



Cluster Development Programme, India

DIAGNOSTIC STUDY

MSME

THE FOOD PROCESSING CLUSTER

KRISHNA DISTRICT, ANDHRA PRADESH

By Cluster Development Agent

District Industries Center

Vijayawada, Krishna District

Govt. of Andhra Pradesh

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SUPPORT TO COUNTRY EFFORT TO PROMOTE SME CLUSTER
DEVELOPMENT IN INDIA, 2002-2005**

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I. INTRODUCTION

1.1 NATIONAL SCENARIO

Agro processing refers to the transformation of agricultural produce into a form suitable for safe storage/transportation or of food material into edible form through various refinement processes. This involves proper packaging of food material either for handling or preservation needs after its final conversion into ready to eat form. The technological complicity, the managerial capacity and the capital required in processing depends upon the degree to which the raw material is transformed. For instance, if it is primary processing e.g. rice milling then all of the above are at a lower scale. However, if it entails transformation of chemical properties of the raw material like baby food formulations etc then all the above parameters would be at the extreme high end.

Imperatives:

India is the third largest producer of food grains after China and USA and the largest producer of fruits and vegetables in world. However, the amount of wastage here is to the tune of 30 to 40% of the produce which results in a colossal monetary loss estimated at a staggering Rs.8000crore. This is mainly due to poor post-harvest facilities. And thus, the primary objective of the processing industry should be aimed at reducing the post-harvest losses and provide the right remuneration to the growers. The National Agriculture Policy, June 2000, identifies food processing as a major segment and has set an objective of augmenting the food processing sector from existing 2% to 10% and increasing the value addition percentage from 7% to 35% by 2010. The processed products will improve palatability, nutritional value and the shelf life of the raw materials.

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Distribution - Predominance of Unorganized sector

The food industry structure reveals that only 55% of the food processing is in small scale and organized sectors, while 42% is in unorganized sectors (Source: Beverage and Food World, Sept 2002).

Major employment provider:

Agriculture and food processing sectors account for 26% of the GDP. Further, the food processing industry is labour intensive and thus a major employment provider. Presently, it employs 18 to 20% of the country's labour force and contributes around 50% to industrial production. The potential for employment generation is much higher than other sectors - 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. Also, 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 the Ministry of Food Processing, the food industry has already attained a turnover 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. A study of McKinsey reveals that 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 i.e. from subsistence to basic foods. The market for food products is still 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, grain based products, poultry products, snack foods and ready-to-eat items, 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.

Food Laws - Convergence and Harmonization

The Food industry is regulated by a plethora of regulations. These regulations, both voluntary and mandatory are enforced to protect the rights and health of the customer, to promote fair trade practices and ultimately to help develop the industry. Some of 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 the food industry in complying with all the above regulations, the Government is contemplating convergence of all food laws under one single act and harmonising them with CODEX in order to align with international 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.

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1.2. GLOBAL MARKETS

Exports:

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

SL. No	Item	Year (Rs. in crores)	
		2000-01	2001-02
A. Processed Fruits and Vegetables:			
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
	<i>Sub-total</i>	<i>1100.57</i>	<i>1345.54</i>
B.	Animal products	1637.1	1500.93
C	Other Processed food (Guar gum, Ground nut, alcoholic beverages, milled products)	1798.0	1780.07
D	Cereals		
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
	<i>Sub-total</i>	<i>3397.42</i>	<i>4620.26</i>
	Total export of food (excluding marine products)	9212.88	10169.45

(Source: APEDA, web site)

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Owing to various initiatives taken by both the Central as well as the State Governments, the export of processed foods is on an ascending scale since 1993-94, and the Middle East countries form the major destination for these exports.

Ethnic foods - untapped potential:

Ethnic foods is the world's fastest growing food retailing sector To quote from International experiences, the Italian supermarkets in Canada have been growing leaps and bounds and so is the case with Korean markets in California.

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

1.3. AGRICULTURE IN ANDHARA PRADESH

Andhra Pradesh is the fourth largest state in the India union in terms of area and the 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 second in the country in respect of production and area under horticultural crops. Mango being the principal horticultural crop here.

Details of production of various products in Agriculture and allied sectors

Product	Rank in the country	Area in (Lakh ha.)	Production (lakh tonnes)
Mango	First	2.97	23.79
Chillies	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
Ammonia	Fifth	0.48	13.12
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 units in the state for processing of horticultural crops. A major concentration of these industries is in the Chittor district

2. DESCRIPTION OF THE CLUSTER

2.1. EVOLUTION

The food-processing cluster is relatively new in the district. The trend for processed products started in 1980's with Priya Foods, which introduced branded pickles and traditional spice powders in Andhra Pradesh. The consumers accepted these products as a novelty item. The rapid growth of Priya coincided with the changes in socio-economic conditions such as increase in number of working women, splitting of joint families, increasing cost of household labour. Besides, Priya Foods launched extensive media campaigns, which to a great extent, led to a change in the habits of Pickle consumption i.e. from home based to market.

Their success was a precursor for establishing mango-canning units in and around Nuzuvidu. The Andhra Government, in order to empower women through SHGs also gainfully exploited the demand for pickle during the late 1990s. The SHGs formed under DWACRA scheme were encouraged to take up pickle manufacturing as an economic activity. The Government patronage to SHGs and exposing them to new markets has considerably eroded the traditional forte of PRIYA pickles in the local market. This in turn forced the organized sector for diversification of their product base and markets.

