

*DIAGNOSTIC STUDY REPORT*  
*ON*  
***FOOD PROCESSING CLUSTER***  
***OF KRISHNA DISTRICT***

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## **CHAPTER - I**

### **National Scenario:**

#### **Introduction:**

Agro processing is the transformation of agricultural produce into the form suitable for safe storage/transportation or of food material into edible form through stage wise refinements, its proper packaging either for handling or preservation need finally into ready to eat form can be called as agro processing. The technological complicity, managerial capacity and capital required depend upon the degree to which raw material is transformed. For instance, if it is primary processing, e.g. rice milling, all these are at lower scale, if it entails transformation of chemical properties of the raw material, like baby food formulations, all the above parameters are at the extreme end of the scale.

#### **Imperatives:**

India is the third largest producer of food grains after China and USA and largest producer of fruits and vegetables in world. However, wastages' to the tune of 30 to 40% of the produce occur, due to poor post-harvest facilities and this, results into a colossal monetary loss estimated at a staggering Rs.8000 crore. Thus, the primary objectives of processing are aimed at reducing the post-harvest losses and to provide remunerative prices to growers. The National agriculture Policy - June 2000, identifies food processing as a major segment and set an objective of increasing the food processing from existing 2% to 10% and value addition from 7% to 35% by 2010. The processed products will improve palatability, nutritional value and shelf life of the raw materials.

#### **Distribution - predominance of Unorganized sector**

The Food Industry structure reveals that only 55% of food manufacturing are in small scale and organized sectors, while 42% are in unorganized sectors (Source: Beverage and Food world, Sept, 2002).

#### **Major employment provider:**

Agriculture and food processing industries account for 26% of the GDP. Further, the food processing industry is labour intensive and a major employment provider. Presently, it employs 18 to 20% of country's labour force and contributes around 50% to industrial production. The employment generation potential is much higher than other sectors i.e. 54000 person get direct employment per Rs.1000 crore of investment in the food sector in comparison to 48000 in textiles and 25000 in paper industry. There is also four fold generation of indirect employment in the ancillary and down stream activities on account of the investment in the food sector. Further more than 60% of the employment generation is in small towns and rural areas (Saigal, 2001).

### Size of the industry:

According to the data published by Ministry of Food Processing industry, Food industry has already attained the turn over of Rs.2.5 lakh crore and value added products are expected to grow at a much faster rate i.e. from Rs.80000 crore to Rs.2.5 lakh crore by 2005 AD. The study of Mckinsey says, some 20 crore people will move from subsistence foods, like cereals and pulses, to basic products demanding more processing. This was also corroborated by NCAER study, according to which, the food spend proportion has dropped from 64% in 1970-71 to nearly 55% for now. The study concluded that, the country has moved up the food ladder - from subsistence to basic foods. The market for the food products is largely in the unorganised sector.

### Product Segmentation:

The main products in the processed food sector include processed fresh fruit and vegetables, soft drink bottling, confectionery products, bakery products, grain milling, and grain based products, poultry products, snack foods and ready-to-eat, ice creams, breakfast cereals, ground pastes of fresh produce for preparation of curries, ethnic foods, food additives, food flavors, processed ready to cook fish and meat products.

### Exports:

The Export of processed products from India is given in the following table:

SL. No	Item	Year (Rs. in crores)	
		2000-01	2001-02
<b>A. Processed Fruits and Vegetables:</b>			
1	Dried & Processed Vegetables	537.15	738.29
2	Mango Pulp	241.34	263.85
3	Pickle & Chutney	120.34	136.46
4	Other processed fruits and vegetables	201.74	206.94
	<b>Sub-total</b>	<b>1100.57</b>	<b>1345.54</b>
B.	<b>Animal products</b>	<b>1637.1</b>	<b>1500.93</b>
C	<b>Other Processed food</b> (Guar gum, Ground nut, alcoholic beverages, milled products)	<b>1798.0</b>	<b>1780.07</b>
D	<b>Cereals</b>		
1	Non-Basmati rice	779.49	1331.37
2	Basmati rice	2165.96	1842.77
3	Wheat	455.09	1330.20
4	Other cereals	38.89	115.92
	<b>Sub-total</b>	<b>3397.42</b>	<b>4620.26</b>
	<b>Total export of food(excluding marine products)</b>	<b>9212.88</b>	<b>10169.45</b>

(Source: APEDA, web site)

Owing to various initiatives taken by both Central and state Govt., export of processed food is on ascending scale, since 1993-94, and major destination is predominately Middle East countries.

## **Food Laws - Convergence and Harmonization**

The Food industry is regulated by plethora of regulations. These regulations- both voluntary and mandatory - are enforced to protect the rights and health of the customer, promote fair trade practices and ultimately for the development of the industry. These regulations are, Prevention of Food Adulteration Act, Milk and Milk Products Order, Fruit Products Order, Plant and Seeds (Regulations of Import into India) Order, Meat Products Order, The Edible Oils Packaging (Regulation) Order, Weights and Measures Act, Consumer Protection Act, Bureau of Indian Standards, Pollution Control standards, AGMARK etc.

Considering the difficulties expressed by food industry in complying with these regulations, GoI is contemplating converging of all food laws under one single act and harmonize the existing food laws with CODEX to align with world food standards.

## **Food Retailing - Riches lie in niches**

The organized food retailing - a modern expression of food retail merchants and last but one segment in the food chain- turnover of India is equivalent to turnover of the largest Carefour store in Paris or the largest Makro store in Amsterdam. The turnover of food at retail chains indicates that Indian consumer becoming quality conscious and more choosy.

## **Ethnic foods - untapped potential:**

The world's fastest growing food retailing is in the area of ethnic foods. To quote from International experiences, Italian supermarkets in Canada have been growing leaps and bounds, so is the case with Korean markets in California. An example from India - Lake Market in Kolkata, which has small drumsticks to onions that you can buy in Chennai.\*  
(Source: Indian Management, Vol.: 41, Issue: 8, November edition)

The potential for Indian ethnic foods, can be gauged by a cue that in California alone three million people of Indian origin; one million households. If they spend \$100 per month on ethnic food, it is \$1.2billion opportunity. Similarly, House of Spice, one of the two largest importers and whole salers of Indian groceries, has \$500 million turnover.

*It is not out of place to add that Andhra Pradesh contributes substantially to US Indian migrant population and they too want 'avakaya' - a home made mango pickle- to spice their life.*

## **Andhra Pradesh:**

*Andhra Pradesh is the fourth largest state in the Indian union in terms of area and largest in terms of population. The contribution of primary, secondary and tertiary sector to the state domestic product was 28%, 48% and 23% respectively during the year (2000-01). Paddy and Jowar are the staple food grains of the state accounting for about two thirds of total area under foodgrain crops. The state ranked third amongst the Indian states with respect to production of rice contributing to about 13% of India's total rice production and 2.8% of the world rice output.. The state ranks 2<sup>nd</sup> in the country in respect of production and area under Horticultural crops. Mango is the principal horticultural crop in the country.*

***Details of production of various products in Agriculture and allied sectors***

<b>Product</b>	<b>Rank in the country</b>	<b>Area in (Lakh ha.)</b>	<b>Production (lakh tonnes)</b>
Mango	First	2.97	23.79
Chilies	First	2.67	5.35
Turmeric	First	0.64	3.85
Oil palm	First	0.29	1.76
Citrus	First	0.77	11.66
Coriander	Second	0.59	0.18
Cashew	Third	1.41	0.85
Guava	Fourth	0.106	1.27
Grapes	Fourth	0.016	0.32
Banana	Fifth	0.48	12.12
Ginger	Fifth	0.02	0.11
Coconut	Fourth	1.01	1052
Cocoa	Second	0.029	0.015

*(Source: Pride of Andhra Pradesh)*

*The above table depicts the strong backward linkage to the agro processing sector. There are about 185 processing industries in the state, for processing of horticultural crops. Major concentration of these industries is in Chittor district*

## CHAPTER - II

### Description of the Cluster

Krishna District falls under Krishna-Godavari Zone. The geographical area of the district is 8.73 lakh ha consisting 50 mandals. Krishna district ranks third in terms of agriculture development and is endowed with natural resources and entrepreneurial abilities to harness the vast potential available in the district. The profile of the district is given in annexure .

