Chapter - I

- Introduction
- Role of the Government in Fruit Processing Industry.
- Design of the Study.
CHAPTER I

Introduction:

Food processing industry is a part of fast moving consumer goods (FMCG) sector. 'The broad categories, that fall under food processing, include fruits and vegetables processing, food grain milling, dairy products, sugar, beverages like tea, coffee and cocoa products like chocolates, confectioneries, edible oils, vanaspati, tobacco and tobacco based products, processing and refrigeration of poultry and eggs, meat and meat products, processing of fish, fishing and fisheries beyond territorial waters, specialized packaging for food processing industries, beer, alcoholic drinks from molasses base, aerated waters, soft drinks and other processed food'.

In India, food processing industry is broadly classified into three groups. i.e. the primary food processing, the unorganised and cottage industries and processed food industries. The primary food processing constitutes rice hullers, flour chakkis, dal and oil mills. In the organised sector, there are over 820 flour mills, 409 fish processing units, 4,932 fruits & vegetables processing units, 114 meat processing units, 138 sweetened and aerated water (soft drinks) units, 90 milk product units, 429 sugar mills, 725 solvent extraction units and several other food processing factories. The unorganised and cottage industries consists of the various activities which comes under both the primary and the organised sector but smaller in the scale of operation comparing to the primary and the organised sector.

At present, 'food processing industry's size in India is estimated to around Rs. 77,000 crore, of which, more than 42 per cent are in unorganised sector. Of the

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food processing industries, the oils and fats contribute 36 per cent, followed by dairy products 18.9 per cent, cold beverages 15.6 per cent, confectionary 3.5 per cent, processed fruits and vegetables 1.6 per cent and others 24.4 per cent. Since 1991, growth of processed food units has increased significantly i.e. 3,925 units in 1991 increased to 4270 units in 1995', with a composite growth rate of 8.79 per cent during five years period.

'Looking into the Indian food habits, some companies are moving away from primary food processing to value added products like fruit juices, dehydrated foods, quick frozen food, and so on. A wide range of fruit juices from the fruits like guava and papaya has also been introduced recently by some of the reputed companies. Similarly, concentrates of guava and papaya have also been showing acceptance in export basket. Further, a few companies are also experimenting on to blend new fruit beverages such as of watermelon, litchi and sapota pulp etc.

In 1995-96, India exported pickles and chutney worth of Rs. 52.6 crore to some European countries. Due to relatively high profit margin, world wide the food processing industry has been accorded “Sunrise Industry” status by industrialists and policy makers. Although, the food processing industrial units have attracted Rs. 61,427 crore private investment in the first five years of reforms, the industry has failed to register the desired level of growth due to various short coming. To overcome some of these problems in 9th plan, an investment of around Rs. 10,000 crore has been proposed particularly in the areas of (i) processing of fruits and

vegetables, (ii) infrastructure development (iii) manpower development and (iv) research and development (R&D) studies.  

The food processing industry is growing at an average rate of 20 per cent annually. The industry rank first in terms of employment generation with 19 per cent of the entire industrial labour force engaged in the agro food processing industry, ranks fifth in the country in terms of value addition. And this industry (both organised and unorganised) has been identified by the government as a thrust sector mainly on account of high employment generation avenues and increase in value added output. According to D.P. Tripathi, "... as the food processing sector has a great employment generation possibility, it is expected that every Rs. 1000 crore investment will generate 54,000 person direct employment.”

Technology:

India is the world's largest producer of fruits and second largest producer in case of vegetables, next only to China, with an 'annual production of 40 million tonnes of fruits and 60 million tonnes of vegetables. It accounts for 1 per cent of its produce worth Rs. 23,000 crore is wasted every year due to lack of storage chains. At present, the existing cold storage capacity is estimated at about 26 million cubic metres, of which about 85 per cent of the facility is used for storage of potatoes.

In India 'one per cent of the total horticulture produce is converted into value added products and only 2 per cent of the total fruits and vegetables

4. Ibid, p. 58
6. Secretary, Department of Food Processing Industries, Govt. of India.
produced in the country are processed as against 40 per cent in developing countries and 70 per cent in developed countries\textsuperscript{8}. Which is the indication of poor exploitation in the field of horticultural industries. According to S.R. Prusty,\textsuperscript{9} "only modern technology, quick transport and better storage facility can enable the industry to grow to its full potential. In order to adopt greater efficiency, the industry needs to infuse latest technology that would provide economies of scale and cost effectiveness, greater use of radiation technology in processing and application of biotechnology will help in processing and improving varieties of fruits and vegetables. Thus, by taking appropriate technological measures India can still progress in fruit and vegetable processing industries to a commendable position.

**Union Budget 1999-2000 and 2000-01:**

In the Union Budget 1999-2000, the Government had 'reduced the excise duty by 2 per cent (from 18 per cent to 16 per cent) on chocolates, malted food drinks, instant coffee and sugar confectionery. The impact of the budget on this sector was positive mainly on account of the initiatives outlined in the budget. The budget had given priority sector status to the food processing industry for the purpose of bank lending. The budget aimed at improving cold distribution chains and reduction in wastage' \textsuperscript{10}.

The Union Budget 2000-01 has highlighted the importance of the food processing industry. Among the ‘measures taken by the Finance Ministry for the benefit of the industry include: (i) specified cold chain equipment exempted from excise duty, (ii) import duty on agricultural produce (other than cereals) and marine products gone up to 35 per cent plus 10 percent surcharge from

\textsuperscript{9} Manager, Economic Research Department, SBI, Corporate Central, Mumbai.
\textsuperscript{10} Prusty, Op. Cit p. 86
the existing rate of 5 to 15 per cent. However, duties on products like biscuits, dairy products and bread and cakes have been increase from 8 per cent to 16 per cent\textsuperscript{11}. From the above two annual budgets, it has clearly shown the tax structure for food processing industries. India has one of the highest tax rate charged against the food processing industries as compare to other Asian countries. It is the only country to levy excise duty on processed foods apart from Thailand.

**Foreign Direct Investment:**

India, followed a liberal policy since 1991 for foreign direct investment (FDI) in food-processing sector. Post harvest technology, infrastructure building, cold chains and packaging are some of the thrust areas in which the country is seeking competent overseas collaborations.

Food processing sector, considered to be one of the "sunrise" industries is speedily increasing the share of FDI over the years. Till November 1999, there are 5,718 Industrial Entrepreneurial Memoranda (IEMs) have been filed in the food processing sector envisaging an investment of Rs. 53,700 crore. Apart from these, 1,111 approvals have been granted till October 1999 envisaging an investment of Rs. 19,086 crore for setting up of 100 per cent EOUs/industrial licences, in various sectors of food processing out of the total investment of Rs. 72,786 crore approved in the sector, the foreign investment involved is Rs. 9,125 crore. 848 projects have already gone into commercial production till September 1999\textsuperscript{12}.

The present study is related to fruits processing industry, hence our subsequent discussions will be confined to fruits processing sector only. Of which

\textsuperscript{11} Prusty, Op. Cit p. 86
\textsuperscript{12} Prusty, Op. Cit. p.p. 86-87
fruits and vegetables processing trend in India as a whole is highlighted and emphasis is given more on fruits processing in North East India.

Fruit Crops in India:

Fruits not only improve the quality of the diet but also provide essential ingredients like vitamins, minerals, carbohydrates, dietary fibre etc. They also exhibit a high potential for generating employment in rural areas. Because of high productivity and value, fruit crops in India provide much better economic returns per unit area compared to cereal crops and hence it is a good source of foreign exchange earnings for the country.

