Chapter I

Introduction

Fruits and vegetables play an important role in human diet and nutrition. They are indispensable sources of essential dietary nutrients, vitamins and minerals, besides providing crude fibre and bulk. But a major portion never benefits mankind and most human beings are malnourished, because such food items are perishable. Man has tried to control these natural destructive forces and has accumulated a technology for preserving foods. And now food processing is considered to be one of the most profitable industries all over the world, especially in developed countries.

India is the largest producer of vegetables in the world next to China and total production of vegetables was 59.4 million metric tones in 1999. But around 20-40% of the perishable produce valued at Rs.35,000/- crores are lost or wasted due to improper handling, packaging, lack of refrigerated transport and storage. In a civilized world, where millions go hungry, it would be a crime to allow the post harvest loss to continue. Here is the
importance of the Food Processing Industry (FPI) because it helps to avoid post harvest loss of agricultural produce by changing it into durable and value added products.

FPI can play a significant role in Indian economy by converting raw agricultural commodities to value added finished products. Indian FPI is poised to be a load-bearing pillar in the economy improving health and enhancing rural prosperity. Besides, FPI is of enormous significance for India’s development, because of the vital linkages and synergies that it promotes between the two pillars of the economy, namely industry and agriculture. No doubt the FPI in India is on an assured track of growth and profitability over the coming decades.

Kerala is a land blessed with all the greenery – a wide variety of fruits and vegetables. But the seasonal availability of fruits and vegetables leads to wastage. Food processing industry helps a lot in inducing demand for these primary products.

FPI is significant to the Kerala economy on account of its contribution to the food requirements. Assessment of the FPI in the perspective of the Kerala economy has an employment orientation too. Kerala, with its industrial paucity offers very little
for huge industrial establishments. FPI which is highly labour intensive is suitable to be organized in the small-scale sectors.

Within the manufacturing sector, the FPI occupies a relatively special position, since the demand for its production originates almost entirely in private consumption. In the case of FPI the backward linkages are very strong. They are operating in the economy through 'pull effect rather than through push effect'.

FPI which is termed as the 'sunrise sector' is expected to attract phenomenal investment - capital, human, technological and financial. For a successful food processing sector various aspects such as quality control, quality system and quality assurance, the constituents of total quality management should function in a horizontal fashion. So it is imperative to study the FPI in detail.

1.1 Agriculture and Industry: Linkages

Every non-primary economic activity will induce attempts to supply through domestic production, the inputs needed in that activity. This, according to Hirschman, is called the input providing derived demand or backward linkage effects. On the other hand, every economic activity that does not by its nature
cater exclusively to final demands will induce attempts to utilize its outputs as inputs in some new activities. These are called output-utilization or forward linkage effects. These effects, summarily are called the linkage effects. This is explained in terms of external economies, complementarities, cumulative causation etc. If the establishment of industry \( W \) may lead, through linkage effects, to the establishment of \( n \) additional industries with net outputs equal to \( x_i \) (\( i=1,2, \ldots n \)) and if the probability that each one of these industries will actually be set up as a result of the establishment of industry \( W \) is \( P_i \) (\( i=1,2, \ldots n \)), then the total linkage effect of industry \( W \) is equal to

\[
\sum_{i}^{n} x_i P_i
\]

The probabilities can be interpreted as measuring the strength of the stimulus that is set up.

Food processing industry being one which cater mostly to final demands, have much of backward linkages and less of forward linkages. For backward linkage, suppose industry \( W \)

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requires annual inputs of $y_1, y_2, ..., y_n$ and suppose that the minimum economic size (in terms of annual productive capacity) of firms that would turn out these inputs is equal to $a_1, a_2, ..., a_n$, then the strength of the stimulus or the probability that the setting up of industry \textquoteleft W\textquoteleft will lead to the setting up of industries producing the inputs is equal to the ratio of the \textquoteleft y\textquoteleft s to the \textquoteleft a\textquoteleft s. The ratio is to be defined as having a ceiling of 1 i.e., the value of the ratio is equal to unity, whenever the \textquoteleft y\textquoteleft s are equal to or larger than the \textquoteleft a\textquoteleft s. \footnote{Albert O. Hirschman, n.1. pp. 100-104, 109-113}

Taking backward linkages in the food processing industry the processing can be done in two ways. One is by way of excess output in the primary sector i.e. in the fruits and vegetables producing sector leading to the setting up of food processing industries. It is a \textquoteleft process via excess capacity\textquoteleft. On the other hand, the second way is the initial setting up of the food processing units leading to the expansion of the production of fruits and vegetables. It is a \textquoteleft process via shortages.\textquoteleft \footnote{Ibid.}
Both the ways can be illustrated by way of the following figure. Taking the cue from Hirschmann, it is shown by taking the relation between food processing industry and the fruits and vegetables producing sector.

![Diagram showing the Path of Development]

**Fig. 1.1**

**The Path of Development**

Total productive capacity of the FPI is measured on the vertical axis and the availability of fruits and vegetables on the horizontal axis. Curves can be drawn (A, b, c) showing the cost
of producing a given full-capacity output of FPI, from a given amount of investment in FPI as a function of the availability of fruits and vegetables. The curves are negatively slopped and convex to the origin because the cost of FPI will decrease, greater the availability of fruits and vegetables, but there is a minimum amount of the primary products necessary for any level of FPI output (eg. OS$_1$ corresponding to curve a) and as the supply of primary products increases, its impact on the cost of FPI output becomes less and less.$^4$

There are two alternative ways of expanding production in FPI. One possibility is the sequence AA$_1$ BB$_2$ C where the initial expansion is effected in the primary producing sector (fruits and vegetables). It is the sequence of ‘development via excess capacity’. The other possibility is the sequence AB$_1$ BC$_1$ C where the initial expansionary step is taken by the FPI. This sequence is “the development via shortages”. The sequence via excess capacity proceeds from the excess availability of fruits and vegetables leading to the setting up of FPI units. This further brightens up the possibility of further primary production. On the other hand,

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the sequence via shortages begins with the setting up of FPI units leading to the demand for primary products. This will initiate endeavours in the production of fruits and vegetables.\(^5\)

In both sequences demand for the final product of FPI is assumed to be sufficient and assured.

1.2 The Research Design

a. Significance of the study

It is imperative to study the economic viability of the food processing industry. Its cost-benefit assessment in relation to the achievements and potentialities is to be made. Food processing industry is developed as a panacea for an economy’s dependence on outside agencies for meeting the basic need of food. It has to be geared to this end. On the other hand, instead of being a boon, it can also act as a dent in the resource base of an economy, if they are not properly formulated, executed and managed. A study of the food processing industry may throw some light on the economic viability of this industry.