The software boom in the late 1990's impacted the cluster to a great extent. The IT professionals from Andhra, while traveling overseas started carrying canned ethnic food and pickles. This led to specialization in product packaging and has generated higher demand for ethnic foods, spices and pickles.

2.2. GEOGRAPHICAL LOCATION

The Krishna District falls under Krishna-Godavari zone. The geographical area of the district is 8.73 lakh ha consisting of 50 mandals. The 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.

2.3. MAIN PRODUCTS

The development of food processing industries is contingent on the availability of a strong agricultural base. In this district, Paddy occupies a major chunk of cultivable area with acreage of 2.68 lakh Ha and production of 10.35 Lakh Mt. It ranks third in terms of paddy production from the state. The other crops grown here are Sugarcane, Red gram, Green gram, black gram and chilies. The horticultural crops in the district occupy an area of 1.00 lakh Ha that represents 21% of the district's cropped area with an estimated production of 12 lakh MT. The major horticultural crops i.e. 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.

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 figures are denoted in bunches and numbers respectively*

2.4. FOOD PROCESSING INDUSTRY

The major food processing areas 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
I	Mango processing:		
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
II	Spice processing	3	Organized sector (unorganized sector is mostly confined to home based production and their numbers are yet to be traced out)
III	Rice Milling	268	Organized sector
IV	Dal Milling	36	Organized sector
VI	Bakery units	90*	5 units are in organized sector and rest in unorganized sector
VII	Papad manufacturing units	5	2 units in organized sector and rest in unorganized sector

*No official data is available and this is a guess estimate provided by M/s. Navarang bakeries (oldest bakery in Vijayawada)

2.5. PRODUCT CHARACTERISTICS

a) Mango Based Processing Units

Mango pulp making units

As mentioned above, mango is the predominant crop among the horticultural crops available in the district. The main varieties cultivated here are Banginapalli, Totapuri (Collector), Pedda rasam and Chenna rasam. Banganpalli is the table variety and the rest of the varieties are suitable for processing. According to an estimate by Department of Horticulture, Banginapalli constitutes 50% of the total mango production from the district and the rest is 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 a major activity in the district. In the organized sector, PRIYA Foods is the only company engaged in production and marketing of pickles under their brand name. It has a wide distribution network across India and also exports to the European and US markets.

Due to the efforts of District Rural Development Agency (DRDA), the home-based production units now dominate the industry. About 50 DWACRA members involving 7 prominent SHGs are engaged in production of pickles. They are spread in the entire Krishna district and their day-to-day operations and marketing are linked to the DRDA department. The DWACRA groups have captured the local markets and pose a 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 just one unit that came up recently at Vissannapeta that manufactures mango slices. The unit engages in primary processing of mango and transports the product to Gujarat State. The unit also manufactures mango armchur, which has a reportedly good demand in Gujarat and Maharashtra states.

Mango Jelly:

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

b) Dal Milling

Of the 36 units in the entire Krishna district, 28 mills are present in and around Vijayawada. The capacity of the units ranges from 5-10 tons per shift and the unit runs for about 250 days a year. The raw material i.e. green gram and red gram is procured from within the district.

c) Spice Processing

There are two units i.e. Priya and Agri Gold that are engaged in processing of spices. Their business operations are spread across India. However, the local market for ground spices is dominated by the unorganized sector i.e. SHGs and home scale units.

d) Rice Milling

This is a prominent activity in the district. According to the data provided by the Krishna District Rice Millers Association, there are about 268 rice mills in the district, of which 63 are involved in parboiling. The activity is predominately concentrated in Gudivada, Vijayawada and Machilipatnam mandals. The turnover of the industry is reportedly Rs. 1600 crore and contributes revenue to the exchequer to the tune of Rs 160 crore. Rice mills are categorized into two types

Trading Rice mills: In this type, the mill owner of the unit procures paddy from farmers, keeps stock, converts into rice and then directly sells to either Food Corporation of India (FCI) or to the consumer, depending upon the desired benefit.

Non-trading Rice mills: In this type, the mill owner undertakes job work. Farmers bring paddy to the mill and they themselves convert paddy into rice by paying job charges to the owner of the mill. However, a majority of the units here are trading mill types.

Distribution of the industry:

The industry is categorized into three categories, according to their capacity i.e. Large units producing 60 tons rice per day, Medium producing 30 tons per day and small units producing 20 tons per day. The data on capacity wise distribution of units is not available with the association. The primary processing predominates the district. There are very few units manufacturing flaked, puffed or pooped rice.

e) Ethnic Foods

The traditional food items of Andhra Pradesh are Araselu, Bobbatulu, Chakralu, pootharekulu, bundar laddu etc. Manufacturing of these items require a lot of labour. In earlier days, women used to make a variety of food preparations at home, however with modernization and scarcity of time, housewives now find it difficult to prepare everything at home. This constraint gave a business opportunity to some enterprising women, who gave birth to Swagruha foods and some Self-help Groups (SHGs). It is estimated that at least 30 such food manufacturers exist in Vijayawada alone. The market turnover is conservatively estimated at Rs.5crores. This is the fastest growing segment in Krishna district. The concept of “swagruha foods” has also spread to Hyderabad.

f) Bakeries

There are 90 bakeries in and around Vijayawada with a total turnover in the range of Rs5-10 crores. The industry is growing at the rate of 15% per annum, according to a well-established bakery owner and of late there are many new retail units that have come up in Vijayawada itself.