India is the largest producer of fruits in the world. The production of fruits in the country has tripled after independence. The production figures for the last few years are given in table-1.1. Presently the area under fruits cultivation is estimated to be 3.94 million hectare.

<table>
<thead>
<tr>
<th>Year</th>
<th>Fruits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992-1993</td>
<td>32.96</td>
</tr>
<tr>
<td>1993-1994</td>
<td>39.47</td>
</tr>
<tr>
<td>1994-1995</td>
<td>38.60</td>
</tr>
<tr>
<td>1995-1996</td>
<td>41.51</td>
</tr>
<tr>
<td>1996-1997</td>
<td>46.97</td>
</tr>
</tbody>
</table>

Source: Economic Survey of India, 1997-98

'Though the production figures are comparatively high a significant amount of qualitative and quantitative losses occur from the period of harvest till consumption. 'The magnitude of post harvest losses estimated on fresh fruits range between 5 to 25 per cent in developed countries and between 20 to 25 per cent in developing countries. Several studies had indicate that in India the loss occur is estimated to be 22 to 40 per cent, which amounts to about Rs. 30,000 - 40,000 million annually'\textsuperscript{14}.

Taking the population of the country as 1,027 million (as per 2001 census) and the minimum per capita requirement of fruits to be 85g. per day, the net requirement will be 31.86 million tonnes. At present, the net availability (by taking a post harvest loss of 40 per cent) of fruits is 26.18 million tonnes. Thus, it shows that though we have gained a significant jump in production but due to lack of proper post harvest measures create a shortfall of 37.15 million tonnes for vegetables. In order to bridge this gap and also for processing and export, emphasis need to be given for reducing the losses and increasing the production and productivity of horticultural products. As it has been reported that fruits account for 65.8 per cent of total area and 90.2 per cent of all horticultural produce respectively in India. But it has been estimated that just around 2 per cent of fresh fruits are processed or preserved in India compared to 30 per cent in Thailand, 70 per cent each in Brazil and USA., 78 per cent in Philippines, 80 per cent in South Africa and 85 per cent in Malaysia\textsuperscript{15}. Again, in India, not even 45 per cent of the installed capacity of fruits processing industry is utilized due to non-availability of raw materials at reasonable price with uniform physio - chemical quality parameters.

\textsuperscript{14} Ibid, p. 37
\textsuperscript{15} Singh, H.P. : Improving Post Harvest Technology of Fruits and Vegetables Yojana, December, 1998. p. 35
According to H.P. Singh\textsuperscript{16}, the low productivity of major fruits, excepting grapes compared to other competing countries, inadequate availability of raw materials of desired quality at reasonable price, outdated processing technology, high cost and poor quality of packaging material, multi-level taxes and duties etc. are the major constraints, being continually confronted by the fruits processing industry. Unless, these bottlenecks are lessened considerably, neither the domestic demand nor exports could be met properly from this sector.

The North East Profile: Following are the brief profile of North East India covering geographical location, physical features, climate, area and population. These are highlighted below :-

Geographical Position:

The North Eastern Region of India comprises of 7 states namely Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura. The region lies between 21°57' degree to 29°28' north latitude and 89°40' degree to 97°255' east longitude. The total geographical area of the region is 2.55 lakh sq. km., which is about 8 per cent of the country’s total area. The region is connected with the rest of the country through West Bengal by a narrow corridor of 56 km, which runs below the foothills of Bhutan and Sikkim. It has 1350 km, long border with China in the North, 900 km long border with Myanmar in the East. The boundary with rest of India is only 38 km\textsuperscript{17}. Which is the width of the narrow corridor connecting the region with West Bengal.

\textsuperscript{16} Deputy Agricultural Marketing Advisor, Directorate of Marketing and Inspection, Nagpur.
\textsuperscript{17} Dhrendra Nath Borthakur: Agriculture of the North Eastern Region, Deecce Prakashan, Guwahati, 1992, p.1.
Physical Features:

The physiography of the region is divided into three divisions, namely Meghalaya Plateau, the North Eastern Hills and Basin and the Brahmaputra Valley. The North Eastern Hills and Basin alone account for 65 per cent of the total land area while the Brahmaputra Valley and the Meghalaya Plateau cover 22 per cent and 13 per cent of the area respectively.¹⁸

Climate:

The climate of the region varies from cold below freezing temperatures in the upper Himalayan stretches of Arunachal Pradesh to more than 30 degree centigrade temperature in Guwahati in August. Within each state again the climatic conditions vary considerably giving the region an exciting mix of agro-climatic possibilities. The rainy season continues from mid March to middle of October.

The forest land in North East covered more than 50 per cent of the land area. Over all 42 per cent is classified as dense forest and 58 per cent as open forest. Around 33 per cent of the land is under jhum cultivation.

Area and Population:

The geographical area of the states, total population, percentage of urban population and density of population are presented in table -1.2.

Nearly 85 per cent of the total population are rural and agriculture is the most dominant vocation of the people. The contribution of agriculture to the state domestic income is much higher in this region, except for Arunachal Pradesh,

¹⁸. Ibid.
Table - 1.2
AREA AND POPULATION OF NORTH EASTERN REGION

<table>
<thead>
<tr>
<th>STATE</th>
<th>Geography are (sq. km.)</th>
<th>Population as per 2001 census.</th>
<th>% Urban Population to total population</th>
<th>Density of Population / sq. km. (2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arunachal Pradesh</td>
<td>83,578</td>
<td>1,091,117</td>
<td>868,429</td>
<td>222,688</td>
</tr>
<tr>
<td>Assam</td>
<td>78,523</td>
<td>26,638,407</td>
<td>23,248,994</td>
<td>3,389,413</td>
</tr>
<tr>
<td>Manipur</td>
<td>22,356</td>
<td>2,388,634</td>
<td>1,818,224</td>
<td>570,410</td>
</tr>
<tr>
<td>Meghalaya</td>
<td>22,489</td>
<td>2,306,069</td>
<td>1,853,457</td>
<td>452,612</td>
</tr>
<tr>
<td>Mizoram</td>
<td>21,087</td>
<td>891,058</td>
<td>450,018</td>
<td>441,040</td>
</tr>
<tr>
<td>Nagaland</td>
<td>16,527</td>
<td>1,988,638</td>
<td>1,635,815</td>
<td>352,821</td>
</tr>
<tr>
<td>Tripura</td>
<td>10,477</td>
<td>3,191,168</td>
<td>2,648,074</td>
<td>543,094</td>
</tr>
<tr>
<td>Total</td>
<td>255,037</td>
<td>38,465,089</td>
<td>32,523,011</td>
<td>5,972,076</td>
</tr>
</tbody>
</table>

Source: Census of India, 2001; Statistical Organisation India.
Meghalaya and Nagaland, mining in case of Meghalaya and forestry and logging in case of Arunachal Pradesh and Nagaland are important contributors to state domestic product. Out of the constituent states Assam accounts for nearly 70 per cent of the human population with the highest density of 339 persons per sq. km. Tripura is next with the density of population having 304 persons per sq. km. While the rest of the states are rather thinly populated, Arunachal Pradesh having only 13 per sq. km. The region has a provisional total population of 384.95 lakh as per 2001 census shown in the Table -1.2. Of which only around 15 per cent are urban and more than 70 per cent of the total population are depending directly on agriculture, hence the entire region is based on rural economy.

