A STUDY OF AGRO-INDUSTRIES IN ANDHRA PRADESH
WITH
SPECIAL REFERENCE TO EAST GODAVARI DISTRICT

ABSTRACT OF THE
THESIS SUBMITTED FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY IN
COMMERCE
TO
The Aligarh Muslim University, Aligarh

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ABSTRACT

The term 'agro-industries' means industries manufacturing inputs for agriculture as well as industries engaged in processing of agricultural raw material. Agencies engaged in manufacturing agricultural inputs like fertilizers, pesticides, tractors, trailers, seeds and other farm equipment and machinery and servicing centres and repairing workshops—all are termed as agro-industries while those processing output as basic raw material are known as agro-based industries. The agro-based industries are aimed at the maximum utilisation of primary and secondary agricultural produce such as paddy, wheat, sugarcane, cotton, tobacco, jute, chillies, fruits, vegetables, groundnuts and other oil seeds. They also include industries making use of surplus agricultural waste like straw, shells, husk, sugarcane bagasses, jute sticks, etc. The secondary and third stages of processing like bakery, starch making and biscuit making also come under the term agro-based industries.

The present study of agro-based industries is confined to the products of plant and vegetable origin of Andhra Pradesh with special reference to East Godavari district.

Andhra Pradesh has always been an important agricultural state producing a large variety of foodgrains and other commercial crops required for industrial use. The
state has a well developed agricultural base. Andhra Pradesh is a surplus state in respect of foodgrains mainly rice. The state accounts for 11 percent of the total rice production in the country. It ranks first in tobacco, castor and mesta both in respect of area and production. In respect of groundnut and chillies the state ranks second in production. The state also produces considerable quantities of sugarcane, cotton, jawar, bajra and ragi. Besides these, a variety of fruits like mango, pineapple, citrus fruits, banana, guava and grapes are also grown in the state.

According to 1971 census about 71 percent of the working population in the state depends on agriculture for its livelihood. More than 80 percent of the total population lives in villages. More than 50 percent of the state's income is derived from agriculture and allied activities. Excessive dependence on agriculture may create economic imbalances and the solution lies in how best the rural economy is diversified.

Migration of a few lakhs of people from villages to towns and cities may not solve the fundamental problems of rural economy. Increasing pressure of population on agricultural economy, lack of employment opportunities in the rural areas and the resultant limitations on equitable distribution of national income are some of the problems of rural economy, which may come in the way of speedy development.
Recognising the need for tackling the problem of unemployment and underemployment in rural areas, the Planning Commission considered it necessary during 1962 to initiate steps for securing the fullest development of agricultural as well as the agro-based industries as a part of the First Five Year and long term plans of development. The Planning Commission desired that steps be taken for the development of small scale industries to illustrate how different kinds of industries could be integrated and varying levels of techniques developed together, in the overall interest of the rural economy. The main objective, of course, is to bring about a cooperative agro-industrial economy. This involves diversification of rural economy-building up of industries based on local agriculture, stepping up local enthusiasm and development of local skills in the levels required. The main emphasis is laid on the development of industries in rural areas with a view to bring about balanced regional growth and also to check the concentration of industries in the large urban and metropolitan centres.

All these efforts have been directed for the development of processing industries based on agriculture. Agro-industrial development has not gone beyond the level of primary processing. The future plans should be directed to

1. Rural Industries Project Evaluation Studies No. 25, Planning Department, Govt. of Andhra Pradesh, Hyderabad, 1967, p.1
the development of a comprehensive agro-industrial complex in the state. As far as possible efforts should be made to process the available agricultural produce within the state to provide more employment opportunities to the rural people, without involving huge capital investment. It needs no emphasis that our future programme of economic development should be aimed at such industries which are capital saving and at the same time labour-intensive in character. In other words, agro-based industries are ideally suited for the growth of rural economy. Economic prosperity lies mainly in the successful integration of agriculture with industry. In a way agriculture depends on industry not merely for consumer goods with offer incentives to grow, but also for the inputs required for modernized production. Industrialization thus cannot precede but follow increased agricultural production. The most essential aspect of the relationship between agriculture and industry is that each sector depends largely on the demand of the other for its products. The integration of these two important sectors has given birth to a harmonious link which is what we call "Agro-Industries", which not only helps their development but also ensures mutual coexistence.

The present work aims: (1) to study the present position of agro-based industries of plant and vegetable origin located in Andhra Pradesh with reference to facilities
available and (2) to suggest steps for future development of agro-based industries taking into consideration the problems faced by the entrepreneurs. The study is divided into seven chapters.

The first chapter gives a general picture of the economy of the state. It mainly examines the relative position of economy of the state with reference to natural resources available. The state offers great water potential which is not being fully utilised. As regards power production the state has remained backward inspite of the planned efforts by the government. The main reason for this state of affairs is defective estimation of future demand of power besides the lack of financial resources. The state government hopes to overcome this shortage at the end of the Fifth Five Year Plan period. The development of agriculture though appears to be quite satisfactory, the same is not true if we examine each region individually.

In recent years the state has demonstrated an impressive rise in food grains production from 67 lakh tonnes in 1972-73 to over 86 lakh tonnes in 1973-74. This progress on the agricultural front has opened new hopes for the development of agro-based industries in the state. Another distinguishing feature of the state's economy today is that it has shown a growth rate of about 14 percent in the state's income against the All India figure of 3 percent.

In the second chapter efforts have been made to explain the reasons for the state's industrial backwardness
and the progress made during the plan periods, with special reference to small scale industries. The objectives and working of the various financial institutions in the state have been studied to know how far they have been instrumental in the development of industries in the state. Regional development under the six point formula has been discussed with reference to regional disparities and the region-wise allocation of resources for industrial development.

An attempt has been made in the third chapter to critically analyse the working and performance of agro-based industries in the state to find out the present position. Part I of this chapter is devoted to explain the concept and definition of agro-industries and their significance in the economy of the state for spreading rural industrialisation. Part II is devoted to paddy processing, modern rice milling technology, deoiled rice bran, paddy husk and its utilisation. Part III deals with the tobacco industry which has been studied at length to explain its present position and future prospects. In part IV cashew processing and utilisation of its by-products have been discussed to identify the problems of this industry and its growth in Andhra Pradesh. In Part V the importance of tapioca sago and starch industry in the economy of East Godavari district has been discussed, its present position analysed and suggestion made for its development. The export oriented palmyra fibre industry has been studied at length in part VI of the same chapter to offer suggestions for the diversification of the product and the
development of brush making industry in the state.

In the fourth chapter, efforts have been made to outline the present position of agro-industrial export potentialities of Andhra Pradesh with special reference to standardisation and export promotion.

Chapter V is devoted mainly to explain the economic situation in the East Godavari district and to prove that the district in question resembles the state as a whole and to justify the choice of the district for the purpose of conducting the survey.

Chapter VI is a summary of the sample survey conducted by the author in the East Godavari district. The object of the survey is to study the position (working) of the agro-based industries in the district with reference to the available facilities and to suggest measures for the development of agro-based industries taking into consideration the difficulties faced by the entrepreneurs. The study is based on different field investigation in selected agro-based industries engaged in the manufacture of various agro-products. The analysis of the survey is the result of interviews and discussions with various entrepreneurs, industry associations, labour unions and government officials. The survey was conducted in 28 units covering 12 different types of agro-industries in the district. The study covers large/medium/small scale/cottage industries in the East Godavari district.
On the basis of the findings made throughout the work, personal interviews held with various entrepreneurs during the course of survey, personal observations made, discussions held with various industry associations, labour unions and Government officials suggestions have been made in the concluding chapter for the betterment of agro-industrial units taking into consideration the difficulties faced by the entrepreneurs in the East Godavari district.
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# CONTENTS

**ACKNOWLEDGEMENTS:**

**INTRODUCTION:** 1-vii

**CHAPTER-I**

**ECONOMY OF ANDHRA PRADESH** 1-62

- General Information 1
- Area and Location 1
- Climate and rainfall 3
- Natural Resources 4
- Mineral Resources 7
- Forests 8
- Rivers 9
- Population and growth 11
- Distribution of Populations 12
- Distribution of working population 14
- Regional grouping of districts 15
- Literacy 20
- Land ceiling 21
- Irrigation 22
- Power 28
- Agriculture 41
- Economic regions 59
- State Income and per capita income 58
- Conclusion 59

**CHAPTER-II**

**INDUSTRIAL DEVELOPMENT OF ANDHRA PRADESH** 63-124

**INTRODUCTION** 63

**Part I**

Industrial development during plan periods 64

Identification of backward districts in state 70

Industrial development programme during the Fifth Plan period 71
Position of Small Scale Industries in the state 74

Part-II
DEVELOPMENT OF VARIOUS INDUSTRIAL CORPORATIONS IN THE STATE 83

Industrial development under cooperative section 112
Institutional finance for weaker sections 114

Part-III
REGIONAL DEVELOPMENT UNDER THE SIX POINT FORMULA 116

Regional Disparities
Situation in Andhra Pradesh
Regional allocation of resources
Industrial development

CHAPTER-III
AGRO-INDUSTRIES- A CRITICAL STUDY 125-199

Part-I
Concept and definition of agro-industries 125
Economic significance 126

Part-II
Development of various agro-industries in Andhra Pradesh 133
Paddy processing
Hand Pounding of paddy
High Nutritious value
Rice milling
Modern rice milling
Features of modern rice milling
Suggestions
Caution
Decoiled rice bran
Rice-bran utilisation
Decoiled cakes
Paddy husk and its utilisation
Part-III

TOBACCO INDUSTRY 155
Marketing Problems 156
Suggestions 161

Part-IV

CASHEW INDUSTRY 164
Cashew nut shell liquid (CNSL) 167
Cashew husk or skin kernel (Testa) 168
Cashew apples 168
Cashew growth in Andhra Pradesh 169
Cashew Development scheme 171

Part-V

SAGO AND SUGAR INDUSTRY 174
INTRODUCTION 174
Soil 174
Uses of Tapioca 175
Cultivation of Tapioca in A.P. 175
Cost of cultivation 176
A brief history of Sago and starch industry 178
Features of the Industry 180
Difficulties/Problems 185
Suggestions/recommendations 186
(a) Cultivation of Tapioca 186
(b) Tapioca based industries 187
(c) Hygenic conditions: - I.S.I Standards 189

Part-VI

PALMYRA FIBRE INDUSTRY 190
Origin and growth 190
Description 191
Classification 192
Trade description 192
Uses 195
Brush making industry 196
Palmyra fibre industry in A.P. 197
State Palmyra Cooperative Federation 198

CHAPTER-IV

AGRO-INDUSTRIAL EXPORT POTENTIALITIES IN ANDHRA PRADESH 200-225

Part-I Standardisation and Export Promotion 200
Part-II Position of exports of Agro-Commodities and products from Andhra Pradesh 204
Tobacco industry 205
Deoiled cakes 209
Palmyra fibre 213
Sandalwood oil 219
Pressed food 219
Spices 219
Sugar 220
Handloom products 220
Handicrafts 220
Cashew Kernel 221

CHAPTER-V

ECONOMY OF EAST GODAVARI DISTRICT 226-299

Part-I

GEOGRAPHICAL SITUATION 226
Introduction 226
Location 228
Climate 228
Topography 230
Soil 230
Geographical resources 232

Part-II

SOCIO-ECOOMIC SETTING 235
Administrative setup 235
Natural resources 236
Rivers 236
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forests</td>
<td>238</td>
</tr>
<tr>
<td>Livestock and fisheries</td>
<td>239</td>
</tr>
<tr>
<td>Salt</td>
<td>240</td>
</tr>
<tr>
<td>Topographical zones</td>
<td>240</td>
</tr>
<tr>
<td>Population growth</td>
<td>248</td>
</tr>
<tr>
<td>Density</td>
<td>250</td>
</tr>
<tr>
<td>Urbanisation</td>
<td>251</td>
</tr>
<tr>
<td>Scheduled castes &amp; tribes</td>
<td>254</td>
</tr>
<tr>
<td>Literacy</td>
<td>256</td>
</tr>
<tr>
<td>Education</td>
<td>257</td>
</tr>
<tr>
<td>Power</td>
<td>257</td>
</tr>
<tr>
<td>Distribution of Electricity</td>
<td>258</td>
</tr>
<tr>
<td>Transport and Communication</td>
<td>260</td>
</tr>
<tr>
<td><strong>Part-III</strong></td>
<td></td>
</tr>
<tr>
<td><strong>AGRICULTURE</strong></td>
<td>267</td>
</tr>
<tr>
<td>Cropping patterns</td>
<td>267</td>
</tr>
<tr>
<td>Land utilisation</td>
<td>270</td>
</tr>
<tr>
<td>Cultivation holdings</td>
<td>271</td>
</tr>
<tr>
<td>Occupation pattern</td>
<td>272</td>
</tr>
<tr>
<td>Area under principal crops</td>
<td>273</td>
</tr>
<tr>
<td>Conclusion</td>
<td>275</td>
</tr>
<tr>
<td><strong>Part-IV</strong></td>
<td></td>
</tr>
<tr>
<td><strong>INDUSTRIAL DEVELOPMENT IN EAST GODAVARI DISTRICT</strong></td>
<td>277</td>
</tr>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td>277</td>
</tr>
<tr>
<td>Industrial Statistics (large &amp; Medium)</td>
<td>279</td>
</tr>
<tr>
<td>Small Scale industries</td>
<td>284</td>
</tr>
<tr>
<td>Self Employment schemes</td>
<td>289</td>
</tr>
<tr>
<td>Industrial programme for weaker sections</td>
<td>291</td>
</tr>
<tr>
<td>Review of industrial development during the Plan periods</td>
<td>292</td>
</tr>
<tr>
<td>Incentives to entrepreneurs</td>
<td>295</td>
</tr>
<tr>
<td>New trends of investment</td>
<td>296</td>
</tr>
<tr>
<td>Conclusion</td>
<td>298</td>
</tr>
<tr>
<td><strong>CHAPTER-VI</strong></td>
<td></td>
</tr>
<tr>
<td><strong>THE SURVEY</strong></td>
<td>300-347</td>
</tr>
<tr>
<td><strong>Objectives</strong></td>
<td>300</td>
</tr>
</tbody>
</table>
Scope of survey 300
Survey design and Methodology 300
List of agro-industries and the number of units covered in the survey. 302
Limitations of the survey 303
Part-I
  Respondents/Entrepreneurs-physical profit 305
Part-II
  Sources of finance 310
Part-III
  Employment 312
Part-IV
  Production 325
Part-V
  Marketing 333
CHAPTER-VII
  SUMMARY OF RECOMMENDATIONS 348-378
Appendices 4-18
Bibliography i-viii

**********
<table>
<thead>
<tr>
<th>TABLE NO.</th>
<th>PARTICULARS</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>Variation in population figures of Andhra Pradesh during 1901-1971</td>
<td>11</td>
</tr>
<tr>
<td>2)</td>
<td>Distribution of working population among a agricultural and other workers.</td>
<td>14</td>
</tr>
<tr>
<td>3)</td>
<td>Population density in the district in 1971</td>
<td>17-18</td>
</tr>
<tr>
<td>4)</td>
<td>Degree urbanisation in the dists of Andhra Pradesh in 1971</td>
<td>19</td>
</tr>
<tr>
<td>5)</td>
<td>Net Area irrigated by sources of irrigation in state.</td>
<td>26</td>
</tr>
<tr>
<td>6)</td>
<td>Plan outlay on irrigation during plan period</td>
<td>27</td>
</tr>
<tr>
<td>7)</td>
<td>Generating stations with installed capacity</td>
<td>30</td>
</tr>
<tr>
<td>8)</td>
<td>Generating stations to be completed during Fifth Plan period</td>
<td>32</td>
</tr>
<tr>
<td>9)</td>
<td>Consumption of electricity by various sections in the state</td>
<td>33</td>
</tr>
<tr>
<td>10)</td>
<td>Progress of rural electrification during plan periods</td>
<td>36</td>
</tr>
<tr>
<td>11)</td>
<td>Progress of agricultural services during plan periods</td>
<td>34</td>
</tr>
<tr>
<td>12)</td>
<td>Plan outlay for power generation during plan period in Andhra Pradesh</td>
<td>37</td>
</tr>
<tr>
<td>13)</td>
<td>Classification of area and land utilisation in Andhra Pradesh</td>
<td>43</td>
</tr>
<tr>
<td>14)</td>
<td>Average yeild per hectare of principal crops in the state and the All India average.</td>
<td>45</td>
</tr>
<tr>
<td>15)</td>
<td>Changing cropping pattern of agriculture in Andhra Pradesh</td>
<td>47</td>
</tr>
<tr>
<td>16)</td>
<td>Area, production, average yeild per hectare under food crops in Andhra Pradesh.</td>
<td>49</td>
</tr>
<tr>
<td>17)</td>
<td>Plan outlays for agriculture and allied fields during plan period.</td>
<td>56</td>
</tr>
<tr>
<td>17(a)</td>
<td>Aggregate picture of industrial programmes for Andhra Pradesh during the Fouth Plan</td>
<td>68</td>
</tr>
<tr>
<td>18)</td>
<td>Programme for industrial development during Fifth Plan Andhra Pradesh</td>
<td>73</td>
</tr>
<tr>
<td>19)</td>
<td>Region wise investment during Fifth plan period in Andhra Pradesh</td>
<td>74</td>
</tr>
<tr>
<td>20)</td>
<td>Small Scale industries in the state</td>
<td>75</td>
</tr>
</tbody>
</table>
21) Dispersal of small scale industrial units in Andhra Pradesh.  
22) Registered small scale units in the various districts.  
23) Net financial assistance sanctioned by APFC at the end of March 1975  
24) Region wise distribution of assistance by APFC  
25) Assistance sanctioned and disbursed by APFC during the period 1970-75  
26) Details of sanctions and disbursement made to scale industries by APFC during the period 1970-75  
27) Industry wise investment in shares and loans upto 31st March 1974  
28) Sector wise allocation of resources under the six point formula during 1975-76.  
29) Allocation of amount for industrial development under various heads during 1975-76 under the six point formula.  
30) Production and value of cashew output in Andhra Pradesh  
31) Progress made under cashew development programme during the Fourth Plan period in A.P.  
32) Programme of cashew development work during Fifth Plan period.  
33) Cost of cultivation of tapioca tuber in the East Godavari district.  
34) Position of sago/starch manufacturing industry in East Godavari district in 1975.  
35) Increase in the number of sago/starch/four units in East Godavari district.  
36) Cost of production of sago per day  
37) Grades and lengths of palmyra fibre at various centres.  
38) Estimated Exports from Andhra Pradesh  
39) Palmyra fibre exports from Kakinada port  
40) Quantity and value exports of palmyra fibre during 1967-71  
41) Land utilisation in East Godavari district  
42) Cultivation Holdings in East Godavari district  
43) Percentage distribution of workers 1961 and 1971  

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S. Iqbal Ahmed
\textbf{INTRODUCTION}

India is a developing country. For a country to develop, the growth of Agricultural and Industrial sectors is a pre-requisite. Unfortunately all the states in the country are not equally endowed with the potentialities for the development of both the sectors. Based on geographical conditions some regions are rich in agricultural potentialities and some are rich in industrial potentialities.

Among the 22 states in the country, Andhra Pradesh occupies a significant place because of the quality of soil the climate and geographical structure of the land. It occupies a central position in the country's economy and the national resources like water, agricultural and mineral resources, forests, a long coastal line with one major and two minor ports, offer great scope for industrial development. Locationally Andhra Pradesh is significant as it is centrally placed and serves as a link between the northern and southern and parts of India.

Andhra Pradesh has always been an important agricultural state, producing a large variety of foodgrains and other raw material for industrial use. Taking advantage of the favourable conditions, there is no reason why the state should not diversify her economic base to take a respectable place in the industrial map of the country.
Economic prosperity of a developing country like India lies mainly in the successful integration of its agriculture with industry. The economic structure of Andhra Pradesh resembles the country as a whole. According to 1971 census about 71 percent of the working population depend on agriculture for its livelihood. Andhra Pradesh, by and large, is an agricultural state. More than half of the state’s income is derived from agriculture and allied fields. More than 80 percent of the population lives in villages. The excessive dependence on agriculture may create economic imbalances and the solution lies in how best we diversify the rural economy. Taking away a few lakhs of people from villages to towns and cities by providing employment opportunities may not solve the fundamental problems of increasing pressure of population on rural economy, lack of employment opportunities in rural areas, and the resultant limitations on equitable distribution of national income. In an extreme case of, a state whose income structure is disproportionately biased towards agricultural the government should think of some alternative to keep the agriculturist busy throughout the year for the betterment of economic condition. Against this background in view, our strategy of economic development should be such as to bring integration of rural and urban economies by eliminating imbalances. To achieve this objective, we should induce the development of agro-industries in a big way. It is imperative that the agro-
industries which include all the manufacturing units and also those industries which depend on agriculture may be developed on sound lines with a view to providing employment opportunities and diversifying the rural economy. The agro-industries should be so moulded as to absorb the fast growing labour force; otherwise it would be a strain on the economy of the state as a whole. The agro-industries should, therefore, be labour oriented and rural based.

The present study is confined to the industries based on plant and vegetable origin in the state of Andhra Pradesh.