\(^5\) Ibid., pp. 191-192.
An industry is assessed for the employment generation especially, in an economy hampered by ever escalating unemployment and underemployment indicators. The employment generation aspect of an industry, instead of being an instrument of progress, may act as an agent of retrogression. If the labour is widely politicized and partisan loyalties ruling the roost, as in Kerala, a study of the food processing industry should look into this paradox as well.

An industry is not assessed at a point of time being an end in itself, but over a span of life in the light of sustainable operation. Major problems and issues are the continued supply of raw materials, availability of credit, prospects of marketing network, laws obstructing the industry and the role of the state in promoting it etc.

b. **Statement of the research problem**

Food processing industry is of enormous significance for the development of Kerala because of the vital linkages and synergies which it promotes between industry and agriculture. More crucial is an efficient food processing industry; which could make in
Kerala’s food security. Food products should keep pace with the growth in demand for them.

The gap between requirement and availability is pronounced in the case of vegetables. The following table gives the situation with regard to the availability of vegetables in Kerala.

**Table 1.1**

**Availability of Fresh Vegetables in Kerala**

<table>
<thead>
<tr>
<th>District</th>
<th>Area (Hectare)</th>
<th>Annual Production (metric tonne)</th>
<th>Imports (metric tonne)</th>
<th>Requirements (metric tonne)</th>
<th>Gap (metric tonne)</th>
<th>Gap in %</th>
<th>Gap use g.m.</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.V.M.</td>
<td>5841</td>
<td>44456</td>
<td>86810</td>
<td>146199</td>
<td>101743</td>
<td>229</td>
<td>193</td>
</tr>
<tr>
<td>Kollam</td>
<td>9058</td>
<td>68940</td>
<td>14150</td>
<td>118634</td>
<td>49703</td>
<td>72</td>
<td>142</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>5216</td>
<td>39670</td>
<td>1538</td>
<td>58553</td>
<td>18983</td>
<td>48</td>
<td>124</td>
</tr>
<tr>
<td>Alleppezha</td>
<td>5774</td>
<td>43945</td>
<td>67132</td>
<td>98609</td>
<td>54664</td>
<td>124</td>
<td>64</td>
</tr>
<tr>
<td>Kottayam</td>
<td>4102</td>
<td>31220</td>
<td>6252</td>
<td>90089</td>
<td>58869</td>
<td>189</td>
<td>65</td>
</tr>
<tr>
<td>Idukki</td>
<td>4463</td>
<td>33969</td>
<td>3109</td>
<td>53125</td>
<td>19156</td>
<td>56</td>
<td>83</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>3481</td>
<td>26494</td>
<td>223220</td>
<td>138820</td>
<td>112326</td>
<td>424</td>
<td>129</td>
</tr>
<tr>
<td>Thrissur</td>
<td>5732</td>
<td>39060</td>
<td>53638</td>
<td>134880</td>
<td>95820</td>
<td>245</td>
<td>169</td>
</tr>
<tr>
<td>Palakkad</td>
<td>7874</td>
<td>59930</td>
<td>7754</td>
<td>117373</td>
<td>57443</td>
<td>96</td>
<td>165</td>
</tr>
<tr>
<td>Malappuram</td>
<td>7554</td>
<td>57495</td>
<td>17560</td>
<td>152570</td>
<td>95075</td>
<td>165</td>
<td>157</td>
</tr>
<tr>
<td>Kozhikkodu</td>
<td>5800</td>
<td>44145</td>
<td>70391</td>
<td>12095</td>
<td>84950</td>
<td>192</td>
<td>92</td>
</tr>
<tr>
<td>Wayanadu</td>
<td>4790</td>
<td>36458</td>
<td>1383</td>
<td>33115</td>
<td>3343</td>
<td>9</td>
<td>98</td>
</tr>
<tr>
<td>Kannur</td>
<td>5020</td>
<td>38210</td>
<td>77754</td>
<td>110952</td>
<td>72742</td>
<td>190</td>
<td>165</td>
</tr>
<tr>
<td>Kazagodu</td>
<td>1836</td>
<td>13974</td>
<td>944</td>
<td>52798</td>
<td>38824</td>
<td>278</td>
<td>109</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>75941</strong></td>
<td><strong>577966</strong></td>
<td><strong>701635</strong></td>
<td><strong>1434812</strong></td>
<td><strong>856955</strong></td>
<td><strong>148</strong></td>
<td><strong>125</strong></td>
</tr>
</tbody>
</table>

There is a wide gap between the requirement and availability of vegetables. Taking the state as a whole, the total requirement of vegetables is 1434812 metric tonnes but local production is only 577966 metric tonnes annually. There is a gap of 856955 metric tonnes and in percentage terms, it amounts to 148%. Among the districts, Ernakulam has the highest gap, in percentage terms it is 424%. We can say that Kerala economy is far from being secure with regard to vegetables.\(^6\)

When we consider the availability of fresh fruits, Kerala has a sizeable supply of them. But most of the fruits available in Kerala are seasonal in nature. In specific seasons, there is an abundant supply of them but in other seasons, there is a glaring scarcity.\(^7\) Following table illustrates the supply of fresh fruits in the state.

\(^6\) Ibid
\(^7\) Ibid
Table 1.2
Availability of Fresh Fruits in Kerala (in metric tonnes)

<table>
<thead>
<tr>
<th>District</th>
<th>Fresh Fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Jackfruit</td>
</tr>
<tr>
<td>Thiruvananthapuram</td>
<td>6096</td>
</tr>
<tr>
<td>Kollam</td>
<td>6903</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>2597</td>
</tr>
<tr>
<td>Alappuzha</td>
<td>2948</td>
</tr>
<tr>
<td>Kottayam</td>
<td>4728</td>
</tr>
<tr>
<td>Idukki</td>
<td>4849</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>4182</td>
</tr>
<tr>
<td>Thrissur</td>
<td>4215</td>
</tr>
<tr>
<td>Palakkad</td>
<td>5338</td>
</tr>
<tr>
<td>Malappuram</td>
<td>7595</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>11346</td>
</tr>
<tr>
<td>Wayanad</td>
<td>10058</td>
</tr>
<tr>
<td>Kannur</td>
<td>12887</td>
</tr>
<tr>
<td>Kasargod</td>
<td>2432</td>
</tr>
<tr>
<td>State</td>
<td>86174</td>
</tr>
</tbody>
</table>

Source: Project Preparation and Monitoring Cell, 1999, Govt. of Kerala, Thiruvananthapuram.