Despite massive development effort made by the central and states governments through various five year plans, the problem of mass poverty, growing unemployment and large scale migration to urban area persist in rural areas. Unless, the rural economy is improved, the burden of poverty cannot be lessened nor the problem of unemployment could be solved. About 37 per cent of the rural population still lives below poverty line. This is because of landless agricultural labourers (about 55 lakh house holds) do not have sufficient income from agriculture. Development of agriculture alone can not improve the over all development of the rural economy, there is a need to diversify the rural economy by starting more viable and suitable small scale and cottage industries like fruit and vegetable processing units and other horticultural industries in the rural areas. The establishment of such industries will provide increased alternative employment especially to the rural landless and small farmers. To boost up the development of this sector, the role of both the state and central government are highly essential.
PART - II

Role of the Government in Fruit Processing Industry:

The role of the government, both state and central, for the development of food processing industries in general and fruits processing industry in particular is very significant. Infrastructural development, incentives and subsidies for transport and other benefits for the development of small scale industries can not be met by the private investment. It is only through government initiative, policy and plans development of industries can be achieved if not fully. We shall discuss the role of the governments in formulating and implementing the policies for the development of food processing industries and new industrial policy and other concession for the North Eastern Region in the following pages.

Ministry of Food Processing Industries (MFPI):

The Ministry is under the Ministry of Agriculture, Government of India with the vision to motivate farmers and food processors, and to provide an interactive coupling between technology, economy, environment and society for speedy development of food processing industries, to build up a substantial base for production of value added agro-food products both for domestic and export markets, a strong emphasis on food safety and quality enabling the farmers especially to realise direct benefits of new technology and marketing network and to ensure adequate availability of quality food products for the consumer at economic prices.

The scope of the Ministry includes development of fruit and promote food, grain milling including canning and freezing and technical assistance to the industry and also form a very important part of its activity. In addition planning and
developing of industries relating to bread, oil seeds, breakfast food, biscuits, confectionery, specialised packaging, including non alcoholic beer, aerated drinks also fall within the scope of this ministry.

**MFPI's Role in Fruits Processing Sector:**

The policy and schemes of the ministry can better explain the central government's role towards the development of fruits processing sector in India.

**The Policy:**

The government has laid down the following policies for the development of food processing industries which includes fruits processing sector in India:

1) **Creating Enabling Environment:**

The policy will seek to create an appropriate environment for the entrepreneurs to set up food processing industries through:

- Fiscal initiative/interventions like rationalization of tax structure on fresh foods as well as processed foods and machinery used for the production of processed foods.

- Harmonization and simplification of food laws by an appropriate enactment to cover all provisions relating to food products so that the existing system of multiple laws are replaced and also covering issues concerning standards nutrition, advantageous goods, future marketing, equalization fund etc.

- A concerned promotion campaign to create market for processed foods
by providing financial assistance to Industry Associations, NGO's/ Cooperatives, Private Sector units, State Government Organization for undertaking generic market promotion.

- Affords to expand the availability of the right kind and quantity of raw material round the year, increasing production and improving productivity.

- Strengthening of database and market intelligence system through studies and surveys.

- Strengthening extension services to the farmers and cooperatives in the areas of post harvest management of agro-produce to encourage creation of preprocessing facilities near the farms like washing, fumigation, packing etc.

- Efforts to encourage setting up of agro-processing facilities as close to the area of production as possible to avoid wastage and reduce transportation cost.

- Promotion of investments, both foreign and domestic.

- Simplification of documentation and procedures under taxation laws to avoid unnecessary harassment arising out of mere technicalities.
2) **Infrastructural Development:**

The policy will facilitate for the development of infrastructure through:

- Establishment of cold chain, low cost precooling facilities near farms, cold storage and grading, sorting, packing facilities to reduce wastage, improve quality and shelf life of products.

- Application of biotechnology, remote sensing technology, energy saving technology and technologies for environmental protection.

- Building up a strong infrastructural base for production of value added product with special emphasis on food safety and quality matching for international standards.

- Development of packaging technologies for individual productions, especially cut-fruits and vegetables, so as to increase their shelf life and improve consumer acceptance both in the domestic and international markets.

- Development of new technologies in food processing and packaging and also to provide for the mechanisms to facilitate quick transfer of technologies to field through a net work of Research and Development (R&D) institutions having a central institute at the national level with satellite institutions located strategically in various regions to comes up the whole country and to make available the required testing facilities. This could be done by establishing a new institution or strengthening an existing one.

- Development of area specific agro food parks dedicated to processing of the
predominant produce of the area e.g., apple in Jammu and Kashmir, litchi in Bihar, mango in Maharashtra and Andhra Pradesh etc.

- Development of anchor industrial centre and/or linkage with anchor industrial units having network of small processing units.

- Development of agro-industrial multi products units capable of processing a cluster of trans-seasonal produces.

3. Backward Linkage:
The policy will promote for the backward linkages of food processing industries through :-

- Establishing of a sustained and lasting linkage between the farmers and the processors based on mutual trust and benefits by utilizing the existing infrastructure of cooperative, village panchayats and such others institutions.

- Development of future market in the vested interest of both the farmers and the processors ensuring a minimum price stability to the farmer and sustained supply of raw material to the processor.

- Mechanism to reduce the gap between the farm gate price of agro-produce and the final price paid by the consumer.

- Setting up of an equalization fund to ensure sustained supply of raw material at a particular price level and at the same time to plough back the savings occurring in the eventuality of lower price to make the fund self-regenerative.
4. **Forward Linkage:**

The policy will promote forward linkage through:-

- Establishment of a strong linkage between the processor and the market to effect cost economies by elimination of avoidable intermediaries.

- Establishment of marketing network with an apex body to ensure proper marketing of processed products.

- Development of marketing capabilities both with regard to infrastructure and quality in order to promote competitive capabilities to face not only the WTO challenges but to undertake exports in a commendable form.

5. **Very Special Provision:**

The following shall receive higher priority and special consideration in policy and plans. The hills areas, islands and the integrated tribal development programme (ITDP) areas in the country to be given not only special attention but also special consideration. The fiscal incentives like excise duty/sales tax concession and the tax holidays to be provided not only to those units which are set up in these areas but also to these units which though set up outside these areas near the market centre, are engaged in processing the produce coming from these areas. Tax holiday for food processing units with the exception of liquor, cigarettes and aerated drinks and similar luxury items, for a period of 10 years.

**Research and Development Schemes:**

The Ministry also provides assistance for research and development projects in fruits and vegetables processing sector. So far, assistance has been provided for the following research and development project:
1. Centre for Technology Development, Bangalore for setting up of an Analytical and Quality Control laboratory.

2. APEDA, New Delhi for vapour heat treatment facilities for mangoes and other fruits for exports; and

3. M/S Fresh Marketing Cooperative Society Ltd. Hyderabad for installation of a Solar Refrigeration unit received from FAO.

Ministry in collaboration with department of Biotechnology is setting up Biotechnology Research Centre for national facility for food safety at CFTRI, Mysore at an estimated cost of Rs. 373.65 lakhs. For this project, assistance to the tune of Rs 100 lakh has already been provided in 1994-95 and 1995-96. Also assistance has been provided for setting up of post harvest technology institute in Pune district in Maharashtra.

Achievements of MFPI with reference to North Eastern Region:

Since the researcher is of the North East India, it will be more appropriate to mention the policies and schemes of MFPI which were implemented in the region.

The plan assistance provided to the fruits processing sector of the region are given below:

1. During 1995-96 assistance has been provided for setting up of 54 food processing and training centre in nine states of India of which Assam is one from North East India.
2. Under the scheme for providing assistance for creation of infrastructural facilities for fruits processing including mushroom processing, hops and setting up of industrial estates in the first 3 years of the 8th five year plan, assistance has been provided for a number of project received from 13 states of India of which Nagaland is one from North East India.

3. During the year 1995-96, assistance has been provided to one cooperative society in Nagaland for setting up of mushroom infrastructure and processing unit.