The development of food processing industries is contingent on the availability of strong agricultural base. In Krishna district, Paddy occupies major chunk of cultivable area with acreage of 2.68 lakh Ha with production of 10.35 Lakh Mt. It ranks third in terms of paddy production from the state. The other crops grown are Sugarcane, Red gram, Green gram, black gram and chilies. Horticultural crops in the district occupy in an area of 1.00 lakh Ha that represents 21% of the district cropped area with an estimated production of 12 lakh MT. The major horticultural crops grown in the district are Mango, banana, and Sapota distributed in almost 25 mandals, plantation crops like Coconut in 20 mandals and cashew in 7 mandals. Mango accounts for 70% of the total horticulture area of the district and *rank first in respect of production in the state*. Area and production and productivity of horticultural crops are in the following table:

Sl.No	Crop	Area ( Ha)	Production (Lakh MT)	Productivity (Tons /Ha)
1	Mango	65000	6.5	10
2	Banana*	1057	26.42	2500
3	Citrus	534	0.43	8
4	Sapota	191	0.15	8
5	Guava	1335	0.33	25
6	Cashew	817	0.05	0.6
7	Papaya	50	0.025	50000
8	Coconut*	1500	180	1200
9	Chilies	12594	0.47	3.75
10	Turmeric	2106	0.094	4.50

Banana and coconut production fig is denoted by bunches and numbers respectively.

#### ***Food processing in Krishna district:***

Major food processing industries in Krishna District are as follows:

- Mango based processing:
  1. Pickles
  2. Mango Canning units
  3. Mango jelly units
  4. Mango slices – wet & dry

- Rice milling
- Dal milling
- Spice processing
- Ethnic foods
- Bread manufacturers

**Distribution of units :**

Sl.No	Type of processing	Units	Remarks
<b>I</b>	<b>Mango processing:</b>		
a)	Mango canning	5	Organized sector
b)	Jams & Squashes	1	Organized sector
c)	Mango Pickles	2 & 7*	Organized sector and *unorganized sector is represented by SHGs
d)	Mango Slices	1	Unorganized sector
<b>II</b>	Spice processing	3	Organized sector ( unorganized sector is mostly confined to home scale production and their numbers are to be traced out and estimated)
<b>III</b>	Rice Milling	268	Organized sector
<b>IV</b>	Dal Milling	36	Organized sector
<b>VI</b>	Bakery units	90*	5 units are in organized sector and rest in unorganized sector
<b>VII</b>	Papad manufacturing units	5	2 units in organized sector and rest in unorganized sector

\*No official data is available, and guessestimated as opined by M/s. Navarang bakeries (oldest bakery in Vijayawada)

**Characteristics of food processing units:**

Mango based processing units :

***Mango pulp making units :***

As it may be seen above, mango is the predominant crop among horticultural crops in the district. Among the varieties cultivated in the district are Banginapalli, Totapuri (Collector), Pedda rasam and Chenna rasam. Banganpalli is the table variety and rests of the varieties are suitable for processing. According to an estimate of Dept. of Horticulture, Banginapalli shares about 50% of the total mango production from the district and rest shared by other varieties. Totapuri is the variety suitable for making

mango pulp. There are 5 pulp-making units in the district, details of which are given below:

<i>Sl.No</i>	<i>Name of the unit</i>	<i>Capacity (MT)</i>
1	Srikrishna Fruit products, Nuzivedu	1000
2	SriSrinivasa Fruit processing industries, Nuzivedu	2000
3	Alankar Food products, Boruvancha	1000
4	Gowthami Fruit processing industries, Edera	2000
5	Can Fruit Exports, Telaprolu	5000

### **Mango pickles:**

This is the major activity in the district. In organized sector, PRIYA Foods is the only one company engaged in production of pickles and selling under the brand name of “PRIYA” It has wide distribution network across India. It has also presence in European and US markets.

Due to the efforts of District Rural Development Agency (DRDA), home scale production units, now dominate the industry. About, 50 DWACRA members involving 7 prominent SHGs are engaged in production of pickles. They are widely spread in entire Krishna district. Their day-to-day operations and marketing are linked to DRDA department. The DWACRA groups have captured the local market and offering stiff competition to PRIYA.

List of prominent SHGs manufacturing pickles is given in the following table.

SL NO	Name of the SHGs	Numbers
1	Vikas Group, Peddapativarigudam, Gopavarum	15
2	Srivenkateswara DWACRA group, Gannavaram	4
3	Prasanthi Group, Penamluru	10
4	Vasavi Group, Vissnnapeta	5
5	Abhudaya Group, Punadipadu	6
6	*Groups in Nuzivedu, and Kaikalluru	8

\*Group names are to be ascertained.

### **Mango slices:**

There is one unit at Vissannapeta manufacturing mango slices. It came into existence recently. The unit engages in primary processing of mango and transports the product to Gujarat State. The unit also manufactures mango armchur, which has, reportedly good demand in Gujarat and Maharashtra states.

### **Mango Jelly:**

The activity is seasonal and confined to mango season. Unused fruits are used for making Jelly. Traders from neighboring district i.e. West Godavari visit Nuzivedu during mango season and with the help of local people, they prepare the mango jelly (called as Tandra in vernacular). The manufacturing process is quite unhygienic and commands very less price in the market.

### **Dal Milling:**

Of the 36 units in entire Krishna district, 28 mills are in and around Vijayawada. The capacity of the units ranges from 5-10 tons per shift. The unit runs for about 250 days and raw material (Green gram and Red gram) are procured from the district. Most of them are trading units.

### **Spice processing :**

There are two units (Priya and Agri Gold) engaged in processing of Spices and their business operations spreads across India. The local market for ground spices is dominated by unorganized sector – SHGs and home scale units.

### **Rice Milling:**

This is the prominent activity in the district. According to the data provided by Krishna District Rice Millers Association, there are about 268 rice mills in the district, of which 63 units are involved in parboiling. The activity is predominately concentrated in Gudivada, Vijayawada and Machilipatnam mandals. The turn over of the industry is reportedly Rs. 1600.00 crore and contributes revenue to the exchequer to the tune of Rs 160.00 crore. Rice mills are categorized into two types

**Trading Rice mills:** In this type, Mill owner of the unit will procure paddy from farmers, keeps stock and converts into rice and then directly sell to either FCI or to the public, depending upon the benefit

**Non-trading Rice mills:** In this type, mill owner undertakes job work Farmers will bring paddy to the mill and they convert paddy into rice by paying job charges to the owner of the mill.

Majority of the units is of trading mills.

### **Distribution of the industry:**

The industry is categorized into three categories, according to capacity viz.: Large units – 60 tons rice per day, Medium – 30 tons per day and small units – 20 tons. Data on distribution of units' capacity wise is not available with the association. The primary processing predominates in the district. There are very few units manufacturing flaked rice, puffed rice, and pooped rice.

**Ethnic foods:**

The traditional food items of Andhra Pradesh are Araselu, Bobbatulu, Chakralu, pootharekulu, bundar laddu etc. Manufacturing of these items requires lot of labour and lot of drudgery to women. In earlier days, women from neighborhood collectively participate in making these preparations. With the modernization of the society, and scarcity of time, housewife finds it difficult to make them at their home. This constraint gave a business opportunity to some women and gave a birth to "Swagruha foods". It is estimated at latest 30 such food manufactures are exists in Vijayawada alone. Some women SHGs also tapped this opportunity. The market turn over is conservatively estimated at Rs.5.00 crore. This segment is the fastest growing segment in Krishna district. The concept of "swagruha foods" is also spread to Hyderabad.

**Bakeries:**

There are 90 bakeries in and around Vijayawada and turn over of the industry is estimated to be in the range of Rs5-10 crores. The industry is growing at the rate of 15% per annum, according to the well-established bakery owner and of late, many new retail units have come up in Vijayawada.

## CHAPTER - III

### **History of the Cluster:**

The food-processing cluster is relatively new in the district. The trend for processed products started in 1980's with Priya Foods, which introduced pickles and traditional spice powders in Andhra Pradesh. The consumers accepted these products as novelty item. The rapid growth of Priya coincided with the subtle changes in socio-economic conditions such as increase in working women, breaking of joint families, increasing cost of household labour. Extensive media campaigns were also launched by Priya which, to a greater extent, led to change in habits of Pickle consumption - from home based to market. Their success was precursor for establishing mango-canning units in and around Nuzvidu based on mango, which is traditionally grown in the region. The Andhra Govt. for empowering women through SHGs also gainfully exploited the demand for pickle during late 1990s. The SHGs formed under DWACRA scheme were encouraged to take up pickle manufacturing as an economic activity. The Govt., patronage to SHGs and exposing them to new markets has considerably eroded the traditional forte of PRIYA pickles in local markets. This in turn forced the organized sector for diversification of their product base and markets.