1) This work aims to study the present position of agro-based industries in the state with reference to the facilities available and (2) to suggest the steps for future development of agro-based industries taking into consideration the problems faced by the entrepreneurs. The study has been divided into seven chapters. The first chapter is devoted to give general information on the economy of the state with particular reference to administrative set up, area and location, climate and rainfall, Natural resources, Mineral resources, forests, rivers, population size and growth, distribution of population. Regional grouping of district, literacy, land ceiling, irrigation, power, agriculture, economic regions, state income and per capita income.
The first chapter mainly examines the relative position of economy of the state with reference to natural resources. The state offers great potentials of water resources which are not being fully utilised. As regards power production the state has remained backward inspite of the planned efforts of the state Government. The government hopes to overcome the power shortage at the end of Fifth Plan period. The development of agriculture in the state though appears to be quite satisfactory, the same is not true if we compare the three different regions of the state. The development is uneven and different regions have stabilised their agriculture at different levels. Andhra Pradesh is a surplus state in respect of foodgrains mainly rice. The state accounts for 11 percent of the total rice production in the country. Andhra Pradesh ranks first in tobacco, castor and mesta both in respect of area and production. In respect of groundnut and dry chillies the state ranks second in production. In recent years the state has demonstrated an impressive rise in foodgrains production from 67 lakh tonnes in 1972-73 to over 86 lakh tonnes in 1973-74.

This progress made on the agricultural front has opened new hopes for the development of agro-based industries in the state. The rise in the production of food and commercial crops has had its beneficial effects on the industrial front. Another distinguishing feature of the state's economy today
is that it has shown a growth rate of about 14 percent in the state's income against the All India figure of 3 percent.¹

In the second chapter efforts have been made to explain the reasons for the state's industrial backwardness and the progress made during plan periods with special reference to small scale industries. The objectives and the working of various state financial institutions have been examined to know how far they have succeeded in the development of industries. Some suggestions have been offered in the light of mistakes committed by such institutions. Regional development under the six-point formula has been discussed with reference to regional disparities, situation in Andhra Pradesh and regional allocation of resources including industrial development.

In the third chapter a critical study of agro-based industries in Andhra Pradesh has been made to explain the present position. Part I of this chapter is denoted to explain the concept and definition of agro-industries and its economic significance in the economy of the state for spreading rural industrialisation. Part II of this chapter is denoted mainly to paddy processing, modern rice milling technology, deoiled rice bran and paddy husk and its utilisation. Part III tobacco industry which has been studied at length to explain its present position and future prospects. In part IV cashew

¹ Southern Economist, (Bangalore), Andhra Pradesh Number, April 1975, p.3.
processing and utilisation of its byproducts have been discussed to identify the problems of the industry and its growth in Andhra Pradesh. In part V the importance of tapioca sago and starch industry in the economy of East Godavari district and its present position and future prospects of the industry have been dealt with and suggestions have been for its development. The export oriented palmyra fibre industry has been studied at length in part V of the same chapter to offer suggestions for the diversification of the product and the development of brush making industry in the state.

In Chapter IV efforts have been made to outline the present position of agro-industrial export potentialities of Andhra Pradesh with special reference to standardisation and export promotion.

Chapter V is devoted mainly to explain the economic situation in the East Godavari district to prove that the district in question resembles the state as a whole and to justify the choice of the district for the purpose of conducting the survey.

Chapter VI is a summary of the sample survey conducted in the district in 12 different types of agro-based industries covering 28 units to find out the present position and to identify the problems faced by these industry.
Part I of this chapter deals with the entrepreneurs, part II with the sources of finance, part III with employment position, part IV with the production aspect and part V deals with the problems of Marketing.

In the concluding chapter, efforts have been made to suggest the steps for the future development of agro-based industries, taking into consideration the difficulties faced by the entrepreneurs in the East Godavari district.
CHAPTER I

THE ECONOMY OF ANDHRA PRADESH

The purpose of this chapter is to give general background information on the economy of Andhra Pradesh.

General Information

Andhra Pradesh state comprises an area of 276,754 sq. km. located on the eastern side of the Peninsula and south-eastern part of India. Andhra Pradesh, with 8 percent of the area and population of India, is the fifth largest and fifth most populous state. The density of population of Andhra Pradesh at 1971 census is 157 persons per sq.km. as against the corresponding figure of 182 persons per sq.km. for India.

For purposes of administration the state has been divided into 21 districts. Among these, East Godavari district, in the fertile delta of the Godavari river, ranks first in population while Adilabad district stands last. All the districts situated in the fertile deltas of Godavari and Krishna of the coastal Andhra region are thickly populated. Hyderabad is the most densely populated district of the state followed by West Godavari, Krishna, East Godavari and Srikakulam districts.

Area and location:

The area of the Andhra region is 162,034 sq.km.,
while that of Telengana region is 114,720 sq. km. Thus the total area of Andhra Pradesh is 276,754 sq. km. The state is situated between 12° 14’ North and 19° 54’ North latitudes and 76° 50’ East and 84° 50’ East latitudes.

The boundaries of the state are Bay of Bengal on the eastern side, Tamil Nadu and Karnataka on the Southern side, Maharashtra on the western side and Madhya Pradesh and Orissa states on the northern side. The state has a coastal line of about 960 km. extending from Ichapuram is Srikakulam district to Sulurpet in Nellore district.

The state has in all ten ports with one major port at Visakhapatnam and intermediate ports at Kakinada and Masulipatnam. The rest are small ports on the coastal line. The Visakhapatnam port is the only declared major port in the state serving a vast hinterland which stretches into as far as Madhya Pradesh and Orissa.

This is natural harbour and outer harbour construction is under progress by the completion of which the port will be the only of its kind between Tokyo and Rotterdam to take on lakh D.W.T. carrier along side. This is the natural harbour which has many natural facilities. Consequently Visakhapatnam came in to prominence as a centre of ship-building Industry in India.

As Andhra Pradesh is centrally located between Northern and Southern parts of India, it serves as a link between the two. Thus it has an important function to perform both geographically as well as culturally. Andhra Pradesh is accessible both by land and sea. Thus it is commercially and strategically important.

Climate and Rainfall:

The temperature during summer months in Andhra Pradesh varies from 100°F to 110°F but certain areas like Bhadrachalam, Ramagundam, Rentachintala and Vijayawada record temperature up to 120°F. While in some part of the Anantapur and Chittoor districts adjoining the Mysore plateau summer continues to be mild.

The annual rainfall in the state according to the average of the years from 1942 to 1962 is about 37\text{in}. The highest rainfall occurs in the Agency area of Srikakulam district and the lowest in Anantapur district. The state has the advantage of receiving the benefits of both the monsoons. South-West monsoon occurs in the middle of June and extents till the end of September, while the North-east monsoon begins in October and lasts till the end of December. But two-thirds of the total rainfall in the state is from the Southern-West monsoon and the remaining is due to North-East monsoon. There is no certainty of rainfall in any area.

Agriculture is adversely influenced.

1. Economic Development of Andhra Pradesh, 1951-68, Planning Department, Hyderabad, A.P. p.3
2. Ibid, p.3.
affected by uncertain and untimely rainfall. Even though irrigation facilities are made available in certain regions, still there are many regions where agriculture is a 'gambling in Mausoon.

Andhra Pradesh is the first state which came into existence in 1956 on linguistic basis. It consists of the State of Andhra and Telangana comprising nine Telugu speaking districts of the erstwhile state of Hyderabad.

The Andhra Region falls into two divisions. They are; Coastal Andhra, popularly known as Circars and Rayalaseema. The Andhra region consists of the districts Srikakulam, Visakhapatnam, East Godavari, West Godavari, Krishna, a Guntur Prakasam Nellore, Chittoor, Guddapah, Anantapur and Kurnool. The last four districts are known as Rayalaseema, while the remaining pass for Coastal Andhra. The Telangana region consists of the districts Mahabubnagar, Hyderabad, Medak, Nizamabad, Adilabad, Karimnagar, Warangal, Khammam and Nalgonda. Thus the State has 21 districts. Recently a new district with Ongole as its headquarters was formed taking some parts of Guntur, Kurnool and Nellore districts. The new district is named after T.Praekasam "Andhra Kasri," who was the first Chief Minister of the erstwhile Andhra State.

Natural Resources:

The State has three distinct physical zones based on geographical, historical and economic considerations viz., the Coastal plains, the Eastern Ghats and the Western Peninsulas. The Coastal plain stretches right along the
coast of the state from Srikakulam district to the Nellore district. The area is almost bounded by several isolated hills. It includes the rich deltas of Godavari and Krishna and the shallow fresh water lake of Kolleru is also situated here. The extent of this lake is about 100 sq. miles. The great salt water lake of Pulicat is also located in the southern most parts of the Coastal plain, virtually separating Andhra Pradesh and Tamil Nadu States. Next to the Coastal plains, to the west excluding an area of 100 miles between the Godavari and Krishna rivers, a chain of broken hills are met from the North to the South. These are known as the Eastern Ghats. In the North the Eastern Ghats widen and reach elevations of 900-1500 M. The hills are wooded but the vegetation is poor due to porous soils and low precipitation. These hilly regions from the tribal agency. They cover the Nallamalai, Erramalai, Seshachalam and Palakona ranges.

The rest of the State forms a wide belt which lies between the Eastern Ghats and Coastal plains, in the Western parts of the Deccan Peneplains. Almost all the Telangana districts and a part of Kurnool district and the Anantapur district fall under this region. The land is poor, almost reduced to a plain by erosion with
scanty rain fall and mostly consists of graded valleys and isolated hill rocks, suited only for dry cultivation. However it is considered to be rich in mineral resources.

The major portion of the State is covered by the red loamy and red sandy soils. These soils are generally rich in phosphoric contents but deficient in organic matter and poor in plant nutrients. The major part of the Telangana and Rayalaseema are covered by the red soils.

The next largest portion of the land in the State is made up of medium and deep block soils. These soils are found in parts of Adilabad, Nizamabad, Medak, Khammam, Warangal, Guntur Mahbubnagar, Khammam and Kurnool districts, and particularly suited for cotton cultivation. Tobacco is also grown on this type of soil in some parts of the State.

Next comes the Coastal alluvium. It is found in East Godavari, Krishna and Guntur districts. It is made up of sand and sandy loam. The important Deccan Alluvium is concentrated in the deltas of the Godavari and Krishna. These soils are rich in chemical properties and capable of yielding a large variety of Rabi and Kharif crops and mostly suitable for agriculture.

In addition, laterite soils cover part of Medak, Nellore, East Godavari, Srikakulam districts. These soils
are deficient in organic matter and nitrates, potash, phosphates and lime but suitable for growing paddy and fruits. These soils are also well suitable for horticulture, pulses and oilseeds.

**Mineral Resources:**

Andhra Pradesh ranks among the foremost states in India in its mineral resources. It is endowed with a wide range of mineral deposits of considerable quantities. The mineral deposits of coal, iron ores, managanese ores, barytes, limestone asbestos, china clay, quartz, graphite, Boxite, calcite, cromite, copper, lead, zinc, mica, are important. The state has also deposits of precious metals like gold, diamonds, and ranks next only to Madya Pradesh and Karnataka. Bulk of the minerals deposits mentioned above, is found in the Rayalaseema and Telangana regions of the state. Deposits of important minerals are mostly found in the Cuddapah, Kurnool, Anantapur, Khammam, Krishna, East Godavari, west Godavari districts. The state rank fourth among the coal producing states in India. In the production of mica and silica Andhra Pradesh stands third in the country, the first two being Bihar and Rajasthan. The state account for more than 75 percent of the production of Chry-solite asbestos which is used in the manufacture of asbestos, cement products, plastics, paints etc. 1

Similarly Andhra Pradesh has a virtual monopoly of barytes which is mainly used in paints, textiles, paper, rubber gramophone-records, printing ink etc. 2

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2. Ibid.
Among the mineral based industries, cement and asbestos cement products are to the two important industries. The mineral based industries are yet to make a headway. With the establishment of steel plant at Visakhapatnam, the industrial picture of the state may undergo a radical change.

Forests:

Of the total geographical area of 274.4 lakh hectares, forests occupy 623 lakh hectares. This is higher than the all India figure of 13.3 percent. The distribution of forests in the state is very uneven. The extent of forests varies from one district to another, from very high in Adilabad district (706,007 hectares) and very low in Hyderabad district (70,699 hectares).

The main forest bulk lies in the North, North-East and South. The natural vegetation of the forests is either mixed jungles of trees of thorny bushes and grass depending upon the amount of precipitation and soil conditions. The principal forest areas are situated in Telangana and in the agency areas of Srikakulam, Visakhapatnam and Godavari districts and in Nallamalais of Kurnool district. These forests have a rich variety of flora among which the more useful species of timber are Kosum, Toon, Rosewood, Trul

and Teak. The agency areas of Nallamali contain enormous quantities of bamboo. Apart from timber and fire-wood, the other forest products are charcoal, bidi leaves, sandalwood etc. The state has a vast and diversified forest resources which have not been fully exploited for commercial purposes. The pre-investment surveys on forest resources currently being done in cooperation with the F.A.O. are likely to furnish an up to date inventory of the existing forest resources. The state has several forest-based exportable items such as red sanders, Bidi leaf, myrabolans, nux-vomica etc.

Among the forest based industries, paper is the most important industry in the State. The State accounts for about 10% of the total production of paper in the country.¹ The bamboo constitutes a very important forest raw material of considerable economic value to the state for the manufacture of the paper. There are two paper manufacturing units in Andhra Pradesh, namely, the Andhra Paper Mills Limited, Rajahmundry, and the Sirpur paper Mills Limited, at Sirpur (Kagaznagar).

RIVERS

Andhra Pradesh is rightly called 'River State'. The total number of major and minor rivers which flow through the State number about thirty four. Of these five are major rivers, namely Godavari, Krishan, Penna, Vamsadara and

Nagavali. The Major and medium rivers of the state bring about 150 million cubic-feet of water.

The Godavari is 2,331 km long and is the most important and the largest and broadest of rivers of South India. It is also known as DAKSHINA GANJA. Its important tributaries are Manjira, Puranahita, Indravathi and Sabari. The Godavari after cutting across the Eastern Ghats through the magnificent Papi hills enters at Polavaram into Coastal Plain. The width of the river assumes magnificent proportions of about 3 km., at Rajahmundry and nearly 6 km. at Dowlaismaram.

Krishna is the next important river of Andhra Pradesh. In Nagarjuna Konda Valley, a gigantic dam known as Nagarjuna Sagar has been constructed across Krishna. Pennar is another important river of Andhra Pradesh that flows across the Southern region of the State. The Dende, Musi, Pelar and Munneru are the other tributaries having their origin within the State and joins the Krishna during its flow through the State.

Nagavali and Vamsadhara are the two other rivers of significance, both flowing through the extreme north-eastern parts of the States.

Though all these rivers are rain fed, they are of great economic significance to the State because of their rich hydro-power and irrigation potentialities. As regards the length of available water ways Andhra Pradesh ranks fourth after Assam, U.P. and West Bengal. The State has a total of 2,635 km. of waterways comprising 1,878 km., of navigable canals and 757 km.

of rivers.

**Population size and Growth:**

The population of Andhra Pradesh in 1901 was 190,65,921 and during the period of 70 years it has risen to 1,435,02,708. The population increased steadily except during 1911-21. The following table shows the growth of population in the state during 1901-1971.

**TABLE-I**


<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Variation (+)increase (-)decrease</th>
<th>Density of persons (per sq.km.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>190,65,921</td>
<td>-</td>
<td>69</td>
</tr>
<tr>
<td>1911</td>
<td>214,47,412</td>
<td>+23,81,491 +12.49</td>
<td>78</td>
</tr>
<tr>
<td>1921</td>
<td>214,20,448</td>
<td>-26,964 -9.13</td>
<td>77</td>
</tr>
<tr>
<td>1931</td>
<td>242,03,573</td>
<td>+27,83,125 +12.99</td>
<td>88</td>
</tr>
<tr>
<td>1941</td>
<td>272,89,340</td>
<td>+30,85,767 +12.75</td>
<td>99</td>
</tr>
<tr>
<td>1951</td>
<td>311,15,259</td>
<td>+3825,919 +14.02</td>
<td>113</td>
</tr>
<tr>
<td>1961</td>
<td>359,83,447</td>
<td>+48,68,188 +15.65</td>
<td>131</td>
</tr>
<tr>
<td>1971</td>
<td>435,02,708</td>
<td>+75,19,261 +20.90</td>
<td>157</td>
</tr>
</tbody>
</table>

**Source:** Statistical Abstract of Andhra Pradesh, 1973 op.cit., p.1.
It can be seen from the above table that during the first twenty years (1901 to 1921) it had recorded an increase of 12.36 percent, during the next thirty years (1921-1951) it increased by 39.76 percent. During the decade (1951-61) it has shown an increase of 15.65 percent and as per 1971 census the population of Andhra Pradesh has recorded a growth rate of 20.90 percent as against 24.80 percent recorded for the country as a whole. Thus the demographic pressure in Andhra Pradesh is not as high as in some other states. But the distribution of population is very uneven. Among 21 districts, East Godavari district ranks first in population while Adilabad district in Telengana stands last. All the districts in the fertile deltas of the rivers Godavari and Krishna of Coastal Andhra region are densely populated than the state average. Hyderabad district is the most densely populated district of the State, followed by West Godavari, Krishna and East Godavari districts.

Distribution of Population:

The 1971 census reveals a heavy concentration of population in rural areas. It is revealed that 80.69 percent of the population live in rural areas, while the remaining 19.31 percent of the total population has been living in Urban areas.

The size of the working population, its distribution by branch of economic activity as well as sex, type of
work etc. are important elements of information about the working force of the country. According to the 1971 census, the total population of Andhra Pradesh was 4.35 crores, of which 2.20 crores are males and 2.14 crores are females. Working population is 1.80 crores, accounting for 41.2 percent of the total population of the state, which is higher than the all India figure of 32.9 percent of the 1.80 crores workers, 1.28 crore are males and 0.52 crore are females. Hence, the proportion of male workers to total workers is 71.2 percent, which is lower than the national average of 82.6 percent. This higher proportion of female workers to total workers can be attributed to the socio-economic structure prevailing in the state. The proportion of male workers is 58.2 percent to total male population of the state, which is higher than the national average of 52.5 percent.

Similarly, the proportion of female workers to total female population is 24.2 percent which is higher than the national average of 11.9 percent.

There are 1.54 crore workers in rural areas and 0.35 crore workers in urban areas in the state. Hence the workers in rural areas account for 85.7 percent which is higher than the national average of 82.5 percent, while the workers in urban areas accounted for 14.3 percent of total workers. Rural population and urban population in the state is 3.51 crores and 0.84 crores respectively. Hence the

workers in rural area account for 43.9 percent of the rural area population which is higher than the national figure of 33.8 percent, whereas workers in urban areas account for 30.7 percent, which is higher than the national average of 29.3 percent.

**Distribution of Working Population:**

The 1971 census reveals heavy concentration of population in the rural areas. In Andhra Pradesh about 71 percent of the working population depend on agriculture for its livelihood. Distribution of working population among agricultural and other workers can be seen from the table given below:

**TABLE-II**

Distribution of Working Population Among Agricultural & Other Workers.

<table>
<thead>
<tr>
<th>Figures in 000</th>
<th>1971</th>
<th>1961</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of workers</td>
<td>18,006</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cultivators</td>
<td>5,795</td>
<td>40.1</td>
<td>32.18</td>
</tr>
<tr>
<td>Agricultural Labourers</td>
<td>6,829</td>
<td>28.6</td>
<td>37.92</td>
</tr>
<tr>
<td>Others workers</td>
<td>5,382</td>
<td>31.3</td>
<td>29.90</td>
</tr>
</tbody>
</table>


It is evident from the above table that there is
a shift of the working population from cultivators to agricultural labour. The percentage of workers engaged as cultivators has gone down from 40.1 in 1961 to 32.18 in 1971 in the state. Even the percentage of workers engaged in non-agricultural sector like household industry, manufacturing, trade and commerce, transport, storage and communication, profession and services has also come down from 31.3 percent in 1961 to 29.90 percent in 1971.

Andhra Pradesh by and large is an agricultural state, this can be judged from the fact that occupation structure of the people and its relative importance of the economy of the state. There is similarity in the occupational distribution of the people among different districts of the state. As per the 1971 census only 41.2 percent of the population of the state is actually engaged in work and the remaining 58.8 percent of the population come under non-workers.

Regional Grouping of Districts:

A broad regional grouping of the district has been attempted on the basis of the per capita district income. The National council of Applied Economic Research has divided Andhra Pradesh into five regions:

1) Coastal Andhra (North)- Srikakulam and Visakhapatnam districts.

11) Coastal Andhra (South) East Godavari, West Godavari
Krishna and Guntur districts.

iii) Rayalaseema (Nellore, Chittoor, Anantapur, Cuddapah and Kurnool districts.

iv) Telangana (excluding Hyderabad)

v) Hyderabad.

Hyderabad being a metropolitan area having distinct socio-economic characteristics, has been kept as a separate region. The socio-economic characteristics are not uniform even within the five broad regions and sometimes districts included in a region exhibit wide divergence with regard to the characteristics.

In order to identify the characteristic features, the districts have been divided into five categories according to their characteristics—very low, low, moderate, high and very high. This classification is related to the average position in the state, with regard to the characteristics, as follows:

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Very low</td>
<td>Less than the state average by more than 50 percent.</td>
</tr>
<tr>
<td>2. Low</td>
<td>Less than the state average by not more than 20 percent eitherway.</td>
</tr>
<tr>
<td>3. Moderate/Medium</td>
<td>Differs from the state average by not more than 20 percent eitherway.</td>
</tr>
<tr>
<td>4. High</td>
<td>Greater than the state average by 20-50 percent.</td>
</tr>
<tr>
<td>5. Very High</td>
<td>Greater than the state average by more than 50 percentage.</td>
</tr>
</tbody>
</table>

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1. Working papers—Fourth Five Year Plan, Andhra Pradesh Planning Department, p. 155.
Population Density:

The density of population per square km in Andhra Pradesh in 1971 was 157 persons as against the All India figure of 162. Andhra Pradesh seems to be better placed than other states in this regard.