4. Under the scheme for setting up/expansion/upgradation of fruits processing units and backward linkage between the processors and the farmers etc., assistance is provided to state public sector undertakings from North Eastern states and 3 other states of the country.

5. Under this scheme, another sub-scheme has been formulated for being operated during the remaining 2 years of the 8th five year plan i.e. 1995-96 and 1996-97 for providing assistance for setting up of small and tiny units of food processing industries in the unorganised sector. So far assistance has been released in a number of projects received from 13 states of India of which Assam, Nagaland and Mizoram are amongst the states.

6. For strengthening of backward linkages and encouraging contract farming so far as many as 10 processing units have been provided assistance in 7 different states of India of which Assam is one. These fruit processing units have adopted contract farming. It is reported that more than 3,500 farmers have been brought under the umbrella of contract farming.
7. During the period of review, the department has granted assistance to 13 different units of varying amounts for promotion of food processing industries and development of infrastructure facilities of which 3 are from the North Eastern States they are:-

i. During the period under review, the department has provided a grant of Rs. 42.33 lakhs to M/S Rishang Keishing Foundation for Management of Tribal Area (MATA), Manipur for setting up of a ginger processing plant in Ukhrul district of Manipur. The unit has started production of ginger oil from January, 2002.

ii. A grant-in-aid of Rs. 5.72 lakh was provided to Jonthra Multi purpose Cooperative Society Ltd., Nagaland for setting up of a fruit and vegetable processing unit in district Mon, in Nagaland.

iii. During the period under review M/S Integrated Economic Development Society Manipur was provided a grant-in-aid of Rs. 4.36 lakhs by the department for setting up of fruits and vegetables dehydration unit in Imphal district in the state of Manipur.

Features of the New Industrial Policy and other Concession for the North Eastern Region:

The achievements of MFPI discussed above are few comparing to the vast potentialities of horticultural industries in the North Eastern Region.

In view of the continuing backwardness of North Eastern Region the need for a new and synergetic incentive package was widely felt to stimulate development of
industries. Hon’ble Prime Minister of India during his visit to North East Region in October, 1996 assured that a separate industrial policy would be announced for the industrial development of the North Eastern Region for which expert group committees were constituted by the Ministry of Industry and Planning Commission. Based on the recommendations and proposals finalised by these expert groups/committees, the Government of India approved the new Industrial Policy and other concessions in the North Eastern Region.

A: Development of Industrial Infrastructure.

1. Growth Centre:

Currently the funding pattern of the growth centres envisaged a central assistance of Rs. 10 crore for each growth centre and balance amount to be raised by the state government has approved that entire expenditure on the growth centres would be provided as central assistance, subject to a ceiling of Rs. 15 crore.

2. Integrated Infrastructure Development (IID) Centre:

In respect of the IID centres, the funding pattern would be changed from 2:3 between government of India and SIDBI (Small Industrial Development Bank of India) to 4:1 and the funds from the government of India would be in the form of grant.

B: Transport Subsidy Scheme.

The transport subsidy scheme will be intended further in so far as North Eastern States are concerned, for a period of another 7 years i.e. upto 31st March, 2007 being continuous with the tenth five year planning on same terms and conditions as applicable now.
C: Fiscal Incentives to New Industrial Units and their Substantial Expansion.

1. Total Tax Free Zone:

    Government has approved for converting the growth centers and IID units to a total tax free zone for the next 10 years. All industrial activity in these zones would be free from income tax, excise for a period of 10 years from the commencement of production. State government would be requested to grant exemptions in respect of sales tax and municipal tax.

2. Capital Investment Subsidy:

    Industries located in the growth centre would also be given capital investment subsidy at the rate of 15 per cent of their investment in plant and machinery, subject to a maximum ceiling of Rs. 30 Lakh. The Commercial Banks and the North East Development Financial Corporation (NEDFi) will have dedicated branches/counters to process applications to term loans and working capital in these centres. While sanctioning assistance NEDFi and Commercial Banks would take a liberal view of the debt equity ratio.

3. Interest Subsidy on Working Capital Loan:

    An interest subsidy of 3 per cent of working capital loan would be provided for 10 years after the commercial production. The working capital requirements would worked out as per the Nayak Committee.

4. Excise Benefits:

    Government of India vide its gazette notifications No. 32/99 dated 8-7-99, No 33/99 and NO 48/99 dated 8-8-99 (annexure-F) has given sweeping concessions on excise duty. All excisable duty produced in the factory located in the growth centres, IID units in the state have been exempted from payment of
excise duty. Goods produced in specified industries located in areas outside the growth centres/IIDs etc. have also been exempted from payment of excise duty. It has been decided that while the manufacturer will not required to pay excise duty on their production, the user of such products, using them as inputs will get the MODVAT (Modified value added tax) credit. At the same time, the manufacturers are being permitted to avail of MODVAT credit only paid input material received by them for their finished products.

The above excise exemption shall apply only to the following kind of units namely:

i) New industrial units which have commenced their commercial production on or after 24/12/97.

ii) Industrial units existing before 24/12/2002 but which have undertaken substantial expansion by way of increase in install capacity by not less than 2.5 per cent on or after 24/12/97.

Further the above exemption shall apply to any of the aforesaid units for a period not exceeding 10 years from the date of publication of the above notifications or from the date of commencement of commercial production whichever is later.

D: Relaxation of PMRY Norms.

The PMRY would be expanded its scope covering areas of horticulture, piggery, poultry, fishing small tea gardens etc. So as to cover all economically viable activities. PMRY would have a family income ceiling of Rs. 40,000 per
annum for each beneficiary with his/her spouse and upper aged limit will be
relaxed up to 40 years. Projects costing upto Rs. 2 lakhs in other than business
sector will be eligible for assistance. No collateral will be insisted for projects
costing upto Rs. 1 lakh group financing upto Rs. 5 lakhs will be eligible. Scheme
will have a subsidy component @15 per cent with an upper ceiling of Rs. 15,000.
The margin money may vary from 5 per cent to 12.5 per cent of the project cost to
make the subsidy and margin contributions at 20 per cent of the project cost.
PMRY would continue to have entrepreneurship training component as per the
existing rule.

E: Other Incentives Proposed.

i.) A comprehensive insurance scheme for industrial units in the North
East India will designed in consultation with General Insurance
Corporation of India Ltd. and 100 per cent premium for a period of 10
years would be subsidized by central government.

ii) A one time grant of Rs. 20 crore will be provided to the North East
Development Financial Corporation (NEDFi) by the central government
through NEC to fund Techno-Economic studies for industries and
infrastructure which are most viable and best suited to this region.

iii) State government may consider setting up a "Debt purchase window"
by the NEDFi which buys the debt of the manufacturing units particularly
in respect of the supplies made to the government departments so
as to reduce the problem of blocking funds for these units.

iv) For the developments of markets in North East specially of export of
products of North East to the neighboring countries particularly, Bangladesh, Myanmar and Bhutan and South East Asian Countries in general would be explored.

v) It may be considered to provide assistance for restructuring State PSUs (Public Sector Units) from National Renewal Fund.

vi) The community pattern of land holding in large areas of North Eastern Region does not lend himself to providing collateral security, under conventional bank lending. RBI has constituted a committee to look into this issue. An appropriate system of "guarantees" will involved for North Eastern Region.


It is approved that the transport subsidy budget may be released by a designated agency on the basis of the recommendation of the SLC (State level committee). It is proposed that NEDFi may be designated as the nodal agency for release of transport subsidy in North Eastern States. NEDFi may be paid administrative expenses for this service which may be decided in consultation with IDBI.