The software boom in late 1990's impacted the cluster to a certain extent. The local andhraites while on return journey carry the ethnic food and pickles. This led to specialization in packaging of pickles for taking to the US. This has generated demand for ethnic foods, spices and Pickles.

### **Business operations of the industry:**

Business operation of various manufacturing units have been presented segment-wise as The cluster is segmented in terms of products manufactured. The major focus of this analysis primarily revolves around Mango based products.

### **Mango products:**

#### **Availability of Raw material:**

In India, two varieties are primarily used for making pulp. These are Alphonso and Totapuri. While the former is cultivated in Maharashtra (Konkan region), the latter is cultivated in Karnataka, Tamil Nadu and Andhra Pradesh. Krishna district has abundant availability of Totapuri and comes into the bearing quite early when compared with other states. A part of Totapuri with golden colour is sent to Delhi market for table consumption. Mango canning units procure Totapuri mangoes either directly from farmers or commission agents. Incidentally, Nunna market is regarded as largest fruit marketing center, especially for mango in India. The units have appointed commission agents to contract the raw material from these places.

**Alternative bearing:**

Mango suffers from the problem of Alternative bearing. In on –year, there will be the glut in production, and decline in the price of raw mango. While this is advantageous to processors, farmers, at times, may not be able to recover the transportation cost. In the event of off year, the raw material price goes up, and canning units have to incur heavy procurement costs. It was observed that last year, one unit had to suspend the operation due to steep rise in procurement costs - from Rs 500-1000 per ton in 2001 to Rs 5000-6000 per ton in 2002.

**Technology:**

Canning is the technology employed by the processors. It is essentially a process of sealing foodstuffs hermetically in containers and sterilizing them by heat for long storage. Mature fruits are brought from the market and spread on straw on the ground for ripening. Mango fruits are peeled and washed with water to remove impurities adhering to the surface. The fruit is then peeled off by hand. The pulp is cut into 6 to 8 longitudinal pieces. It is fed to the pulper. Extracted pulp is pumped into kettles and it is heated upto 93 c and then sent to the overhead tank for canning purpose. After canning, cans go through hot water bath for sterilization. Then these are cooled to room temperature. The season for canning is two months i.e. mid-April to mid- June.

**Sub-contracting:**

Except one unit, most of the units are doing job work for the buyers located in Delhi, Mumbai and Chennai. One unit is exporting directly to Singapore and Gulf countries, Australia, and Malaysia. The exporters are providing labels, cans and paying conversion charges to the canning unit.

**Working capital:**

Mango canning industry is a seasonal industry and entire raw material is to be purchased and processed within the season. 80% of the expenditure for the season has to be expended within 60 days, a substantial portion of which for raw material. Processors apprise that banks are sanctioning working capital at 20% of the sales turnover, based on the Nayak committee norms. This norm, implicitly, assumes 4 cycles in a year. This norm can not be ipso facto applied to mango processing industry as there is only one season for mango processing. This sets the limitation to the processors for procurement of raw material on large scale. Further, the processors can not be able to meet the collateral requirement of banks for sanctioning of enhanced working capital limits.

**Absence of value addition:**

The pulp manufactured can be utilized for making different mango products like RTS beverages, nectars, squashes etc. In the past Priya group had manufactured RTS beverages which failed to capture the market and they withdrew the product from the

market. This example was often quoted by the canning units for not diversification into value added products.

### **Why only few units**

In Andhra Pradesh, Krishna and Chittoor districts are the major districts engaged in Mango processing. Though Krishna district when compared with Chittoor has long tradition of mango cultivation, it has only four canning units, while Chittoor district has near about 50 canning units. Clustering of mango canning in Chittoor was due to availability of raw material after the season at Krishna is over, extended procurement period (45 days), proximity to buyers and Chennai port. Krishna district, on all these accounts, lags behind. Further, high transportation cost of raw material from Chittoor to Vijayawada prevents the local canning units to procure from Chittoor. This is, further compounded by the fact that, the processed product again has to go to Chennai. One exporter tried Kakinada port to deliver the goods to Chennai, but economies of scale could not be obtained. Direct export to Singapore from Kakinada port has logistics limitation as only one or two sailing are there to Singapore in contrast to five or six from Chennai port.

Because of above bottlenecks, the canning industry in spite of the potential available could not expand in the district.

### **Mango Slice Unit:**

#### **Technology:**

#### **Primary processing:**

Sun drying or mechanical dryers' process the blemished mangoes or the mango, which is not suitable for table consumption or rejected by the commission agents, into powder (called as Aamchur).

The other products manufactured by this unit are wet slices and dry slices. Mangoes are washed, cleaned and peeled. The peeled mango is cut into pieces and placed in brine solution. This will be transported to Gujarat, where in Mango pickle is prepared based on the ingredients suitable to palate of Gujarathies. This practice is similar to the model adopted by BAIF (Bharatiya Agro Industries Foundation, Pune), where in farmers are encouraged for primary processing (peeling and preparing brine solution) and this product is pooled at district level for making the products from the stock solution so prepared.

#### **Value addition:**

All the fruits, which are affected by natural calamities, can be processed by this method. Generally it is observed that out of one truckload of mangoes, commission agents will set apart at least and half tonne as third grade, and farmers would not be paid on this quantity. This rejected raw material can be utilized for processing and farmers need not take this produce to commission agents. This will improve the margins of the farmers.

**Technological problem:**

The entrepreneur has developed the technology on his own and took almost two years to stabilize the same. However, he is facing the problem of blackening of mango powder and requires help from CFTRI, Mysore to tide over this problem.

**Market:**

Mango powder and Wet & Dry slices are sold to the commission agents of Gujarat., The price is paid at the rate of twice of the procurement price of mango.

**Immense potential for Sub-contracting:**

The primary processing is labour intensive as peeling involves lot of labour. It is not possible for any single firm to employ and manage the labour. Therefore, this process can be externalized to SHGs. This provides an additional employment to them during summer season, which is considered as lean period.

**Mango Pickles:****A vehicle for Women empowerment:**

Krishna district is famous for Chenna rasam mango variety, which is used for preparing mango pickles. This variety has got huge demand from other districts also. The keeping quality of the pickle made from this variety is very good. Nuzivedu has acquired the special significance because of this variety. In addition, the district is endowed with other crops like *Hibiscus cannabinus* leaves (Gongura), Drumstick, Ginger, Chilies, Tomato, from which pickles are manufactured. Pickles from Krishna district have acquired a unique taste and command a distinctive place in the market.

Women from their mother have acquired the art of pickle making. This art of women harnessed by DRDA for providing an economic avocation to SHGs. Since it entails group activity, women have formed into groups consists of 10 members, for making pickles in at their home. DRDA has also given training in basic aspects of preservation and it is anchoring the process. No preservatives are added in the pickles prepared by SHGs, while the organized sector do add class II preservatives for improving the shelf life of the product.

**Major issues:****Packaging:**

Though, the pickle manufactured by SHGs tastes good and well accepted by consumers, keeping quality and hygiene are two issues confronted by them. The difference between organized sector and unorganized sector lies in the packaging. The keeping quality is constrained by lack of awareness on packaging. Pickles are kept in the plastic buckets and are brought to RYTHU and DWACRA bazaars for retail marketing. They pack it in

plastic pouches, to the consumers, who in turn transfer, the product into glass bottles for permanent storage. Investment on Double sealing machine, is beyond the capacity of small groups. DRDA is contemplating to provide this facility in their TTDC. Awareness on hygienic practices is also poor. As the products are kept in their dwelling house, sometimes, it is prone to contamination from rats.

### **FPO license:**

Any product, which is commercially sold, should have the FPO license. Since most of the Groups are marketing their product locally under the patronage of DRDA, the need for FPO license did not arise. However, once they expand their business to a larger scale, FPO license would become a major issue. It is quite difficult for SHGs to meet the FPO norms as their place of operations is home. In future, some of the SHGs have to move to a common manufacturing center to comply with the FPO norms and to maintain a good hygiene.