3. BUSINESS OPERATIONS IN THE INDUSTRY

The business operations of various manufacturing units have been presented segment-wise in terms of products manufactured. The major focus of this analysis revolves around Mango based products.

3.1 MANGO PULP

Availability of Raw Material

In India, two varieties of mangoes 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 as compared to other states. A part of Totapuri with golden colour is sent to the Delhi market for table consumption. Mango canning units procure Totapuri mangoes either directly from the farmers or the commission agents. Incidentally, Nunna market is regarded as largest fruit marketing center, especially for mangoes in India. The units appoint commission agents to purchase raw material from these places.

Alternative Bearing

Mango trees suffer from a problem of alternative bearing, which results in prices of raw mangoes shooting up one year and falling considerably in another. While the latter is advantageous to processors but farmers at times, are not able to recover their transportation costs. However, in case of the former situation, canning units incur heavy procurement costs. It was observed that last year, one unit had to even suspend its operation due to a steep rise in procurement costs i.e. from Rs 500-1000 per ton in 2001 to Rs 5000-6000 per ton in 2002.

Technology

Canning is the main technology employed by the processors. It is essentially a process of sealing foodstuffs hermetically in containers and sterilizing them by heat for long storage. Matured 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 is heated up to 93°C and then sent to the overhead tank for canning purpose. After canning, cans go through hot water bath for sterilization. These are then cooled to room temperature. The canning season continues for two months i.e. from mid-April to mid- June.

Sub-Contracting

Except for one unit, most of the firms do job work for the buyers/exporters located in Delhi, Mumbai and Chennai. One unit exports directly to Singapore, Gulf countries, Australia, and Malaysia. The exporters provide labels, cans and paying conversion charges to the canning units.

Working capital

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

Absence of Value Addition

The processed pulp can be utilized for making different mango products like RTS beverages, nectars, squashes etc. In the past, Priya group had manufactured RTS beverages but failed to capture a sizeable market share and thus withdrew the product from the market. This example was often quoted by the canning units, as a reason for not diversifying into value added products.

Why only a 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 a long tradition of mango cultivation, it has only four canning units, while the latter has nearly 50. Clustering of mango canning in Chittoor was due to availability of raw material here after the season at Krishna gets over. This extended procurement period of almost 45 days and proximity to buyers and the Chennai port gave an added advantage to the Chittoor district.

Further, high transportation cost of raw material from Chittoor to Vijayawada prevented the local canning units to procure raw mangoes from Chittoor. This was further compounded by the fact that the processed product had to go to Chennai. One exporter

tried Kakinada port to deliver the goods to Chennai but he could not attain economies of scale. Direct exports to Singapore from Kakinada port has logistics limitation as it has only one or two sailing lines, in contrast to five or six from the Chennai port.

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

3.2. MANGO SLICE UNIT

Primary processing:

Sun drying or mechanical drying process the blemished mangoes that are not suitable for table consumption or are rejected by the commission agents, into powder (called as Aamchur).

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

Value Addition:

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

Technological problem:

The entrepreneurs have developed the technology on their own and it has taken them almost two years to stabilize the same. However, there is a problem of blackening of mango powder, which requires help from CFTRI, Mysore.

Market:

Mango powder and wet & dry slices are sold to the commission agents of Gujarat. The price is paid at the rate of twice the procurement price.

Immense potential for Sub-contracting:

The primary processing of peeling is quite labour intensive. It is not possible for any single firm to employ and manage the entire labour and therefore, this process can be outsourced to SHGs. This will provide an additional employment to the latter during lean periods.

3.3. 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 a huge demand from other districts also. The shelf-life of the pickles made from this variety is very good. Nuzivedu has acquired a special significance because of this variety. In addition, the district is endowed with other crops like *Hibiscus cannabinus* leaves (Gongura), Drumstick, Ginger, Chilies, Tomato etc which are other important pickle ingredients. Pickles from Krishna district are known for their unique taste and command a distinctive place in the market.

Women acquire the art of pickle making at home at a very young age itself. This skill was harnessed by DRDA for providing an economic vocation to SHGs. Women were formed into groups consists of 10 members each for making pickles at their homes. DRDA is anchoring the process and has also given training in basic aspects of preservation. No chemical preservatives are added in the pickles prepared by SHGs, while the organized sector adds Class II preservatives for augmenting the shelf life of their product.

Major Issues

Packaging: Though, the pickles manufactured by SHGs taste good and is well accepted by consumers yet keeping up to quality and hygiene are two issues that they have to confront. The difference between organized sector and unorganized sector lies in packaging. The keeping quality is constrained by lack of awareness on packaging. Pickles are kept in plastic buckets and are brought to PYTHU and DWAGRA bazaars for retail marketing. They pack it in plastic pouches to sell to the consumers, who then in turn transfer the product into glass bottles for permanent storage. Investment on double sealing machine is beyond the capacity of these small groups. DRDA is contemplating to provide this facility in their TTDC. Awareness on hygienic practices also needs to spread. As the products are kept in homes, sometimes they become vulnerable to contamination from rats.