G: Development of Village and Small Industries (VSI) Sector.

Weavers Service Centers (WSCs) in North Eastern Region and Indian Institute of Handloom Technology (IIHT) at Guwahati would be suitably strengthened to provide technology and training support to the weavers. National Handloom Development Corporation (NHDC) will give priority in supply of hank yarn to the North Eastern Region. All the four variety of silk would be covered under the Mill
Gate Price Scheme. Priority would be given to the North Eastern Region in scheme of setting up to market complexes and permanent exhibition facilities. A new design centre for development of handicraft would be set up in North Eastern Region. To upgrade the skill of artisan, advance training programme would be organised. New emporia will be set up and financial assistance for renovation of existing emporia would be provided. The central silk board will give priority to North Eastern Region in implementation of its scheme.

Tentative list of Horticulture Based Industries Appropriate for Development in the North Eastern Region.

1. Fruits and Vegetables Processing Industries:
   a. Canned/ Bottled products
   b. Aseptic packaged products
   c. Frozen products
   d. Dehydrated products
   e. Oleoresin

2.) Consumer Industry:
   a. Non-Alcoholic beverages

3) Food Packaging Industries:

4) Horticulture Industry:

Technology Mission on Horticulture Development of North Eastern States.

1. Horticulture in North Eastern States:

The North Eastern (N.E) Region accounts for nearly 8 per cent of the country’s geographical area and about 4 per cent of the population of the country. The topography of the region ranges from hills and mountains to riverine plains and plateaus. The climatic condition of the region is diverse which varies from temperate to sub tropical and tropical which is suitable for
horticulture crops. The horticulture sector, which includes fruits, vegetables, spices, plantation crops, floriculture, medicinal and aromatic plants, cashewnut etc. has ample scope and potential for development which has remained unexploited. To harness the potential of horticulture in the region, Government of India is implementing ‘Centrally sponsored scheme on Technology Mission for Integrated Development of Horticulture in North Eastern States of India including Sikkim’ 19.

The Scheme was approved on 27th February, 2001 with an outlay of Rs. 229.38 crore. Implementation of the scheme started in 2001 - 2002 with an allocation of Rs. 6724.96 lakh.

2. Objectives of the scheme: The objectives of the Mission are:-

i) to harness the potential of horticulture of the region by increasing production and productivity of horticultural crops.

ii) to maximize economic, ecological and social benefits through desirable diversification,

iii) to develop additional infrastructure for production of planting material, storage and processing of horticultural produce.

iv) to provide skilful employment in the region.

3. Structure of Mission :-

The mission is being implemented in a mission-made approach through four Mini-Missions.

MINI MISSION- I: Research coordinated and implemented by Indian Council of Agriculture Research. This Mini Mission concentrates on technology generation approach to the region. Major components under MM1 are supply of basic seed and planting material, technology standardization, refinement, on farm demonstration and training.

MINI MISSION-II: Productivity coordinated by department of agriculture and cooperation and implemented by the state department of horticulture and agriculture. This mission aims at increasing production and productivity of horticulture crops by adoption of improved products technologies.

MINI MISSION-III: Post harvest management and marketing coordinated by department of agriculture & cooperation implemented by Directorate of Market Intelligence, National Horticulture Board. This Mini Mission aims for efficient
post harvest management, techniques, which include development of cold storage facilities, efficient transport and marketing facilities.

**MINI MISSION IV:** Processing coordinated and implemented by Ministry of Food Processing Industries, Government of India. This Mini Mission aims at promoting processing industry for value addition to horticultural produce by promoting new processing units, up gradation of existing units.

**Table - 1.3**

**Funds Available to the States and Implementing Agencies.**

(Rs. in Lakhs)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>States</th>
<th>Funds made available during 2001 - 2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Arunachal Pradesh</td>
<td>957.69</td>
</tr>
<tr>
<td>2.</td>
<td>Assam</td>
<td>1055.90</td>
</tr>
<tr>
<td>3.</td>
<td>Manipur</td>
<td>495.31</td>
</tr>
<tr>
<td>4.</td>
<td>Meghalaya</td>
<td>753.59</td>
</tr>
<tr>
<td>5.</td>
<td>Mizoram</td>
<td>735.82</td>
</tr>
<tr>
<td>6.</td>
<td>Nagaland</td>
<td>703.01</td>
</tr>
<tr>
<td>7.</td>
<td>Sikkim</td>
<td>744.25</td>
</tr>
<tr>
<td>8.</td>
<td>Tripura</td>
<td>749.68</td>
</tr>
<tr>
<td>9.</td>
<td>Space Application centre (ISRO)</td>
<td>25.00</td>
</tr>
<tr>
<td>10.</td>
<td>National Informatic centre (NIC)</td>
<td>22.84</td>
</tr>
<tr>
<td>11.</td>
<td>Infrastructure</td>
<td>7,688.00</td>
</tr>
<tr>
<td>12.</td>
<td>Undisbursed</td>
<td>419.40</td>
</tr>
<tr>
<td>13.</td>
<td>SPAC service charge</td>
<td>54.74</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>14405.23</strong></td>
</tr>
</tbody>
</table>

*Source: Department of Agriculture & Cooperation, Govt. of India.*
During the year 2001 - 2002 following funds have been made available to
the states and implementing agencies based on the action plan prepared by the
respective states.

4. Selection of Beneficiaries:
Beneficiaries at field level are identified by Nodal Agencies, Department
of Horticulture/Agriculture concerned, as per requirements and
priorities of the state.

5. Monitoring of Scheme:
The implementation of scheme is being monitored through steering
committees constituted at the central, state and mission levels.

i) Central Steering Committee: This committee is headed by
Secretary (A & C) and meets once in a year to oversee the progress
of scheme and suggests measure for improving the implementation.

ii) Steering Committee for Mini Mission - 1 is headed by Director
General, ICAR.

iii) Steering Committee for Mini Mission - II and Mini Mission - III are
headed by Special Secretary, Department of Agriculture & Cooperation.

iv) Steering Committee for Mini Mission - IV is headed by Secretary,
Department of Food Processing Industries.

v) Review Meetings are being held periodically by special Secretary.
vi) State Level Steering Committee: Each state has constituted a state level Steering Committee under the chairmanship of chief Secretary of the state. The Steering committee meeting is held at least once in a year to oversee the implementation of the mission in the states.

vii) An annual conference to review the progress of mission and finalise the action plan.

6. Awareness Campaigns -cum-Workshops:

In order to make people of North East aware about the benefits of diversifying to horticulture crops and with a view to let public know about the launching of Technology Mission on Horticulture programmes of organising awareness campaigns people of the state from all walks of life are invited and mission objectives are explained in detailed. Such campaigns have been appreciated by all and have brought a new awakening that diversification to horticulture could reduce economic imbalances in the North Eastern States and stop Jhum cultivation, altogether.

Institutional Support to Fruit Processing Industry:

Following are some of the institutions and government agencies who are directly and indirectly involving for the development of fruit processing industry in particular and food processing industries in general. They are:-

1. Ministry of Food Processing Industries (MFPI):

To link with the farmer, the processor, the consumer and the usher in the new era of prosperity, lead to the creation of Ministry of Food Processing Industries (MFPI) in India during 1988.
This Ministry is at present under the Ministry of Agriculture, Government of India. MFPI is responsible for developing a strong and vibrant food processing sector with more emphasis on stimulating demand for appropriate processed foods, achieving maximum value addition and by-product utilisation, creating increase of job opportunities particularly in rural area. It is also responsible for enabling farmers to reap the benefits of modern technology and creating surpluses for export.