As is clear from the table, Kannur district the largest producer of fresh fruits (35177 m tonnes) in Kerala whereas Pathanamthitta has the last rank (with 8955 m tonnes). Kannur has the first place in the production of mangoes and jackfruits whereas Pathanamthitta has the last position in this case. The
total fruits production amounts to 287011 m tonnes. But the per head availability of fruits is very negligible. So we are not safe in the case of the availability of fresh fruits.

Seasonal nature of the availability of fresh fruits and vegetables aggravates the problem which necessitates a fully developed food processing industry. In order to satisfy this end, a number of units have come up in many parts of the state. See Appendix (1).

Calicut has the highest number of food processing units, ie., 44 of them. Both Wayanad and Kasargod do not figure in this list. There is a total of 241 FPI units in the state in the organized sector. There are wide variations in the distribution of these units, with the mean number being 17. Kannur ranks the highest in the supply of fresh fruits but it has only 15 processing units. In the case of availability of fresh vegetables, Thiruvananthapuram, Kollam and Palakkad rank high but in the case of FPI units, their position is low.

Kerala economy is plagued down by rampant unemployment. According to live registers of employment exchanges in Kerala, the total number of work seekers in 2000 is
41.86 lakh, an increase from 32.26 lakh in 1995 to 39 lakh in 1999. See Appendix (2).

The number of job seekers posses SSLC and above increased from 29.96 lakh in 1999 to 32.40 lakh in 2000. Total work seekers below S.S.L.C. was 9.04 lakh in 1999 and 9.45 lakh in 2000. The number of graduates registered in employment exchanges stood at 2.29 lakh in 1999. It went up to 2.50 lakh in 2000. Those with post-graduate degrees have gone up from 0.52 lakh in 1999 to 0.579 lakh in 2000. See Appendix (3)

Any industry is to be judged for the employment potential that it can offer to the economy. It is further more vital for an economy like Kerala. Small scale industries generate employment to a greater extent. But no tangible studies are being undertaken as to the employment opportunities generated by these units.

Most of the FPI units come under the category of SSI units. Thinking in terms of the shortages of capital and entrepreneurial talents in Kerala, encouragement of SSI units in the food processing sector is very crucial. See Appendices (4 and 5)

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It is found that SSI units provide employment to almost 1053533 persons in the state. With a total value of goods and services worth 977065 lakh rupees of the total 219833 S.S.I. units, 9944 were run by SC/ST, 38364 units by women and 171515 units by others. With the upliftment of the downtrodden and women, the endowed aim of the government, promotion of SSI units to be run by these targeted groups is a viable alternative. The FPI which is capital light, is mostly in the SSI sector. But studies with regard to the targeted groups such as SC/ST and women who run these FPI units have not come much in the purview of any comprehensive study\textsuperscript{10}. Each FPI unit, once started, has to face many obstacles to survive. A good number of these units are tend to be categorized as sick. Industrial sickness can either be a symptom or a mortal blow to the unit. If it is only a symptom, suitable remedies, after a careful and all-round analysis of the problems can revive the sick unit. If the sickness is mortal, it will be economical and prudent to close down the unit. Whatever be the case, it needs careful analysis\textsuperscript{11}. Appendix 6

\textsuperscript{10} Economic Review 2000, pp. S.113-144.
\textsuperscript{11} Ibid., p. S.114
gives the working status of small scale units as on 31st March 2000.

Careful study with regard to the industrial sickness among the FPI units has to be carried out. Revival or closure of the sick units pre-requisites a detailed analysis. It depends on the nature of the sickness, origin and gravity of the problem etc.

Any industry if it is to survive requires trained and skilled entrepreneurial talent. Lack of entrepreneurial training may jeopardize even an economically viable project also. The Appendix 5 gives the list of the entrepreneurial development programme conducted during 1999-2000.

During the above said period, entrepreneurs trained, amounted to 1669 only. There has been no dependable study about the training facilities provided to the entrepreneurs in the FPI sector. Continuous appraisal and initiation into the modern technology are unavoidable in the FPI sector.12

Every industry depends on some other industries for its inputs (which constitute its backward linkages) and in turn

provides its outputs as inputs to some other industries (which constitute its forward linkages). The entire range of economic activities are thus inter-linked with each other in this web of input-output relationships. Any industry has to be analysed for this inter-industry linkages. Food processing industry has strong backward linkages with agriculture, horticulture, poultry, animal husbandry, fishing etc. with secondary industries manufacturing various types of food processing equipment and machinery, packing materials and chemicals etc. These inter-industry linkages with regard to the FPI units in Kerala need to be looked into. 13

1.3 Objectives of the Study

The major objective of the study is to analyse the economic viability of food processing units in Kerala. With this major objective in view, this study focuses on the following aspects:

1. Trace the evolution of food processing units in Kerala

2. Explore the economic significance of food processing industry in Kerala.

3. Study the cost and revenue structure of the food processing units and thereby to assess their profit and profitability.

4. Identify the major problems related to this sector and to suggest appropriate remedial measures.

a. Hypotheses

i) The development of food processing industry helps in the overall development of the state.

ii) Several factors hinder the normal working of food processing units.

iii) Kerala being a food deficient state, food processing is of special significance to the state economy, as food is perishable unless processed, is a key factor for the development of the state; hence these industries are to be given special privileges by the government.
1.4 Methodology and Database

The heterogeneity of seasonal perishable agricultural crops in Kerala has led to the development of a wide variety of food processing units in the state. However in the study we have confined ourselves to the study of fruits and vegetables processing units alone.

The study on food processing units in Kerala is based on both primary and secondary data. Primary Data were collected using a plethora of wide ranging tools. Since food processing in Kerala is so characteristic of its past history and so inextricably linked, that direct interviews with many persons of the older generation was resorted to. Traditionally handed down knowledge, regarding food processing was collected. Moreover, a drafted and pre-tested interview schedule had been used for primary data collection. Secondary data were collected from learned works of a number of authors in this field. Several types of journals and magazines were also used to analyse the problems of this industry. The period covered in this study is from 1996-97 to 2000-01. For the purpose of data analysis popular statistical tools like Mean, Ratios, Percentages etc. were used.
1.5 Selection of the Study Districts

For the sake of primary data collection, three districts of Kerala were earmarked on the basis of the concentration of food processing units. The district with the highest concentration of food processing units, Ernakulam, the district with average concentration of food processing units –Kottayam, and the district with the least amount of concentration of such units Pathanamthitta, are the districts selected for the detailed study. State-wise statistics regarding the number of operational units registered with the department of industry were used to assess the spatial concentration. Thus the fourteen districts of Kerala were broadly classified into three categories:

i) Districts having the concentration of food processing units numbering between 0 and 15, which are having the least concentration

ii) Districts having the concentration of units ranging between 15 and 30 which are having the average concentration.

iii) Districts having high concentration ranging between 30 and 45 units.
The concentration of food processing units in the 14 districts on the basis of the available data are given below. Table 1.3 gives the district-wise concentration of the food processing units in all the 14 districts of Kerala.