### **Marketing:**

Organized sector is exporting pickles to Gulf countries, Canada and US. 30% of their production is exported and rest sold in the domestic markets. They have been certified for maintaining the HACCP (Hazard Analysis Critical Control Point) system as their buyers demanded for the same.

DRDA is sponsoring the SHGs to participate in local trade fairs as well as at Delhi. Many SHGs have participated in these fairs and have got knowledge about markets. However, but for one SHG, the other groups could not participate regularly in Delhi fairs due to communication barriers and preoccupation with their domestic chores. Thus, in spite of acceptance of their products in Delhi market, the momentum could not be sustained. It is therefore poses the need for establishing a permanent shop at Delhi or setting up of commission agents for selling in Delhi market.

### **Latent Exports:**

#### **Too many packs!**

Andhra pickle, that too from Krishna district, is most relished item for any andhraites. It is observed that almost, an average, one member of middle and high income segment lives in abroad and carries with him a packet of Pickle while on his onward journey to US. This paved a way for a specialization *in so called "Leak proof packing"* of pickles in a polythene pouches (4 pockets). The Polythene packets are procured from Coimbatore. Some of the traditional pickle manufacturers are specialized in this function and label themselves as service providers. Their customers put forth extremely thin deliver schedules and very particular about the place of packaging - perception that a safe and hygienic place for packaging. One unit owner, with their limited financial resources, packed 70000 such pockets in a year at a rate of Rs.15 per pack (only packing charges). The packing cost can be decreased with the scientific inputs from Institute of Indian

Packaging (IIP), Chennai as packers believe that more number of pockets are necessary to seal the product to avoid spillage, while onboard. This simple change may substantially reduce packing cost and promotes retailing of pickles and ethnic foods in plastic pouches on a large scale.

### **Mango Fruit Jelly:**

#### **Technology:**

During the mango season, some entrepreneurs from Kakinada with the help of local people/groups, undertake manufacturing of fruit bar at Nuzuvidu. It is manufactured through conventional and traditional methods. Mangoes are ripened in the sheds and pulp is extracted manually. The pulp is mixed with jaggry/sugar in 2:1 ratio, spread on palm mats in 6-8 mm thick layer over layer up to thickness of 50 mm. It is dried in the open air for a period of 25 days. The product is packed 60-Kg pack size. During drying, the product is exposed to insects, dust, and flies, thereby affecting the hygiene of the product.

#### **Alternative technology:**

##### **1. Simple Change in the process :**

APITCO in association with the local entrepreneurs of Vijayawada have conducted the technological up gradation programme in East Godavari district. This process entails adding up of sugar, pectin and preservatives to mango pulp and dried in stainless steel trays in open sun covered with nets, to avoid foreign material falling on pulp. This technology is very simple and needs demonstration of hygienic practices . A group of 10 people can be pooled at a common place for this demonstration. This project involves an investment of Rs.10000. The utility of the technology was demonstrated in East Godavari and can be replicated here as the local intuitions have only done this programme in Kakinada.

##### **2. Solar Drying -**

SEED at Hyderabad, headed by Prof. Rama Krishna Rao, a retired scientist from Institute of Indian Science, has developed the Solar drying technology for manufacturing of mango bar. This technology was also demonstrated in East Godavari, and reportedly a few manufacturers have adopted this technology. Ministry of Non-Conventional Energy Resources is also supporting this programme by offering fiscal incentives to the solar drier. The solar drying process reduces the drying period from 20 days to 3 days. The pulp manufactured by local canning units can be utilized for making bar throughout the year, except during rainy season. It was gathered from the SEED that due to the awareness created by them through workshops, a few entrepreneurs from Krishna district came forward for solar dryers. This facility can also be utilized for drying of curry leaves, drum stick leaves, tomatoes, which can be used as a low cost technological option for preparing chutney powders. Dangoria Charitable Trust, Hyderabad, reportedly used this technology.

## **Market:**

### **Poorly valued by Customers**

According to an estimate of APITCO, the market turn over for this product is reported to be Rs.20.00 crore and concentrated in East Kakinada. West Bengal and North India are the major buyers for this product. During the interview with the local retailing shops revealed that they are putting the Mango bar on their shelves manufactured by organized sector such as Nutrient and Spectra (coming from Kerala) as their customers perceive that the bar manufactured in East Godavari and Nuzvidu is of inferior quality and unhygienic.

### **Sub-contraction with Mango Canning units ?**

Some canning units opined that the mango pulp produced by them could be made into mango bar utilizing the Sun drying technology. They provide the pulp to their employees/SHGs during off -season, and they buy-back the product. Since, they have already in touch with the exporters; this will be another item to their basket.

## **Spice Processing:**

### **Players:**

There are two units (i.e. Priya and Agrigold) in the organized sector involved in Spice processing. They compete with other major brands. However, major chunk of the spice processing is done at home scale and their distribution is widely and thinly spread. SHGs and ladies represent the unorganized sector, which is seen as a supplementary source of income. The organized sector is connected to the Spices board at Guntur.

### **Raw material and technology:**

While the organized industry procures the raw material from their original place of origin (Spices from Kerala and Gujarat), the small entrepreneurs source from local markets. Their requirement is very small and staggered. Some times, it may involve unviable raw material purchases also. Most of them use food Mixer for grinding operations and cannot afford costly machines, as their scale of operation won't permit. Knowledge of small processors on selection of raw material as also storage is limited. For instance, Chilli turns into black, if it is stored for a long. They also encounter technical problems, if tamarind is used as one of the ingredients. Some of the members opined that, this information would be useful to them as they can procure the raw material directly from their villages and can avoid paying high cost at a later stage from local traders. It also points out the need for introducing the pledge loans to the farmers as they can supply the raw material to these groups from cold storage's instead of selling the produce to traders as in vogue now.

Processed products have got a good demand from their surrounding environs. Packaging is done in polythene covers, which is not even food grade material. Small processors knowledge on simple and scientific packaging is extremely limited. While the branded product prices are in the range of Rs.150-170 per Kg, the unbranded items are sold at Rs. 80-100 per Kg. Consumers prefers unbranded products as they are prepared fresh and retains the flavor of the product. The unorganized sector caters to local hotels, hotels and payment is made on bill-to-bill basis.

**Standards:**

None of the small enterprises are aware of AGMARK standards. This seriously inhibits them to enter into the retailing network as these markets demand branded and properly packed products.

**Rice milling:**

Major chunk of Rice milling units is partnership concerns. Of the total production of paddy, about 65% are processed in the district and rest is procured by neighboring districts. Most of the rice mills are established long back and involve cone polishing. BPT is the major variety cultivated in the district and to some extent MTU- 7029, 2067, 1010, 2716, 1001 and 2077. The output of rice milling is as follows:

<i>Outputs</i>	<i>Raw rice (%)</i>	<i>Parboiled rice (%)</i>
Raw rice	55	66
Brokens	12	2
Bran	8	7
Husk	19	20

**Modernization:**

The rice output, reportedly at 55% as against the international standard norm of 71% to 73%. The brokens percentage greatly depends on variety, season, place etc. Some of the rice mills now adopting modern machinery, to reduce broken percentage by almost 4% and to improve the appearance of the rice. They gained an incremental income of Rs1 per Kg, besides reduction in labor force by at least 5 –6 persons. The mill owners contacted during the study demanded the knowledge on modernization. Recently, RICETECH was organized in Vijayawada, and some of the rice millers are contemplating to adopt modern machinery. High electricity charges, and change in the slab from LT to HT are the two constraints in adopting modern machinery.

**Govt. policy:**

Earlier, it was mandatory to for rice millers to part the milled rice to FCI under levy system. Now with the change in the policy, rice millers are not bound send to FCI and

they can sell the rice in open market. The levy price is fixed by the Govt. Due to heavy stock of rice in their godowns, FCI is enforcing the quality norms. The norms fixed by FCI in terms of brokens, foreign matter, damaged, discolored, chalky, red grains, admixture, and moisture. Rates are fixed on these parameters. Now, the Rice millers in the absence of support price, compliance with quality norms fixed by FCI is mandatory to improve their margins.

### **Spares :**

Rice processing requires lot of spares and consumables for uninterrupted production during the peak season. Bearings are the critical spare parts of rice mills, obtained from local dealers. Lot of duplicate parts is being sold and processors are unable to judge the original spare parts. The duplicate parts halt the production during the season. Even changing the bearings is a tedious process. It was reported that every mill roughly spends an amount of Rs.25000 on bearings alone.