**TABLE NO. III**

The distribution of the district according to population density in 1971 is shown below

<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Density per sq.km (Persons) in 1971</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hyderabad</td>
<td>262</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>West Godavari</td>
<td>305</td>
<td>Very High</td>
</tr>
<tr>
<td>3.</td>
<td>Krishna</td>
<td>286</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>East Godavari</td>
<td>282</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Srikakulam</td>
<td>266</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Guntur</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Visakhapatnam</td>
<td>204</td>
<td>High</td>
</tr>
<tr>
<td>8.</td>
<td>Karimnagar</td>
<td>166</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Nizamabad</td>
<td>165</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Medak</td>
<td>152</td>
<td>Moderate</td>
</tr>
<tr>
<td>11.</td>
<td>Chittoor</td>
<td>155</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Warangal</td>
<td>145</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Nalgonda</td>
<td>128</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Nellore</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Anantapur</td>
<td>111</td>
<td></td>
</tr>
</tbody>
</table>
The density of population in any region or area depends upon many factors like climatic conditions, availability of economic resources, state of economic development etc. Among the districts, the highest density of population per square km. was recorded in Hyderabad (362 persons) and lowest in Adilabad district (80 persons), largely due to hill tracts and forests. The coastal region is most density populated and accounts, for 45.5 percent of the states population with 31.5 percent of the states land area. They Rayalaseema region is the most sparsely populated and accounts for 19.2 percent of total population with 26.7 percent of total land area of the state. The density of population in this region is only 115 persons per sq.km. as against 212 in the coastal region. The Telangana region accounts for 35.3 percent of states population and 41.8 percent
of states land area. The density of population of this region 138 persons per square km.

Table No. IV.
Degree of Urbanisation in the districts of Andhra Pradesh in 1971

<table>
<thead>
<tr>
<th>Rank</th>
<th>District</th>
<th>Percentage of Urban population to total population</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Hyderabad</td>
<td>65.88</td>
<td>Very High</td>
</tr>
<tr>
<td>2.</td>
<td>Krishna</td>
<td>27.25</td>
<td>High</td>
</tr>
<tr>
<td>3.</td>
<td>Guntur</td>
<td>24.98</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Visakhapatnam</td>
<td>22.30</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Kurnool</td>
<td>20.30</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>East Godavari</td>
<td>19.23</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Nizamabad</td>
<td>15.94</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Adilabad</td>
<td>15.92</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Nellore</td>
<td>15.97</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Cuddapah</td>
<td>14.18</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Khammam</td>
<td>13.59</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Chittoor</td>
<td>13.45</td>
<td>Low</td>
</tr>
<tr>
<td>13.</td>
<td>Warangal</td>
<td>13.43</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Prakasam</td>
<td>11.07</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>Karim_Nagar</td>
<td>10.72</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>Srikakulam</td>
<td>10.64</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>Mahbub-Nagar</td>
<td>8.97</td>
<td></td>
</tr>
<tr>
<td>18.</td>
<td>Medak</td>
<td>8.51</td>
<td>Very Low</td>
</tr>
<tr>
<td>19.</td>
<td>Nalgonda</td>
<td>6.69</td>
<td></td>
</tr>
</tbody>
</table>

State Average 19.31


From the above table, it is clear that among the regions, the proportion of population living in urban areas was higher in Hyderabad district (65.88 percent) followed by Krishna Guntur and Visakhapatnam districts, while Mahbubnagar, Medak, Nalgonda district with very low degree of urbanisation. The state average is very near to the All India average of 19.87 percent.

**Literacy:**

Andhra Pradesh ranks thirteenth in literacy among the states of India. The percentage of literates in the is 24.57 as against the All India figure of 29.34. The literacy among the female population is poor being only 15.75 percent, whereas the percentage of male literates in the state is 33.18. Out of the 21 districts, Hyderabad ranks first with a literacy percentage of 40.37. In certain districts like Adilabad this percentage is far below the states average. If we take the the percentage literates of the rural population, the percentage is still lower. This may have the adverse effects on the development plans. This successful implementation of the plans largely depend upon the extent of education and development of skills. Education is the systematic schooling, training given to young persons in preparing for work of life, while literacy is the ability of persons to read and write in order to understand the

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the developments which are taking place in various fields.

It is the responsibility of the Government to take stock of the situation in right prospective and effect necessary changes in educational system to suit to the growing needs of the industry and agriculture to facilitate the purposeful involvent of the masses in the economic development of the country.

Land Ceilings:

Tenant cultivation is a common practice in all the regions of the state in Telangana, tenancy laws were passed to give protection to the tiller from exploitation. But these acts could not bear fruits mainly due to ignorance and illiteracy on the part of the people. Recently, in pursuance of the recommendations of the Central Land Reforms Committee, the Government of Andhra Pradesh has passed the act with a view to distribute the surplus land to the landless agricultural labourers. The effect of this Act is to reduce further the ceiling on Agricultural Holdings Act of 1961 which is now repeated by the subsequent legislation.

The ceiling of a family of not more than five members is called as "standard holding". This ceiling has been fixed at 4.05 hectares (10 acres) for wet land and 10.0 hectares (25.0 acres) for dry land for a family of five.

In case of a family of more than five members, one fifth of standard holding for every additional member of the family is allowed. But such additional holding allowed and standard holding put together should not exceed two standard
Standard holding of different classes of land has been prescribed in the Andhra Pradesh Reforms (ceiling on agricultural) Holdings Act, 1974. Under this Act, the whole of Andhra Pradesh is divided into a number of "Divisions", each under a tribunal for purposes of land ceiling. The excess land so acquired will be assigned to the landless on the basis of priority considering the needs of landless poor, agricultural labour, harijans and other backward sections of the community. Andhra Pradesh had the honour of passing legislation on land ceilings first in the country in the new setup. The total surplus land under the land ceiling Act in Andhra Pradesh is officially estimated at one million acres.

Irrigation:

The tremendous irrigation potentials were not utilised fully and properly during British Raj. But the Godavari delta and the Krishna delta systems are the outstanding movements of the pioneering work of the engineering skill of the last century. These were regarded as the oldest irrigation works in India. Andhra Pradesh has been rightly called "The Granary of the South." Thanks to the yeomen service rendered by the British Engineer Sir Arthur Cotton, it has become a river State.

One of these is the Dowlaishwaram anicut across

1. The Hindustan Times (Delhi), June 7, 1976.
The river Godavari constructed during 1846-54. A new 3,600 metre long barrage which is now under construction is being financed by a loan from the world bank to the extent of $45 million ($35 crores) and the same is expected to be completed by June 1979.

The Krishna anicut was built in 1855 near Vijaywada. A new barrage constructed at Vijaywada in 1954 is known as Prakasam Barrage.

Nagarjuna Sagar Project is one of the biggest of its kind in India. This multi-purpose project was originally estimated to cost ₹165 crores. The project envisages the planned utilisation of the water of the Krishna. It is located near Nandikonda village of Nalgonda district. It is expected to provide irrigation facilities for about 1.4 million hectares. In addition it will help development of potential hydro-power to the extent of 400 M.W. The construction of a gravity type masonry dam is unique in many respects. It is the largest masonry dam in the world. It is built by utilising the maximum man power. The project has two irrigational canals on either side of the river and a power house with eight generating units each with 50,000 K.W., installed capacity. The main dam is 409 ft. high, 3.20 ft., wide at the least and about a mile long. The right canal is 245 miles long named Jawahar Canal with a carrying capacity of 594.7 cubic metres of water

1. KM. Singh, the Deputy Minister of Agriculture & Irrigation told the Rajya Sabha on February 19, 1975 that the project was now estimated to cost ₹312.47 crores. The Hindu, Madras, February 21, 1975.
per second at head. It is intended to irrigate 0.83 million hectares of land. The left canal is 218 miles long, names Lal Bahadur Canal with a carrying capacity of 424.75 cubic metres of water per second at head. It is expected to irrigate 0.58 million hectares.

Tungabhadra project was a major multipurpose river project taken up jointly by the former state of Hyderabad and Madras State in 1945. It envisaged the construction of a reservoir across Tungabhadra near Hospet in Bellary district (Mysore state).

Under Rajolihandha scheme an anicut was constructed across the Tungabhadra river in Raichur district. A canal of 90 miles was constructed from the left plank. It helped in bringing up of 87,000 acres of land in Mahabub Nagar district in this State, and 59,000 acres in Karnataka State.

Two more projects have been designed to help the districts of Telangana. The Kadam project was took up in 1949 and the same was completed in 1958. The project was designed to serve the irrigational needs of Adilabad and Nizamabad districts.

The second project namely Pochampad was inaugurated in 1963 and it costs ₹40 crores, under the first stage, a
reservoir was constructed and it is expected to irrigate 5.7 lakh acres in the districts of Nizamabad and Karimnagar. The World Bank assisted Pochampad project is yet another major irrigation scheme of the state. By June 1976, where the first phase of the project is expected to be completed providing irrigation potential of 2.5 lakh acres in the Telangana region.

The ambitious Vamsadhara project is a great venture taken up to develop the backward areas in Srikakulam district involving the construction of a barrage and a main canal to create an irrigation potential of 1.48 lakh acres. Work on the barrage is in full swing at the moment.

The ultimate potential from the major and medium irrigation schemes is placed at 64.8 lakhs hectares for the state. Against this, the total potential created up to 1972-73 was of the order of 29.6 lakh hectares. This implies that less than half of the ultimate potentials have been created. After the completion of the irrigation projects under construction and planned, the state will not only rank first in the area irrigated under public projects, but will also have the highest percentage of its area under irrigation.

1. Source: The Director of information and public relations, Govt. of Andhra Pradesh, Hyderabad, The Mail (Madras) July 1, 75
2. Ibid.
TABLE-V

Net area irrigated by sources of irrigation in the state.

<table>
<thead>
<tr>
<th>Sources</th>
<th>1971-72</th>
<th>% to total</th>
<th>(Lakh hectares)</th>
<th>1972-73</th>
<th>% to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Canals</td>
<td>15.2</td>
<td>50.7</td>
<td>14.2</td>
<td>48.0</td>
<td></td>
</tr>
<tr>
<td>2. Tanks</td>
<td>8.1</td>
<td>27.1</td>
<td>8.1</td>
<td>27.4</td>
<td></td>
</tr>
<tr>
<td>3. Wells(includes tube wells)</td>
<td>5.7</td>
<td>18.9</td>
<td>6.3</td>
<td>21.3</td>
<td></td>
</tr>
<tr>
<td>4. Other sources</td>
<td>4.0</td>
<td>3.3</td>
<td>1.0</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>30.0</td>
<td>100.0</td>
<td>29.6</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>


From the above table it is clear that the pattern of irrigation in the state is 48 percent by canals, 27.4 percent by tanks, 21.3 percent by tube wells, filter pumps and other tube wells and 3.3 percent by other sources of irrigation.

More than 27 percent of the net sown area in the state is irrigated against the average of 20 percent for the country of the total irrigated area, the Andra region account for 72 percent and the Telangana region for 28 percent.

Irrigation received the highest priority throughout the plan period. During the planning decades 1951-71 the total expenditure on irrigation sector amounted to nearly Rs.336.26 crores amounting for 32.56 percent of the total expenditure in the state plans. The total irrigation potential created
has been estimated at 21.57 lakh acres.

The following table shows the plan outlay on irrigation during plan periods.

### TABLE VI

**Major and Medium Irrigation**
(including Nagarjunasagar).

<table>
<thead>
<tr>
<th>Expenditure</th>
<th>(in crores)</th>
<th>Percentage to the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. First Five Year Plan</td>
<td>21.86</td>
<td>22.00</td>
</tr>
<tr>
<td>2. Second Five Year Plan</td>
<td>57.44</td>
<td>31.00</td>
</tr>
<tr>
<td>3. Third Five Year Plan</td>
<td>93.02</td>
<td>26.40</td>
</tr>
<tr>
<td>4. Annual Plans 1966-69</td>
<td>54.60</td>
<td>24.14</td>
</tr>
<tr>
<td>5. Fourth Five Year Plan</td>
<td>99.18</td>
<td>23.60</td>
</tr>
<tr>
<td>(anticipated expenditure)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Fifth Five Year Plan</td>
<td>191.25</td>
<td>17.30</td>
</tr>
</tbody>
</table>

Under irrigation, out of the total expenditure of Rs. 99.12 crores, as much as 41.21 crores was spent on Nagarjuna Sagar, while another Rs. 31.31 crores was spent on Pochampad project. The remaining amount was spent on Tungabhadra project.

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stage II and other spill over medium irrigation projects. In the case of Pochampad an additional amount of ₹.15 crores was spent outside the Fourth Plan of which ₹.9 crores was additional central assistance and ₹.6 crores from special Telangana Development Funds. As a result of this outlay, an additional irrigation potential of 5.49 lakh acres has been created under all major medium irrigation projects in the Fourth Plan period.

During the Fifth Plan period, it is proposed to complete the 'Spill Over', major irrigation projects, such as, NagarjunaSagar, Pochampad and Vajadha, while taking up the first stage of the Somasila project to serve the backward areas in Nellore district. Having studied the irrigation position in the state, and attempt will be made in the following pages to explain the present position and future prospects of power in Andhra Pradesh.

Power

The per capita consumption of electric is taken as an index of a country's economic progress throughout the world. It is an undisputed fact that hydro-power continues to remain so for years to come as a cheap source of power inspite of technological developments that are taking place in the field of thermal, nuclear and solar power. Electricity is a recognised means of socio-economic progress of a country's

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industrialisation in a developing economy. In short, electricity constitutes one of the main prerequisites for all-round economic development. At present, Andhra Pradesh is one of the backward states in India in regard to power development.

The per capita consumption of electricity during the plan periods in Andhra Pradesh is as follows:

<table>
<thead>
<tr>
<th>Period</th>
<th>Date</th>
<th>Consumption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of First Plan</td>
<td>1.4.1951</td>
<td>2.5 Kwh.</td>
</tr>
<tr>
<td>Beginning of Second Plan</td>
<td>1.4.1956</td>
<td>7.5 Kwh.</td>
</tr>
<tr>
<td>Beginning of Third Plan</td>
<td>1.4.1961</td>
<td>16.5 Kwh.</td>
</tr>
<tr>
<td>Beginning of Fourth Plan</td>
<td>1.4.1966</td>
<td>40.0 Kwh.</td>
</tr>
<tr>
<td>At the end of Fourth Plan</td>
<td>1.4.1974</td>
<td>60.0 Kwh.</td>
</tr>
<tr>
<td>Year 1974-75</td>
<td></td>
<td>61.0 Kwh.</td>
</tr>
</tbody>
</table>

By the end of the Fifth Plan the installed capacity in the state is expected to be 1990 M.W. Since a large number of generating sets are coming up at Lower Sileru and Kothagudem, new power houses at Nagarjuna Sagar, Srisailam and Thermal station at Vijayawada. It is estimated that by the end of the 5th plan the per capita consumption will be 100 Kwh. Instead of calculating the per capita consumption, if an attempt is made to know the "consumption of electricity per consumer," it gives a better idea of the intensity of electricity used in each category. Figures relating to the consumption of electricity per consumer can be obtained by dividing the total consumption of electricity in each

Source 1. C. Raja Ram, Minister for power and Backward classes welfare, power Development and Utilization, The Indian Express, Vijayawada, March 4, 1976.
category by the total amount of consumption in each case.

The Andhra Pradesh State Electricity Board (ABSEB) which was formed in 1959 is entrusted with the task of promoting the coordinated development of generation, supply and distribution of electricity in the state. The state has the following generating stations:

**TABLE-VII**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Generating Stations</th>
<th>Installed capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hyder</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Machkhund (AP's shares)</td>
<td>80 M.W.</td>
</tr>
<tr>
<td>2.</td>
<td>Tungabhadra (AP's share)</td>
<td>58 M.W.</td>
</tr>
<tr>
<td>3.</td>
<td>Nizam Sagar</td>
<td>10 M.W.</td>
</tr>
<tr>
<td>4.</td>
<td>Upper Sileru</td>
<td>120 M.W.</td>
</tr>
<tr>
<td>5.</td>
<td>Lower Sileru</td>
<td>100 M.W.</td>
</tr>
<tr>
<td></td>
<td>Thermal</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Kothagudem</td>
<td>460 M.W.</td>
</tr>
<tr>
<td>7.</td>
<td>Ramagundam</td>
<td>100 M.W.</td>
</tr>
<tr>
<td>8.</td>
<td>Nellore</td>
<td>30 M.W.</td>
</tr>
<tr>
<td>9.</td>
<td>Hussain Sagar</td>
<td>10 M.W.</td>
</tr>
<tr>
<td>10.</td>
<td>Gas Turbo-sets.</td>
<td>20 M.W.</td>
</tr>
</tbody>
</table>

Total installed generating capacity of the state: 988 M.W.

1. Ibid.
Installed generating capacity

<table>
<thead>
<tr>
<th>Plan Period</th>
<th>Installed capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>At the beginning of first five year Plan</td>
<td>43.1 M.W.</td>
</tr>
<tr>
<td>At the end of first five year plan</td>
<td>98.9 M.W.</td>
</tr>
<tr>
<td>At the end of second five year plan</td>
<td>213.0 M.W.</td>
</tr>
<tr>
<td>At the end of third five year plan</td>
<td>291.0 M.W.</td>
</tr>
<tr>
<td>At the beginning of fourth five year plan</td>
<td>615.0 M.W.</td>
</tr>
<tr>
<td>At the end fourth five year plan</td>
<td>668.0 M.W.</td>
</tr>
<tr>
<td>As on 31.3.1975</td>
<td>887.9 M.W.</td>
</tr>
</tbody>
</table>

The generating capacity of power in the state in the past has not been steady but characterised by short spells of achievements followed by periods of short fall. It is clear from the above that at the beginning of the second Five Year Plan, the installed capacity was 98.9 M.W. and this rose to 213 M.W. at the end of the said plan. It means 114 M.W. was added during the course of 5 years. In the Third Plan period an additional capacity of 78 M.W. was added. During three years from 1966 to 1968 as much 360 M.W. was added bringing the total installed capacity at the beginning of Fourth Plan to 615 M.W., even after retiring some of the old sets. Again during the Fourth Plan period only 62.5 M.W. capacity was added bringing the total 668 M.W. at the end of the 4th Plan. During this period the state experienced an acute power shortage ranging from 30% to 50%.

causing heavy loss of industrial and agricultural production. The gap created during the Third and Fourth Plan period has to be met during the current plan period. During the Fifth Plan period the power generation schemes are being given highest priority in the allocation of resources. It has been described as an ambitious scheme as it aims at increasing power generation three folds from 668 MW at the beginning of the Fifth Plan to 1990 at the end of the plan.2

The following generating units are expected to be completed during the Fifth Plan period.

**TABLE-VIII**

<table>
<thead>
<tr>
<th>Name of the Station/Unit</th>
<th>Benefits</th>
<th>Year of completion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Kothagudem stage III</td>
<td>220MW</td>
<td>1974-75</td>
</tr>
<tr>
<td>(2x110MW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Lower Sileru (First Unit)</td>
<td>100MW</td>
<td>1975-76</td>
</tr>
<tr>
<td>3. Lower Sileru(Second Unit)</td>
<td>100MW</td>
<td>1976-77</td>
</tr>
<tr>
<td>4. Kothagudem state IV</td>
<td>220MW</td>
<td>1976-77</td>
</tr>
<tr>
<td>(2x110MW)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Nagarjung Sagar(1x110MW)</td>
<td>110MW</td>
<td>1977-78</td>
</tr>
<tr>
<td>6. Lower Sileru(Third &amp; Fourth Units)</td>
<td>200MW</td>
<td>1977-78</td>
</tr>
<tr>
<td>7. Sarisailam(First 2 units of 110MW)</td>
<td>220MW</td>
<td>1978-79</td>
</tr>
<tr>
<td>8. Vijayawada (First unit of 200MW)</td>
<td>220MW</td>
<td>1978-79</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1370MW</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. Ibid.
2. Ibid.
In case all the above units are installed at the end of the Fifth Plan period as proposed, the states' deficit will cut short to ensure a very satisfactory situation. Even at the end of 5th Plan period, the state will lagging behind to reach all all India average. At present Andhra Pradesh having the per capita consumption of 61 Kwh. (1974-75) which is expected to rise to 82 Kwh in 1976-77 and 100 Kwh by the end of the Fifth Plan compared to the All India average of 99.5 Kwh by 1978-79.

Hence there is an urgent need for the state government to accelerate its power programme to catch up with the All India level.

Pattern of utilisation:

The demand for power in the state is anticipated to increase rapidly partly due to the increased utilisation of power for agricultural operations and partly due to growth of industries. Power, to a large extent, determines the cost of product manufactured. The following table shows the consumption of electricity by various sections in the table.

<table>
<thead>
<tr>
<th>Categories</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. H.T.Industries</td>
<td>51.9</td>
</tr>
<tr>
<td>2. Agriculture</td>
<td>24.9</td>
</tr>
<tr>
<td>3. Domestic lighting</td>
<td>9.3</td>
</tr>
<tr>
<td>4. Non-domestic</td>
<td>5.2</td>
</tr>
<tr>
<td>5. L.T.Industries</td>
<td>7.6</td>
</tr>
<tr>
<td>6. Public lighting</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

1. Ibid.
2. G.Raja Ram, op.cit.
Besides H.T. industries, it is agriculture which occupies a prime place. The compound growth rate during 10 years (1962-63 to 1971-72) shows that it is agriculture which has registered the highest compound growth rate of 19.0 percent per annum followed by non-domestic or commercial consumption.