**Table 1.3**

**District-wise Concentration of Food Processing Units in Kerala**

<table>
<thead>
<tr>
<th>District</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thiruvananthapuram</td>
<td>21</td>
</tr>
<tr>
<td>Kollam</td>
<td>10</td>
</tr>
<tr>
<td>Pathanamthitta</td>
<td>08</td>
</tr>
<tr>
<td>Alappuzha</td>
<td>10</td>
</tr>
<tr>
<td>Kottayam</td>
<td>27</td>
</tr>
<tr>
<td>Idukki</td>
<td>16</td>
</tr>
<tr>
<td>Ernakulam</td>
<td>42</td>
</tr>
<tr>
<td>Thrissur</td>
<td>34</td>
</tr>
<tr>
<td>Palakkad</td>
<td>07</td>
</tr>
<tr>
<td>Malappuram</td>
<td>07</td>
</tr>
<tr>
<td>Kozhikode</td>
<td>44</td>
</tr>
<tr>
<td>Wayanad</td>
<td>0</td>
</tr>
<tr>
<td>Kannur</td>
<td>15</td>
</tr>
<tr>
<td>Kasargode</td>
<td>0</td>
</tr>
</tbody>
</table>


Further, the districts have been classified into three groups as follows.
Table 1.4
Classification of Districts on the Basis of Concentration of Food Processing Units

<table>
<thead>
<tr>
<th>0-15</th>
<th>Kollam, Pathanamthitta, Alappuzha, Palakkad, Malappuram, Wayanadu, Kasargod</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-30</td>
<td>Thiruvananthapuram, Kottayam, Idukki, Kannur</td>
</tr>
<tr>
<td>30-45</td>
<td>Ernakulam, Thrissur, Calicut</td>
</tr>
</tbody>
</table>

Now, using the random sampling method, one each district was selected from each group. Pathanamthitta was selected from the least concentration group, Kottayam from the average group and Ernakulam from the high concentration group.

1.6 Background of the Study Districts

a. Pathanamthitta

Pathanamthitta district lies between 9° and 9.5° north latitude and 76.5° and 77.5° east longitude. Map no. 1.1 explains the geographical position. The boundaries of the district are the Western Ghats in the east, Alleppy district in the west, Kottayam and Idukki districts in the north and Quilon district in the south.
The total geographical area of the district is 2,68,750 hectares, of which 1,39,082 hectares is forests. The district consists of three natural divisions viz. low land, mid land and high land. The total population of the district as per 1991 census is 11,86,628. The density of population of the district is 449 per sq.km. The district was announced as a complete literate district in 1991 by the government of Kerala. Agriculture is the main occupation of the people and about 80 per cent of them depend on it directly or indirectly.
b. Kottayam

The present Kottayam district includes a portion of the old district of the same name which comes under the former princely State of Travancore. It underwent a few territorial changes during the past 47 years (since the formation of the State of Kerala). The district at present consists of 5 taluks and 95 revenue villages. At present there are 11 Block panchayats and 4 Municipalities. In 11 Block panchayats there are 73 Grama Panchayats.

The district lies between north latitude 9 and 10° and east longitude 76° and 77°. It is bounded on the north by Ernakulam district, on the east by Idukki district, on the south by Pathanamthitta district and on the west by Alappuzha district. All the three natural divisions of the state viz. lowland, midland and highland occur in the district. Places which have altitude less than 25' constitutes the low land. Western portions of Changanacherry, Kottayam and Vaikom taluks come under this natural division, the midland lying between 25' and 250' above mean sea level is a very fertile region, rich in luxuriant vegetation. Paddy, coconut, Tapioca, Pepper and Rubber are the main crops grown here. This region includes the remaining portion of Vaikom,
Changanachery, Kottayam taluks and a major portion of Meenachil and Kanjirappally taluks. High land on east of the district is hilly area and rubber is the main crop cultivated here. Eastern side of the Meenachil and Kanjirappally Taluks lie in the hilly region.

![Map of Kottayam District]

**Map 1.2 Map of Kottayam District**

c. Ernakulam

Ernakulam district is situated centrally in the State of Kerala. Its boundary on the east is Idukki district, on the west
Arabian Sea, on the south Alleppy and Kottayam districts and on the north Trichur District. The district falls under the coastal sub region of the east west plans and ghat region zone. Map no. 1.3 explains the geographical position of Ernakulam District.

The district with a total area of 2,407 sq.km. ranks seventh in size among the districts of Kerala. The total population of the district is 27.97 lakhs as per 1991 census. There are a number of
commercial banks, foreign banks and co-operative banks in the district.

1.7 Limitations of the Study

1. The scope of the study, though of the food processing industry in Kerala as a whole, is limited to three districts due to various constraints.

2. In studying the food processing industry in Kerala only the processing of fruits and vegetables is taken into account and that too on a representative basis.

3. Only certain individual units of the fruits and vegetables processing industry are selected for the detailed study from the three districts.

4. The span of the study is restricted to 5 years from 1996-97 due to the non-availability of reliable data for the previous years.

1.8 Structure of the Thesis

The study is organized into six chapters, each chapter dealing with specific topics of the study.
First chapter is a general introduction to the entire study. It provides the theoretical background to the study and establishes it in the light of the theory of linkage effects. The underlying research problem and the statement of it is also given in the first chapter. Objectives and subsidiary objectives of the study, hypotheses postulated, methodology adopted and the data base provided, selection of the study districts and the criteria used there in, a short description of the study districts etc. are also given in the initial chapter. Another section of the first chapter presents the review of the literature where both theoretical issues as well as earlier empirical studies are reviewed.

The second chapter analyses the history of food processing. Here different methods of food processing are explained. Following it the study analyses the historical analysis of food processing in India and Kerala.