### **Networking with Rubber Rice Polisher manufacturers helps?**

Rice polishing is the critical operation in rice milling and FCI is demanding the well-polished rice as it has reportedly good storability in their godowns. Avg. 52 pairs of rice polishers are required in a season and cost of each pair ranges from Rs.1900 - Rs.2600/pair depending on brand. All are locally available. However, because of poor quality of rice polishers, at times, rubber adheres to the surface. Rice polishers are obtained from local dealers, who in turn obtain from Chandigarh. It was gathered that the Chandigarh market procures from Kerala, which has got manufacturing facilities for rice polishers. The direct symbiotic linkage of rice millers association can be forged with the manufacturers to facilitate the flow of information of their technical requirements, besides obtaining reduction in price.

### **Ethnic foods:**

#### **Shelf life and packaging:**

Manufacturing of ethnic foods is done mostly manual and caters to the local demand. The industry is facing the problem of poor shelf life and packaging. Some of the SHGs have taken these products to Delhi markets also, and could not sustain it on long-term basis for the above reasons.

#### **Bakery products:**

##### **No association:**

Though there are 90 units, there is no association due to lack of initiation. Only one unit is connected to South India Bakery Association, Bangalore and they regularly get information on current terms in Bakery industry.. They have also invited the experts from Bangalore and CFTRI to train their workers.

### **Technical problems:**

Bakery units demanded the product diversification and technological knowledge on quality aspects, and shelf life of the products.

### **Revival of Nutriceuticals-**

#### **Lessons from NGOs**

Access to nutrient rich food is one of the critical problems of rural women in maintaining their health and their newly born offspring. The erosion of importance to traditional foods e.g. ragi malt and its substitution with modern supplements like Farex and Cerelac - driven by the MNCs- is common phenomenon in Rural India. An NGO called Vasavya Mahila Mandali (VMM); Vijayawada formulated and distributed the food fortified with minerals through their networks. This food segment can be mainstreamed not only in rural areas, but also for urban areas, with the support of Doctors, who of late prescribing traditional food supplements. In this connection, the efforts of VMM can be supplemented with other NGOs working closely with National Institute of Nutrition (NIN). One such example is drawn from the experience of Dangoria Charitable Trust, Hyderabad, headed by a retired nutritionist from NIN, which has prepared food formulations fortified with Iron and it's composition is almost comparable to the existing weaning food brands. They entered into the retail market, though in a small way, under the brand name of 'POSHANA". This attempt can be tried in the cluster as already VMM has networks - Hospitals and health clubs. They have the adequate infrastructure and technical support also.

#### **Other Cluster actors:**

##### **Banks :**

The district has high density of banks. The total number of bank branches working in urban and rural area is 392. Canning units and Rice milling units are availing of working capital from the banks. Banks have sanctioned working capital loans to good working SHGs.

##### **NABARD:**

It has the District Development office at Vijayawada . Besides providing refinance to eligible banks, NABARD is having promotional schemes for promoting Non-farm sector in the state. So far, it has not conducted any promotional programmes exclusively for agro processing activity in the district.

##### **SFC:**

State Financial Corporation at Vijayawada is sanctioning term loans to all industries

### **DRDA - forerunner in promoting SHGs:**

According to an estimate of DRDA, the rural population of Krishna district is about 26.95 lakh and roughly half of them are women. Of these, about 40% of the women are in below BPL. In the absence of good NGOs, DRDA has taken the lead role of promoting SHGs in the district. There are about 25000 SHGs in the district, having the membership of about 3.00 lakh. Most of the SHGs are women based. DRDA has promoted the Pickle manufacturing as an economic avocation to some of the SHGs. There are about 7 groups involved in making pickle and spices through out the year. These groups are technically supported by DRDA. It also provides labels to these groups and helps them in marketing of their products in local RYTHU and Super bazaars. There is one marketing officer exclusively looks after SHGs. It also decides the pricing of the products. It also gives an opportunity to the manufactures for participation in exhibition and trade fairs organized with in Andhra and outside the state, particularly at Delhi.

DRDA has established Training and Technology Development Center at Gollapudi, near Vijayawada. It has the machinery's with low cost technologies are made available here. The Pickle manufacturers are availing of the services provided by TTDC. They are also planning to establish one community based packaging unit at their TTDC for SHGs.

### **ALEAP:**

Association of Lady Entrepreneurs of Andhra Pradesh (ALEAP), a registered body under Companies Act, head quartered at Hyderabad, aims at identifying the women entrepreneurs and motivating them for setting up of units, so that they can become socially and economically independent. Smt.K.Rama Devi heads ALEAP. She is the member of various bodies like SIDBI advisory board, SSI board, governing body of NISIET, Foreign Trade and Commerce constituted by Ministry of Trade and Commerce. She received a number of awards like best promotional award from Union Ministry of Industry, GoI and best women of the year from A.P Govt. ALEAP has established an industrial estate in Hyderabad. ALEAP has planned a food park at Surampally, Gannavaram mandal, Krishna district. The agency has received grant assistance under IID scheme of DC (SSI). Of the planned 120 plots, 70 plots have already been allocated to the prospective entrepreneurs for establishing food-processing industries in the park. The Food Park will have all attendant infrastructure facilities including food testing. The products manufactured from the park will have a common brand. It provides opportunity guidance in the realm of production, technology and marketing it is also scouting for marketing tie-up with the leading food processing industries. It is also implementing credit guarantee scheme. ALAEP has organized the workshops involving KVIC and SIDBI at Vijayawada for promoting margin money assistance and credit linkages to the prospective entrepreneurs. They want to be assisted more on available opportunities for food processing industry and marketing tie-ups for their prospective entrepreneurs.

## **NGOs:**

### **Vasavya Mahila Mandali (VMM) :**

It is a non-profit voluntary organization working for all round development of women and children. With its head quarters at Vijayawada. Smt and Late Shri Gora, renowned social reformers, established the institute. Smt.Gora was conferred with **Janaki Devi Bajaj Award (1997), Jammalal Bajaj Award (1999), GD Birla Award (2000) and Basava award (2001)**. The activities of VMM are focussed on Women and children. VMM is promoting SHGs in the district and have infrastructure facilities for production of malt biscuits, spice powders. They have facilitated credit from banks to SHGs. They conducted the training programs on biscuits and bakery products. Nutritional food is their major focus. They have wide network in the district and well known for their contribution towards rural health programmes. Their networks can be utilized for promoting mango based and health related foods through SHGs.

There are other NGOs working in the district on social and religious related issues.

### **Institutions Connected to Food processing Industries:**

The cluster does not have any prominent institutions connected to the food processing industries. The existing institutions and those outside the cluster, based on the services utilized by the industry are given below:

#### **Community and Food Nutrition Department:**

This institute is operating under the aegis of Dept. of Food and Nutrition Extension wing, Ministry of Human Resources, GoI. It conducts the training programme for housewife on preservation aspects and also runs one community-processing center. The small processors have utilized these services of the department. However, with effect from July 02, it has stopped the training programme and concentrating on nutrition aspects only. The small processors are contacting the demonstration officer of the center for solving production-related problems.

#### **Jana Sikshna Samstahn:**

It works under the supervision of Ministry of Human Resources Development Ministry, GoI. It gives training in vocational courses to prospective entrepreneurs. It conducts the training programmes on agro processing and bakery items. It also conducts general EDPs in association with APITCO. They organize “Mahila Ustav” every year in the district, in which lady entrepreneurs exhibit their products. The certificate issued by them is useful to entrepreneurs in getting bank loans.

#### **District Industries Centre:**

The DIC at Vijayawada is mandated to promote industrial activity in the district. DIC has been nominated as a nodal authority for obtaining statutory license under Single

Window Clearance scheme. It also conducts EDPs for promoting entrepreneurship development in the district. It has schemes for marketing assistance to the industries and promotes self-employment schemes with assistance from local banks. However, it is yet to make serious efforts for promoting food processing industries in the district.

### **Department of Horticulture:**

Its main function is development of Horticulture in the district. Considering the large area under Mango, especially Banganpalli variety, APEDA has identified Krishna district as “Agri Export Zone(AEZ). The main focus of the project would be promoting exports of Banganpalli variety by disseminating improved package of practices to mango growers and establishing post-harvest facilities like pre-cooling units. This project will be implemented through Department of Horticulture. This project may impact the productivity of Mango, especially Banginapalli variety, which is being exported. Processing activities are not included AEZ project. They play a little role in processing sector, as their mandate is to promote the expansion of area under horticultural crops and improving the productivity of existing crops.