Rural economic development largely depends upon the regular supply of electricity to the villages, which constitutes the bedrock to the economy. A significant progress has been made in the field of rural electrification with 39.5 percent of the total towns and villages electrified. Out of 27,445 villages and towns in the state, 10,988 villages and towns were provided electricity so far. The progress made during plan periods can be seen from the table below:

<table>
<thead>
<tr>
<th>TABLE-X</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Progress during plan period</td>
<td>Town villages electrified</td>
</tr>
<tr>
<td>Beginning of First Plan</td>
<td>197</td>
</tr>
<tr>
<td>At the end of First Plan</td>
<td>630</td>
</tr>
<tr>
<td>At the end of Second Plan</td>
<td>2,600</td>
</tr>
<tr>
<td>At the end of Third Plan</td>
<td>4,353</td>
</tr>
<tr>
<td>Beginning of Fourth Plan</td>
<td>5,788</td>
</tr>
<tr>
<td>At the end of Fourth Plan</td>
<td>10,485</td>
</tr>
<tr>
<td>As on 31.3.1975</td>
<td>10,654</td>
</tr>
</tbody>
</table>

Source: Progress from plan to plan, The Indian Express, Vijayawada, March 4, 1976.

Rural Electrification

About 80 percent of the total population of 45.3 million live in villages whose main occupation is agriculture. The modernisation of agriculture largely depends upon the regular and required supply of electricity. The State Electricity Board and had evolved a programme for rural electrification from sources other than normal plan provisions. The Rural Electrification Corporation Limited had also taken up energisation of pump sets to increase agricultural production in the state, which had a tremendous impact on rural economy; out of the total 27,445 towns and villages, 10,988 towns and villages have been electrified so far and 2,84,162 agricultural pump sets energised. This number is the third largest in any state of the country. So far 109 schemes covering electrification of 4,798 villages and 54,573 agricultural pump sets at an estimated cost of Rs. 4.289 lakhs have been sanctioned by the Rural Electrification Corporation. While sanctioning these schemes, special emphasis is being laid on electrification of backward areas. Besides, importance is attached to Harijan colonies and tribal villages. A sum of Rs. 5 crores is allotted to Andhra Pradesh under "minimum needs programme" by the centre for electrification of villages in tribal blocks. The progress made in respect of agricultural services during the plan periods can be seen from the table given below.
**Progress during plan periods.**

<table>
<thead>
<tr>
<th>PLAN</th>
<th>PUMP SETS.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning of First Plan</td>
<td>620</td>
</tr>
<tr>
<td>At the end of First Plan</td>
<td>4,300</td>
</tr>
<tr>
<td>At the end of Second Plan</td>
<td>17,968</td>
</tr>
<tr>
<td>At the end of Third Plan</td>
<td>57,225</td>
</tr>
<tr>
<td>Beginning of Fourth Plan</td>
<td>12,3,167</td>
</tr>
<tr>
<td>At the end of Fourth Plan</td>
<td>2,61,989</td>
</tr>
<tr>
<td>As on 31.3.1975</td>
<td>2,75,072</td>
</tr>
</tbody>
</table>

Source: 'Progress from plan to plan,' The Indian Express, Vijayawada, March 4, 1976.

The state Electricity Board has been according high priority to the rural electrification programme due to the fact that it not only brings benefits of modern living to the rural areas but also promotes development and modernisation of agriculture and also gives fillip to agro-based industries. Taking advantage of the programme of rural electrification, and the speed at which it is proceeding, we can safely conclude that a larger number of agro-based and forest level industries can be set up in rural as well as agency (forest) areas to exploit the vast potentialities that exist in the state.
TABLE-XII

Plan outlays during plan periods in Andhra Pradesh.

<table>
<thead>
<tr>
<th>PLAN</th>
<th>Expenditure</th>
<th>POWER Percentage to the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Plan</td>
<td>37.97</td>
<td>39.00</td>
</tr>
<tr>
<td>Second Plan</td>
<td>38.53</td>
<td>20.00</td>
</tr>
<tr>
<td>Third Plan</td>
<td>93.61</td>
<td>26.60</td>
</tr>
<tr>
<td>Annual Plan (1966-69)</td>
<td>92.32</td>
<td>40.82</td>
</tr>
<tr>
<td>Fourth Plan</td>
<td>177.67</td>
<td>42.30</td>
</tr>
<tr>
<td>Fifth Plan</td>
<td>413.35</td>
<td>37.40</td>
</tr>
</tbody>
</table>


In view of the present power shortage in the state and also taking into consideration the future demand for power for both agricultural and industrial sector, an amount of Rs. 413.35 crores has been earmarked for power generation during the Fifth Plan period, while the amount spent during the Fourth Plan period was 177.67 crores.

The state has abundant resources of power both hydro and thermal, which have not been utilised fully. The estimated hydro and thermal potential is over 3 million M.W., and the reserves of coal in Kothag uden and Ramagundam areas are estimated at over 4,000 million tonnes.

1. The Indian Express, Vijayawada, January 19, 1975,
The coal available in the state is said to be of low and medium grade with high ash content. But the same can be best made use of for generation of electricity.

The present shortage of power has resulted in blocking the economic prosperity of the state, not only in the industrial sector but also in the agricultural sector. The reason for this disconcerting position of power development in the state is not due to any inherent difficulties or lack of resources for power generation or lack of demand, but due to wrong estimation of anticipated future demand in the state. The higher demand for power than the anticipated earlier demand had led to the present shortage in different parts of the country. Other factors responsible for the present state of affairs are the paucity of water in reservoirs due to poor rainfall, defective maintenance of thermal plants and of course the chief reason being the non-availability of adequate finances.

To achieve rapid economic development it is necessary to make efforts for the rapid development of power projects. Electricity can thus offer a practical solution to some of the problems of the state and act as a very important catalytic agent stimulating the all round development of the state's economy.

Difficulties experience by the small scale industrial units in the state and suggestion for improvements.

1. When a new small scale industry is established, it starts with a minimum guaranteed power off-take. During the initial years of establishment, generally the units due to various teething troubles do not consume much power and goes on paying for the minimum guaranteed power. When the units reach the take off stage, power cut is imposed on the basis of the previous power consumption. This type of attitude will not only discourage the existing units, but may put a halt to the new persons entering in the line of manufacture in the long run.

2. At present, the State Electricity Board, is no doubt encouraging new industrial units by assuring the required quota of units of electricity. This is most welcome. But this should not be at the expense of the existing industrial units. Power should be supplied to the existing units first and then to the new industries. In case it becomes necessary to impose power cut, some sort of rebate may be given on the gross bill for not having supplied required power to the existing units.

3. It is better for the State Electricity Board to come out with an open policy and encourage setting up of diesel generating sets, for which loans may be made available at concessional rates of interest, recoverable in 5 to 7 years.
This is the only way to fill the gap between power generation and the demand for power in the state. This can be a stopgap arrangement to overcome the power shortage in the state.

4. The Andhra Pradesh State Financial Corporation may be asked to provide loans for the above purpose. Either the Andhra Pradesh Infrastructure Corporation Limited or the Andhra Pradesh Agro-Industrial Corporation may be entrusted with the responsibility of either leasing out or supplying diesel generating sets capable of generating electricity ranging between 25 to 50 H.P. to meet the requirements of small scale industries. These steps are necessary as the state is destined to face power shortage at least for the next 5 to 6 years.

5. At present all the industrial units remain closed on Sundays as per the Factories Act. Instead of closing all the industrial units on Sundays, option may be given to industrial units to close on any day during the week. The Electricity Board may prepare a programme enabling units to work on Sundays also and industrial units may be asked to shut down on rotation basis on any day during a week, so that required and regular supply is assured to the existing units. This type of voluntary planned shut down will not only ease the power supply position but will also release power for agricultural operations during the months of March and April.


Agriculture

Andhra Pradesh is one of the foremost agricultural states of India. The occupational structure of the people and the relative agricultural importance of the state are the factors which make the state an important agricultural state. It is imperative that the aggregate income of the state has been drawn from agricultural sector, being 56.5 percent in 1970-71 (agriculture including animal husbandry 54.4 percent, fisheries 1.2 percent and forestry 0.9 percent). The level of income derived from agriculture is generally lower than that derived from other occupations like industry, trade, services etc. A state whose income structure is disproportionately biased towards agriculture should think of some alternative to keep the agriculturists busy throughout the year.

The level of economic development of a state mainly depends on the availability of natural resources and the degree of exploitation, which constitute the bedrock of the economy. In an agro economy like ours, it is agricultural production which largely determines the real rate of growth. The space at which industrialisation can proceed largely depends on the agricultural surplus of food and raw material. The responsibility of producing more food for agricultural workers and surplus

raw material for the industry falls on the farmers.

The consequences of excessive dependence on agriculture are low output, low national income, low propensity to save and low rate of capital formation. The methods and techniques of production adopted are old and outdated. In order to achieve a high and sustained rate of economic growth and to bring about a marked improvement in the standard of living of the people, we have to depend mainly upon the available natural resources. Land is India's largest natural resource, and agriculture constitutes the very base of the economy of Andhra Pradesh.
**TABLE NO. XIII**

Classification of Area-Land Utilisation in Andhra Pradesh.

<table>
<thead>
<tr>
<th>S.No. Category</th>
<th>Area in acres</th>
<th>Area in Musters</th>
<th>Percentage to the total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Total geographical Area as per village papers (1 to 9)</td>
<td>6,78,05,733</td>
<td>2,74,40,049</td>
<td>100.0</td>
</tr>
<tr>
<td>2. Forests</td>
<td>1,55,54,405</td>
<td>62,94,654</td>
<td>22.9</td>
</tr>
<tr>
<td>2. Bareen and Uncultivable land</td>
<td>57,08,995</td>
<td>23,46,777</td>
<td>8.6</td>
</tr>
<tr>
<td>3. Land put to non-agricultural use</td>
<td>51,52,796</td>
<td>20,85,267</td>
<td>7.6</td>
</tr>
<tr>
<td>4. Culturable Waste</td>
<td>26,92,737</td>
<td>10,89,717</td>
<td>4.0</td>
</tr>
<tr>
<td>5. Permanent pastures and other gazping lands</td>
<td>24,11,443</td>
<td>9,75,881</td>
<td>3.5</td>
</tr>
<tr>
<td>6. Land under miscellaneous not included in the net area sown.</td>
<td>7,01,169</td>
<td>2,83,757</td>
<td>1.0</td>
</tr>
<tr>
<td>8. Other fallows land</td>
<td>25,95,936</td>
<td>10,50,543</td>
<td>3.8</td>
</tr>
<tr>
<td>9. Net area sown</td>
<td>2,73,73,020</td>
<td>1,10,77,466</td>
<td>40.4</td>
</tr>
<tr>
<td>10. Area sown more than once</td>
<td>30,54,937</td>
<td>12,36,290</td>
<td>4.5</td>
</tr>
<tr>
<td>11. Total Cropped Area</td>
<td>3,04,27,957</td>
<td>1,23,13,756</td>
<td>44.9</td>
</tr>
</tbody>
</table>

From the above table it is clear that the total area of Andhra Pradesh, according to village papers, was 274.4 lakh hectares in 1972-73. Forests occupied 22.9 percent of the area, are not available for cultivation accounted for 16.2 percent, other uncultivated land accounted for 12 percent. The net sown area accounts for 40.4 percent of the total area. The trend in the pattern of land utilisation from 1951-52 shows a considerable decrease in the area under barren and uncultivable land and current follows. But there has been a fall in the percentage of area under net area sown from 42.8 percent in 1970-71 to 40.4 percent in 1972-73. The area under forests remained more or less static during 1970-71 and 1972-73. The area under permanent pastures and grazing lands has fallen from 10,78,599 hectares in 1970-71 to 975,881 hectares in 1972-73.

The average yield per hectare of principal crops from 1965-66 to 1967-68 in the state and the All India average shown below

1. Area not available for cultivation comprises of land put to non-agricultural use and barren and uncultivable land. Other uncultivated land excluding fallow lands, consists of permanent pastures and other grazing lands, land under miscellaneous trees, crops and groves not included in the net area sown and cultivable waste. Fallow lands consists of current and other fallow lands.
<table>
<thead>
<tr>
<th>Crops</th>
<th>Andhra Pradesh Average</th>
<th>All India Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice.</td>
<td>1363</td>
<td>921</td>
</tr>
<tr>
<td>Jawar.</td>
<td>518</td>
<td>495</td>
</tr>
<tr>
<td>Bajra.</td>
<td>500</td>
<td>363</td>
</tr>
<tr>
<td>All Cereals</td>
<td>875</td>
<td>744</td>
</tr>
<tr>
<td>Arhar</td>
<td>453</td>
<td>598</td>
</tr>
<tr>
<td>BGram</td>
<td>245</td>
<td>571</td>
</tr>
<tr>
<td>All Pulses</td>
<td>205</td>
<td>471</td>
</tr>
<tr>
<td>All Cereals and Pulses</td>
<td>782</td>
<td>689</td>
</tr>
<tr>
<td>Cotton (lint)</td>
<td>71</td>
<td>96</td>
</tr>
<tr>
<td>Groundnut</td>
<td>653</td>
<td>649</td>
</tr>
<tr>
<td>Tobacco.</td>
<td>868</td>
<td>833</td>
</tr>
</tbody>
</table>

Note: The average yield of unimportant crops has not been calculated.

Source: Commerce, Bombay, 123 (3145), August 14, 1971.

The average per hectare yields of Rice, Jawar, Bajra are high in the state compared to the all India figure.

Total area under food crops during 1972-73 was 94,88,195 hectares constituting 77 percent of the total cropped area as against 75 percent in the previous year.

In the state, West Godavari district in the Andhra region has the highest percentage of area under food crops i.e. 90.31 percent of the gross crop area and Chittoor has the lowest with 57.0 percent of the gross crop area. In Telangana region, Nizamabad district has the highest percentage area i.e. 91.9 percent of the gross crop area and Adilabad has the lowest percentage i.e. 71.4 percent of the gross crop area. The area under non-food crops was 28,25,561 hectares during 1972-73 as against 32,03,476 hectares in the previous year (1971-72), showing a decrease in area by 11.8 percent.

By and large Andhra Pradesh is self-sufficient in food grains, particularly in rice. Among the rice growing states in India, Andhra Pradesh ranks sixth in regard to area and fourth in respect of production. Rice is the most important crop constituting 24 percent of the total crop area in the state during 1972-73 the total area 29,27,766 hectares were under this crop, of this 27,50,729 hectares were irrigated under different sources amounting to 94 percent of the area irrigated during 1972-73. Paddy is grown in all the districts of the state. The production of rice during 1972-73 was estimated at 42,56,455 tonnes as against 47,17,133 tonnes in 1971-72 representing a decrease of 9.8 percent. The fall in production was due to decrease in average yield and partly because of reduction in area.

1. Ibid., p.15.
Pattern of Production:

During the period 1960-61 to 1970-71 the overall cropping pattern has continued to be dominated by food crops. The only face saving feature is that there has been a shift in area in favour of the comparatively high value crops like rice, groundnut, tobacco, mesta, turmeric and cotton in recent years.

<table>
<thead>
<tr>
<th>Crop</th>
<th>Area (000 hectares)</th>
<th>1960-61</th>
<th>1970-71</th>
<th>percentage variation between 1960-61 and 1970-71</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOOD GRAINS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>2,961</td>
<td>3,396</td>
<td>+ 14.7</td>
<td></td>
</tr>
<tr>
<td>Jawar</td>
<td>2,730</td>
<td>2,511</td>
<td>- 8.0</td>
<td></td>
</tr>
<tr>
<td>Bajra</td>
<td>618</td>
<td>584</td>
<td>- 5.5</td>
<td></td>
</tr>
<tr>
<td>Ragi</td>
<td>353</td>
<td>299</td>
<td>- 15.3</td>
<td></td>
</tr>
<tr>
<td>Mesta</td>
<td>182</td>
<td>247</td>
<td>- 35.7</td>
<td></td>
</tr>
<tr>
<td><strong>NON-FOOD GRAINS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Groundnut</td>
<td>802</td>
<td>1,481</td>
<td>+ 84.7</td>
<td></td>
</tr>
<tr>
<td>Castorseed</td>
<td>298</td>
<td>306</td>
<td>+ 2.7</td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>143</td>
<td>215</td>
<td>+ 50.3</td>
<td></td>
</tr>
<tr>
<td>Mesta</td>
<td>49</td>
<td>87</td>
<td>+ 77.6</td>
<td></td>
</tr>
<tr>
<td>Turmeric</td>
<td>10</td>
<td>24</td>
<td>+ 140.9</td>
<td></td>
</tr>
</tbody>
</table>

Source: Commerce, Bombay, Annual Number, 1972, op.cit., p.18.
The overall cropping pattern of the state is similar to that of the country as a whole. However, the total area under food crops a little more than one third is under rice alone and one-fourth under Jawar. During 1972-73, cereals and millets together accounted for 60.6 percent of the total area. Pulses covered an area of about 11 percent. Among the non-food corps, groundnut is important with 11.5 percent of the total gross crop area in the state. As a result the state is surplus in rice production and contributes a significant amount of rice to the country's pool. Jawar crop occupies the second place among the crops grown in the state. Jawar accounted for 23.1 percent of the total crop area in the state in 1972-73. It is grown in Prakasam, Kurnool, Anantapur, Guddapah, Hyderabad, Medak, Mahbubnagar, Nalgonda, Warangal, Khammam, Karimnagar and Adilabad districts. These districts accounted for 88 percent of the total area under the crop in the state during 1972-73.

The following table shows the area, production and average yield per hectare under food crops in Andhra Pradesh during 1971-72 and 1972-73.

<table>
<thead>
<tr>
<th>S.no</th>
<th>Name of crop</th>
<th>Area in hectares</th>
<th>Outturn in tonnes</th>
<th>Yield/hectares in kgs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rice</td>
<td>2927766</td>
<td>3040832</td>
<td>426455</td>
</tr>
<tr>
<td>2</td>
<td>Wheat</td>
<td>19620</td>
<td>21106</td>
<td>9700</td>
</tr>
<tr>
<td>3</td>
<td>Jawar</td>
<td>2848038</td>
<td>2531637</td>
<td>1230170</td>
</tr>
<tr>
<td>4</td>
<td>Bajra</td>
<td>505943</td>
<td>522034</td>
<td>179806</td>
</tr>
<tr>
<td>5</td>
<td>Maize</td>
<td>287185</td>
<td>270968</td>
<td>292418</td>
</tr>
<tr>
<td>6</td>
<td>Ragi</td>
<td>239053</td>
<td>272599</td>
<td>220892</td>
</tr>
<tr>
<td>7</td>
<td>Total small Millets</td>
<td>636608</td>
<td>687624</td>
<td>218805</td>
</tr>
<tr>
<td>8</td>
<td>Total Cereals &amp; Millets</td>
<td>74,64213</td>
<td>7346800</td>
<td>6408246</td>
</tr>
<tr>
<td>9</td>
<td>Pulses</td>
<td>1344319</td>
<td>1348897</td>
<td>299493</td>
</tr>
</tbody>
</table>

Total Food Grains: 8808532 8689697 6707739 7290457


As seen from the above table during 1972-73 there has been an increase in area under food crops by 1.3 percent over the previous year, while there was a decrease in production by 8 percent. This decrease in production can be attributed mainly to the fall in yield rate in majority of the food crops because of the drought conditions prevailing during the year.
Economic Regions:

The development of agriculture in the state, as stated above, appears to be quite satisfactory but some will not be true if each region is taken into consideration. The development is uneven and different regions have stabilized their agriculture at different levels. Because of the varying seasonal and soil conditions agriculture pattern differs considerably in the three regions of the state. These regions are homogeneous not only as political and administrative units but also as agricultural units, represents different stages of development.

Andhra Pradesh has certain distinct advantage for undertaking the work of economic planning as the state can conveniently be divided into three distinct regions. Each of these regions has the broad characteristics required for being treated as a distinct physical planning regions in itself. Therefore, the state has been divided in three regions—Coastal Andhra, Rayalseema and Telangana. It is relevant here to give a brief description of the basic features and prospects of agricultural development of these three regions.

1. Coastal Andhra:

The Coastal Andhra region which occupies 31.5 percent of the state's area is the most fertile tract of the

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2. Ibid.
state. The richest soils, alluvial and black cotton are found in this region of the state. This region is well served by South-West as well as North-east monsoons and consequently the average rain fall is the highest in the state. The major rivers of the state, the Godavari, the Krishna and the Pennar flow through this region. Besides this, the ground water resource are plenty and the water level is fairly high, with an exception to some parts of the region. The cropping pattern of this region has adjusted itself to the existing irrigation facilities, soils and rainfall. Since water is available in the delta tracts for eight month in a year. Farmers either choose a long duration crop like sugar or they go for two short duration crops of paddy. Paddy is the most important crop of the region, apart from this cash crops like tobacco, sugar cane, cotton, Tapioca, coconut, cashew etc. are also grown. The availability of agricultural raw material has given way for the establishment of agro-processing units like rice mill, sugar factories including Khandasari units, tobacco-currying and redrying plants, spinning mills and handloom weaving in this region.

In recent years, consequent to the programme of research and extension launched by the Government has resulted in the development of a large number of agro-industries in all the coastal districts of Andhra Pradesh.

1. Ibid. p.17.
The irrigation potential is quite high and infrastructure is good and the farmers are showing increasing interest in modern ideas of science and technology. The signs of green revolution are very much evident in this region of the state. The basic strategy of development of Coastal Andhra will, therefore, be the diversification of the economy. The tribal belt in the north-western portions of this region need special attention in view of the backwardness. Coastal Andhra is the most prosperous among the three regions, although it too has backward and problem areas. The non-tribal and non-delta belts of the Coastal Andhra require expansion of irrigation facilities and proper cropping pattern. Recently Srikakulam, Visakhapatnam, Prekasam and Nellore districts of this region have been included in the list of the backward areas for purposes of industrial subsidy.