In the third chapter, the history of food processing industry in Kerala is specifically analyzed. The policy frame work provided in Kerala in the form of various acts are looked into. It also provides a short perusal of the agricultural scenario of the state.
Fourth chapter deals with the empirical analysis which is the heart of the present study where economic viability of the FPI units in Kerala is looked into in a detailed manner.

Fifth chapter provides an insight into the problems faced by the FPI sector in Kerala and suggests remedial measures.

The last chapter provides an overall conclusion to the present study on the food processing industry in Kerala.

1.9 Review of Literature

This portion is an elucidation of the available literature on the subject. Here, both theoretical as well as empirical aspects are reviewed. The aim of such a perusal is to have a bird's eye view of the concurrent and corresponding issues and problems related to the present study. Theoretical proposition enunciated by different economists relating to the role of food processing industry in the over-all net work of relations and interdependencies in the sphere of development, in the existing scenario relating to the food processing industry and its financial viability, efficiency and adaptability to the existing requirements, priorities etc. are looked in to. In the second section, a review of empirical studies undertaken by the government organisations, review committees,
research institutions and individual researchers on the performance and performance gaps in the existing condition of FPI is sorted out.

Section – 1

a. Review of theoretical issues

Edward C. Hampe Jr. and Merle Wittenberg\textsuperscript{14} speak about the need to develop the strategic industry, namely, the food industry and its irrevocable place in the whole edifice of the economic structure of a country. They give a first hand information regarding the size, importance and vitality of the food industry in America and the influence this particular industry exerts or should exert on the career decisions of the young people. The interdependence which exist between different segments of the economy with its base, so to say, in the food industry, leading to the simultaneous development of the entire industrial structure of an economy, as it has kept pace with the population explosions of the past and present, are dealt with in detail.

A study conducted by Christopher G. Baron and J. Keddiew, H. Cleghorn, S. Lall, R. Kaplinsky and L. Masseuet\textsuperscript{15} assert employment generation and satisfaction of the basic needs of the entire population as the primary importance of the FPI in developing countries. They do not discuss food supply or its distribution as such but concentrates on the closely related and equally important issues of food procurement and processing.

Industrial advancement and human survival, though in contrasting ways have key issues of interest bordering on the strategic environmental presentation. Practical interest in the employment impact of environmental policies stems from the following hypothesis. The cost of tackling environmental problems will affect profits and wages and hence competitiveness and performance, thus threatening employment potential. This dilemma has been more pertinent and pronounced as health hazards from both global and regional or local pollution and economic impacts of environmental malpractices have been more succinctly defined. The corresponding ramifications felt in the sphere of competitiveness of firms consequent upon

\textsuperscript{15} Christopher G. Baron (Ed.). Technology, Employment and Basic Needs in Food Processing in Developing Countries. New York: Pergamon Press. 1989.
environmental regulations in the European food processing industries were undertaken by David Hitchens, Esmond Birnie and Angela McGowan.\textsuperscript{16}

The real problem with the developing countries is not the dearth of resources but is the mal-utilisation and under utilisation of the available resources. Inability to tap the existing resources leads to clear wastage of resources. This has been pertinent to food processing industry in the developing countries. A study conducted by the United Nations Industrial Development Organisation (UNIDO)\textsuperscript{17} throws light on the imperativeness and urgency in initiating the food processing industry in developing countries. The newly emerging countries must develop the FPI on a first priority basis, the study points out, because the cornucopia of food raw materials in these nascent economies are either non-utilised or malutilised leading to the import of food. Food shortages and deficient diet are clear obstacles in the path to maturity.


Quality control is essential to any industry especially to the FPI being the lifeline of the individual as well as of the economy. Amihud Karmer and Beruard A. Twigg\(^\text{18}\) are of the opinion that quality control should include not only measurement but also reporting and decision making functions. Food quality is ultimately judged by the wisdom of human judgement and consumer is the ultimate judge. Hence it is logical to organize the materials in accordance with the human senses involved in the judgement. According to them the discipline of quality control is divided into two parts, the first deals with measurements and the other section may be called the hidden attributes of quality.

The role of Foreign Direct Investment (FDI) in developing countries was one of the hotly debated issues of the 1960’s and 70’s. The potential for foreign investment in the food and drink industries of developing countries is probably greater than ever before. Ruth Rama\(^\text{19}\) gives a penetrating analysis of the trend in FDI as also the interplay between the interests of both the host government and foreign government. There are chances that the home industry may be bondaged incessantly to the whims and


fancies of the investor country. The FPI being so basic to the life of the economy such a situation may be untoward.

Historical antecedence to the emergence of any specific industry is so vital to the efflorescence of its full potentiality. K.T. Achaya makes a historical as well as chronological development of the food processing industry in India. According to him salt production was the first food industry to engage the attention of the British power which came into existence in Bengal after the Battle of Plassey in 1757. This study throws light on many factors, which shaped the industrial policy and development during the two hundred years of British domination.

"If producing for the household, it is producing for the nation" had been the criteria in the food industry in the past, but now, "producing globally" is the new watchword. Today food industry has to subscribe to the needs and standards as stipulated by the global requirements. The edited work by David Goodman and Michael Watts speak about the ways in which manufacturing has become global in its scope. This work has combined new perspectives from industrial geography, economics,

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sociology and sociology of scientific knowledge. Globalisation of food offers many profitable vistas for the FPI. It prerequisites restructuring of the localised agricultural sectors and food system to global standards. The above work is an innovative contribution to the economy of agriculture, of food and consumption.

FPI is not static but is very dynamic, because it has to keep pace with the changing consumer preferences and requirements. This necessitates a continuous shift in the technology and methods. Norman. W. Desrosier and John. N. Desrosier\textsuperscript{22} explore new product development, which is a recurrent phenomenon.

Government is a major player in the FPI. When poverty and food scarcity become a global phenomenon, especially in the developing countries, the government intervention has been viewed in new perspectives. More than the profit maximization, sales maximisation goals of the conventional domain, FPI has a social welfare aspect too. If FPI is to be attuned to this end, various policies which have a bearing upon the FPI have to be managed in a congruous way. The UNOECD\textsuperscript{23} (United Nations


\textsuperscript{23} UNOECD. \textit{DECD Food Industries in the 1980's.} New York: Organisation for Economic Co-operation and Development.
Organisation for Economic Co-operation and Development) study of 1980's highlights the role of government in moderating the relationships among the various agents in the agro-food chain which encompasses a number of different agents such as health, agricultural and trade policies, various social and environmental objectives, competition laws, rural and regional developmental problems and macro-economic considerations including inflation and unemployment. It concludes by saying that in view of the growing complexity of the agro-food system, an important objective should be to achieve consistency in policy formulations at both national and international levels.