### **Professionals :**

#### ***Association of Fruits and Vegetable Growers, Vijayawada***

It has got the membership of 250 horticultural growers' spread over in three mango major growing districts viz. Krishna, West Godavari and Khammam of the state. Shri Prasada Rao heads this organization. who is a technocrat. The association is basically into exporting of fresh mangoes to Singapore, Malaysia. APEDA has awarded merit certificate to them for outstanding performance in exporting of mangoes. Recently, the association has diversified into marketing of value added products of mango . They are selling the mango bar under the brand name of “Vijaya Sun Gold”.

APITCO has utilized the services of Mr. Prasada Rao in their cluster development programme for mango bar cluster in East Godavari district and offered his support for transfer of technology of hygienic production of mango bar and also marketing support. The association has assured that the process undertaken in the East Godavari district could as well be replicated in the Krishna district.

### **External to the Cluster:**

**CFTRI:** This is the premier institution in the realm of food processing in the country working under the aegis of CSRI. It is head quartered at Mysore and has a regional office at Hyderabad; it provides consultancy services to the food processing industries. Only one Canning unit and Pickle manufacturing unit have availed of their services for testing of pulp and designing of Mango cutting units respectively. ALEAP also planned to utilize the services of CFTRI for intensive training of their members in selected areas of interest. The processors have opined that because of high consultation fee charged by them, they could not avail of their services.

### **Spices Board:**

The Spices Board is the apex body of GoI for promotion of spices and spice products from India. It is located at Cochin and having an office at Hyderabad and Guntur. The Spices Board is having promotional schemes for supply of polythene sheets for post harvest improvement in chilly, turmeric and seed spices, improving the quality of spices viz.; pepper, chilly, ginger, turmeric and seed spices for construction of drying yard. It also conducts training programmes for educating the farmers, traders, exporters, officers of state horticulture department, members of NGOs, and processing units to improve the quality of spices at harvest, post harvest and storage levels to meet the quality requirements of importing countries.

It is also provides "Indian Spices Logo" and certificate to those processors complying with the stipulated quality norms. This scheme takes into account the setting up/upgrading quality testing lab, setting up facilities for monitoring of pesticide residue, adopting ISO 9000 certification, and HACCP.

Since, Krishna district is not traditionally famous for Spices, the Spices Board efforts are mainly directed in Guntur district - a neighboring district of Krishna district. Two Spice processing units (Priya and Agri Gold) have availed of their services and registered with them, and certified for compliance with HACCP also. Many of the spice processors operating at home scale, and have not received the attention of the Spices board due to lack of critical mass of production.

### **APEDA:**

APEDA has got a regional office at Hyderabad. It has several schemes for export of agri- and processed products from India. APEDA actively participated in the quality improvement programmes conducted in Chittor district for mango pulp making units. This institution can provide information to the existing entrepreneurs on markets and scope for exports. Barring canning or pickle units, rest of them could not utilize their services. Now, with the sanctioning of AEZ, it would focus on promoting exports of Banganipally variety from Krishna district.

## CHAPTER - IV

### **Assessment of the organizations and Linkages in the Cluster:**

#### ***Lack of critical mass:***

Barring Rice mills, critical mass of units in any segment is missing to take any meaningful interventions on a larger scale in a particular segment.

#### ***High degree of heterogeneity:***

This cluster is highly heterogeneous in terms of segments, manufacturers, products, and markets. It poses limitation in evolving a single strategy for the cluster as a whole.

#### ***Suitable varieties for processing***

The district has unique distinction for Chenna rasam and Pedda rasam varieties, which are highly suitable for pickle manufacturing. It also helped the women to give a uniqueness to their products in terms of taste. Krishna pickles have acquired a niche in the market, owing to these reasons. This is USP of the food industry of the district.

#### **Multiplicity of Departments:**

The products are manufactured by both unorganized and organized sectors. While SHGs comes under DRDA, the organized industry comes under the purview of Dept. of Industries. Any uniform approach, independent of departments, requires mutual appreciation of the respective roles. This requires greater degree of convergence at policy level.

#### **Micro enterprises can tap new markets:**

The experience of SHGs in accessing Delhi market under the guidance of DRDA is worth mentioning. It proves that there is a huge demand for pickles and ethnic foods outside A.P, and can be tapped on sustainable basis by organizing the distribution network, and improving packaging and hygiene standards of the manufacturers.

#### ***Predominance of unorganized sector:***

The major chunk processing industry is confined to unorganized industry and they are widely and thinly distributed. DRDA has attempted to bring these scattered units into a single fold, because of their market-oriented interventions. These soft networks are ready-made platforms for initiating product standardization and improving the packaging standards for meeting the large volumes of uniform sensory quality.

***Horizontal Collaboration exists:***

Almost all mango and rice processors exhibit lateral cooperation in sharing of the capacities and solving day to day problems. While in case of others, because of wide geographical spread, the cooperation is limited.

***Lack of any support institutions:***

The cluster is nascent one and thus could not attract the attention of any intuitions related to food processing. As a result, the manufacturers are not aware of recent trends in food industry as also food laws. The focus of the intuitions existing outside the cluster are giving their attention in other places, where some critical mass is there and visible impacts could be obtained a large scale.

***Lack of access to market information:***

Due to lack of food related intuitions, some of the units have to spend lot of amount for scouting of information. This is an entry barrier to small institutions to set up small processing units.

## Chapter - V

### SWOT analysis of the cluster:

<b>Strengths</b>	<b>Weakness</b>
<p><b>Inputs availability:</b></p> <p><i>This district boasts of nationally acclaimed varieties for mango processing – Totapuri, Chenna rasam and Pedda rasam.</i></p> <p><b>Technology:</b></p> <p><i>The technology for pickle manufacturing has acquired a unique distinction here. The products manufactured from the cluster are free from preservatives.</i></p> <p><b>Skills:</b> <i>Traditional skills acquired from generations have been fortified .</i></p> <p><b>Marketing:</b></p> <p><i>The traditional mango based industry has made a dent in national markets due to the efforts of DRDA.</i></p> <p><b>Inputs availability:</b></p> <p><i>Mango is the major raw material, which is abundantly available.</i></p> <p><b>Innovation capabilities:</b></p> <p><i>One unit has taken up the manufacture of mango slice, and mango powder, which is a unique in the cluster. ALAEP is establishing one food park exclusively for women entrepreneurs. This is a unique model in the country.</i></p> <p><b>Infrastructure facilities:</b></p> <p><i>The cluster has cold storage facilities in the district for storing of agricultural produce</i></p>	<p><b>Markets:</b></p> <p><i>The markets for the products are local and any expansion of their business is fraught with low scale of production. Awareness on markets for food products in other states is lacking.</i></p> <p><i>High coordination and transaction cost inhibits the small processors to scout for new markets.</i></p> <p><i>The local retailing shops consider the products manufactured by local people are of inferior quality, for instance mango bar. Though Pickles have got demand, but not placed in the retail shops due to lack of labels and disclosure on product composition.</i></p> <p><i>The Spice manufactures cannot diversify their market base due to lack of awareness AGMARK. Access to retail markets demands FPO labeling. This cannot be met, as their production base can not comply with the stipulated norms.</i></p> <p><b>Technology:</b></p> <p><i>The technology employed in the district is not advanced and heavily relies on traditional knowledge and wisdom. Market demands one lot of uniform quality, which is very difficult to maintain as small and scattered manufacturers manufacture the product.</i></p> <p><i>Most of the rice mills have been established some decades ago, and requires modernization to reduce broken</i></p>