FPO license: Any product, which is commercially sold should have the FPO license. Since most of the SHGs market their products locally under the patronage of DRDA, the need for FPO license did not arise. However, once they expand their businesses to a bigger scale, FPO license would become a major issue. It is quite difficult for SHGs to meet the FPO norms as their operate from homes. In near future, some of the SHGs have to move to a common processing center in order to comply with the FPO norms and to maintain good hygiene practices.

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

DRDA is sponsoring the SHGs to participate in local as well as trade fairs at Delhi. Many SHGs have participated in these fairs and have received information about other markets. However, except one SHG the others are not able to participate on a regular basis due to barriers related to communication and their preoccupation with their domestic chores. Thus in spite of acceptance of their products in Delhi market, the momentum could not be sustained. There is therefore an immediate need for establishing a permanent shop in Delhi or appointing a commission agents for selling in Delhi markets.

Latent Exports: Andhra pickle, that too from Krishna district, is a popular item amongst people of Andhra region. It is observed that on an average, one member of every middle and high income families lives abroad and always carries with him/her a packet of pickle while traveling. This led to a specialization in so called "leak proof packing" of pickles in polythene pouches (4 pockets). These polythene packets are procured from Coimbatore. Some of the traditional pickle manufacturers are specialized in this process and call themselves as service providers. Their customers put forth extremely thin deliver schedules and are very particular about a safe and hygienic place for packaging.

A single unit owner, with his limited financial resources, claims to pack around 70,000 such pockets in a year at a rate of Rs.15 per pack (only packing charges). The packing cost can be decreased with 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 promote retailing of pickles and ethnic foods in plastic pouches on a large scale.

3.4. MANGO FRUIT BAR

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

Alternative technology:

i. Simple Change in the process :

APITCO in association with the local entrepreneurs of Vijayawada have conducted a technological up-gradation programme in the East Godavari district. This programme demonstrated adding of sugar, pectin and preservatives to mango pulp and drying in stainless steel trays in open sun covered with nets to avoid foreign material falling on pulp. This technology is very simple and a group of 10 people can be pooled at a common place for this demonstration. This project involves an investment of Rs.10,000 and can be replicated here by the local institutions.

ii.. 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 it is reported that a few manufacturers have already adopted it. The Ministry of Non-Conventional Energy Resources is also supporting this programme by offering fiscal incentives for 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 mango bar throughout the year, except during rainy season. It was learnt from the SEED that due to the awareness created by them through workshops, a few entrepreneurs from Krishna district also came forward for solar dryers. This facility can also be utilized for drying of curry leaves, drum stick leaves, tomatoes, which can be used for preparing chutney powders. The Dangoria Charitable Trust, Hyderabad, reportedly uses this low-cost yet efficient technology.

Market

Poorly valued by Customers: According to an estimate of APITCO, the market turnover for this product is reported to be Rs.20crore. East Kakinada, West Bengal and North India are amongst the major buyers for this product. During interviews with the local retailing shops it was revealed that they are now even selling Mango bars 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.

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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 then buy-back the product. Since, they are already in touch with exporters so this can become yet another item in their basket.

3.5 SPICE PROCESSING

Players: There are two units i.e. Priya and Agrigold in the organized sector that are involved in spice processing in this cluster. They compete with other major brands. However, major chunk of the spice processing is comes from home-based production and their distribution is widely spread. SHGs and ladies represent the unorganized sector and this activity 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 place of origin i.e. from Kerala and Gujarat, the small entrepreneurs source from local markets. As their requirements are small and staggered so at times it may even involve unviable purchases. Most of them use food mixer for grinding operations and cannot afford costly machines, as their scale of operations don't permit.

They have limited knowledge on processors, on selection of raw material and on storage techniques. For instance, Chilli turns black if it is stored for a long time. They also encounter technical problems if tamarind is used as one of the ingredients. Some of the members opined that information regarding storage 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 brings out a need for introducing pledge loans to the farmers as they can supply the raw material to these groups from cold storage instead of selling the produce to traders as in vogue now.

Processed products have a good demand from their surrounding environs. At present product packaging is done in polythene covers, which is not even a food grade material. Knowledge on simple and scientific packaging and small processors is quite limited. While the price of branded products is in the range of Rs.150-170 per kg, the unbranded items are sold at Rs. 80-100 per kg. Consumers prefer unbranded products as they are prepared fresh and retain more natural flavor. The unorganized sector caters to local hotels and payment is made on a bill-to-bill basis.

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

3.6 RICE MILLING

A major chunk of rice milling units are partnership concerns. Of the total production of paddy here, about 63% are processed in the district and the rest is procured by the neighboring districts. Most of the rice mills were established long back and involve cone polishing. BPT is the major variety cultivated in the district and to some extent there is 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 is 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 are now adopting modern machinery in order to reduce the percentage of brokens by almost 4% and to improve the appearance of the processed product. They have 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 more knowledge on modernization. Recently, RICETECH was organized at 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 new machinery.