Access to markets of the suitable type is a prerequisite for the FPI. The intricate mechanisms which weave the delicate networks of markets around the FPI should not be fragile nor too rigid. Enough flexibility and permanency should be guaranteed simultaneously to ward off any uncertainties, which will arise and hamper the industry. Market rigidities should be such as to immunize the nascent FPI from vagaries of recurring onslaughts of price demand and supply fluctuations. While market flexibility is to ensure a vibrant industry, which is ever-ready to meet any unforeseen adjustments on account of rapid fluctuations in
market forces where markets do not possess these two contrasting but co-operating quintessence of change and constancy, these should be purposefully injected into it. Rene Veron\textsuperscript{24} speaks of markets as crop and locality specific. According to him, the crucial question is not whether market is needed or not needed for development but rather what kind of market or market regulation is needed, as also what kind of interrelation between markets, the social structure, technology and infrastructure and whether these contribute to sustainable development or to underdevelopment and environmental degradation.

In the early stages of economic development, agro-based industries occupy a prominent position in the industrial sector. As per capita real national income increases, the relative share in the value added from all manufacturing industries declines. This should not be construed to mean the declining opportunities for development of these industries. Moreover, changes in the processing of the primary agricultural commodities by addition of further stages of processing and induction of new technology outside the household sector would also occur. As pointed out by

\textsuperscript{24} Rene Veron. \textit{Real Markets and Environmental Change in Kerala, India}, Aldershot: Ashgate.
B.M. Desai, V.K. Gupta and N.V. Namboothiri, calculated expansion of technology and diversified processing are integral parts of the FPI.

There is an insatiable demand for food from the part of the growing population. It is insatiable such that a better-fed population looks for new types of foods especially a more diversified diet and more likely, convenient foods that simultaneously promote easy preparation and better health. Processing of food in diversified ways, which increases value addition is an inevitable part of modern food industry. Product differentiation through processing is a profitable part of it. According to Ruth Rama, in some countries such as India, under nourishment of a sizeable chunk of the population is aggravated on account of the wastage of food due to lack of processing, insufficient storage and export facilities and by poor exploitation of domestically available food products. Proceeding along in these lines of thoughts, a fully developed food industry is a must.

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Today food processing has become very complex and complicated by involving a wide variety of industrial processes with correspondingly large variety of products as well. One of the main functions served by the FPI is the preservation of food which involves two main aspects-preserving fresh products as well as preserving cooked products. Fernanda A.R. Oliveira and Jorge E. Oliveira\(^{27}\) point out that these techniques include textural sensations, colour and aroma but other lesser noticeable properties such as wholesomeness and nutritional quality are also of invariable importance in addition to safety concerns.

Storage, processing and nutritional preservation are three inextricable processes in the FPI, so point out D.K. Salunkhe, H.R. Bolin and N.R. Reddy\(^{28}\). Availability of fruits and vegetables is one crucial question to be looked into and the nutritional value of the already available fruits and vegetables is yet another question to be perused up on.

In the opinion of D.S. Smith J.N. Cash and W. K. Nip\(^{29}\), processing is a global phenomenon with international


ramification. Rapid population growth into alarming proportions concerns regarding the question of satisfying the food requirements globally. Development of better methods of post harvest treatment, storage, processing, packaging and marketing in an international perspective is very important to make efficient use of already available supply of fresh fruits and vegetables on a global basis.

Authenticity of the product supplied has to be assured, and compromises have to be ruled out. Adulterations and tampering with the naturally bestowed qualities have to be done away with. It is perhaps a reflection of the human condition that is found in one form or another to which has accompanied commercial transactions over many centuries. The principle of 'Caveat & Emptor' (let the buyer beware) has become established but this dictum has now become clouded with the advent of written contract, tied to detailed produced specification and methods of analysis. M.J. Dennis and P.R. Ashwrot\textsuperscript{30} have dealt in detail with the problem of authenticity in FPI. If the nutrients are lost during preservation, food will turn out to be a sheer waste. Shirlay J.

\textsuperscript{30} M.J. Dennis and P.R. Ashwroott, An Introduction to Food Authentication.
Vangarde$^{31}$ has illustrated a variety of methods which guarantee preservation of the natural qualities during processing. In the developing countries agriculture is still the mainstay of the economy. As such it should be no surprise that agriculture related industries account for a considerable proportion of the national output. Shirlay speaks in detail regarding the various stages of processing and various methods by which value can be added in the FPI and ways by which developing economies like India can ensure the supply of safe food to all.

Any industry in an under developed country is valuable in terms of employment generation and preservation too. Weighed down by rampant unemployment, if the economy is to be self-sustainable, the available industrial openings should provide many employment opportunities. Not only the skilled unemployed but also the vast array of unskilled unemployed who are found in masses in the developing countries should be provided opportunities. Hence FPI is also judged in this perspective of employment potential by Christopher.G. Baron$^{32}$. Employment


$^{32}$ Christopher G. Baron pp. 39-68.
generation by leading to income generation ensures a safe market for the products too.

Section - II

b. Review of empirical studies

Till recently, information about food processing industry was only from the studies of the census of manufacturing industries and the annual survey of industries. The National Productivity Council\textsuperscript{33} appointed a study team in 1960 to study the problems relating to the food processing industry in India. Their study report stressed the importance of modernisation of the industry in order to have better production and productivity.

Government policies from time to time have a great bearing upon the food processing industry. A critical evaluation of the government policies with regard to FPI in India was done by Indra Gidwani\textsuperscript{34} in her study regarding the present status of the fruit and vegetable processing industry. She concludes by saying that the government policies should be realistic with regard to the growth of the industry in order that it occupies its right position in the economy.


S.C. Bhattacharya\textsuperscript{35} has made an analytical study regarding the capacity utilisation with regard to the available supply of fruits and vegetables by the food processing industry in Kerala. S. Krishna Iyyer,\textsuperscript{36} George Isaac and G.I. Varghese have dealt into the prospects of the food processing industry in Kerala in detail. George Isaac\textsuperscript{37} in his approach paper to the development plan, exhorts the central and state governments regarding the need to improve the existing process and products and to develop new ones. Continuous and self-renovating improvements in processes and diversification in the product categories are necessary in order to stand the test of consumer tastes and preferences and market competition, he points out.