<p>like chilies, tamarind, etc. There is one pre-cooling unit, which is being used for exporting of fresh mangoes. The district has well-developed transport system, which has been utilized by processors to transport their produce to Gujarat and Delhi markets. The facilities at TTDC have been used by the SHGs.</p> <p><b>Business environment:</b></p> <p>The cluster has been historically famous for trading. The processors do cooperate among themselves for sharing of their godowns. SHGs also share their market orders among themselves based on their core skills.</p>	<p>percentage.</p> <p>Awareness on scientific preservation techniques for long term storage of the product as well as raw material is absent.</p> <p>The product-mix has not been attempted. For example Considerable area for Guava exists, but no body attempted to prepare the Guava pulp along with mango bar.</p> <p><b>Inputs availability:</b></p> <p>Lack of packaging material and machinery is the serious limiting factor. Simple requirements such as availability of glass bottles for storing of pickles are not available. It requires lot of coordination and transaction cost to the small processors.</p> <p><b>Innovation capabilities:</b></p> <p>The past failure of one unit in product diversification from pulp to RTS beverages has significantly impacted the existing entrepreneur's in taking up of product diversification.</p> <p><b>Skills:</b></p> <p>Maintaining proper hygiene is missing element. Only two canning units have been certified for HACCP, and rest is to be certified. It would be one of the covenants of their principals for accepting the product. This requires reorientation in the skills of not only of the factory manager but also of workers. Similarly women groups are to be sensitized on hygiene aspects.</p>
<p><b>Markets</b></p> <p style="text-align: center;"><b>Opportunities</b></p>	<p style="text-align: center;"><b>Threats</b></p>

<p><i>There is a demand for Andhra pickles, not only in the country, but also in abroad. This potential is not tapped on organized basis. Mango bar has got huge demand in West Bengal and North Indian states, which so far, has been exploited by relabellers, not by the manufactures.</i></p> <p><b>Technology:</b></p> <p><i>The district offers huge scope for technological up gradation. For example, recent RICETECH exhibition, held at Vijayawada revealed that tremendous scope for modernization of rice mills to reduce the broken percentage and cut down the operating costs(fixed costs on electricity charges, for example)</i></p> <p><i>Similarly, technology is required to overcome the blackness while obtained during the storage of mango powder.</i></p> <p><i>Packaging machinery and technology- ranging from simple to complex packaging options- can be transferred to the district.</i></p> <p><i>Considering the nascent nature of the cluster, it offers tremendous scope for technical consultants to encourage the canning units for product diversification and gainful utilization of waste generated from processing (Mango stones can be used for extracting fats, and technologies area available with BARC, Mumbai.)</i></p> <p><b>Inputs availability:</b></p> <p><i>The cluster offers scope for new packaging material for packing of pickles, ethnic food and spices.</i></p> <p><b>Innovation capabilities:</b></p> <p><i>Considerable scope exists for manufacturing</i></p>	<p><b>Markets:</b></p> <p><i>Due to poor critical mass of any product, the other clusters may emerge forward and dwarf the industry. For example, all buyers concentrate in Chittor for mango pulp.</i></p> <p><i>Market preferences for hygiene products may affect the pickle and mango bar units.</i></p> <p><b>Technology:</b></p> <p><i>The pulp from Aseptic processing units has got demand in European and US markets. One such unit has already come up in Renigunta, Chittor district.</i></p> <p><i>High demand for compliance with quality regulations will impact the nascent industry significantly in a negative way.</i></p> <p><b>Inputs availability:</b></p> <p><i>Any deterioration in power situation would significantly impact the mango canning units, as their processing is done during summer season.</i></p>
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*of Mango bar under hygienic conditions with attractive packaging.*

*Skills: New skills for production of pickles, Ethnic foods can be acquired.*

*Business environment:*

*Managerial skills to the SMEs can be imparted. Even the Rice Mills association has demanded Executive Development Programmes to improve their image and business.*

*Others:*

*Offers scope for Sub-contracting relationship between the Mango powder manufacturer with SHGs. The mother unit can externalize the peeling to SHGs.*

## CHAPTER - VI

### **Vision:**

*"Krishna District will emerge as a modern food-processing hub by providing linkages to agro producers and food processing units in informal and formal sector in the realm of technology, food standards, and markets by the year 2005"*

### **Vision Strategies:**

The cluster is an agglomeration of tiny, cottage and home scale enterprises. It is highly heterogeneous in terms of segments, manufacturer activities, and markets. Except for Rice milling activity, critical mass of units is not there. In terms of natural resources point of view, Mango and Paddy are the two major crops, upon which processing activities could be planned. In a nutshell, the food processing cluster could be categorized as 'Nascent cluster'. Therefore, the strategies normally applied for underachieving clusters may not be applicable here.

Considering the characteristics of the cluster, the following strategies are to be suggested.

1. Strengthening the existing processing units by providing access to information on modern technology, packaging, markets, food laws and hygiene requirements.
2. Creating awareness on the scope for food processing for increasing the value addition to the raw material
3. Strengthening of local institutions in the realm of food processing and linking them with the institutions connected to food processing institutions/ associations in the country.

Keeping in view the above broad strategies, the following activities have been suggested and broadly agreed by the cluster actors

The activities and expected outputs are given in the following page.

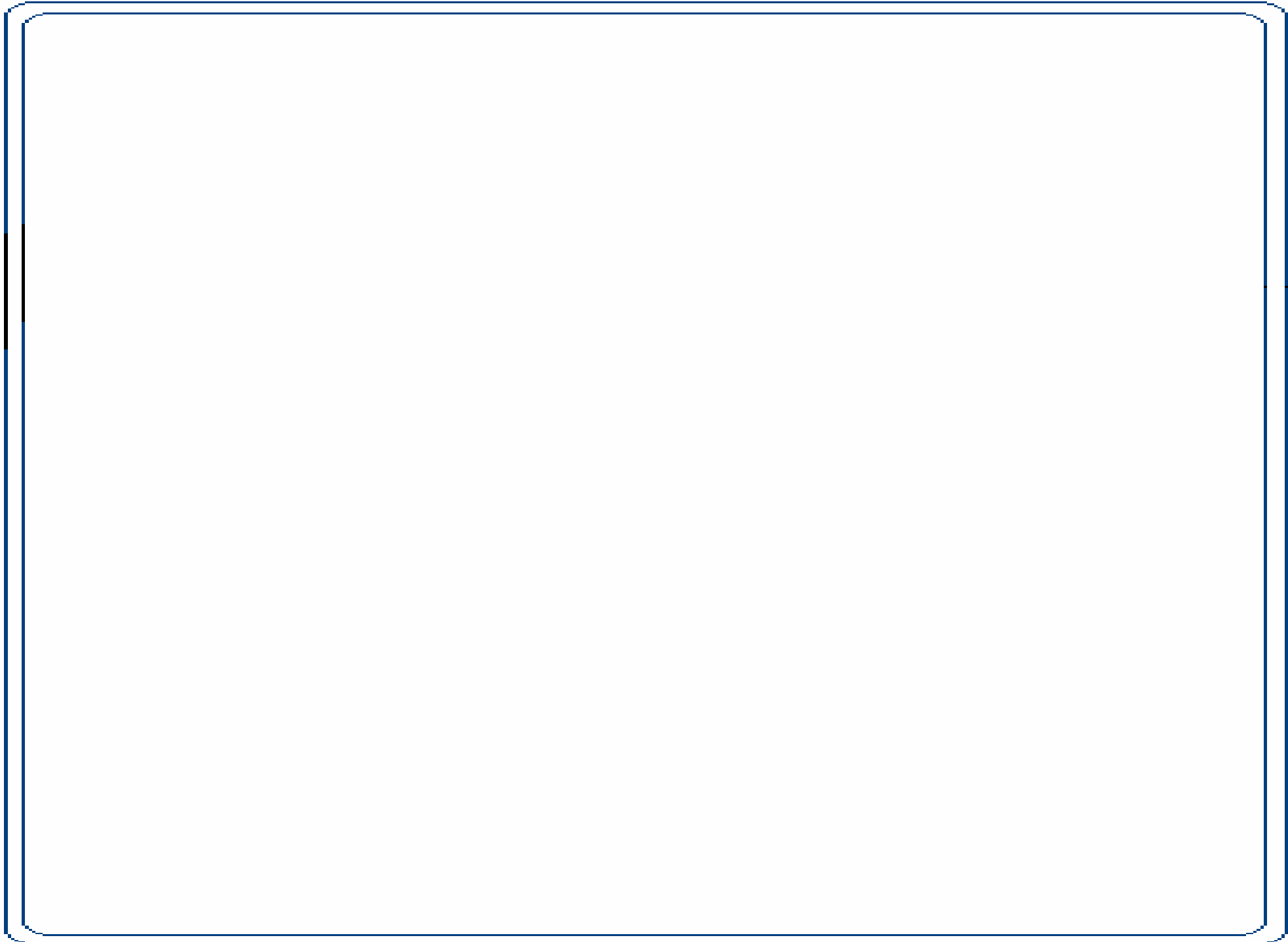
**List of activities planned under the Cluster Development Programme -  
Food Processing Cluster - Krishna District.**