Government policy: Earlier, it was mandatory for rice millers to part the milled rice to FCI under levy system. Now with the change in policy, the rice millers are not bound sell to FCI and can sell in open market as well. The levy price is fixed by the Government. Due to heavy stock of rice in their godowns, FCI is enforcing stricter quality norms. The norms fixed by FCI are in terms of brokens, foreign matter, damaged, discolored, chalky, red grains, admixture and moisture content. Rates are fixed on these parameters. Now in the absence of support price, it has become mandatory for the rice millers to comply with the quality norms.

Spares: Rice processing machinery requires a lot of spare parts for ensuring an uninterrupted production during the peak season. Bearings are a critical spare part for rice mills, which is obtained from the local dealers. A lot of duplicate parts are being sold and the processors are unable to discriminate them from the original ones. The duplicate parts lead to production halts. Even changing the bearings is a tedious process and results in wastage of time. It was reported that every mill roughly spends an amount of Rs.25000 on bearings alone.

Networking with Rubber Rice Polisher manufacturers: Rice polishing is a critical process in rice milling and the FCI too demands for well-polished rice. On an average, 52 pairs of rice polishers are required in a season and the cost of each pair ranges from Rs.1900-2600 per pair, depending on the brand. However, because of poor quality of rice polishers, at times the rubber adheres to the surface.

All brands are locally available from the local dealers, who in turn obtain from Chandigarh. It was also informed that the Chandigarh dealers procure from Kerala which has got manufacturing facilities for rice polishers. A direct linkage of rice millers association can be forged with the manufactures to facilitate flow of information on their technical requirements as well as bringing them benefit of reduced prices.

3.7. ETHNIC FOODS

Shelf life and Packaging: Processing of ethnic foods is mostly manual and caters to the local demand. The industry faces a problem of poor shelf life and packaging. Some of the SHGs that have taken these products to Delhi markets also could not sustain there for a long-term because of the above reasons.

Bakery Products:

No association: Though there are 90 bakery units in the cluster yet there is no association amongst them. Only one unit is connected to the South India Bakery Association, Bangalore and they regular get information on current trends in the bakery industry.. In the past, they have even invited experts from Bangalore and CFTRI to train their workers.

Technical problems: Bakery units demand for product diversification and technological inputs on improving the quality aspects and shelf life of the products.

3.8. REVIVAL OF NUTICEUTICALS

Lessons from NGOs : Access to nutrient rich food is one of the critical problems facing the rural women who want to maintain their own as well as their newly born's health. The erosion of usage of traditional foods e.g. ragi malt and its substitution with modern supplements like Farex and Cerelac etc, driven by MNC promotions, is a common phenomenon in rural India. An NGO called Vasavya Mahila Mandali (VMM); Vijayawada formulated and distributed food fortified with minerals through their networks.

This food segment can be mainstreamed not only in rural areas but also in urban areas, with support of Doctors, who of late have started prescribing traditional food supplements. In this connection, the efforts of VMM can be coordinated 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. This trust has prepared food formulations fortified with iron and its composition is comparable to the existing weaning food brands. They entered into the retail market in a small way, under the brand name of 'POSHANA'. This attempt can be tried in the cluster as VMM has already established networks with hospitals and health clubs. They even have the adequate infrastructure and technical support available.

4. OTHER CLUSTER ACTORS

4.1. BANKS

The district has a high density of banks, with the total number of bank branches operating in the urban and rural areas here, being around 392. Canning, rice milling units and some SHGs avail working capital loans from these banks.

4.2. NABARD

NABARD has its District Development office at Vijayawada. Besides providing refinance to eligible banks, NABARD has some promotional schemes for supporting the non-farm sector in the state. So far it has not conducted any promotional programmes exclusively for the agro processing activities of the district.

4.3. SFC

State Financial Corporation at Vijayawada sanctions term loans to all industries.

4.4. 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 lie below poverty line. 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 a membership of about 3 lakh. Most of these SHGs are women based.

DRDA has promoted pickle manufacturing as an economic avocation to some of the SHGs. There are about 7 groups that are involved in making pickle and spices throughout the year. These groups are technically supported by DRDA. It also helps them in marketing of their products in local RYTHU and Super Bazaars. There is one marketing officer who exclusively looks after the SHGs. DRDA also determines the price of the products and also gives opportunities to the manufactures to participate in exhibitions and trade fairs organized within Andhra as well as outside the state, particularly in Delhi.

The DRDA has established a Training and Technology Development Center (TTDC) at Gollapudi, near Vijayawada. Machinery with low cost technologies are made available here. The pickle manufacturers are availing of the services provided by the TTDC and are also planning to establish a community based packaging unit there for SHGs.

4.5. ALEAP

Association of Lady Entrepreneurs of Andhra Pradesh (ALEAP), a registered body under Companies Act, headquartered at Hyderabad, identifies women entrepreneurs and motivates them for setting up their own units such that they become socially and economically independent. At present Mrs. K. Rama Devi heads the ALEAP and she is also a 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 has also received a number of awards e.g. Best Promotional Award from Union Ministry of Industry and Best Women of the Year Award from the Andhra Pradesh State Government.