2. Rayalaseema:

Originally Rayalaseema region comprised of Bellary, Anantapur, Cuddapah, Kurnool and Chittoor districts of the erstwhile Madras province. Consequently, upon the reorganisation of the states, parts of Bellary and few villages in Chittoor district have gone to Karnataka and Tamil Nadu. The Rayalaseema region of today consists of Anantapur, Cuddapah, Kurnool and Chittoor districts occupying 26.7 percent of the state's area and lies at an altitude of 100 to 2000 feet above sea level. This .....................

* Two taluks namely Guddaluru, Markapur were transferred to the newly formed Prakasam district.
is a typical dry tract know for long as a 'Stilking ground of drought and famines.' The soil in this region is rocky and rainfall in most scanty.

The area is suitable for dry cultivation because of meagre and undependable rainfall and soil erosion. The only saving factor for this region is the existence of deep black cotton soil. It is known for high moisture retaining capacity. The useful habit of the cultivators to keep sufficient area under food and fodder crop to meet the requirements of their family and the rest under cotton or groundnut or chillies. Paddy is grown usually as a long duration crop, mostly under tank irrigation, well irrigation is concentrated mostly is Chittoor district, Green manure is highly developed in this region than elsewhere in Andhra Pradesh. Besides fruits and vegetables and other crops like sugar cane, chillies, jawar, bajra turmeric etc. are grown in this region. Taking into consideration the frequent failure of crops more emphasis should be laid on soil and water conservation programme besides adopting dry farming. This may not only result in optimum utilisation of the existing facilities available in this area, but also in growing such crops which require minimum water and yield maximum return to the farmer. In this region K.C. Canal is the oldest and major irrigation project, built by the East India Company in 1870 for navigation purpose. It now provides water to the command area of 100,000 acres.
The state government has identified 31 taluks in 10 districts of the state as chronically drought affected areas. Out of these, 33 have been declared as hard core taluks. Of the total hard core taluks 24 belong to Rayalaseema.

Exploitation of ground water resources is one of the steps taken by the state government especially in the drought prone areas of this region. In order to put agriculture at a higher equilibrium level and also to make it a profitable venture, the future strategy should be based on the maximum utilisation of the limited water resources to the best advantage. For this purpose efforts should be made to tap underground water resources by sinking more and more bore wells and tube wells wherever possible.

Among the agro-based industries, ground nut, cotton, fruit preservation and canning are found in this region.

3. Telengana

Telengana region is composed of nine districts of the former Hyderabad State accounts for 41.8 percent of the total area of the state. This is the most backward region of the state. Even though the annual rainfall is fairly good, the geography and soil conditions present a serious hurdle to agricultural development. This region also suffers from natural disadvantages such as soil erosion and drought. These factors come in the way of farmers in the application of manures and chemical

1. 11 from Anantapur, 6 from Kurnool, 4 from Chittor and 3 from Cuddapah.
fertilizers. The only way to break this vicious circle is to develop irrigation facilities on a large scale by exploiting the ground water resources.

The index of agricultural development prepared by the Reserve Bank of India places West Godavari, Krishna, East Godavari, Shikalkulam, Nellore and Visakhatpatnam district of coastal Andhra at the top and Adilabad, Hyderabad, Warangal, Mahabubnagar, and Karim Nager district of Telangana at the bottom in the state.

During the Fourth Plan period efforts were made to provide irrigation facilities especially in Mahbubnagar Warangal, Medak and Hyderabad districts of this region, as these districts do not possess any major surface sources of irrigation.

The land utilisation and the cropping pattern of the region were evolved in conformity with the existing soils, climatic and irrigation facilities.

This region, with an exception to Hyderabad city is underdeveloped and most backward of all the three regions of the state. Centuries of feudal rule has brought to this stage of stagnation. The people are generally poor and agriculture is confined to some dry and cheap crops raised with the help of tank irrigation. From the point of rainfall,
this region gets one bad year in every five years. All most the entire area has been rugged with reddish brown soil to brown soil to brownish red sandy loam known as "Chalakas".

Agriculture is still back ward and largely depends on the rainfall. Thought industrially the region is better off than the two regions, the most of the industries are located in and around Hyderabad city and in the Godavari Vally region\(i.e.\) areas around about Kothagudem, Ramagudem, etc.

### TABLE XVII

Statement showing the plan outlays in First, second, Third Annual Plan & Fourth Plan & Fifth Plan in Andhra Pradesh.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Plan</th>
<th>Agriculture Programmes including Animal Husbandry, Fisheries, Cooperatives and Community Development</th>
<th>Expenditure</th>
<th>Percentage to the Total Outlay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>First Plan</td>
<td></td>
<td>12.29</td>
<td>13.0</td>
</tr>
<tr>
<td>2.</td>
<td>Second Plan</td>
<td></td>
<td>37.14</td>
<td>20.0</td>
</tr>
<tr>
<td>3.</td>
<td>Third Plan</td>
<td></td>
<td>78.79</td>
<td>22.4</td>
</tr>
<tr>
<td>4.</td>
<td>Annual Plan (1966-69)</td>
<td></td>
<td>42.68</td>
<td>18.87</td>
</tr>
<tr>
<td>5.</td>
<td>Fourth Plan (Anticipate Expenditure)</td>
<td></td>
<td>60.93</td>
<td>14.9</td>
</tr>
<tr>
<td>6.</td>
<td>Fifth Plan (a) Provision</td>
<td></td>
<td>129.86</td>
<td>11.7</td>
</tr>
</tbody>
</table>

Source: 1 to 4 Economic Development of AP, 1951-68, Planning Department, AP 1968, p.74

It is evident from the above table that during all the plans top priority was given to major and medium irrigation and power projects. This is done in conformity with the interests of National Plan and same can be justified as two third of the states population depend directly or indirectly on land for their livelihood. The agricultural sector including Animal Husbandry, Fisheries, Cooperation and Community Development received 13 percent of the total outlay during the First Plan, 20 percent of the Second Plan and 22.4 percent in Third Plan. The state has spent Rs.42.68 crores during annual plans (1966-69) During the Fourth Plan, an amount of Rs.69.93 crores (anticipated expenditure for agriculture) which is 14.50 percent of the total outlay. The state is justified in giving top priority to irrigation and power as they constitute a vital link between irrigation and agriculture and power and agriculture as well. Besides, the high priority was given to the electrification of rural areas and particular attention was paid to utilisation of power for agriculture. Even in fifth plan period agriculture continued to remain as a basis priority in view of its somewhat stagnation in agriculture sector during the last 10 years. A provision of Rs.129.86 crores was made for agricultural and allied sectors during fifth plan period which is more than double the amount spent on agriculture during fourth plan period.
State Income and Per capita income.

Per capita income is one of the most significant indications of the economic well being of the people. At the end of Second Plan, the per capita income of the state was Rs.275.20 as against Rs.306 for the country at the constant prices of 1960-61. At the end of the Third Plan, the per capita income remained almost the same, Rs.275.65, while the country's income rose to 307.30. In 1966-67 the per capita income of the state has gone up to Rs.280.67 as against Rs.302.4 for the country as a whole. In the year 1967-68 the per capita income of the state rose to Rs.284.34 against the corresponding income of national per capita income to Rs.312.3. In the subsequent year, 1968-69, the per capita income dropped to 268.13, the reason being the drought conditions prevailing in different parts of the state and also due to fall in agricultural production from 71.8 lakh tonnes in 1967-68 to 86.4 lakh tonnes in 1968-69, it improved to Rs.513.45 and Rs.545.29 during 1969-70 and 1970-71 respectively. On account of the differences in the adopted by several states in computing the state income, comparison with the state income of other states, or with the all-India average can not be made in the strict sense.

It is clear from the above discussion that the economy

of Andhra Pradesh is largely agriculture oriented. More than half of the states' income is derived from Agriculture and allied activities, while they provide source of livelihood for about 70 percent of the state population. Experience shows that a slow rate of growth in the agricultural sector is one of the important factors affecting the progress of an under developed country like India. The contribution of agriculture and allied sectors to the state came down from 60.02 percent in 1950-51 to 56.51 percent in 1970-71, while the share of non-agricultural sector has increased from 7.78 percent in 1950-51 to 14.6 percent in 1970-71. Though the increase is not substantial it is a welcome departure.

Conclusion:

It is evident from the above that the economic structure of Andhra Pradesh resembles that of India as a whole. Agriculture is the mainstay of the economy and 81 percent of the population live in rural areas. According to 1971 Census about 71 percent of the working population is engaged in agriculture and allied activities in the state. The occupation pattern of the state indicates that the economy of the state is largely agriculture oriented. More than half of the states income is derived from agriculture and allied fields. Inspite of the planned development, industrialisation has not gone beyond the urban areas. An analysis of various indices of industrialisation reveal the comparative backwardness of the state in this sector.
The per capita value added by manufacturing industry is only ₹1.17 in the state as against ₹4.42 in the country as a whole and ₹1.120/ in Maharashtra, ₹9.1 in West Bengal, ₹8.3 in Gujarat and ₹5.4 in Tamil Nadu. The average daily employment of factory workers per 1000 population in Andhra Pradesh in 1971 was only 6.0 against the All India average of 9.0 and 20.2 in Maharashtra, 18.8 in West Bengal, 16.6 in Gujarat and 10.7 in Tamil Nadu. The per capita consumption of electricity for industrial purposes in 1970-71 was 22.3 Kwh. against the National average of 54.9 Kwh. The main reason for the relative industrial backwardness of the state is low investment in industries sector both under the state plan and from the central sector. The allocation of resources to industries never exceeded 5.4 percent of the total outlay, while the investment to agricultural and irrigation were 41.0 percent, 40.2 percent, 40.0 percent and 34.1 percent respectively, in the first four Five Year Plans. Even for the Fifth Plan Year Plan period industry and mining account for only 4.3 percent of the total outlay. Coming to the Central allocation of resources during the period 1951-69 the state received ₹106.60 crores out of 2,879 crores of central investment on industrial projects a mere 3.7% although 8% of the country's

1. M. Venkataramnam: A PIO spread industrialisation of the state, Souvenir First Convention of small scale industries of A.P., 1975, p.6
2. Ibid, p.8
population live in Andhra Pradesh. In the recent past, the state has demonstrated an impressive rise in food grains production from 67 lakh tonnes in 1972-73 to over 86 lakh tonnes in 1973-74. This progress made on agricultural front pave the way for the growth of agro-based industries in the state.

The increase in production of food and cash crops has had its beneficial effects on the industrial front. Another distinguishing feature of the state's economy today is that it has shown a growth rate of about 14 percent in the state's income against the All India figure of 3 percent.

One can therefore anticipate increased industrial activity in the state. The state has a well developed infrastructure, roads, railways, a large number of institutions to provide credit and technical guidance, a ready market for a variety of manufactured goods, sympathetic outlook of the government, a large number of industrial development areas and industrial estates established in all the districts of the state, adequate enough for assisting industrial entrepreneurs in a big way.

1. Ibid, p.9.
2. Southern Economist, Andhra Pradesh Number, Bangalore, April 1975, p.3.
3. Ibid.
All the above mentioned factors are conducive enough to attract entrepreneurs to pave way for the development of agro-industries to make use of the variety of raw material and other by-products which have not been put to industrial use hitherto on a large scale. The agricultural potential that exists in the state offer great scope for agro-based industries to prosper in this state.

Most of the above mentioned factors are found in the East Godavari district of the state. In view of its fertility and well-developed agricultural base, capable of producing a very large variety of food as well as cash crops, the district has been chosen to study the history and working of agro-based industries. A separate chapter is devoted to explain the economy of the East Godavari district. A study will be made with reference to agro-based industries found in the district with the help of a sample survey conducted to explain the present position with reference to facilities available and future prospects for development taking into consideration the difficulties faced by the industrial units.
CHAPTER II

INDUSTRIAL DEVELOPMENT OF ANDHRA PRADESH

Introduction:

Andhra Pradesh has some distinct advantages over other states in respects of quality of the soil, the climate and geological structure of the land. It occupies a central position in the country's economy and the natural resources like water, agricultural and mineral resources offer great scope for industrial development. Andhra Pradesh has always been an important agricultural state, producing a large variety of food grains and other raw material for industrial use. Taking advantage of the favourable conditions, there is no reason why the state should not diversify her economic base to take a respectable place in the industrial map of the country. It is due to its agriculture oriented economic structure and due to absence of the necessary climate and conditions for rapid and sustained growth of industries that the state has been somewhat late in enterent in the field of industrialisation. Prior to the first Five Year Plan period, the industrial structure of the state dominated by processing industries like rice milling, ginning, pressing and sugar factories. In the recent past, there has been a slow but steady growth of industries in the
organised sector of the state. In the following pages, an attempt has been made to review the industrial development during plan periods.

PART-I

Industrial development during plan periods.

During the First Plan period the development of industries covered vegetable oil, solvent extraction, vanaspati industries, while a beginning has been made in respect of textiles, sugar, oil, cement, power alcohol, and also agricultural and scientific implements. In Telangana a beginning has been made in respect of potaries and stoneware, porcelain and enamelware, rayon, paper, fertilisers, heavy chemicals, machine tools and engineering industries.

During the First Plan period 53 units were set up in the medium and larger industries section with a total industrial output of Rs.131 crores per annum. It is estimated that the overall increase in industrial output was about 33 percent.

During the Second Plan period, besides expansion of sugar, power-alcohol, oil, cement and textile industries, and oil refinery and a steel re-rolling mill at Visakhapatam and a plant for production of ferro-manganese at Garividi in Srikakulam district were started. In addition to the above,
licences were granted for starting of industries to
manufacture items like forgings, steel structures, spun pipes,
malleable castings, pipe fittings, laminated and coil springs,
steelware, PVC cable and ACSR conductors, kerosene engines
and power litters, sewing auto-ancillaries, fertilisers and
heavy chemicals such as caustic soda, acids, chlorine etc.
In all 26 units were set up in the medium and large industries
sector during this period with a total investment of Rs.4.6
crores, providing employment opportunities to over 11,000
people. Industrial production increased only by 16.4 percent
against the national average of 40 percent. The annual
production touched the mark of Rs.70 crores.

It can be said that it was during this period that
a humble beginning towards diversification of industrial
structure was made.

During this period, expansion programmes for the
government managed Andhra Pradesh Mills and the Gudur Ceramic
Factory at a total cost of Rs.4.5 crores were also initiated.

The expansion of sugar industry provided large quantities
of molasses which enabled the distillaries to expand their
capacity apart from providing scope of new units. In view
of larger quantities of power alcohol expected as a result
of expansion of distillaries entrepreneurs came forward to set up

1. R.V. Rao, Industrial wealth and prospects in Andhra Pradesh,
alcohol-based industries such as acetic acid, acetic
check inspecting and a variety of plastic raw materials such
as polyesterene. Other new fields taken up by entrepreneurs
during the period were drugs, and pharmaceuticals, explosives,
asbestos, cement products, roller flour mill, glass products
and a new range of machine tools.

During the Third Plan period, though priority
was given to the development of agriculture, irrigation
and power, the need was felt to develop industries on a
sound footing. It therefore, can be said that the first
organised effort was made to give an impetus to the
industrialisation of the state during this period. Accordingly,
expansion was allowed in steel structural, steel castings,
paper, sugar, alcohol, roller flour mills, drugs and pharmaceuti-
cals, jute etc. During this period the textile industry
registered almost 100 percent expansion with 18 new spinning
mills coming up in different districts. The range of
industrial development also became wider. A number of units
were licensed in new lines like distribution transformers,
house service meters, alcohol based industries such as ethyla-
cetate chloro-sulphonic acid, insecticides, sheet glass,
welding electrodes, ball bearings etc.

In all 44 units were set up in the medium and large
scale sector with a total investment of Rs.40 crores and an

1. J. Vengal Rao, Chief Minister, 'Andhra Pradesh, Geography,
infrastructure and Resources,' The Mail(Madras), July 1,
1975.
2. Ibid.
In case the industrial development, as envisaged under the Fourth Plan is implemented, at the end of Fourth plan or early Fifth plan period, it is estimated that the contribution of the industrial sector to the state revenues would be Rs.192 crores, as against Rs.91 crores at the end of Second Plan and Rs.11 crores at the end of the Third Plan period.

The following table shows the aggregate picture of the Industrial programmes for Andhra Pradesh during Fourth Plan.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Mining Industries and Mineral development.</td>
<td>1900</td>
<td>9.74</td>
<td>23,000</td>
<td>5,000</td>
</tr>
<tr>
<td>2.</td>
<td>Metallurgical &amp; Metal based Industries.</td>
<td>55.15</td>
<td>13.95</td>
<td>15,800</td>
<td>32,550</td>
</tr>
<tr>
<td>3.</td>
<td>Mineral based industries (non-metallurgical)</td>
<td>37.10</td>
<td>4.02</td>
<td>10,700</td>
<td>55,400</td>
</tr>
<tr>
<td>4.</td>
<td>Agricultural, livestock and Forest based industries.</td>
<td>32.91</td>
<td>9.35</td>
<td>23,740</td>
<td>43,340</td>
</tr>
<tr>
<td>5.</td>
<td>Chemical &amp; allied Industries.</td>
<td>87.38</td>
<td>22.71</td>
<td>18,100</td>
<td>70,430</td>
</tr>
<tr>
<td>6.</td>
<td>Small Industries</td>
<td>7.00</td>
<td>18.85</td>
<td>65,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>238.54</td>
<td>78.62</td>
<td>156,340</td>
<td>246,720</td>
</tr>
</tbody>
</table>

During the Fourth Plan period, the growth of medium and large industries included such as dry batteries, electric fans, sugar, enamelled copper wires, weighing machines, steel forgings, ball bearings, synthetic paints, plastic laminates, biscuits, starch etc. A major fertiliser factory licenced during the Third Plan was commissioned at Visakhapatnam. Similarly a new cement factory was set up in Karimnagar district. In the central sector a major heavy engineering unit for the fabrication of chemicals plant and equipment viz. Bharat Heavy Plates and Vessels has come up at Visakhapatnam, while the units of Atomic Energy Commission and Hindustan Aeronautics have gone into production at Hyderabad.

In addition to above, the Rs. 37 crore Visakhapatnam Outer Harbour Project is another ambitious plan. The harbour was opened to traffic in 1933. It has 18 berths today as against 3 in 1941. The port is fully equipped to serve the entire hinterland. In future tobacco exports from Andhra can be diverted through this port. This harbour is designed to handle ships of the size of 100,000 DWT initially and provision has been made for future development to cater for 200,000 DWT vessels. Again, the outer harbour will be in a position to load 10 to 12 million tonnes of iron ore as against the present capacity of 6 million tonnes. The port is expected to meet the requirements of the steel plant which is in the offing. The steel plant at Visakhapatnam is expected to produce

1. Ibid.
mild steel which will be a landmark in the state's industrial progress. This prestigious steel plant may cost ₹500 crores and it will be designed by Indian engineers. The entire equipment will be manufactured indigenously. The selection of site and other formalities have been completed and it is expected to go into production at the end of the sixth plan period. The Atomic Energy Department of the Government of India has established a rocket launching station on the east coast at Sriharikota island in Nellore district, from where India has recently put Aryabhata into the orbit.

Besides, a zinc smelter at Visakhapatnam and the Agnigundala Copper Project of Hindustan Copper Corporation are the two other public sector projects approved during this period.

**Identification of backward districts in the state.**

The Pande Working Group appointed by the Planning Commission has identified Andhra Pradesh as one of the backward states in India. Within the state there are regions at varying degrees of economic development, and within regions there are bright and problem areas. In order to correct the regional imbalances in the state, the Government of India has identified 10 districts as industrially backward, and consequently eligible for certain concessions mainly finance for establishing industries in these districts. The ten districts are: Anantapur, Chittoor, Kurnool, Karimnagar, Khammam, Mahboobnagar,
Medak, Nalgonda, Nizamabad and Warangal. These districts put together account for half of the total area of the state representing two fifths of the state's population. Subsequently, Srikakulam, Visakhapatnam, Nellore and Prakasam districts were added bringing the total to 14 districts in the state. During the Fourth Five year Plan, three districts one each from three regions. Srikakulam, Cuddapah, and Nalgonda were provided Rs. 1.5 crores each under the centrally sponsored Farmer's Development Scheme. Under another scheme for Marginal Farmers and Agricultural Labourers three districts namely Visakhapatnam, Chittoor and Nalgonda were provided with Rs. 1. crores each. These are some of the steps taken by the Central Government to reduce regional disparities during the Fourth Plan period.

Industrial development programme during Fifth Five Year Plan period.

During fifth five year plan period 85 medium and large scale units with a total investment of Rs. 327 crores will be established in the state. While formulating the industrial development programme, the basis strategy and the objectives of the fifth year five plan have been kept in view. It is admitted by all, that there is an urgent need to step up the rate of industrialisation in backward regions of the state with a view to generate more employment opportunities among the weaker sections of the society and to stop the inflow of rural labour to cities and also to create self generating growth centres in rural areas. Consequently it is proposed
that out of 85 units, 61 should be set up to hitherto neglected and industrially backward areas of the state. Out of the total investment of Rs.327.00 crores nearly Rs.267.00 crores (81 percent) will be invested in backward areas.

In order to achieve optimum utilisation of the natural resources of the state, and investment of over 211.00 crores is earmarked for resource based industries. It is 64% of the total investment during fifth plan period. Considerable weightage is given to the development of agricultural and live stock based industries. Out of the total, 29 agro-based units have been planned with an investment of Rs.46.70 crores. The important agro-based industries are Composite Textile Mills, Solvent Extraction Mills, Mini paper mills, the Castor complex and jute mill.

Eight forest based industries with a total investment of Rs.102.00 crores have been planned in the state during fifth plan period, which constitute 31 percent of the total investment.

Besides, the above, 12 mineral based and 4 marine and salt based industries have been planned with an investment of Rs.62.00 crores. Sixteen chemical industries with an investment of Rs.6.00 crores are also planned. Electronic and Engineering industries will claim as much as Rs.29.00
crores as the share of investment during fifth plan period.