In discharging the above responsibilities, the MFPI has the policy support in formulation and implementation of policies for food processing industries within the overall national priorities and objectives and facilitating the creation of a conducive environment for healthy growth of the food processing sector. It also help in promoting rationalization of tariffs and duties relating to food processing sector and harmonisation of Food Laws.

MFPI has also plays a development role by giving assistance under various plan schemes and widening the Research and Development (R & D) base in food processing. The Ministry also gives assistance for setting up analytical and testing laboratories, active participation in the laying down of food standards and their harmonisation with the international standards and developing human resource to meet the growing requirement of managers, entrepreneurs and skilled workers in the food processing industry.

In order to create awareness about the potential and prospect of food processing industries in the country, this ministry provides assistance for organising workshops, seminars, surveys, exhibitions and fairs. To disseminate information on processed foods in India and abroad, it gives assistance for
publications and films in the field of food processing. The Ministry also plays a regulatory role for implementation of Fruit Products Order (FPO), 1995.

2. National Horticulture Board:

National Horticulture Board was set up in 1984 by the Government of India in order to increase production and marketing of horticultural products and to look after different aspects of the horticulture industry. The Board is an important instrument of the Government of India for the integrated development of horticulture in the country. The Union Agriculture Minister is the President of the Board and Union Agriculture Secretary is the Chairman of the Managing Committee of the Board. The main objectives of the National Horticulture Board are to :-

a) encourage and promote the development of horticulture industry in the country;

b) assist the establishment of growers societies to advance the economic and social status of farmers;

c) assist and develop infrastructure for post-harvest technology, and

d) provide technological, financial and other assistance to various organisation for development of horticulture.

The National Horticulture Board has taken a lead in meeting all the objectives mandated to it and various programmes ranging from production through post harvest handling to marketing including export and processing
have been initiated in the country for the integrated development of horticulture.

3. Agricultural and Processed Food Products Export Development Authority (APEDA):

Agricultural and Processed food products Export Development Authority (APEDA), came into existence under the Ministry of Commerce, Government of India in 1986. APEDA came into being in order to further develop India’s agricultural commodities and processed foods, and to promote their exports. It aims at maximising foreign exchange earnings through increased agro exports, to provide better income to the farmers through higher unit value realisation and to create employment opportunities in rural areas by encouraging value added exports to farm produce.

To achieve the above objectives APEDA has initiated various development programmes for the growth and development of agricultural and processed food products, such as: development of data base on products, markets and services, organisation of product promotions abroad and visits of officials and trade delegations abroad, participation in international trade fairs in India and abroad, organisation of Buyer Seller Meets and other business interactions, provides recommentory, advisory and support services to the trade and industry, problems solving in government agencies and organisations, RBI, Customs, import/export procedures, problems with importers through Indian Missions abroad.

APEDA offers financial assistance under various schemes which seek to promote and develop agro-exports. Financial assistance under these schemes
are available to exporters, growers, trade associations, governmental agencies etc.

4. National Co-operation Development Corporation (NCDC):

The genesis of NCDC is to be traced to the report of the All India Rural Credit Survey Committee (1954), which advocated an integrated approach to co-operative development in the rural sector. As a sequel to the acceptance of the said committee's recommendations, the Reserve Bank of India Act was amended to enable it to provide substantial support to agriculture/co-operation credit programme in the country. A new statutory body was called the NCD & W Board was set up in 1956 to provide institutional support for development of co-operative marketing, processing, warehousing and storage. Consequently the subject “Warehousing” was transferred to the Ministry of food and a separate “Department of Co-operation” under the Ministry of Agriculture, a new body-NCDC was created by an Act of parliament in 1962. NCDC has been conceived as a nodal organisation for meeting the post-harvest requirements of farmers through co-operative societies.

NCDC as per its statute is mainly concerned with promoting, developing and financing post harvest activities in agriculture sector. These comprise of marketing, storage and processing of agricultural produce besides supply of seeds, fertilizer and other agricultural inputs.

5. National Bank for Agriculture and Rural Development (NABARD):

The National Bank for Agriculture and Rural Development was set up on 12\textsuperscript{th} July 1982, under an Act of parliament by initially merging the Agricultural Credit Department and Rural planning and Credit Cell of
Reserve Bank of India (RBI) and the entire undertaking of Agricultural Refinance and Development Corporation (ARDC), the National Bank for Agricultural and Rural Development (NABARD) is an apex development bank of the country for supporting and promoting agriculture and rural development.

NABARD provides short-term, medium and long-term refinance facilities to the institutions for the following purposes :-

a) Agricultural production, operations and marketing of crops by farmers and farmers' cooperatives societies etc.

b) Production and marketing activities of village & cottage industries, small scale and tiny industries.

c) Investment in agriculture and allied activities such as plantation/horticulture, setting up storage and market yards, agro-processing, agro-services centres etc.

d) Activities of voluntary agencies/self help groups of rural poor.

e) Investment in share capital/securities of institutions concerned with agriculture and rural development.

6. North Eastern Regional Agricultural Marketing Corporation Limited (NERAMAC):

NERAMAC was incorporated on 31st March 1982. It was promoted by the North Eastern Council, Shillong under the administration of Ministry of Food Processing Industries, Government of India, New Delhi.
Keeping in view its mandate for agricultural prosperity by undertaking development of marketing infrastructure, the corporation has been undertaking the following activities since its inception.

Export of processed fruit products of the SSI (Small Scale Industry) units of the region thereby ensuring capacity utilisation with commitment of marketing. Export of agri-inputs like true potato seeds has also created market for North Eastern origin products in the global market.

Apart from marketing of processed of fruit products the corporation has undertaken marketing of fresh fruits and vegetables also. In addition to the above the corporation is involved in marketing of vegetables, cashewnut, cereal products, spices and minor forest produces of the North Eastern Region.

The corporation has recently, taken the responsibility of marketing agro-horticultural inputs like fertilizer, pesticides, seeds, agricultural tools and equipment, keeping in view the overall agro-horticultural development of the region.

In addition to providing marketing assistance to small and cottage scale fruit processing units of North - Eastern Region, NERAMAC has commissioned a fruit juice concentration plant in 1988 to market low volume high valued products of the region. It is also making attempt to generate employment by providing juice vending machines on franchise basis. This scheme is aimed at, apart from employment generation, creation of alternate marketing structure for natural juice and other processed and fresh fruits and vegetables products.
7. Indian Council of Agricultural Research (ICAR) for North Eastern Hill Region:

ICAR Research Complex for North Eastern Hill Region was established in 1975 by the Indian Council of Agricultural Research to create an adequate research base for supporting agricultural development in the North Eastern Hilly Region of the country. It is the first institute of its kind set up by ICAR, which encompasses all the discipline of agriculture, horticulture, animal sciences, agricultural engineering, agroforestry and fishery to cater to the research needs of the tribal areas of N.E. Hilly region including Sikkim. A trainers training centre has also been established to cater the training needs of the entire region. Considering the entire N.E. Hilly region as one unit, the research centres have been so located as to represent the varying altitudes (60m. - 1800m above MSL) and agro-climates of the region. The research findings of the institute, at different centres, can thus be utilised for specific altitudinal range and agro-climatic conditions in the component states. The headquarters at Barapani near Shillong has been established in spacious new buildings with well equipped laboratories and administrative wing.

ICAR has the research thrust to evolve suitable integrated farming systems for the hills of the region to replace jhuming (Shifting Cultivation) for increased productivity and for the improvement of citrus plantations to rehabilitate citrus industry.