ALEAP has established an industrial estate in Hyderabad and 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 units in the park. The food park will have all infrastructure facilities including the ones for food testing. The products manufactured from the park will have a common brand name and it will provide guidance to the units in terms of production, technology and marketing. It is scouting for marketing tie-up with the leading food processing industries and is also implementing credit guarantee scheme. ALEAP has organized workshops involving KVIC and SIDBI at Vijayawada for promoting margin money assistance and credit linkages to the prospective entrepreneurs. They want further assistance on exploring opportunities for food processing industry and organising marketing tie-ups for their prospective entrepreneurs.

4.6. NGOs

a) Vasavya Mahila Mandali (VMM):

It is a non-profit voluntary organization headquartered at Vijayawada working for all round development of women and children. The institute was established by Mrs and (Late) Mr Gora, renowned social reformers. Mrs. Gora was conferred with Janaki Devi Bajaj Award (1997), Jamnalal Bajaj Award (1999), GD Birla Award (2000) and Basava award (2001).

VMM promotes SHGs in the district and have infrastructure facilities for production of malt biscuits and spice powders. They facilitate credit linkages between banks and SHGs. They have even conducted training programmes on biscuits and bakery products. Producing nutritional food is their major focus and they have wide network in the district and are well known for their contribution towards rural health programmes. Their networks can be utilized for promoting mango based and health related foods.

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

4.7. INSTITUTIONAL LINKAGES

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

a) Community and Food Nutrition Department:

This institute is operating under the aegis of Department of Food and Nutrition Extension Wing, Ministry of Human Resources, Government of India. It conducts training programmes for housewives on food preservation aspects and also runs one community food processing center. The small processing units utilize the services of this department. However, with effect from July 2002, the department has stopped the traditional training programmes and are concentrating on nutrition aspects only. The small processors contact the demonstration officer of the center to solve production-related problems.

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b) Jana Sikshna Samstahn (JSS):

JSS works under the supervision of Ministry of Human Resources Development Ministry, Government of India. It gives training in vocational courses to prospective entrepreneurs and also conducts training programmes on agro processing and bakery items. It also organizes general Entrepreneurial Development Programmes (EDPs) in association with APITCO. They organize a 'Mahila Ustav' every year in the district, in which women entrepreneurs exhibit their products. The certificates issued by them are useful to entrepreneurs in receiving bank loans.

c) District Industries Centre:

The DIC at Vijayawada promotes industrial activity in the district. The DIC is nominated as a nodal authority for obtaining statutory license under the 'Single Window Clearance' scheme. Besides, it also conducts EDPs and has schemes for proving marketing assistance to the industries. It promotes self-employment schemes with assistance from local banks. However, it has yet to make focused efforts on promotion of food processing units in the district.

d) Department of Horticulture:

Its main function is to develop horticulture in the district. Considering the large area under Mango cultivation, especially the Banganpalli variety, APEDA has identified Krishna district as an 'Agri Export Zone (AEZ)'. The main focus of the project would be to promote exports of Banganpalli variety by disseminating awareness on improved packaging practices amongst mango growers and by establishing post-harvest facilities like pre-cooling units. This project may impact the Mango productivity, especially the Banginapalli variety that is being exported. Processing activities are not included under the AEZ project as their main mandate is to expand area under horticultural crops and improve the productivity of existing crops.

e) Association of Fruits and Vegetable Growers, Vijayawada

The association has a membership of 250 horticultural growers that are spread over in three major mango growing districts viz. Krishna, West Godavari and Khammam of the state. The organisation is headed by Shri Prasada Rao, who himself is a technocrat. The association is basically into exporting of fresh mangoes to Singapore and Malaysia. APEDA has awarded a merit certificate to them for their outstanding performance in mango exports. Recently, the association has diversified into marketing of value added products as well. Nowadays, they are even selling mango bars 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 production in the East Godavari district. Mr Rao had offered his support for transfer of technology for ensuring hygienic production of mango bar and also for marketing. The association has assured that the process undertaken in the East Godavari district could be replicated in the Krishna district as well.

4.8. EXTERNAL INSTITUTIONS

CFTRI: This is a premier institution for 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 one pickle manufacturing unit have availed of its services for testing of pulp and designing of mango cutting units respectively. ALEAP also plans to utilize the services of CFTRI for intensive training of its members in selected areas of interest. The processors stated that because of high consultation fee charged by CFTRI, the former could not avail their services fully.

Spices Board: The Spices Board is the apex body of the Government for promotion of spices and spice products from India. It is located at Cochin and has offices at Hyderabad and Guntur. The Spices Board has promotional schemes for; supply of polythene sheets for post harvest improvement in chilly, turmeric and seed spices, quality improvement of pepper, chilly, ginger, turmeric and seed spices and for construction of drying yards.

It also conducts training programmes for educating the farmers, traders, exporters, officers of state horticulture department, members of NGOs and those of processing units to improve the quality of spices during and after harvest season and to maintain storage levels to meet the requirements of the importing countries.

It also provides a logo for 'Indian Spices' and certify those processors who comply with the stipulated quality norms. This scheme takes into account the setting up and upgrading of quality testing lab, setting up of facilities for monitoring pesticide residues and the adoption of ISO 9000 certification and HACCP.