Export promotion is crucial to the food processing industry, not only to widen the capital base but also to widen the market prospects. O. P. Gera and Jose Thomas\textsuperscript{38} have made an attempt to study the export prospects of the food processing industry in Kerala. O. P. Gera\textsuperscript{39} concludes by saying that if vigorous efforts

were made, there was no doubt that Kerala could play a leading role in meeting the targets set for the foreign trade. *Indian Institute for Foreign Trade*\(^\text{40}\) has conducted an export potential survey of the food processing industry in Kerala in 1972. Even though it gives a bright picture of the industry in Kerala, it cannot be said to be wide and all embracing in its scope of study.

Marketing aspects of the food processing industry were perused upon by the Pilot study conducted by *George D. Madappatt*\(^\text{41}\). *K.P. Mani*\(^\text{42}\) too has done a project study regarding the characteristic problems faced by the industry as early as 1979.

Justice E. S. Venkataramaiah\(^\text{43}\) Committee of 1996 suggested freeing of the food processing industry from all kinds of arbitrary, irrational and draconian provisions of the Prevention of Food Adulteration Act of 1955 and particularly due to the amendments enacted during the 1976 emergency.

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\(^{41}\) *George D. Madappatt. A Pilot Market Survey on Selected Food Products in Kerala.* 1976.


Dr. R. Prakash\textsuperscript{44} throws light, regarding the various aspects of the fruit and vegetable processing industry in Kerala. Summary details regarding the setting up of industrial units, legal proceedings for getting the food processing license etc. are dealt upon.

A seminar conducted in Kerala Agricultural University by V.S Deepakumar\textsuperscript{45} throws light on the specific problems relating to the marketing of fruits and vegetables. The perishability of the produce, lack of adequate market infrastructure like different seasons, scientific storage facilities, modern post-harvest handling etc. are the foremost among the problems faced by the marketing of fruits and vegetables. The market structure of fruits and vegetables are such that the middlemen corner the maximum share of consumer price. Dissemination of marketing information like trends on wholesale prices and market arrivals are limited for a small range of fruits and vegetables. Even though India is a major producer of fruits and vegetables in the world, its share in


the global market is negligible. Foreign buyers are rejecting fruits and vegetables from India due to lack of adherence to phytosanitary measures. He cites the example of the rejection of alpinismo mangoes due to the excessive use of chemicals.

Studies show that demand for horticultural products are increasing worldwide due to urbanization and changing food habits. Another promising development in the export market is the increasing demand for organically produced fruits and vegetables. By evolving a proper system of certified organic products, India can seize a major share of this market segment\footnote{Ibid.}.

Total system approach to the production of vegetables is advocated by Keerti Singh\footnote{Keerti Singh "Total system approach wanted", The Hindu Survey of Indian Agriculture 1991, pp. 192-193}. According to him post harvest losses, amounting to nearly 50\%, are additional cost on vegetable production. Post harvest losses occur due to lack of knowledge on maturity standards and not harvesting fruits at the correct stage, lack of post harvest treatment with fungicides, non-availability of suitable transports such as refrigerated trucks, inadequate usage of packaging materials and use of improper containers, non-
availability of adequate facilities for cold storage and controlled atmospheric storage, production units being small and located in rural areas, mono-culture of varieties and crops leading to glut. All these have great bearing on processing too. He also points the absence of adequate processing of the abundantly available fruits and vegetables.

According to a study conducted by P.S. Bhatnagar\textsuperscript{48}, investment worth Rs.19,086 crores had been approved during the period from significant relaxation in the regulatory regime during 1998-99. The share of the processing sector in the total exports was 9.2 percent. A problem, he finds in this sector is the low level of value additions—less than 2% compared to 25-60 percent in the developed countries. The FPI sector lags behind in the absorption of latest technological innovations. There is a dearth of efficient and cost effective suppliers of raw materials. The industry was found to get only the leftover as it depends on the normal trade channel for their raw materials. So it lacks raw materials in the right quality and right quantity. The concept of quality assurance has to be given top-most priority. Use of poor raw

\textsuperscript{48} P. S. Bhatnagar. ‘Food Processing Industries: A Sunrise Sector’. Employment News : March 11-17 2000, p-3
materials lead to the still poorer quality of the end products. This
postulates the need to enter into contracted arrangements with
the farmers for providing processable varieties of raw materials.

An article by K.A. Martin\textsuperscript{49} throws light on the challenges
imposed by the European Union (E.U.) food safety norms on the
food processing industry. The E.U Sponsored food safety
mechanism, christened ‘Farm to the Table Policy’ is expected to
exert great pressure on this sector. The seafood export industry is
expected to be greatly hit by this. Already this sector is struggling
to meet the Hazard Analysis Critical Control Point (HACCP) and
the current prescription of the European Union on food safety.
India government has failed to evolve an indigenous method of
assuring quality and food safety. The Planning Commission of
India talks about the various restrictions that hamper the
industry. These adversely affect the effort of raising production
and productivity. It destroys the advantages of free market being
enjoyed by this sector\textsuperscript{50}.

\textsuperscript{49} K.A. Martin. ‘E.U food safety norms to pose challenges’. The Hindu, 16.11.2000
\textsuperscript{50} Bhavu Pratp Singh ‘Managing the food Economy’. The Hindu 16.6.01
M. G. Devasahayam proposes a number of recommendations. There should be a personnel involvement of the farmers who are the producers, and the market makers. Measures should be adopted to protect the farmer and the consumer against the vagaries of production and market forces to enhance agricultural productivity and ensure fair prices, cost of food grain procurement, storage, transportation and distribution has to be brought down. Delivery system also should be made non efficient. All controls except quality controls, on movement, processing, marketing and export of farm products except during seasons scarcity, have to be destroyed. Establishing a chain of rural and urban godowns, with warehousing and food grain banking facilities, one godowns, being located in a cluster of 10 to 12 villages or around small towns, too is recommended.