8. North Eastern Development Finance Corporation Ltd. (NEDFi):

The North Eastern Development Finance corporation Ltd. (NEDFi) was originally conceived in the budget speech of 1995-96, by the Finance Ministry and was promoted by the country’s premier public sector financial
institutions and bank and incorporated in August, 1995 with its headquarter at Guwahati. The corporation has an authorised capital of Rs. 500 crore and an initial paid up capital of Rs. 100 crore. Further resources will be raised as and when needed. NEDFi started functioning since March 1996. NEDFi is a public financial institution under section 4-A of the Companies Act, 1956.

NEDFi finance a wide spectrum of activities. It finances industries including agro-processing, mining, shipping, transport, tourism, information technology, medical and health services, leasing, generation and distribution of electricity, setting up and development of industrial estates and other commercially viable infrastructure facilities. Agricultural, horticultural plantation will also be financed by NEDFi. Special emphasis is being given to the Information Technology (IT) sector.

9. District Industries Centres (DICs):

Administration of industrial development programmes have constantly been under review to hasten the process of industrialisation and to minimise the hurdles faced by existing and prospective entrepreneurs. Over years, experience has been to bring the network of institutions operating in the field as close to entrepreneurs as possible. Some of the deficiencies experienced in the earlier years prompted the introduction of an innovative scheme known as 'District Industries Centre programme' in the country in pursuance of the Industrial policy statement of 1977.

The DIC is a dynamic institution at the district level which provides all the services and facilities to the entrepreneurs and artisans right from the selection
of items for manufacture, supply inputs like credit, raw materials, power, land and building etc. to set up small and village industries in the districts.

Some of the important roles played by the DICs for rapid industrialisation in the district are:

1. To survey existing, traditional industries, raw materials, and human resources in the district.
2. To identify potential industries, identify products and give market forecast for different items and to prepare sample techno-economic feasibility reports.
3. To assess machinery and equipment requirements for various types of identified small-scale and village industries, locate sources for availability for the same and advice the entrepreneurs accordingly.
4. To organise marketing outlets and market survey.

PART - III

Design of the Study:

The hills and valleys of North East India can grow different kinds of fruits and vegetable crops. Fruit squashes particularly of pineapple, orange and lemon have a great demand for internal market as well as external market. These fruit products are importing from outside the region due to less production in these states. Even from Myanmar fruit products are importing to North Eastern Region and variety of fruit products from Myanmar is available in almost all the
markets of this region. Canned products of pineapple on account of its taste and quality there is great demand from outside states. Fruit processing units of the North Eastern Region still could not meet the demand within and outside the region which is a great loss in the state revenue. Time and again, the feasibility study as well as the detailed project reports have shown this industry is viable in the states of this region in the wake of horticultural development in the states. But till today the question - "Why is the fruit processing industries still unable to fulfil the dream of the people of the region", remain unanswered. Researcher, therefore, has conducted this study, taking into confidence that by evaluating the past and present performance of the various processing units of the region, strategy and plan of action for greater achievement and for development of processing industry in the region may be made possible. The outcome of this study will boost not only the state and regional economy but also the economy of the country.

Literature Review:

Reviewing literature on fruit processing sector was found to be a tough ordeal. Being at the lowest segment of the food processing industries, the sector has not received adequate attention, particularly in North Eastern Region. A brief review of past researches relevant to the present study has been incorporated as follows:

Vipla Chopra (2002) stated that increased utilisation of fruits and vegetables to make different types of processed products in an important way to stabilize process, increase product availability during off season, reduce

wastage and utilize the fruits and vegetables as an instruments of industrialisation. The author also stated that there is an acute need for harmonising the existing food laws and to bring about a development orientation to facilitate faster growth of the industry. Girdhari Lal, G. S. et. al (1998)\textsuperscript{21} has worked on preservation of fruits and vegetables which is purely technical oriented. The authors highlighted the different methods of preserving fruits and vegetables in all the levels of preservation.

Tata Consultancy Services (TCS) Kolkata and North Eastern Industrial and Technical Consultancy Organisation Ltd. (NEITCO) Guwahati (1998)\textsuperscript{22} has jointly studied the export potential of horticulture and floriculture in North Eastern Region. The main observation was that the horticulture sector has not yet received due importance in the North Eastern economy that is largely dependent on subsistence farming. Further, it was observed that only a meagre 3.6 per cent of cultivable land in the North Eastern States is under horticulture production. Maini and Anand (1996)\textsuperscript{23} has stated that because of high productivity and value, fruit and vegetable provide much better economic returns per unit area compared to cereal crops and hence it is also a good source of foreign exchange earnings. The authors suggested that a new orientation is needed to be given to the fruit processing industry to upgrade nutrition, minimise post harvest losses, ensure remunerative returns to the growers, increase employment avenues in the countryside and generate foreign exchange earnings.


Singh, H.P. (1995)\textsuperscript{24}, stated that there is a strong need to develop horizontally and vertically integrated farmers' organizations to undertake various post-harvest operations of fruits and vegetables with professional approach on economic basis and at a commercial scale in order to reduce the existing high marketing cost, enhance the producers' share in consumers' rupee and supply the fresh fruits and vegetables and their processed products to the consumers at a comparatively low price. He also stated that it has now become more conducive to modernize the existing fruit and vegetable processing technology in order to produce more competitive products for export. Bhowmick (1994)\textsuperscript{25} has dealt with the marketing of fruits and vegetables in North Eastern Region. He has stated that marketed surplus of fruits and vegetables is the actual amount of produce sold out of the year's production irrespective of his requirements for family consumption, wastage and other payments.

Ex-Fertilizer Servicemen Marketing & Consultancy (P) Ltd. (1994)\textsuperscript{26} stated that marketing channel should be widened, intensified and improved in Manipur. The team recommended the formation of a Horticulture Development Corporation which is yet to be implemented in the state. The team also has reported that 30-50 per cent of the horticultural produce in the state were wasted due to transport bottleneck and lack of storage facilities. Th. Biren Singh (1993)\textsuperscript{27}

\begin{itemize}
\item[26.] National Horticulture Board : Techno-Economic Feasibility Study for the Development of Horticulture in the State of Manipur : A Study Conducted by Ex-Fertilizer Servicemen Marketing & Consultancy (P) Ltd. Kolkata and was Sponsored by National Horticulture Board, Ministry of Agriculture, Govt. of India.
\end{itemize}
has worked on agricultural and horticultural development in Manipur during the plan period but not particularly on fruit processing development.

A feasibility report was prepared by NEITCO Guwahati sponsored by N.E.C. Shillong in 1991. The report contain the Techno-economic feasibility report for fruit processing unit to be set up in Darrang district of Assam. The report stated that there is a feasibility for setting up of fruit processing unit with a capacity to process 3 tonnes of fruit per day. Nurun Nesda (1989) has worked on the development of horticulture in Manipur during the plan period. The research area covers the overall horticultural development in Manipur but does not deal particularly with the fruit processing industry in the state. N.E.C. Shillong has also sponsored a feasibility report prepared by NEITCO Guwahati (1988). The report was discussing for revival of fruit processing unit at Vairengte, Mizoram which stated that after revival the plant will break even at 62 per cent of the capacity and earn profits from the second year of its operation.

Ghosh (1985) has dealt with horticulture in North Eastern India where he has discussed horticulture industry in general but no specific work has been done on fruit processing industry by him. Centre for Food Technological Research Institute (CFTRI), Mysore (1978) has conducted a study on

packaging and transportation methods for the horticultural products of the North Eastern Region. The study concluded that there is a scope for improving the quality of the fruits transported to Kolkata and other prospective market.

Though the present review may not be the exhaustive review of literature, but it can be concluded from the above review that there was no in depth study so far conducted in this field particularly in the North Eastern States. Hence, the present case study of fruit processing units will have a greater significant for the development of fruit processing industry particularly in the North Eastern Region.