It is envisaged that the impact of this huge investment in the industrial sector during the fifth plan period will be significant. A direct employment potential of 50,000 will be created and indirect employment is estimated to be of 150,000 persons. It is estimated that the Central and State Government revenue generated by way of additional taxes will be of ₹.50 crores.

Programme for industrial development during fifth five year plan period.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Total outlay in lakh</th>
<th>Corporation Share in lakh</th>
<th>Employment Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment in Backward areas</td>
<td>24355</td>
<td>2426</td>
<td>37900</td>
</tr>
<tr>
<td>Investment in Agency and upland areas.</td>
<td>2310</td>
<td>231</td>
<td>5500</td>
</tr>
<tr>
<td>Total</td>
<td>26665</td>
<td>2657</td>
<td>43400</td>
</tr>
<tr>
<td>Investment &amp; other areas.</td>
<td>6035</td>
<td>613</td>
<td>9141</td>
</tr>
<tr>
<td>Grand Total</td>
<td>32700</td>
<td>3270</td>
<td>52541</td>
</tr>
</tbody>
</table>

Source: APIDC Geared to the Future Acts Now-Book 1st issued by A PIDC, Hyderabad,
It is evident from the table that during fifth five year plan period, backward areas were given preferential treatment for the development of Industries.

The following table shows the region-wise investments during fifth five year plan period in Andhra Pradesh.

<table>
<thead>
<tr>
<th>Region</th>
<th>Total outlay (Rs.in lakh)</th>
<th>Corporation share (Rs. in lakh)</th>
<th>Employment Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Andhra Pradesh</td>
<td>10,000</td>
<td>1020</td>
<td>18840</td>
</tr>
<tr>
<td>Rayalaseema Region</td>
<td>9700</td>
<td>979</td>
<td>10120</td>
</tr>
<tr>
<td>Talangana Region</td>
<td>13000</td>
<td>1271</td>
<td>23581</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>32700</strong></td>
<td><strong>32700</strong></td>
<td><strong>52541</strong></td>
</tr>
</tbody>
</table>

Source: Ibid.

Position of Small Scale Industries in the State.

Introduction:

Before we study the position of small scale industries in the state, it is better to know the official definition evolved in India for the purpose of development of small scale industries. Small scale industries were originally defined as industrial units with a capital of more than Rs.5 lakhs, irrespective of the number of persons employed. In 1974, the maximum limit of capital
has been increased from Rs. 5 lakhs to Rs. 10 lakhs. An ancillary has been defined as a unit that supplies at least 50 percent of the requirements of any item to the mother unit. Such ancillary units can have capital up to Rs. 15 lakhs.

Andhra Pradesh has been making a steady progress in the field of small scale industries. The number of small scale industries as on 30.6.1969 was 10,672 as against 2,346 in 1961. The progress made from year to year can be seen from the table below:

**TABLE-XX**

**Small Scale Industries in the state.**

<table>
<thead>
<tr>
<th>As on</th>
<th>No. of registered units</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.3.1961</td>
<td>2,346</td>
</tr>
<tr>
<td>31.3.1962</td>
<td>2,760</td>
</tr>
<tr>
<td>31.3.1963</td>
<td>3,255</td>
</tr>
<tr>
<td>31.3.1964</td>
<td>3,664</td>
</tr>
<tr>
<td>31.3.1965</td>
<td>4,114</td>
</tr>
<tr>
<td>31.3.1966</td>
<td>5,007</td>
</tr>
<tr>
<td>31.3.1967</td>
<td>6,176</td>
</tr>
<tr>
<td>30.6.1969</td>
<td>10,572</td>
</tr>
</tbody>
</table>

Source: Small scale Industries, Development Commissioner, Small Scale Industries, Govt. of India, New Delhi.
From the above it is clear that the number of small scale units registered with the Director of Industries during 1961-69 has shown a five fold increase. But the growth has not been evenly spread throughout the state. As per the census of small scale industries conducted by the Director of Industries, Andhra Pradesh in 1969, it is clear that there are regional disparities in the development of industries in the state. The same can be seen from the table given below.

Table showing the dispersal of small scale Industries units in Andhra Pradesh.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Region</th>
<th>No. of small units</th>
<th>Employment</th>
<th>Actual output Rs.Millions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td></td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>1)</td>
<td>Coastal Andhra</td>
<td>2,969</td>
<td>36,834</td>
<td>420.77</td>
</tr>
<tr>
<td>2)</td>
<td>Rayalaseema</td>
<td>877</td>
<td>12,364</td>
<td>97.01</td>
</tr>
<tr>
<td>3)</td>
<td>Telangana</td>
<td>2,784</td>
<td>26,743</td>
<td>167.27</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>6618</strong></td>
<td><strong>75941</strong></td>
<td><strong>685.05</strong></td>
</tr>
</tbody>
</table>

Source: Small scale Industries, Development Commissioner, Small Scale Industries, Govt.of India, New Delhi, p.363.
From the above table, it is clear that in Andhra Pradesh, Rayalaseema region is far behind in industrialisation when compared to coastal Andhra and Telangana regions.

The following table gives the numbers of registered small scale units in various district of the state up to 30th June, 1969.

**TABLE-XXII**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Region</th>
<th>Name of the district</th>
<th>No. of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Coastal Andhra</td>
<td>1) Srikakulam</td>
<td></td>
<td>304</td>
</tr>
<tr>
<td></td>
<td>2) Visakhapatnam</td>
<td></td>
<td>484</td>
</tr>
<tr>
<td></td>
<td>3) East Godavari</td>
<td></td>
<td>1,137</td>
</tr>
<tr>
<td></td>
<td>4) West Godavari</td>
<td></td>
<td>464</td>
</tr>
<tr>
<td></td>
<td>5) Krishna</td>
<td></td>
<td>1,560</td>
</tr>
<tr>
<td></td>
<td>6) Guntur</td>
<td></td>
<td>1,570</td>
</tr>
<tr>
<td></td>
<td>7) Nellore</td>
<td></td>
<td>413</td>
</tr>
<tr>
<td>2. Rayalaseema</td>
<td>8) Chittoor</td>
<td></td>
<td>603</td>
</tr>
<tr>
<td></td>
<td>9) Cuddapah</td>
<td></td>
<td>452</td>
</tr>
<tr>
<td></td>
<td>10) Kurnool</td>
<td></td>
<td>304</td>
</tr>
<tr>
<td></td>
<td>11) Anantapur</td>
<td></td>
<td>505</td>
</tr>
<tr>
<td>3. Telangana</td>
<td>12) Hyderabad</td>
<td></td>
<td>1,145</td>
</tr>
<tr>
<td></td>
<td>13) Warangal</td>
<td></td>
<td>183</td>
</tr>
<tr>
<td></td>
<td>14) Karimnagar</td>
<td></td>
<td>316</td>
</tr>
<tr>
<td></td>
<td>15) Khammam</td>
<td></td>
<td>128</td>
</tr>
<tr>
<td></td>
<td>16) Mahboobnagar</td>
<td></td>
<td>136</td>
</tr>
<tr>
<td></td>
<td>17) Nizamabad</td>
<td></td>
<td>270</td>
</tr>
<tr>
<td></td>
<td>18) Madak</td>
<td></td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>19) Nalgonda</td>
<td></td>
<td>312</td>
</tr>
<tr>
<td></td>
<td>20) Adilabad</td>
<td></td>
<td>113</td>
</tr>
</tbody>
</table>

Source: Ibid, p.363
Output and Employment:

The contribution of output from industrial sector to the states income was 9.29 percent in 1966-67. The capital investment up to June 1969 in machinery and equipment production capacity and employment generated were as follows:

1) Capital invested in machinery & equipment 287.6 million (in rupees)
2) Production Capacity. 1624 million (in rupees)
3) Employment (in persons) 142,000

A master plan for the development of agro-industries in semi urban and rural areas in the state was drawn up by the Small Industries Service Institute Hyderabad for the purpose of inclusion in the State Fourth Five Year Plan.

The following industries were registered for intensive development in Andhra Pradesh after studying the scope of agro-industries in agriculturally surplus areas.

1) Food preservation
2) Straw Board from paddy straw
3) Fuel Brequettis
4) Pictin and papain
5) Cashew, apple products and shell oil
6) Castor oil based products.

7) Particle Board from groundnut shell and other Agricultural products.

8) Spices, specially chilly powder.

**Industrial Estates:**

The establishment of industrial estates in Andhra Pradesh in 1955 was a part of All India Programme for development of Industrial Estates in the country. By the end of Third Five Year Plan period an amount of Rs. 34.6 million was spent on different industrial estates in the state. During the annual plan period 1966-70, consolidation of existing estates was taken up at a cost of 4.58 million.

The following are the types of industrial estates established in Andhra Pradesh as on 1.4.1970.

1) Conventional Estates 18

2) Rural Industrial Estates 2

3) Assisted Prive Industrial Estates 15

Total 35

In addition to above a cooperative industrial estate was established at Hyderabad during 1964-65 at a cost of Rs. 4.284 million.

Today, the state has 37 industrial estates of various types distributed fairly over all the district of the state.

1. Ibid., p. 366.
The region-wise distribution of Industrial estates is as follows:

<table>
<thead>
<tr>
<th>Region</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coastal Andhra</td>
<td>12</td>
</tr>
<tr>
<td>Rayalaseema</td>
<td>8</td>
</tr>
<tr>
<td>Telangana</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
</tr>
</tbody>
</table>

On the average, there are about 2 estates in each district of Rayalaseema and Telangana, while Coastal Andhra has 1.7 estates.

Regarding the location pattern of these estates in the states, more than 50 percent are located in urban, 33 percent located in semi-urban and the rest in the semi urban areas. Of the 8 estates in Rayalaseema 5 are located in chronically drought effective areas. The success of these estates in these areas largely depends upon the governmental help in providing the required infrastructure facilities which are totally absent.

As all the four districts of Rayalaseema are now eligible for special assistance from the Centre, under the special development programme, we can hope for increased industrial activity in this region of the state.

The success of any industrial estate largely depends
upon the location factor while locating the industrial estates in the state, following factors may be considered viz, careful selection of site and place, availability of capital and entrepreneurship.

Ancillary Industries:

Recent development of large and medium sized industries in the state has given rise to the urgent need for the development of ancillary industries also. Certain parts and components required by these large and medium scale units can be met by the small scale units. Efforts have been made by the Small Industries Service Institute to render intensive technical assistance to standardise their products and improve the qualities to meet the specifications stipulated by the larger units. Hyderabad and Visakhapatnam are the two important sized industries offering good scope for establishment.

It is estimated that during 1966-67 parts and component valued at about Rs 537,000 were supplied by 98 small scale enterprises to the Andhra Pradesh State Road Transport Corporation, Hyderabad, Allwyn Metal Work Ltd., Praga Tool Corporation, Hyderabad, Usha Works all located at Hyderabad and Caltex oil Refineries limited Visakhapatnam. Details of ancillary supplied made to large scale units by the small enterprises during 1963-70 are given below.
On the recommendations of the Bhabha Committee the Central Government has already established two big public undertakings namely the Electronics Corporation of India and the Hindustan Aeronautics Ltd. at Hyderabad. Besides these, there are three Defence Laboratories DLRI, DMRL and DRDL in the city. The Bharath Dynamics and Atomic Fuel Complex at the latest additions to the list of Public Undertakings. Hyderabad has already made a name in electronic industry in India. All these are sufficient to give necessary impetus for the growth of electronic industry in particular and ancillary units in general to manufacture components and spares required by this industry. In coming years, one can expect a good number of ancillary units in the State.

PART II

DEVELOPMENT OF VARIOUS CORPORATION IN THE STATE

With a view to create a climate more conducive to the growth of industries in the state, the state government from time to time has set up the following institutions.

1) Andhra Pradesh State Financial Corporation.
2) Andhra Pradesh Industrial Development Corporation
3) Andhra Pradesh Agro State Industries Corporation
4) Andhra Pradesh Industrial Infrastructure Corporation
5) Andhra Pradesh Small Scale Industries Development Corporation
6) Andhra Pradesh Mineral Development Corporation
7) Andhra Pradesh State Trading Corporation

The following pages are devoted to the study of some of the important institutions with a view to know a clear idea about the objectives and the extent of help rendered by them for the development of industries in the state.

1) Andhra Pradesh State Financial Corporation:

The Andhra Pradesh State Financial Corporation was the first financial institution established in 1956 under the State Financial Corporation Act of 1951. The activities of the state Financial Corporation are complementary to those
of the Industrial Finance Corporation of India. The corporation is entrusted with the task of setting up of both new industries and expansion and/or modernisation of existing industries. Besides helping private and public limited companies and cooperative societies, the corporation also sanctions loans and advances to partnership firms, joint Hindu family concerns and industrial proprietorship concern. The Corporation's activities are extended to all parts of the state and entrepreneurs are served by four branches of the corporation situated at Visakhapatnam, Vijayawada, Tirupathi and Warangal. There is a proposal to start a branch at Anantapur shortly. Industrial concerns engaged in one or two of the following activities are eligible for financial assistance from the Corporation:

1) Manufacture of goods.
2) Preservation of goods
3) Processing of goods
4) Mining
5) Hotel Industry
6) Development of any contiguous area of a land as an Industrial estate.
7) Maintenance, repairs, testing or servicing of machinery of any description or vehicles or vessels, motor boats or trailers or tractors.
8) General and distribution of electricity of any other form of power.
9) Transport industry
10) Assembling, repairing or packing any article with the aid of machinery or power.
11) Fishing or providing shore facilities for fishing or maintenance thereof and

12) Providing special or technical knowledge or other services for the promotion of industrial growth.

The Corporation used to act as an agent of the state government for disbursement of margin money sanctioned by the Government. Since 1974 it has ceased to act as an agent to the state government for disbursement of loans granted under the Industrial Act.

The Corporation also sanctions foreign exchange loans under IDA line of Credit (World Bank) to small and medium sized industrial units for the purpose of capital equipment and technical knowhow. The sanctions under this category are not increasing as the entrepreneurs are not still used to this credit inspite of the publicity given. The corporation has brought out a scheme for the benefit of technocrats and ancillary units on softer terms. Technically qualified raw engineering graduates setting up their own units based on their specialised fields would be eligible for loan at 90 percent if the project cost of land, buildings and machinery does not exceed Rs.1.5 lakhs. Technically qualified engineering graduates with 3 years experience would be eligible for financial assistance at 90 percent upto 4.5 lakhs.

1. Chairman speech, 19th Annual General Meeting APSFC, 1975
   Hyderabad p.7.
of project cost inland, building and machinery. In case two technically qualified engineering graduates with experience of 3 years join together, they will be eligible for loan up to 90 percent if the project cost does not exceed ₹ 8 lakhs.

Similarly a diploma holder with 10 years of experience is also eligible for financial assistance up to 90 percent of the project cost when the cost of the project does not exceed ₹ 3 lakhs. In case two or more diploma holders with 10 years of experience join together, would be eligible for financial assistance up to 90 percent of the project cost where the cost of the project on fixed assets does not exceed ₹ 5 lakhs.

**Scheme to identify entrepreneurs:**

Recently the corporation has evolved a new scheme under which the corporation identified prospective entrepreneurs even at the college level and get them trained in setting up and management of units in the line of the manufacture selected by them. The corporation meets the expenses for training etc. by which a new class of entrepreneurs is created. Three years back the corporation has introduced a scheme for sanctioning loans to ancillary industries. Under this scheme, the corporation allows 90 percent of the project.

**Source:**
2. Ibid p.7.
cost in fixed assets by way of loan. Due to this facility the public sector undertaking are coming forward increasingly to off load some of their requirements by encouraging ancillary units. Under this scheme the corporation has sanctioned term loans to 33 units amounting to ₹69 lakhs up to 31st March 1975. As on 31st March 1975, as many as 18 applications amounting to ₹47 lakhs were pending for sanction of loans with the corporation.

The net financial assistance sanctioned since its inception and effective as at the end of March 1975 is as follows:

**TABLE-23**

<table>
<thead>
<tr>
<th>Nature of Assistance</th>
<th>Number</th>
<th>Amount (₹ in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Term loans</td>
<td>2,297</td>
<td>4,023</td>
</tr>
<tr>
<td>2. Shares through under writing</td>
<td>22</td>
<td>81</td>
</tr>
<tr>
<td>3. Debentures through under writing</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>4. Debentures-Direct subscription.</td>
<td>2</td>
<td>27</td>
</tr>
<tr>
<td>5. Deferred payments guarantees.</td>
<td>33</td>
<td>221</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,356</strong></td>
<td><strong>4,359</strong></td>
</tr>
</tbody>
</table>

From the above table, it is clear that the corporation has extended operations to all the three regions of the state. As on 31st March 1975, the corporation has assisted 2,356 units to the extent of ₹43.59 crores, out of which ₹29.12 crores were already disbursed to 1,798 units.

Region-wise distribution of assistance:

The region-wise over all sanctions as on 31st March, 1975 are as follows:

**TABLE- 24**

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Region</th>
<th>Loans</th>
<th>Shares</th>
<th>Debentures</th>
<th>D.P.G.I.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No.</td>
<td>Amount</td>
<td>No. Amount</td>
<td>No. Amount</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rs. in Laks</td>
<td>Rs. in Laks</td>
<td>Rs. in Laks</td>
</tr>
<tr>
<td>1.</td>
<td>Coastal Andhra</td>
<td>903</td>
<td>17491</td>
<td>6 25</td>
<td>2 17</td>
</tr>
<tr>
<td>2.</td>
<td>Rayalaseema</td>
<td>499</td>
<td>761</td>
<td>5 17</td>
<td>- -</td>
</tr>
<tr>
<td>3.</td>
<td>Telangana</td>
<td>895</td>
<td>1771</td>
<td>11 39</td>
<td>2 17</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2297</td>
<td>4023</td>
<td>81 4 34</td>
<td>33 221</td>
</tr>
</tbody>
</table>


It is clear from the above that the corporation had assisted 2,297 units to the extent of ₹40.23 crores by way of term loans. It has also underwritten issues of shares.
to 22 companies amounting to Rs. 81 lakhs and subscribed to debentures of 4 companies (2 underwritten) and 2 direct subscription) for an amount of Rs. 34 lakhs. The corporation had also guaranteed differed payments for 33 units to the tune of 2.21 crores.

The following table gives the details of assistance sanctioned and disbursed by the Corporation during the last five years.

<table>
<thead>
<tr>
<th>Year</th>
<th>Sanctions</th>
<th>Disbursements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1970-71</td>
<td>358</td>
<td>229</td>
</tr>
<tr>
<td>2. 1971-72</td>
<td>401</td>
<td>268</td>
</tr>
<tr>
<td>3. 1972-73</td>
<td>653</td>
<td>328</td>
</tr>
<tr>
<td>4. 1973-74</td>
<td>828</td>
<td>409</td>
</tr>
<tr>
<td>5. 1974-75</td>
<td>993</td>
<td>571</td>
</tr>
</tbody>
</table>


It is evident from the above table that there is an rapid increase in the financial assistance and the amounts disbursed during the period 1970-75. During the five years
the Corporation sanctions increased from ₹358 lakhs in 1970-71 to ₹993 lakhs in 1974-75, while the amounts disbursed has registered an increase of 131 percent raising from ₹229 lakhs in 1970-71 to ₹571 lakhs in 1974-75.

**Small Scale Industries:**

The Corporation has achieved a commendable progress in the promotion of planned growth of small scale industries in the state. Efforts have been made to promote small scale industries by giving incentives especially for the industries located in backward districts of the state. As on 31st March, 1975 the Corporation has extended its financial assistance to 2,038 small-scale units amounting to ₹1,905 lakhs.

The following table gives details of sanctions and disbursements made to small scale industries during the last five years.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>No.</th>
<th>Amount</th>
<th>No.</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1970-71</td>
<td>280</td>
<td>21,062</td>
<td>239</td>
<td>12,017</td>
</tr>
<tr>
<td>2.</td>
<td>1971-72</td>
<td>253</td>
<td>24,997</td>
<td>269</td>
<td>13,895</td>
</tr>
<tr>
<td>3.</td>
<td>1973-74</td>
<td>389</td>
<td>33,074</td>
<td>234</td>
<td>16,705</td>
</tr>
<tr>
<td>4.</td>
<td>1974-75</td>
<td>512</td>
<td>58,860</td>
<td>337</td>
<td>31,800</td>
</tr>
</tbody>
</table>

Source: 1970-74 (1)0.Swaminatha Reddy

A.P.S.F.Corporations role in financing small scale industries, Souvenir, First convention of small scale industries of A.P.ep.cit. p.12.

1. Ibid. 1974-75(2) 10th Annual Report and Account, 74-75 A.P.S.E.C.
It is clear from the above table that there is rapid increase in the financial assistance given to small scale industries during the last five years. The amount sanctioned increased from 20 lakhs in 1970-71 to Rs 589 lakhs in 1974-75. Though there is a fall in the number of units during 1974-75 compared to the previous years, there is a substantial increase in the amount sanctioned as well as is the amount disbursed. In terms of amount it works out to 59 percent of the total of Rs 993 lakhs and in terms of number 95 percent of the total of 54 lakhs.

Default positions

Regarding the default position during 1974-75, over dues have increased from Rs 46.43 lakhs in 1973-74 to Rs 67.05 lakhs in 1974-75. The increase and largely due to paucity of funds for working capital an account of credit squeeze and also due to power shortage in the state during 1974-75. The credit squeeze imposed by the R.B.I has affected the productivity and profitability of the industrial units for want of sufficient working capital. The corporation has stopped financing the modern rice mills as most of the mills financed by the Corporation could not farewell during 1974-75, due to the government levy system. Hence there is a need to revise the policy of rice procurement in the state. The

government should evolve a policy to encourage modernisation of rice mills in the state.