Since Krishna district was never a traditionally popular cluster for spices, the Spices Board's efforts are mainly directed to Guntur district, a neighboring district of Krishna. However, two spice processing units i.e. Priya and Agri Gold have availed their services and are registered with them and are also certified for compliance with HACCP. The spice processors operating from home have not received any attention from the Board due to a lack of critical mass of production.

APEDA: APEDA has got a regional office at Hyderabad. It has several schemes for export of agricultural and processed products from India. APEDA actively participated in the quality improvement programmes conducted at 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, the rest of the industries have not been able to utilize APEDA's services. Now with the sanctioning of AEZ, the latter would focus on promoting exports of Banganipally variety of mangoes from the Krishna district.

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5. PROBLEMS IDENTIFIED

Lack of critical mass

Barring the rice mills, a critical mass of units in any segment is missing, which is necessary to take any meaningful interventions in the cluster.

High degree of heterogeneity

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

Suitable varieties for processing

The district has a unique distinction for Chenna rasam and Pedda rasam varieties of mangoes, which are highly suitable for pickle manufacturing. It also helped the women to give a unique selling proposition and acquire a niche in the market in terms of product taste.

Multiplicity of Departments

The products are manufactured in both unorganised as well as organised sectors. While SHGs comes under the DRDA, the organized industry comes under the purview of Department of Industries. Thus any uniform approach, shall require mutual appreciation and a greater degree of convergence by the above departments.

Micro enterprises can tap new markets

The experience of SHGs in accessing Delhi market under the guidance of DRDA proves that there is a huge demand for pickles and ethnic foods outside Andhra. This demand can be tapped on sustainable basis by setting up proper distribution network and improving packaging and hygiene standards of the manufacturers.

Predominance of unorganized sector

A major chunk of the processing industry is confined to the unorganized sector. The DRDA has attempted to bring these scattered units into a single fold with their market-oriented interventions. These networks can serve as ready-made platforms for initiating product standardization and improving the packaging standards for meeting large volumes of uniform quality.

Horizontal Collaboration exists

Almost all mango and rice processing units, exhibit lateral cooperation in terms of sharing their production capacities and solving day to day problems. However, in case of other units, the cooperation is limited because of their wide geographical spread.

Lack of any support institutions

The cluster is a nascent one and thus could not attract attention of any institution related to food processing. As a result, the manufacturers are not aware of the recent trends in food industry or the food laws. The focus of the institutions existing outside the cluster is on other places, where there is some critical mass available and therefore there is greater scope of visible impacts being made.

Lack of access to market information

Due to lack institutional support, some of the units have spent a lot of money for scouting information. This is an entry barrier to small institutions who wish to set up small processing units.

6. SWOT ANALYSIS

<u>Strengths</u>	<u>Weaknesses</u>
<p><i>Inputs availability:</i> Mango is the major raw material, which is abundantly available. This district boasts of nationally acclaimed varieties for mango processing like Totapuri, Chenna rasam and Pedda rasam.</p> <p><i>Technology:</i> The technology for pickle manufacturing have a unique distinction as the products manufactured in this cluster are free from preservatives.</p> <p><i>Skills:</i> Traditional skills acquired from generations have been retained.</p> <p><i>Marketing:</i> The traditional mango based industry has made an impact in the national markets due to the efforts of DRDA.</p> <p><i>Innovation capabilities:</i> One unit has taken up processing of mango slices and mango powder, which is new for the cluster. ALAEP is establishing a food park exclusively for women entrepreneurs. This will again be a unique model of its kind in the country.</p> <p><i>Infrastructure facilities:</i></p> <ul style="list-style-type: none">- The cluster has cold storage facilities in the district for storing of agricultural produce like chilies, tamarind etc.- There is one pre-cooling unit, which is	<p><i>Markets:</i></p> <ul style="list-style-type: none">- The products generally cater to local markets and any expansion of their business is fraught with low scale of production.- Awareness on markets for food products in other states is lacking.- High coordination and transaction costs inhibit the small units to scout for new markets.- The local retailing shops consider the products manufactured by local people of inferior quality, for instance the mango bar. Though pickles have a good demand, yet they are not placed in the retail shops due to lack of labels and of information on product composition.- The spice manufactures cannot diversify their market base due to lack of awareness on AGMARK. Access to retail markets demands FPO labeling. This is not met as their production base cannot comply with the stipulated norms. <p><i>Technology:</i></p> <ul style="list-style-type: none">- The technology employed in the district is not advanced and heavily relies on traditional knowledge.- Market demands uniform quality, which is very difficult to maintain as units are small and scattered.- Most of the rice mills were established some decades ago and now require modernization to reduce percentage of brokens.- Absence of awareness on scientific