Objectives of the Study:

The main objectives of the present study is to critically examine and evaluate the present status, constraints, and future strategies/plan of action, keeping in view the production and marketing potential, for the development of fruit processing industry of the North Eastern Region in general and particularly Manipur and Assam.

More specifically, the study will have, iner-via, the following objectives:

1. To evaluate the performance of all the existing fruit processing units in Manipur and Assam and to identify their problems and prospects.

2. To critically examine the production and marketing strategies of different units in Manipur and Assam.

3. To analyse the role of state and central government toward the development of fruit processing units in the region.
4. To offer constructive suggestions and guidelines to remove the problems associated with the processing industries in Manipur and Assam for further development and improvement.

5. To identify the viability and suitability of fruit processing unit in the hill districts of Manipur.

Hypothesis: The present study is based on the following hypothesis:

1. Production per unit cost of processed fruits is high due to high cost of transportation involved in purchasing the fruits.

2. Most of the fruit processing units are born sick due to lack of basic infrastructural facilities such as power, transport, communication and banking facilities.

3. More than 50 per cent of the total market is captured by the product which is manufactured from outside the state/region.

Selection of the units:

The present study confines itself to the list of fruit processing units obtained from the office of the Deputy Director (F&VP) Eastern Region, Calcutta. Out of the total 61 units given, all the units except units producing sweetened aerated water were taken for study.

Hence, out of the 13 units in Manipur, 9 units only were selected for interview as two of the units are dealing with sweetened aerated water and packaging, one unit is just the combination of all the private units in the state.
which is known as a relaballer, is insignificant at present. The remaining one unit could not be contacted. Hence, only 9 units were interviewed. And out of this 9 units, one unit is found to be sick. From Assam, out of the 25 units, 21 units which were processing fruits were selected for interview but only 8 units could respond to the said interview. Again out of this 8 units, 4 units are sick, 1 unit is already converted into bakery business. So, only 3 units performance could be evaluated.

Along with the units of Manipur and Assam, the researcher has established a contact with the units of the other North Eastern States through despatching questionnaire to them. Out of the total 8 units in Meghalaya, 7 units were selected but only 2 units responded with the filled questionnaire despatched of them. Mizoram having 2 units were selected and 1 unit promptly responded. All the 3 units of Arunachal Pradesh and 4 units of Tripura were selected for interview but none of the unit from this two states responded to the dispatched questionnaire. Finally, out of the 6 units in Nagaland, 5 units were selected for interview but none of the unit responded.

Thus, the present study is based on 14 fruit processing industry of the region i.e. 8 units from Manipur, 3 units from Assam, 2 units from Meghalaya and 1 unit from Mizoram.

Methodology:

The present study is based on both primary as well as secondary data. Primary data have been obtained with the help of personal interviews with the concerned executive of the units and also with the help of interview questionnaire sending to the selected units.
Secondary data for the study have been collected from the annual reports of the Ministry of Food Processing Industries, Government of India and the annual balance sheet of the units. The other data have also been gathered from various journals, reports, newspapers, periodicals and unpublished work of the scholars in this field.

With the help of the data contained in financial statements, various selected statements were prepared and calculated with various statistical tools and techniques. Such as percentage analysis, ratio analysis, composite growth rate, correlation analysis and significant test through T-test and Chi Square test. In order to give the conclusions and findings, a comparison have been made. Apart from this with the help of the conclusion drawn suggestion have been made.

Interview Questionnaire:

An interview questionnaire having 61 questions have been framed to ensure that the investigator gets the desired information. This questionnaire consists of five blocks. The first block covers general information such as name and address of the sample unit, Registration No., FPO Licence No., date and year of commencement, brand name and the objectives of the processing unit. The second block consists of the detailed production information such as types of machine, capacity of machine, types of fruits and vegetables used, suppliers, prices of this raw materials, purchasing factor, other ingredients used, persons employed, working days and working hours, quantity of fruit consumed, types of products produce, quality control, by-product, and problems of production. The third block covers marketing outlet, time lag for collecting amount of credit, distribution channel, methods of pricing, unsold stock, sales promotion,
packaging, mode of transportation, area of completion, trade fairs and problems in marketing.

The fourth block relates to the financial aspects such as, fixed and working capital, cost of factory buildings, time lag for converting raw material into cash, financial help, depreciation policy, problems of getting finance and repayment. The five block includes some general problems such as implication of industrial policy, power supply, transport facilities, banking facilities, training facilities, choice of location and product competitiveness.

Reference period:

The present study has been selected for a period of ten years commencing from 1991 to 2000. This period is quite satisfactory to evaluate the performance of all the existing fruit processing units of the region.

Limitations of the study:

The present study has various limitations. No sufficient literature are available specially the data pertaining to the North Eastern Region as sufficient study in this field were not have been conducted so far. So, the study has to rely more on the primary data for which the questionnaire were being prepared. Unfortunately, only few units from Assam, Meghalaya and Mizoram could respond for the purpose after much pursuasion and personal request. None of the units from Arunachal Pradesh, Tripura and Nagaland responded to the questionnaire inspite of fervent request made by the investigator. It is from the state of Manipur, where the investigator belong, maximum response were received. Some units
were very old that they could not traced their history of beginning. Hence, the
analysis is done on the basis of the available limited informations and data.

Significance of the study:

Though the present study has various limitations, the outcome of the study
will be a good reference for future studies. The outcome of the study may be
highly useful to the investors, creditors, banks and other financial institutions to
take various investment decisions in this sub sector of food processing
industries. It will also provide appropriate strategies to the concerned
management to ensure the fruitful results i.e. production, marketing and
financial performance of the units. It will also help the state and the central
government in allocating fund for horticultural development in general and
fruit processing industry in particular.

Processing of fruits will increase the earning of the farming sector. This
industry is labour intensive one which provides employment to 19 per cent of
the industrial workers. It accounts for about 19 per cent of the gross domestic
product, 7 per cent of the total industrial investment. Fruits products are
export-oriented and hence it can earn more foreign exchange through this
industry. The outcome of this study will boost not only the state and regional
economy but also the economy of the country.

Chapter Planning:
Chapter - one includes three parts. The first part deals with the introduction
of food processing industries in India. It also includes fruit crops in India
and the profile of the North East. The second part deals with the role of the
government towards the development of fruit processing industries where the
national policy on food processing and the industrial policy for the North Eastern Region for the development of this sector are being highlighted. The third part includes objectives of the study, research design and hypothesis on which the study is based and the limitation and the significance of the study.

Chapter - two is divided into two parts. The first part deals with the present status of fruit processing industries in India in general and the fruit processing industry in the North Eastern Region in particular. The second part covers the infrastructural facilities such as transport, communication, power and banking and finance available to the North Eastern States are highlighted which is one of the important area where hypothesis of the study is based.

Chapter - three is grouped into three parts again. The first part discuss the production and marketing of fruits in India along with the export trend of processed fruits. The second part deals with production and marketing of processed fruits in North Eastern States. The third part highlights the viability and suitability of horticultural industry in Manipur.

Chapter - four is divided into five parts. The first part includes the historical background of selected 14 fruit processing units of the region. The second part deals with the data analysis of the selected units with the help of various statistical tools. The third part covers the financial analysis with help of ratio and ranking analysis. The fourth part includes the SWOT analysis of fruit processing units which discusses the strengths, weaknesses, opportunities and threats of fruit processing industry. Finally, it also covers the hypothesis testing of the present study.
Chapter five includes two parts. The first part covers the findings of the study. The second part includes the suggestive measures to solve the prevailing problems.