 13.09.2018	Longkhitpeh village	L. Hopongse	120	Ginger & fruits
10	Ajei-Ai Watthat FPO Agri & Allied CS Ltd., NL/9122 Dt. 27.08.2019	Noklan Town, Tuensang	Beshang 8732074777	30	Cereals

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

The Nagaland State Co-operative Marketing & 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.

## Tuensang District Up gradation Plan | 2022

### Total Number of Cooperative Societies as On 30.01.21.

S. No	Type of Society	Km a	Dm p	Mk g	Ts g	Wk a	Zbt o	Ph k	Mo n	Per en	Kpr e	Lgl g	Mb a	Pf tr	St k	Tot al
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 & 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

## Tuensang District Up gradation Plan | 2022

S. No	Type of Society	Km a	Dm p	Mk g	Ts g	Wk a	Zbt o	Ph k	Mo n	Per en	Kpr e	Lgl g	Mb a	Pf tr	St k	Tot al
	Education & Training C.S. Ltd.	1	-	-	-	-	-	-	-	-	-	-	-			1
	Dry Cleaners	1	-	-	-	-	-	-	-	-	-	-	-			1
4	Multi Purpose C.S. Ltd.	85 4	97 4	32 0	24 9	42 6	28 7	23 1	97	104	16 0	35	11 8			385 5
5	Marketing C.S. Ltd.	10	28	19	28	5	9	13	3	2	5	1	1			124
	Trading	-	-	1	-	-	-	-	-	-	-	-	-			1
6	Weaving & Handloom/Knitting	12	15	37	49	43	76	34	40	22	26	12	7	-		628
	/Handicraft /Industrial C.S. Ltd.	7	5													
7	Dairy C.S. Ltd.	37	58	13	25	6	20	30	17	7	9	1	2		1	226

## Tuensang District Up gradation Plan | 2022

### List of SGHs in Tuensang District

S. No	Name Of The SHG	Location	Contact Details	Total No. Of Registered Members	Produces/ Products Manufactures	Marketing Details Of Produce/Product	Scale Of Production (In MT)
1	Limpetsun SHG	Chessore Village		No	Chilli Powder, Sticky Rice Biscuits	Sale Product Within Village	Chilli Powder 100 Packed, Sticky Rice Biscuits 150 Packets
2	Sunrise SHG	Sotokur Village	8131896941	No	Meat Pickle, Sticky Rice Biscuits	Sale Product Within Village	Meat Pickle 150 Pkds, Sticky Rice Biscuits 150 Packets
3	Thopunsan gpun SHG	Kuthur Village	8974706750	No	Beef Pickle	Sale Product Within Village	Beef Pickle 150 Packed
4	Doulongniu SHG	Pathso Village	9862023225	No	Gooseberry Juice	Local Market	50 Litres
5	Zoadam SHG	Pathso Village	8732835429	No	Gooseberry Juice	Local Market	50 Litres
6	Tsolie SHG	Pathso Nokeng Village	7085477559	No	Mango Juice	Local Market	10 Litres
7	Nuloh SHG	Yokao Village	6009338224	No	Dry Wild Apple & Juice	Local Market	50 Packets
8	Ajeiai SHG	Yokao Village	8119878178	No	Dry Wild Apple & Juice	Local Market	50 Packets
9	Thangjam SHG	Sangsangyu Village	6009902180	No	Ginger Candy	Local Market	50 Packets
10	Ausak SHG	Chendang Village	9862908422	No	Honey	Local Market	100 Litres

## Tuensang District Up gradation Plan | 2022

S. No	Name Of The SHG	Location	Contact Details	Total No. Of Registered Members	Produces/ Products Manufactures	Marketing Details Of Produce/Product	Scale Of Production (In MT)
11	Apisa SHG	New Tsaru Village	8974341136	No	Yongchak Pickle	Local Market	200 Packets
12	Ketso SHG	Noklak Village	9366974482	No	Chilly Pickle	Local Market	200 Packets
13	Sonao Son SHG	Noklak Village	7085927110	No	Wild Apple Juice & Candy	Local Market	200 Litre & 200 Packets
14	Dysu SHG	Sangsangmon g Village	9612417710	No	Popcorn	Local Market	300 Packets
15	Tasen SHG	Litem Village	8119026169	No	Jaggery	Local Market	50 Kg
16	Lumai SHG	Wapher Village	700569036	No	Roasted Kholar	Local Market	250 Packets
17	Kupyu SHG	Hakchang Village	8731856308	No	Ginger Candy	Local Market	200 Packets
18	Doche SHG	Tuengsang H.Q	8415055348	No	Meat Pickle, Sticky Rice Biscuits	Local Market	50 Packets & 100 Packets
19	Psww SHG	Tuengsang H.Q	9612871107	No	Gooseberry Juice & Candy	Local Market	100 Litre & 50 Packets
20	Ray Of Hope SHG	Tuengsang H.Q	8415876345	No	Ginger Candy	Local Market	50 Packets