<b>Sl.No</b>	<b>Segment</b>	<b>Limiting factors</b>	<b>Activities</b>	<b>Expected outcomes</b>
<b>1</b>	<b>Mango processing</b>			
1.1	Mango Canning	<ol style="list-style-type: none"> <li>1. In adequate working capital - assessed on Nayak committee recommendations (20% of the project sales turn over)</li> <li>2. Limited sub-contracting relationship with the buyers</li> <li>3. Lack of product diversification - based on mango pulp, and to improve the capacity utilization of the factory</li> <li>4. Waste utilization - mango stones into value added products</li> <li>5. Improving the infrastructure facilities at Kakinada port</li> <li>6. Improving the quality systems - HACCP</li> </ol>	<ol style="list-style-type: none"> <li>1. Trust Building activities:               <ol style="list-style-type: none"> <li>a) Awareness programmes on Cluster Development programme for bankers and institutions/professionals/port officials</li> <li>b) Sharing of information from the buyers registered with APEDA/FICCI</li> <li>c) Technical programmes on preservation, value added products and waste utilization</li> <li>d) Awareness programme on HACCP</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Appreciation of Cluster Development Concept and its methodology by all cluster actors, including support institutions in the Cluster.</li> <li>2. Increased awareness on HACCP, and introduction of BDS and APEDA/NHB for formalizing the process.</li> </ol>
1.2	Mango Bar - Unorganized sector	<ol style="list-style-type: none"> <li>1. Unhygienic production</li> <li>2. Confined to mango only</li> </ol>	<ol style="list-style-type: none"> <li>Trust building activities:               <ol style="list-style-type: none"> <li>a) Awareness workshops on hygienic production of mango bar involving local technocrats</li> <li>b) Formation of groups</li> <li>c) Demonstration of improved technology</li> <li>d) Demonstration of alternative technology e.g. Solar drying, which reduces the drying period of mango bar from existing 25 days to three days</li> <li>e) Market linkages with local processors.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Increased awareness on hygienic Mango bar production and introduction of alternative technologies</li> <li>2. Demonstrated a pilot project, involving, at least one or two groups, for mango bar production, with the support of local professional/ institutions outside of the Cluster</li> </ol>

1.3	Mango powder- Unorganized sector	<ol style="list-style-type: none"> <li>1. Shelf life problems - Blackening of mango powder</li> <li>2. Lack of knowledge about buyers on mango powder, mango wet &amp; dry slices</li> <li>3. High costs associated with accessing technical know-how from the reputed institutions</li> <li>4. High labour cost involved in peeling of mango</li> </ol> <p>High space requirement</p>	<ol style="list-style-type: none"> <li>1. Providing a technical consultant to the unit for improving the shelf life of the product</li> <li>2. Forging the sub-contracting relationship with local SHGs for peeling operations</li> </ol>	<ol style="list-style-type: none"> <li>1. Linkage of, at least, two groups with the Mango powder/slice unit.</li> </ol>
1.4	Mango pickle  Unorganized sector (SHGs)	<ol style="list-style-type: none"> <li>5. .Poor hygiene standards because of infrastructure problems</li> <li>6. Lack of awareness on packaging standards</li> <li>7. Lack of resources to put even a simple sealing machine</li> <li>8. Variability in quality from each producer group, when bulking is done for meeting bulk orders</li> <li>9. Reliance on traditional wisdom and skills, and unable to access scientific preservation techniques</li> <li>10. Unable to reap the markets created, outside A.P due to preoccupation of women in their household activities, communication barrier, and lack of marketing skills.</li> <li>11. Unable to access to retail market shelves as it mandatory to have a FPO license and declaration of composition on the label.</li> <li>12. Can not get FPO license individually as production is mere extension of the kitchen</li> </ol>	<ol style="list-style-type: none"> <li>1. Awareness programmes on Hygienic production of Pickles and preservation techniques.</li> <li>2. Exposure visits to Pune, and Marathawada Agriculture university, Parbhani for low cost agro processing technologies.</li> </ol> <p>B. Initiation of strategic activities: Setting up of common packaging facility at TTDC</p> <p>Organizing the Distribution network for the products of SHGs in Delhi with the help of Business Services Development Provider(BDS)</p>	<ol style="list-style-type: none"> <li>1. Evolved some benchmarks for the processed products and in hygienic practices</li> <li>2. Increased awareness on packaging and preservation techniques &amp; low cost processing technologies, for other than mango by understanding the benchmarks.</li> <li>3. Initiated the formal mechanism for establishing a distribution network for Delhi market with the help of BDS provisioning.</li> </ol>
2.0	Rice Milling	<ol style="list-style-type: none"> <li>1. Machinery are old and consumes high power</li> </ol>	<p>Selection of Rice mills for modernization and</p>	<ol style="list-style-type: none"> <li>1. Crystallized the no. of rice mills for modernization, with</li> </ol>

		<ol style="list-style-type: none"> <li>2. Lack of access to quality spare parts</li> <li>3. Lack of good inventory management systems</li> </ol>	Provision of BDS to facilitate the same.	<p>the help of BDS</p> <ol style="list-style-type: none"> <li>2. Proposals initiated for modernization of Rice mills for submitting to concerned agencies.</li> <li>3. Established an inventory pool at association for common inventory items.</li> </ol>
3.0	Bakery products	<ol style="list-style-type: none"> <li>1. Shelf life of the product - to avoid fungal infections</li> <li>2. Lack of knowledge on new bakery products</li> <li>3. Lack of distribution network planning</li> </ol>	Organizing training programmes in association with South Indian Bakery association, Bangalore	<ol style="list-style-type: none"> <li>1. Created a database for actual no. of bakeries</li> <li>2. Inculcated at least base level functional trust among bakeries, through trust building activities</li> </ol>
4.0	Ethnic foods	<ol style="list-style-type: none"> <li>1. Shelf life of the product for distant markets</li> <li>2. Simple machinery for removing the drudgery in simple operations.</li> <li>3. Packaging</li> </ol>	Awareness programmes on packaging	<ol style="list-style-type: none"> <li>1. Increased awareness on packaging and linkage with the institutions/BDS</li> </ol>
5.0	Some neglected areas	<ol style="list-style-type: none"> <li>1. The district has substantial area under cashew, which has been procured by Kerala &amp; processors from Palasa and Vetapalem</li> <li>2. Even some processing is attempted, it is crude form of roasting and results into high splits</li> </ol>	<ol style="list-style-type: none"> <li>1. Identifying the area and production from a block</li> <li>2. Initiating dialogue with Maharashtra govt. (Horticulture Dept.) which popularized the simple cashew processing techniques in Sindhudurg district and widely adopted by women on a large scale.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identified the scope for processing of crops, which are hitherto neglected or processed in other districts.</li> </ol>
6.0		Strengthening of Institutions	<ol style="list-style-type: none"> <li>1. Exposures visit involving institutions, entrepreneurs, to other clusters for bench marking. (Since done for ALEAP members, who visited Pune food processing cluster).</li> <li>2. Employing the services of</li> </ol>	<ol style="list-style-type: none"> <li>1. Identified a food consultant for Institutionlising the mechanism for deliverance of technology and market linkages.</li> <li>2. Benchmarks and linkages with the food related institutions established.</li> </ol>

			<p>food technologist/          Consultants involved in food business (Business Services Provider) for strengthening of local institutions/industry/Govt. departments and creating business models for different segments of the industry.</p> <p>3.</p>	
6.0	General issues	<ol style="list-style-type: none"> <li>1. No local institutions for rendering technical advise, only a few professionals are available in the cluster.</li> <li>2. All the major institutions outside the cluster, which entails lot of coordination and transaction costs.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sensitizing CFTRI, and Spices Board, Hyderabad on cluster development programme</li> </ol>	<p>Identified one / group of Network Development Agents (could be institutions or professionals or existing entrepreneurs) for initiating the activity for the identified segments. with the handholding of CDA/ Govt.</p>



# CLUSTER MAP

CFTRI, Mysore, Hyderabad, Chennai, Spices Board, Guntur, Agriculture University, APEDA, NHB, FPO, SISI