**Conclusion:**

The working of the Corporation is quite satisfactory despite the economic situation prevailing during that period. There is a need to open more branches to enable a large number of entrepreneurs to take advantage of the facilities offered by this Corporation in the state. The Corporation should make every effort to reach the smallest possible entrepreneur living in rural areas. It would be better if the Corporation can be launch a scheme where trained and qualified supervisors may be deputed to each district for propaganda. Such supervisors may be asked to tour the district by a well planned programme, visit the industrial unit and make on the spot study to identify the deficiencies and difficulties faced by them.

Supervisors so appointed may be asked to cover all the small scale industries in the district, at least once during an year. This type of arrangement may bring small entrepreneurs close to the Corporation and its activities. This system may also help the Corporation to take some remedial measures for the healthy growth of industries, particularly small scale industries, located in rural areas.
2) **Andhra Pradesh Industrial Development Corporation Limited.**

Mainly due to its predominantly agricultural oriented economy and also due to lack of necessary climate for the industries to flourish and grow, Andhra Pradesh remained industrial backward for a long time. It is in this context that a need was felt for the creation of an organisation which can motivate people to invest their savings in industry by offering them "total service" which include project identification, participation in risk capital, securing land, water, power, managerial skills and loan capital, and also to assist in implementation of the projects and marketing their products.

The A.P. Industrial Development Corporation is the first of its kind to be established in the country (in 1961) with the following objectives. The main objectives could be grouped into two categories.

1) **Financial assistance to industries set up in Andhra Pradesh by way of direct participation both inequity and preference share capital and underwriting of new issues of equity and preference shares.**

2) **Direct promotion of selected industries in the public, private and joint sectors.**

**Financial Assistance:**

The Corporation has so far rendered financial assistance to 64 manufacturing units by way of direct participation,
underwriting, guarantee of differed payments and temporary loans aggregating Rs 1,100 crores.

As a result of the activities of the Corporation an investment to the tune of Rs 120 crores has been generated in the state constituting nearly 85% of the total investment in the organised sector. This does not include the capital investment in public sector undertakings located in the state.

**Joint Venture Projects:**

In recent years the Corporation (A.P.I.D.C.) has entered the field of sponsoring and promoting joint ventures in the state. Of the total companies assisted, 14 units are in the joint sector prospects, involving a capital outlay of Rs 65 crores. The Corporation share in these joint venture projects will be around 26 percent. These projects cover a wide range of industries such as plastic, engineering, textiles, sugar, fertilisers, pharmaceuticals, chemicals and mineral processing units. The Corporation has already obtained licenses for promoting 28 different types of industries as joint ventures in the states. These schemes under promotion will have an investment of the order of Rs 327 crores of which the Corporation share will be of the order of Rs 32 crores.

**Employment:**

As a result of the promotion activities and investment

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2. Ibid.
estimated to help around 20,000 persons. Consequently employment opportunities created in secondary and territory sections may be of the order of 60,000 persons.

**Statement showing the classified industry-wide investment in shares and loans up to 31st March 1974.**

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Nature of Industry</th>
<th>No. of companies</th>
<th>Amount in/ debentures</th>
<th>Loans</th>
<th>Total investment</th>
<th>Percentage of investment to total investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Engineering</td>
<td>24</td>
<td>319.90</td>
<td>251.25</td>
<td>571.15</td>
<td>57.5</td>
</tr>
<tr>
<td>2.</td>
<td>Fertilisers</td>
<td>1</td>
<td>110.75</td>
<td>-</td>
<td>110.75</td>
<td>11.5</td>
</tr>
<tr>
<td>3.</td>
<td>Jute &amp; Textiles</td>
<td>11</td>
<td>57.00</td>
<td>-</td>
<td>57.00</td>
<td>6.0</td>
</tr>
<tr>
<td>4.</td>
<td>Chemicals</td>
<td>13</td>
<td>117.07</td>
<td>78.53</td>
<td>195.60</td>
<td>20.3</td>
</tr>
<tr>
<td>5.</td>
<td>Paper &amp; Pulp Boards</td>
<td>2</td>
<td>16.20</td>
<td>-</td>
<td>16.20</td>
<td>1.7</td>
</tr>
<tr>
<td>6.</td>
<td>Cement</td>
<td>1</td>
<td>18.61</td>
<td>-</td>
<td>18.61</td>
<td>2.0</td>
</tr>
<tr>
<td>7.</td>
<td>Others</td>
<td>6</td>
<td>11.44</td>
<td>2.50</td>
<td>13.94</td>
<td>1.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>58</strong></td>
<td><strong>650.97</strong></td>
<td><strong>332.28</strong></td>
<td><strong>983.25</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>


From the above it is clear that the Corporation's total investment in the share capital/debentures up to
31st March 1974 aggregates to Rs.650.97 lakhs in 58 companies. (out of which 12 in sponsored/joint venture projects).

Out of the total investment as on 31st March 1974, engineering chemicals and fertilizers took the first three positions with 57.5% and 11.5% respectively. The share of jute and textiles was only 6% of the total investment. Of the total Rs.893.25 lakhs, Rs.332.28 lakhs were given as loans.

Conclusion:

Though the Corporation has been established to promote, improve, establish and develop industries to the state, the Corporation should concentrate on promotional activities more vigourously to attract large number of entrepreneurs. The programme of joint venture in collaboration with the private sector should be aimed to promote and establish, such industries which are export oriented and where private investment is not forthcoming. The Corporation has already created the necessary climate and initiative for the development of industries in the state. With the experience it has gained, one can expect that this Corporation will bring increased industrial activity into the state.

3) Andhra Pradesh State Agro-Industries Corporation:

Among the public institutions started to promote agricultural production programme, the A-gro-Industries Corporations have special significance. These corporation are organised at State level with a definite purpose more merely supply modern machines and implements.
but to train the farmers in adopting modern methods of agriculture. The Andhra Pradesh State Agro-Industries Corporation Ltd., was established in March 1968 and started functioning in July 1968. It is a joint venture of central and State Governments subscribing the capital in the ratio of 51:49.

The authorised capital of the corporation has been raised from Rs.2 crores to Rs.4 crores in 1969. The Corporation is empowered to issue bonds, debentures, borrow from commercial banks, State Finance Corporation, Agricultural Finance Corporation of India etc. The management units with the Board of Director nominated by the Central and State Governments non-officials representing industry and progressive farmers.

The Managing Director is in charge of the entire administration and he is assisted by technical and administrative officers, each in charge of specific duties. The Corporation has its headquarters at Hyderabad and has set up branches in each district with men and machinery to facilitate easy approach to the farmers. Besides district officers, it had established regional offices at Hyderabad, Bapatla, Jagtial, A narayapur and Vijayamagaram to cover the entire state to ensure close supervision over the district offices.

The function of the corporation has been defined so as to enable it to undertake work connected with the
development of agricultural activities and agro-industries. The Fourth Five year Plan emphasised that "for enabling farmers with meagre resources to acquire costly equipment, the corporation will take up sale of equipment and machinery on hire purchase basis. They are responsible for organising distribution of tractors, agricultural equipment and spare parts and setting up centres for hiring, servicing and repairing of agricultural machinery."

The main objectives of the Corporation are as follows:

1. To import several makes of tractors of different horse power from abroad and distribute the same to farmers.

2. To organise and undertake land shaping

3. To organise and undertake drilling operations for drinking and irrigation purposes.

4. To contribute share capital in the establishment of agro-based industries by private agencies.

5. To set up fruit and vegetable processing plants and to manufacturer low priced high protein food and

6. To assist the farmers by supplying spares, tyres, tubes and other modern agricultural implements like pump sets, oil engines etc. as well as GC and GP sheets.

Distribution of Machinery and Implements:

Consequent to the formation of Agro-industries Corporation the distribution of imported tractors has been entrusted to the Andhra Pradesh State Agro-industries Corporation in the state. The Corporation has been permitted to import several

makes of tractors from abroad. It has so far imported tractors from Russia GDR and Rumania.

The farmers intending to purchase these tractors have to register their names with the corporation. It also supplies tractors to loanees of land Mortgage Banks. The allotment of tractors is made district wise in the order of registration. The corporation undertakes the repairs and servicing during guaranteed period. The Corporation also undertakes the supply of spares needed.

Hire Purchase activity:

The Corporation has made arrangements with manufacturers of pump sets, electric motors and diesel engines for sale on hire purchase basis to cultivators. The distribution is undertaken by the district offices. The Corporation has already made arrangements with the state Electricity Board for supply of power to about 30,000 wells per year during the next 5 years. This scheme provides installation service and after sales service to its clients. The corporation also insures the equipment supplied to the farmers against any loss or damage. The Corporation also undertakes the replacement of spares which have failed during normal operations against nominal payments.

Agro-Subsidiary Limited, a subsidiary Company of the Agro-Industries Corporation has been established with the
dual purpose of making available standard oil engines, electric motors and pump sets to the farmers at competitive prices and to attend to after sales service of the pump sets.

The Corporation has also undertaken the scheme of proving agricultural machinery on hire at selected centres. Each agro-centre will have 60 wheeled tractors of 20-35 HP along with other implements and other attachments like 6 crawler tractors of 50-60 DB HP and 3 Crawler tractor with 80-100 HP. All the machinery will be used entirely for the purpose of hiring out to cultivators at fixed charges. Besides, sophisticated attachments like tractors, mounting sprayers and dusters, deep ploughs and drilled machinery etc. are also maintained in these centres. Subsequently International Harvestor tractors are also added to meet the requirements of the farmers.

Bulldozers and crawlers are used for land reclamation and deep ploughing operations.

The Corporation has also taken up activities like land reclamation and ground water exploitation with particular emphasis on drinking water. The government has entrusted this task of purchasing and development of drills to the Corporation in view of drought conditions prevailing in certain parts of the state. In the field of land development, the Corporation had reclaimed and developed 47,000 acres of land
with the help of bulldozers during 1969-70 and 1970-71. It had planned to tackle 35000 acres of land during 1972-72.

Spraying:

The department of agriculture in cooperation with the state Agro-industries Corporation has undertaken a scheme to rid orchards of deadly pest called 'hopper' and a decease called 'Sooty mould' for the first time in the state. Tractor spraying of pesticides was resorted to in a big way in Mango orchards with the objective of increasing the quality and quantity of the crop. Mango growers who undertaken tractor mounting spraying were given loans at Rs 25 per acre each. The per acre cost is about Rs 29 and the tractor is hired at Rs 20 per hour. The agricultural department in a brochure claimed that the production value realised from each spraying tree is three or four times more than that from an un-sprayed one. The Corporation has also taken up spraying work for dry cotton in Karnool district on contract basis. The scheme of spraying will have a dual effect viz. pest control and supplying of nitrogen to plants. It is hoped that this scheme will extend to large tracts in future.

Food Processing and shortage etc.

The Corporation has a food technology division set up for investigating the possibilities of establishing agro-based processing industries, conducting feasibility studies and
planning and implementing schemes for the promotion of such industries. The Corporation has already taken over the Government fruit preservation factory at Anantharajupeta of Cuddapah district with a view to diversify and expand the production of the factory. The Corporation has been planned to set up a large scale fruit processing unit in Mango area of Krishana district. The Corporation has already completed the investigation and other formalities in this regard. Setting up of one onion dehydration factory in Cuddapah district and a maize processing unit in Telangana and cold storage plant at Visakhapatnam for promoting export of prawns from Andhra Pradesh are under active consideration of the Corporation. A normal, portable type of rice milling machine imported from Japan for evaluating the performance with the varieties of the rice grown in the state is found to be satisfactory, and the feasibility of manufacturing it in collaboration is also under consideration. There is also a proposal to conduct a test marketing in twin cities in respect of vegetable tanned protein rich milk, which will be cheaper than the milk. If the test-marketing proves to be a success, the Corporation may take up the production of milk substitute in a long way.

Cattle feed and poultry feed compounding factories are being set up in the state. The processing activities which the Corporation undertake largely depends upon the needs of the particular area.
Miscellaneous activities:

The Corporation also securing GC.GP, sheets allotments towards agricultural quota from the Ministry of Steel and Heavy Engineering for agricultural use of the farmers. Besides, it is also supplying the tyres for imported tractors to the needy farmers.

Conclusion:

Through the Agro-Industries Corporation came into existence more than 7 years ago, its activities are confined mainly to cash sale/hire purchase of tractors and spare parts and other equipment. This facility is available to the well to do farmers, but, keeping in view the small and marginal farmers who from the majority of the agriculturists in the states, there is an imperative need to expand the present customer service in agricultural implements, hiring out of farm equipment etc. The Corporation should expand its activities to rural areas. Expansion of agro-centres should be taken up in order to make the services available to the common man. So far sporadic attempts have been made by the Corporation in this direction. The Corporation's role has been confined mainly to trading activities. Today, in India, we need farm doctors to spread the gospel of modern agricultural practices and to cure
the ills of rural economy. The Corporation can take a lead in this direction to train the rural farmers.

In certain states the Agro-Industrial Corporation have gone a step ahead, towards the production/sale of fertilizers, pesticides, seeds, poultry cum cattle feed etc. But in Andhra Pradesh the Corporation is yet to make a beginning. In view of the large variety of fruits and vegetables that are grown in Andhra Pradesh, the Corporation should intensify its activities in the line of processing. The Corporation can take up cashew processing on modern lines for export purposes.

Anabshahi, a most delicious grape is being grown in Hyderabad, Secunderabad, Mahboobnagar, Anantapur and Kurnool districts of the state. As result of massive investment of capital by gentlemen farmers from all parts of the country Anabshahi is grown on an ever increasing acreage. It is estimated that an investment of Rs. 20,000 is necessary for grape cultivation of one acre. It has been calculated that about six crore rupees have been invested in this project in addition to the annual recurring expenditure of Rs. 1.8 crores. Each acre employees in a season about 1000 man days of labour for its maintenance, harvest and packing. This would mean that the grape cultivation in and around Hyderabad is providing employment to 30 lakh man
days of labour paying Rs 60 lakhs in the form of wages.

As there are few countries in the world harvest grapes between February and April, grapes grown in Andhra Pradesh have good export prospects.

Besides exporting grapes during season, the Corporation may set up a grape winery unit. The Corporation should try its hand in such of the agro-based industries which are export oriented.

The Corporation may set up the following based industries for export purpose.

1) Cashew processing unit, Cashew shell oil.
2) Dehydration of fruits and vegetables.
3) Solvent Extraction plants for rice bran/cotton seed.
4) Canning of fruits and vegetables.

The Andhra Pradesh Infrastructure Corporation Limited

The Andhra Pradesh Infrastructure Corporation is one of the two Corporations which were established in recent years. The need was felt to accelerate the development of the industries in order to catch up with the industrial development of the more advanced states in the country. Development of infrastructure facilities like water, power, roads, land etc.

1. Eastern Economicist, Special Number Vol. 55(21) p.44
are the important pre-requisites for development of industries in any area. To this end and to create a congenial atmosphere to attract new entrepreneurs particularly in under-developed and backward areas, the Govt. of Andhra Pradesh established this corporation in September 1973.

To start with, this corporation has been entrusted with the responsibility of managing the industrial estates which were existing on that date. Besides, the corporation has to provide the infrastructure facilities in areas where such facilities do not exist. Preferential treatment will be given to such areas which have been declared as industrially backward by the Govt. of India.

The Corporation has already put on board certain very important projects for the development of small scale industries in the state.

1) **Industrial Development Area**

Certain selected areas of land which are suitable for industrial development will be taken over by the corporation and will be provided with facilities like water, roads, drainage, power etc. under this schemes Patancheru near Hyderabad, Tirupathi, Renigunta belt in Chittoor district and Visakhapatnam have been chosen and work is in progress. Large scale industrial like Mini-Steel Plants, pesticides, tanneries, chemical units are coming up. Besides this Shadnagar, Ramagundum, Guntakal, Vijayawada and Srikakulam have been identified...
as growth centres.

Besides the usual conventional industrial estates and assisted private industrial estates, the Corporation has programmed to construct Satellite Industrial Estate, self-Employment Estate, Technocrats Estate, Ancillary Estates and Commercial Estates in different parts of the state.

The Corporation has already undertaken the construction of houses for workers and various industrial estates and Industrial Development areas. Material depots have been opened at Viskhapatnam, Vijayawada, Tirupathi, Warangal and Hyderabad. Housing material like iron, cement, asbestos sheets etc. will be supplied to those industrialists who intend to construct their own industrial sheds on the plots allotted by the Corporation. The Corporation has also taken up water supply schemes for providing water to industries in areas where such facilities do not exist. At present, A.P.S.E.B is demanding voluntary loans contribution from the industries for supplying of power. The Corporation has prepared a scheme to assist the technocrats and self-employed persons who intend to set up industries on Industrial Development Areas and Industrial Estates. Under this scheme, voluntary loans contribution payable to A.P.S.E.B will be met by the Corporation and the amount so paid will be collected from the person concerned with interest on easy instalments. The Corporation also acts as an agent for the
disbursement of margin money under self-employment schemes and subsidy under the Central Scheme to industries.

The only criticism levelled against this Corporation so far, is that the rate charged by the Corporation in respect of land is very high. The rate of the lands that were acquired by the Government for industrial purposes is ranging from ₹2 to ₹4 per sq. yard and the same is being sold at ₹15 to 20 per sq. yard on the plea that this is the local market rate. No doubt, the Corporation might be spending huge amounts for the development of sites to provide the possible facilities, but it does not mean that the Corporation should sell the developed plots at such abnormal rates. The Corporation should build up a public image to attract a large number of entrepreneurs, specially, small scale industrialists. For the small scale industry to prosper in rural areas the Corporation should sell the developed plots at concessional areas, if not at least on a no profit and no loss basis.

5) **Andhra Pradesh Small Scale Industries Development Corporation**

Andhra Pradesh small scale industries Development Corporation with a capital of ₹1 crore has been registered in 1961. The Corporation has been rendering useful services for the cause of small scale industries in the state. The

1. G.V.S. Mani, Some Basic Problems of Small Scale Industries and Suggested solutions; Sovnenior, First Convention of Small Scale Industries of A.P., April, 1975, p.17,
following are the important objectives of the Corporation.

1) Providing financial assistance direct participation in the capital up to 50 percent in private limited companies.

2) Supply of machinery on hire purchase on liberal terms to educated unemployed through National Small Scale Industries Corporation.

3) Supply of scarce raw material through Raw Material Servicing Centres opened at six places namely Sanatnagar, Warangal, Samalkot, Vijayawada, Visakhapatnam and Cuddapah. These centres have been procuring and distributing scarce raw material including ferrous and non-ferrous metals, to the small scale units.

4) To help process the project report and schemes and recommend for financial assistance from banks.

5) To help small industries in marketing their products to Government, quasi-Government departments, undertaking and to other potential buyers.

6) Maintain liaison with the large scale industries and help in the development of ancillary industries.

The performance of the corporation has not been good throughout marked by ups and downs. From 1972-73 onwards the corporation has extended its activities to various fields. Some of them which are important are given below:

1) The corporation has taken up the supply of more varieties and larger quantities of scarce raw materials to the
small industrial units in the state through its raw materials servicing Centres.

2) For the first time, it has also taken up the supply of indigenous machinery on hire purchase basis to small scale industrial units in the state.

3) In addition to iron ore, steel the corporation has started the supply of coke and pig iron to the small scale industrial units through its service centres.

4) Of late, the performance of the production units of the corporation has also started to look up.

5) The corporation has continued its scheme of capital participation in setting up of small scale industrial units in the joint sector. So far the corporation has agreed to participate in the capital structure of 50 private limited companies to the tune of ₹ 98.29 lakhs of these 26 units have already gone into production.

6) During 1973-74 for the first time the corporation has also taken up marketing of the products in a big way.

Conclusion:

Though the corporation was established as early as 1961-62 it has participated in the capital structure of 50 private limited companies to the extent of ₹ 98.29 lakhs which is rather unimpressive. More efforts are to be made to energise it to play a more dynamic role in direct participation in private limited companies and increase the supply
of scarce raw material to a large number of entrepreneurs.

The corporation's performance has not been satisfactory, during the course of eleven years of its existence the corporation has made a nominal profit, the highest being Rs 38,000. During eight years the corporation has incurred heavy losses, the highest being Rs 11.51 lakhs during 1970-71. In the following year (1971-72) the corporation has again incurred a net loss of Rs 11.30 lakhs. But during the year 1973-74 the corporation made a profit of Rs 54.95 lakhs adequate enough to wipe out all the accumulated losses and leave a surplus of over Rs 23.33 lakhs.

There is a feeling among the small scale industrialists that Andhra Pradesh has not been accorded due place it deserves in respect of raw material allocation to the state by the centre. In case of aluminium the allotment to Andhra Pradesh is roughly equal to the allotment made to Manipur and Pondicherry individually.

It is also said that margins charged by the raw material servicing centres are very high. It is desirable to fix a statutory limit for such margins for all the corporations in the state. The Industries Directorate should have a separate wing for the purpose of fixing the prices of essential industrial raw material for the benefit of small scale industry in the state.

1. APSSIDC produces Excellent working results for 1974-75, pamphlet issued by APSSIDC, HYDERABAD. p.3.
2. G.V.S. Mani, Some basic problems of small scale industries and suggested solutions, souvenir, First Convention of small scale industries of A.P. op. cit.
6) **The Andhra Pradesh Mining Corporation Limited:**

The Andhra Pradesh Mining Corporation with an authorised capital of ₹ one crore has been started in 1961. This corporation is engaged in the exploration and extraction of a variety of minerals, such as Asbestos, Iron-ore, Manganese, Marble, Barytes, Lime stone, Clays, Quartz etc.