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<p>being used for storing export consignments of fresh mangoes.</p> <ul style="list-style-type: none"> - The district has well-developed transport system, which has been utilized to transport produce to Gujarat and Delhi markets. - The facilities at TTDC have been used by the SHGs. <p><i>Business environment:</i> The cluster has been historically famous for trading. The processors do cooperate amongst themselves for sharing of their godowns. SHGs also share their market orders based on their core skills.</p>	<p>preservation techniques for long term storage of the product.</p> <p><i>Product diversification:</i> This has not been attempted even though there is a considerable area under Guava cultivation yet nobody attempts to process Guava pulp.</p> <p><i>Inputs availability:</i> Lack of packaging material and machinery is a serious limiting factor. Simple things such as glass bottles for storing of pickles are not available. It leads to added coordination and transaction cost for the small units.</p> <p><i>Innovation capabilities:</i> The past failure of one unit in product diversification from pulp to RTS beverages has negatively impacted the existing entrepreneurs to take up product diversification.</p> <p><i>Quality:</i> Maintaining hygiene in production is a missing element. Only two canning units have been certified for HACCP till now. 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 style="text-align: center;"><u>Opportunities</u></p> <p><i>Markets</i> There is a good demand for Andhra pickles, both within and outside the country. This potential has not been tapped on an organized basis. Mango bar has got huge demand in West Bengal and North Indian states, which so far has been exploited by re-labelers and not by the manufactures.</p> <p><i>Technology:</i> - The district offers huge scope for</p>	<p style="text-align: center;"><u>Threats</u></p> <p><i>Markets:</i> - Due to poor critical mass of units, other clusters may emerge forward and dwarf this industry. For example, all buyers concentrate in Chittor for mango pulp. - Market preferences for hygiene products may affect the pickle and mango bar units.</p> <p><i>Technology:</i> - The pulp from Aseptic processing units</p>

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technological up-gradation. For e.g. recent RICETECH exhibition, held at Vijayawada revealed how modernization of rice mills can reduce the broken percentage and cut down the operating costs e.g. fixed costs on electricity charges.

- Similarly, technology can help to overcome the blackness that occurs during the storage of mango powder.

- Packaging technology, ranging from simple to complex options can be transferred to the district.

- Considering the nascent nature of the cluster, there is tremendous scope for technical consultants to encourage the canning units to go in for product diversification and try gainful utilization of waste generated from processing e.g. Mango stones can be used for extracting fats and technology for this is available with BARC, Mumbai.

Inputs availability:

The cluster offers scope for new packaging material for packing of pickles, ethnic food and spices.

Innovation capabilities:

Considerable scope exists for manufacturing 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 can be imparted to the SMEs. Even the Rice Mills association has demanded EDPs to improve their business.

Others:

Offers scope for sub-contracting relationships between mango powder manufacturers & SHGs. E.g. the mother units can outsource the peeling to SHGs.

has demand in European and US markets. One such unit has already come up in Renigunta, Chittoor district.

- High demand for compliance with quality regulations will impact the cluster significantly.

Inputs availability:

Any deterioration in power situation would significantly impact the mango canning units, as their processing period is during summer season.

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7. VISION STATEMENT

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

8. INTERVENTION STRATEGY

This 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 the rice milling activity, a critical mass of units is not there for any other segment.

From the 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 here could be categorized as a 'nascent industry'. Therefore the strategies normally applied for underachieving clusters may not be applicable here.

Considering the above characteristics of the cluster, the following strategies are 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 in terms of increasing value addition to the products.
3. Strengthening of local institutions and linking them with the those connected to the food processing industry at the national level.

9. ACTIVITIES PLANNED

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

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

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

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

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1.3	Mango powder- Unorganized sector	<ol style="list-style-type: none"> 1. Shelf life problems - Blackening of mango powder 2. Lack of knowledge about buyers on mango powder, mango wet & dry slices 3. High costs associated with accessing technical know-how from the reputed institutions 4. High labour cost involved in peeling of mango. 5. High space requirement 	<ol style="list-style-type: none"> 1. Providing a technical consultant to the unit for improving the shelf life of the product 2. Forming of sub-contracting relationship with local SHGs for peeling operations 	<ol style="list-style-type: none"> 1. Linkage of at least two groups with the Mango powder or slicing units.
1.4	Mango pickle Unorganized sector (SHGs)	<ol style="list-style-type: none"> 1. Poor hygiene standards because of infrastructure problems 2. Lack of awareness on packaging standards 3. Lack of resources to put even a simple sealing machine 4. Variability in quality from each producer group, when bulking is done for meeting bulk orders 5. Reliance on traditional knowledge and skills, and inability to access scientific preservation techniques 6. 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. 7. Unable to access the retail market shelves as it is mandatory to have a FPO license and declaration of composition on the label. 8. Cannot get FPO license individually as production is mere extension of the kitchen 	<ol style="list-style-type: none"> 1. Awareness programmes on Hygienic production of Pickles and preservation techniques. 2. Exposure visits to Pune, and Marathawada Agriculture University, Patilnagar for low cost agro processing technologies. <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"> 1. Evolve some benchmarks for the processed products and in hygienic practices <ul style="list-style-type: none"> - Increased awareness on packaging and preservation techniques & low cost processing technologies, for other than mango by understanding the benchmarks. - Initiated the formal mechanism for establishing a distribution network for Delhi market with the help of BDS provisioning.

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

			<p>2. Employing the services of food technologist</p> <p>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>	with the food related institutions established.
6.0	General issues	<p>1. No local institutions for rendering technical advise, only a few professionals are available in the cluster.</p> <p>2. All the major institutions outside the cluster, which entails lot of coordination and transaction costs.</p>	1. Sensitizing CFTRI, and Spices Board, Hyderabad on cluster development programme	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.

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