A presentation, made at the one day seminar on food processing industry, organized by the government of Kerala, postulates the need for taking up food processing for conservation of physical, chemical and nutritional qualities. Value addition to

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51 M.G. Devasahayam, ‘India’s Food Policy’, The Hindu, 29.5.01
52 P.C. Nambiar and S.P. Pillai, Food Processing Opportunities in Kerala-Technologies for social processing’ Seminar on Food Processing Industry, Thrissur
make it more acceptable, for processing the commodities for long
time by means of physical, chemical means like canning,
freezing, chilling, dehydration, pickling, smoking etc... To ensure
quality and safety, to make the commodities edible by adopting
different types of processing techniques-the domestic art to
mechanization, to increase convenience by increasing the range of
application, for its place as an industry of economic importance to
earn foreign exchange and to compete in the international market
and finally for its availability by adopting appropriate
technological intervention, both rural and large scale
mechanization. The paper highlights the need for taking up food
processing with a multi-dimensional importance because the state
has rich resources of spices, coffee, cashew, coconuts, tapioca,
fruits and vegetables, tea, fish, meat, grains etc..... The raw
materials can also be brought from the neighbouring states and
from far off places like Sri Lanka and Maldives and processed for
value addition and economic gain.
According to a study undertaken by Gopalan C.\textsuperscript{53}, the changes in food consumption patterns can be attributed to advances in agricultural production, food processing, distribution, marketing and advertising systems. According to him, many factors have added to the prospects of processed food. Increase in urbanization, migration of rural population to urban areas, rising literacy and income levels, more working women and increased health awareness are some of the factors that have contributed to the brightening of the prospects of processed food.

Studies conducted by Potty\textsuperscript{54} and Debroy\textsuperscript{55} reveal the fact that food processing is categorized into the organized and the unorganized sector. This establishes a vital link between agriculture and food processing, as the former is the supplier of raw materials to the latter. They also found out the specialization of the unorganized sector in certain processed foods while the organized sector specialized in certain other processed foods.

\textsuperscript{54} Potty V.H. "Impact of new industrial policy on development of food processing industries", Indian Food Industry, 1992, 11, 20-27
\textsuperscript{55} Debroy B. Food Processing Industries in India. Ministry of Food Processing Industries, 1994, New Delhi
Mikinsey\textsuperscript{56} predicted a giant leap in the demand for processed food by the year 2005. According to him, the contributing factors to this increased demand will be rising income levels, where a majority of population moves from subsistence levels to the next level of consumption.

Ranjiny S., Kala A. and Jamuna Prakash\textsuperscript{57} have conducted a study with regard to the factors determining selection and purchase of processed foods. According to them, among the sensory attributes, consumers considered colour, flavour and texture in ghee. In cheese and milk powder, flavour was considered important. An exposure to mass media appeared to be a very important factor influencing the purchase of health drinks. With regard to the cereal based products convenience and texture were the influencing factors. Common vegetable processed foods had been pickle, ketch up and tomato sauce. Time was cited as one of the most important factors behind the demand for these. Though differences in responses of individuals regarding various factors influencing the choice of products, flavour was considered

\textsuperscript{56} Mikinsey and Co. FAIDA study. Food India's $60 billion opportunity, Food processors' 2\textsuperscript{nd} International Conference on food processing, 1997, 11 December, Chennai

as an important factor to determine the selection. According to Potty\textsuperscript{58}, vegetables and fruits find a place in both vegetarian and non-vegetarian diet. So demand for processed food in this category is bound to go up.

V. Kurian\textsuperscript{59} opines that the obvious challenge in our food industry is the creation of such structures, be it for fruits, vegetables, fisheries, livestock products, tea, coffee or any other agricultural commodity, which can set the international standards, rather than the simple adherents to standards set by the developed world.

While dealing with food safety considerations, A.S. Aiyer\textsuperscript{60}, draws attention to the fact that safety has to be accounted for even from the farm levels. Inadequate consideration given to potential hazards at the farm level is often responsible for making subsequent correction at later stages. Safety has to be the catch word in food processing.

\textsuperscript{58} Potty V.H. “Trends in food consumption and food industry development - A glossary perspective”, \textit{Indian Food Industry}, 1995, 14:36-48

\textsuperscript{59} V. Kurian, “Challenges for India’s food industry in the New Millennium : Some Reflections” \textit{Indian Food Industry}, Jan-Feb. 2001, Vol. 20 No. 1, pp. 13-14

\textsuperscript{60} A.S. Aiyer “Food Safety consideration in the context of Globalisation”, \textit{Indian Food Industry}, Jan-Feb. 2001, Vol. 20. p 16
R. Krishnan, in an article deals with the management of food processing industry. According to him, management of food industry involves application of expertise in all quarters of the industry like planning, procurement, processing, quality control and assurance, selling and distribution and accounting the entire process. Good extension services would not only provide constant supply of good quality materials but also a reasonable bargaining power for the manufacturers in the long run. Modified atmosphere, storage conditions or cold stores would be a good investment in the long run, reducing the material wastage. Trained workforce is an asset for a manufacturer and it gives flexibility in quantity, quality, variety and general evaluation of the unit. Good food manufacturing practice shall percolate to every individual of the unit irrespective of the department. Proper recording of data at the processing line will help in keeping up the quality. Accounting is necessary to employ computer networking at all strategic points of the unit to collect periodic data and to process them into the costing of the product. It is possible to monitor the cost of manufacturing on a day-to-day basis, if not

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shift wise. A good quality product has no boundaries. It can easily go global. Global market is the order of the day which requires better realization.

V. Prakash has dealt with the sustainable food processing through indigenous technologies for value addition. According to him, for a successful food processing sector in India, various aspects such as quality control, quality system and quality assurance, the constituents of total quality management, should function in a horizontal fashion for success. It is necessary to look for innovative technologies and even co-operation with competition for better change in the system and innovations. Utilization of residues and by products and wastes can contribute in a long way to profitability. It also necessitates special technology equipment like high specialized centrifugal separators, large capacity spray drying and roller drying plants, evaporation and aroma recovery plants, aseptic processing and packaging equipment, special types cooking machinery, equipment based on emerging techniques like supercritical fluid extraction, cryogenics, and membrane processing, latest type of freezing and freeze

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drying equipment, systems design etc. It also needs special human resource development. In the emerging global scenario, the issue of intellectual property and patenting too are vital.

Omesh Saigal63, dealt with some of the problems plaguing the food processing industry. The primary reason why the food processing sector has not developed is that agriculture was largely been for subsistence and not market. This has not yielded adequate surpluses for processing and coupled with it, the low yield of crops has choked it. Another reason for poor processing is the high risk and, low margin of this sector on account of seasonality, non-availability of raw materials high inventory cost due to purchases at the time of abundance and the very high cost of packaging. He postulates the need to increase food processing from a low 2% at present to 20% by 2010. Existence of multifarious laws and multiple authorities are another obstacle in the development of this sector.

All these studies form only a partial view of this industry. Hence the present study proposes to undertake an all-embracing perusal of the food processing industry in Kerala.

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