7) **Andhra Pradesh State Trading Corporation Limited:**

A need was felt for an institution to promote export trade and to serve as a direct channel for the products manufactured by the small producers and entrepreneurs in Andhra Pradesh. In order to make up the long felt need to aid the small exporters and to remove the middlemen who are profiting at the expense of small entrepreneurs, the state government has set up an Export Import Corporation, in 1970 with an authorised capital of ₹ 2 crores. Subsequently, the name of the Corporation has been changed to Andhra Pradesh State Trading Corporation Limited. This Corporation has been looking into the problems of export and import of the state.

Besides the above, the state has two more corporations

8) A.P. Leather Industries Development Corporation, and,

9) A.P. Dairy Development Corporation (P) Limited.

**Industrial development under cooperative sector:**

The above mentioned corporation aims to meet the growing needs of industries in the state. Besides these, the Andhra Pradesh State Cooperative Marketing Federation is also taking keen interest in the development of agro-based industries in
The cooperative sector.

The Andhra Pradesh State Cooperative Marketing Federation Ltd.

The State Cooperative Marketing Federation is a state level federation of the Cooperative Marketing Societies in Andhra Pradesh. It was established in 1965 with the main object of coordinating and promoting the marketing and trading activities of its constituent members and to undertake state trading in agricultural and other commodities. It supplies agricultural and other commodities. It supplies agricultural implements, seeds, manures etc. to its members and acts as an agent of the government to any agency for the purposes, sale, storage and distribution of agricultural requisites. It has been helping its member societies in the establishment and construction of godowns, rice mills, cold storage and medium sized agro-based industries like solvent extraction plants, cattle feed etc.

The federation plans to develop processing which is an ancillary and necessary adjunct. It has established a solvent extraction unit (rice bran oil) and is setting up a vanaspati complex, cotton ginning and processing units, and a cold storage. It is proposed to establish a large number of such medium sized agro-based units in all potential areas. Service activity like tractor hire cum service centres, multiplication and processing of seeds are being taken up. Such agro-based industries have given a lead to many industrialists to take up similar ventures in other areas.

1. Mustafa Husain, Service Role of the A.P. State Cooperative Marketing Federation, Souvenir, A Decade of Service; A.P. S.C.M.F. Hyderabad.
It is hoped that the A.P.State Cooperative Marketing federation will take up more agro-processing units throughout the state in coming years for economic utilisation of its secondary agricultural products. Such agro-processing units may provide better employment opportunities to the skilled and unskilled persons in rural areas.

Institutional frame work for weakee sections:

The Andhra Pradesh State scheduled Castes Cooperatives Finance Corporation has been established to accelerate the pace of development programmes for the economic uplift of the scheduled castes and to channelise institutional finance and to provide credit facilities. The Corporation was registered in February 1974 with an authorised share capital to the tune of Rs 1 crore.

The inauguration of Andhra Pradesh Backward classes Cooperative Finance Corporation has been hailed as landmark in the history of weaker sections in the state. They constitute about 52 percent of the state population and therefore their welfare and amelioration are of paramount concern to the government wedded to the concept of the welfare state. It was, perhaps, for the first time in India that institutional finance will be channelised in a big way through the Corporation so that the weaker sections could participate in and promote agricultural development, animal husbandry, small scale, village and cottage industries.

Backward classes represent about 38 percent of the states' population and most of them are from the professional
groups such as weavers, fishermen, tailors, washerman, barbers etc. All these years they could not improve themselves due to the lack of technical knowledge and organisation, ignorance of modern managerial practices and paucity of marketing facilities. This corporation is expected fill the gap and work for planned economic development of backward classes in the state.

In this connection schemes have already been drawn, of which the following are important:

1) Readymade garments
2) Oil pressing
3) Help to fishermen
4) Help to washermen
5) Poultry farming
6) Sheep farming
7) Supply of milk cattle,
8) Development of agriculture
9) Development potteries
10) Petty trade or business etc.

These schemes, if properly implemented, not only result in increased earnings, but also lead to improve the standard of living.

************
Growing disparities in prosperity among various nations are said to exist in one form or the other. In most advanced countries like U.S.A., U.K. France, Japan and Italy with a high degree of industrialisation, we find today the existence of regional disparities. Even Socialist countries like U.S.S.R. Yugoslavia, and Poland with centrally planned economics, are not free from this problem.

It is said that undirected and uncontrolled process of regional economic development will lead to various economic political, social and cultural inequalities. If unattended for long time it will come in the way of utilising the country's resources to the fullest extent. Consequently, it may become a tumbling block for the smooth running of the economy. In underdeveloped countries like India, such disparities are glaring and therefore economic and political problems are highly critical. If allowed to grow, it may even threaten the very existence of the state itself. This was what has happened in the case of Pakistan, which lead to the the partition of the country. In India it was in 1956 that the Planning Commission had recognized the problem
of regional disparities in the levels of development and accordingly balanced regional development was made on of the objectives of the second five Year Plan.

The concept of regional planning is a recent phenomenon and it is still in its infancy. So far no universal pattern on regional planning acceptable to all the nations has been evolved, as the conditions prevailing in different nations in this regard are not of the same magnitude.

Situation in Andhra Pradesh:

Andhra Pradesh was the first state to be formed on linguistic basis bringing all Telugu speaking people together merging Andhra State with Telengana area. Common language is said to be the binding force for creation of such states in India. Paradoxically, events that took place in the recent past have clearly demonstrated that mere language by itself is not sufficient to hold them together on permanent basis. Besides politics, regional imbalances that exist in different regions of the state added fuel to the fire. The Telangana controversy that shook the very existence of the state lead to think that the time is not far away for the state to split into two. The dead lock was averted by the timely interference of the Prime Minister, who evolved the "six point formula" to break the deadlock and to and the

1. The six point formula has been incorporated in the constitution (Thirty Second Amendment) 1973.
controversy. No doubt it resulted in joy to politicians and some satisfaction to public, it has also some economic significance. Probably, for the first time in India, the concept of regional planning was given practical shape by providing institutional frame work to ensure balanced regional growth.

Problems of regional development with distinct emphasis on spatial allocation of resources as compared to sectoral aspects of development, are given serious attention in the country in recent time. The main principle that governs regional planning in spatial relation is that "each region should be planned in coordination with the adjoining or farther regions, which are interlinked, physically, economically and socially." A scientific locational plan at micro level tends to reduce regional imbalances, promoting not only economic growth but generate employment.

Regional allocation resources:

The six point formula is aimed to bring out balanced regional growth in the three regions of the state namely Coastal Andhra, Rayalaseema, Telangana. For its implementation the centre has offered an assistance of ₹ 90 crores and this amount would be made available during the Fifth Plan period for the development of backward areas of the state. Under this formula, allocation of resources will be some in the three regions of the state in the ratio of 2:3:5. The logic

behind this ratio is that coastal Andhra is relatively prosperous than the other two regions and hence, 80 percent of the resources would be spent in Rayalaseema and Telangana while the coastal Andhra's share will be 20 percent. To start with, an amount of Rs 18 crores has been allotted during 1975-76 for accelerated development of the identified backward areas in these three regions of the state. The three regional boards constituted by the state government have approved the various schemes. The schemes, aimed at the accelerated development of Andhra Pradesh lay considerable emphasis on monor irrigation, rural electrification, enhanced drinking water supply, industrial development agriculture and allied programmes including higher education. While approving the proposals, seventy five percent of the funds have been earmarked for district-wise schemes like irrigation, agriculture, economic aid programme for weaker sections, rural electrification, ground water development and the remaining 25% has been set apart for industrial development and higher education under the regional schemes.

The sector-wise allocation of resources under six point formula during 1975-76 as follows:

<table>
<thead>
<tr>
<th>TABLE-28</th>
<th>Rupees in lakh</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Medium irrigation</td>
<td>6.00</td>
</tr>
<tr>
<td>2. Minor irrigation</td>
<td>516.00</td>
</tr>
<tr>
<td>3. Agricultural, Dairy Development, Forestry and allied sections.</td>
<td>209.45</td>
</tr>
<tr>
<td>4. Rural water supply.</td>
<td>203.59</td>
</tr>
<tr>
<td>5. Economic support programme for weaker sections.</td>
<td>57.84</td>
</tr>
<tr>
<td>6. Rural electrification</td>
<td>300.00</td>
</tr>
<tr>
<td>7. Ground water development.</td>
<td>12.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1305.38</strong></td>
</tr>
<tr>
<td><strong>in 13 crores.</strong></td>
<td></td>
</tr>
</tbody>
</table>

1. State Information Centre, Issued by Director of Information and Public Relations, Govt. of A.P. Hyderabad.
Out of the total amount earmarked for the district wise, schemes, a amount of 2.89 crores has been allotted to coastal Andhra, ₹ 3.91 crores for Rayalaseema and ₹ 6.75 crores for Telangana region.

**Industrial Development:**

Of the total amount allotted, 25% has been set aside for the industrial development involving an outlay of ₹ 4.5 crores during 1975-76. Details of the allocation of this amount under various heads are as follows:

<table>
<thead>
<tr>
<th>TABLE -29</th>
<th>(Rupees in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Andhra Pradesh Industrial Development Corporation</td>
<td>155.00</td>
</tr>
<tr>
<td>2) Andhra Pradesh Industrial infrastructure Corporation</td>
<td>100.00</td>
</tr>
<tr>
<td>3) Andhra Pradesh Mining Corporation Ltd.</td>
<td>30.00</td>
</tr>
<tr>
<td>4) Textiles</td>
<td>25.00</td>
</tr>
<tr>
<td>5) Sugar</td>
<td>80.00</td>
</tr>
<tr>
<td>6) Leather industries Development Corporation</td>
<td>30.00</td>
</tr>
<tr>
<td>7) Small Scale Industries</td>
<td>28.00</td>
</tr>
<tr>
<td>8) Industries Development</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>450.00</strong></td>
</tr>
</tbody>
</table>

Of the ₹ 4.50 crores earmarked for the industrial development schemes, Coastal Andhra has been given ₹ 0.90 crores, Rayalaseema ₹1.35 crores and Telangana ₹2.25 crores. Regional wise approved list of schemes of industrial is given in the Appendix no.
Conclusion:

It is established beyond doubt that Andhra Pradesh is industrially backward. An analysis of various indices reveal the comparative backwardness of the state in industrial sector. The per capita value added by the manufacturing industry was only Rs 17 in Andhra Pradesh against Rs 42 in the country as a whole and Rs 120 in Maharashtra, Rs 91 in West Bengal, Rs 82 in Gujarat and Rs 54 in Tamil Nadu. The average daily employment of factory workers per 1000 population in Andhra Pradesh in 1971 was only 6.0 against the All India average of 9.0 and 20.2 in Maharashtra, 18.8 in West Bengal, 16.6 in Gujarat and 10.7 in Tamil Nadu. The per capita consumption of electricity for industrial purposes in 1970-71 was 22.3 Kwh against the national average of 54.9 Kwh. According to the annual survey of Industries 1965, the exfactory value of output of the factory sector was of the order of Rs 350 crores. In 1966 the corresponding figure seems to have been Rs 400 crores. It is little over 3.5 percent of the correspondence figure of the entire country. In respect of the net value added also, the picture is broadly similar.

From the above, we can conclude that the Industrial backwardness is glaring when we take into consideration both the value added by the industries and the employment generated by them which are well below the national per

capita average figure. The most conspicuous among the reasons for this state of affairs, beside other factors, are mainly (1) power shortage and (2) meagre allocation of resources.

Power position is bound to improve in the course of 5 to 6 years since a large number of generating sets are coming up and an amount of Rs 13.35 crores representing 37.40 percent of the total plan outlay has been earmarked during the Fifth Five Year Plan.

Besides, there is a proposal to set up two thermal stations under the central sector, to make use of the coal available in the Godavari basin. There will be no difficulty for equipment for these plants as BEML is prepared to meet the requirements.

The second reason for the relative backwardness of the state is low investment in industries sector throughout the plan period. This is an defect found in the state planning since the industrial sector has not been accorded due place in respect of allocation of resources. The allocation to industries never exceeded 5.4 percent of the total outlay, while agriculture and irrigation are accorded highest priority even during the Fifth Five Year Plan period.

Agriculture and irrigation put together account for 29.0 percent of the total plan outlay, while an amount of Rs 47.75 crores, representing 4.3 percent of the total plan
outlay was earmarked for industry and lines. But there is no reason for disheartening as the same is nullified to some extent by the assistance of Rs. 90 crores offered by the centre under the six point formula during Fifth Plan period. Of the amount of Rs. 18 crores provided during first year under six point formula, Rs. 4.50 crores i.e. 25% of the total has been made available for industrial development. In the coming years this should be raised at least to 50 percent keeping in view of the needs of the industrial sector and the meagre resources allotted during Fifth Five Year Plan period.

A distinguishing feature of the state's economy today is that it has shown a rate of growth which should be the envy of other states. In 1973-74 Andhra Pradesh registered a growth rate of about 14 percent in the state income against the All India figure of just over 3 percent. States which have shown a high rate of industrial growth despite of meagre plan allocation have done so either due to the influx of sizeable private sector investment or the location of sizable public sector units.

All these factors, mainly reflect achievements made in the production of food grains and high rate of industrial growth, may have beneficial effect on the industrial sector particularly on agro-based industries in the state.

The existing institutional framework appears to be quite sufficient to take advantage of the changes taking place in both the Agricultural and Industrial sectors of the state.

1. Southern Economist, Bangalore, A.P. Number, op.cit. p 3
2. Ibid, p.3
state and adequate enough to attract a large number of entrepreneur into their fold to usher industrial prosperity to the state as a whole.

Thus, Andhra Pradesh has all the pre-requisites for industrial growth, including a progressive agricultural base, industrial raw materials, large markets, manpower, both skilled and unskilled. The need of the hour is for progressive entrepreneurship and flow of liberal finance into industrial sector.

An attempt is made in the next chapter to explain the development and the position of agro-based industries with reference to the facilities available in Andhra Pradesh.
CHAPTER - III

AGRO-INDUSTRIES - A CRITICAL STUDY

PART - I

Concept and definition of Agro-industries:

The term 'agro-industries' means industries manufacturing inputs for agriculture as well as industries engaged in processing of agricultural raw material.

Agencies engaged in manufacturing agricultural inputs like fertilisers, pesticides, tractors, trailers, seeds and other farm equipment and machinery as well as servicing centres and repairing workshops are termed as agro-industries; while those processing units directly or indirectly absorbing agricultural output as basic raw material are known as 'agro-based industries'. The agro-based industries aim at the maximum utilisation of primary and secondary agricultural produce such as paddy, wheat, sugar cane, cotton, tobacco, jute, chillies, fruits, vegetables, groundnut and other oil seeds and also industries making use of surplus agricultural waste like straw, shells, husk, sugar cane bagasse, jute stalks, etc. Sometimes taking into account the second and third stage of processing,
the term is said to include industries like bakery, starch making and biscuit making also.

A list of agro-industries has been prepared by a joint group consisting of representatives of the Planning Commission, the Ministry of Food and Agriculture and the Ministry of Industrial Development, Internal Trade and Company Affairs. These industries may be broadly classified as follows:

1) Products of plant and vegetable origin.
2) Products of animal and marine origin.
3) Products of natural and mineral wealth.
4) Inputs required for agro and agricultural industries.

The present study of agro-industries is confined to the products of plant and vegetable origin of Andhra Pradesh with special reference to East Godavari District where all the units under study are located.

**Economic Significance:**

Agriculture plays a dominant role in the economic structure of the country, more so in the state of Andhra Pradesh. Industrialisation is one of the chief objectives of every country. But the relative position of agriculture and industry in the basic factor which determines the difference

between the developed and developing countries in their economics. In developing countries agriculture generally accounts for the major portion of national income. The level of income derived from agriculture is generally lower than the income derived from Industry, Trade, Services etc. Consequently services, export, manufacturing and other industries play only a passive role in the agro-based economy. In the developed countries non-agricultural sector plays a dominant role. Economic prosperity of a developing nation like India lies in successful integration of agriculture with industry.

In spite planned efforts to put the county on the path of industrialisation, a major portion of India's population is concentrated in rural areas and their mainstay is agriculture. Hence it is agricultural production which largely determines the real rate of growth. The space at which industrialisation can proceed depends mainly upon the agriculture surplus for masses and agricultural raw material for the industry.

The level of economic development of a country mainly depends upon the availability of natural resources and the degree of their exploitation, which constitutes the bedrock of the economy. In most of the developing countries, agriculture provides a market for industrial products, not only for consumer goods but also for a wide range of equipment.
and material used in agricultural production. In an agro-based economy like ours, it is the agricultural sector which is subjected to considerable strain and stress, specially during the period of rapid industrialisation. It is imperative that the rate of growth of agricultural output largely determines the rate at which industrialisation can proceed.

On the other hand, agriculture depends on industry not merely for consumer goods which give incentive to raise their products but also for the inputs which are needed for modernization of production.

Industrialisation, thus, cannot precede but follow increased agricultural production. The most essential aspect of the relationship is that each sector depends very largely on the demand of the other for its products. This integration of these two important sectors namely agriculture and industry has given birth to an harmonious link which is what we call 'Agro-industries', not only for their development but also for mutual existence.

As long as the productivity of land is low, industrialisation cannot catch up real momentum. It is, therefore, essential to increase the productivity of land on war footing which constitutes a prerequisite for diversi-

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1. For an attempt to determine the rate of growth of agricultural output needed to sustain different rates of growth in industry in India. See Asok Rudra, 'Relative rates of growth, Agriculture and Industry', Economic Weekly; 16(45), November 1964, pp. 1781-1783.
The Director General of the International Labour Organisation in one of his reports said: "The economically underdeveloped countries are rich in people whose skill potential is inadequately developed, who have insufficient opportunities for productive employment, who lack organisations which would enable them to produce more and whose health and living conditions severely limit their productivity."

The same is true in case of India whose economy is stagnant, agricultural techniques still primitive and tools out-dated. Consequently the productivity is low. To bring about marked improvement, we have to make structural and technological changes necessary to develop and intensify agriculture. For this purpose agro-industries are considered as the most suitable agency.

The present state of affairs presents an ugly picture and agriculture remains more or less a way of life rather than a business. When technological development is going on rapidly in advanced countries of the world, we cannot afford to remain idle and allow to continue the present stage of quasi-equilibrium of agricultural development. It is in the best interests of the country that we change our concept and choose mechanisation of agriculture and development of agro-industries. This is the surest way of competing with

1. The Indian Express; Vijayawada, 15 April 1972.
with other developing countries and those countries which are already developed.

It is feared that a large number of people will be thrown out of agricultural sector, in case we choose mechanisation. But the benefits accruing out of the development opportunities to semi-skilled and un-skilled labour in rural areas.

So far no systematic survey has been made in India to assess the anticipated unemployment and the possibility of alternative employment in the industrial sector. But it is admitted by and large that though some persons may be thrown out of employment from the agricultural sector, the cycle of mechanisation will definitely create more and better opportunities for employment in the industrial sector.

Japan which is an Asian country, provides an ideal example in the matter of mechanisation and development of agro-industries. We can thus choose the agro-industries as an instrument to enhance the productivity of land and profitability of activities concerning agriculture in order to exploit the treasures of land to the best advantage of the farmer.

Industries can broadly be classified into two groups: 1) resource based and 11) non-resource based. The resource based industries depend mostly on the indigenous raw material while the latter group cover manufacturing activity largely on materials brought from outside the state(region).
In view of the well developed agricultural base, the N.C.A.E.R. Survey Report for Andhra Pradesh recommended for the development of maximum number of industries based on agricultural products on two broad based objectives: 1) that all the agricultural raw material which is available in the state should be utilised to the maximum extent in the state itself and 2) if utilised within the region, create many indirect and secondary economic benefits through a chain of varied industries based on each product.

The survey conducted by the National Council of Applied Economic Research has identified that "the prospects for the development of the non resource based industries on a large scale in Andhra Pradesh are currently not very bright in view of the state's industrial backwardness and the absence of a strong entrepreneurial base although there is an immediate need to create the necessary environment for its development to evolve a balanced structure and sustained growth of the industrial sector in the state".¹

At present a substantial part of the raw-material is exported to other states and the products remaining within the state are utilised in the industries, mainly for

primary processing. Hence the complete chain of industries for each product has not been developed in the state.

It is, therefore, necessary to create congenial atmosphere for the development of a comprehensive agro-industrial complex in the state. The present position of the large scale production of some of the commercial crops in the state offer great possibility for the establishment of agro-industries for making use of agricultural material as well as bye products of some of the industries. Once processing units to absorb agricultural raw material near production centre are established, and the demand for raw material of good quality is assured, the farmers are likely to grow more commercial crops increasingly. Besides, offering a remunerative price will be a motivating factor for the growth of agro-based industries. It is, therefore, necessary to follow a co-ordinated approach between developing plans for agriculture and agro-industries so that all round agro-industrial development is assured in the state.
The economy of the state is primarily agriculture oriented. Besides rice, jawar, maize and bajra a wide variety of commercial crops are grown in all the districts of the state. Of these tobacco turmeric, castor seed, groundnut, sugar cane, chillies, mesta, coriander, coconut, cotton are important. In the following pages an attempt is made to explain the importance of the paddy crop in the economy of the state and the development of the agro based industries.

**Paddy Processing:**

Paddy is the most important crop of the state. Among the rice growing states of the country, Andhra Pradesh ranks sixth in regard to the area and fourth in respect of production. Paddy is grown in almost all the districts of Andhra Pradesh. Important rice growing districts are West Godavari, Krishna, East Godavari and Nellore in Andhra Region and Nizamabad, Warangal in Telengana region. Rice accounts for 24 percent of the total cropped area in the state. About 94 percent of the area under this crop was irrigated during 1972-73.

**Hand pounding of Paddy:**

The hand processing of paddy is a very ancient industry concentrated mainly in villages. The hand
processed rice is known for its nutrition value and also for its large employment potential. The implements used are of simple type. During the course of time the implements like pestle and mortar were introduced and are being used even today in large areas of paddy growing areas of India.

At the beginning of the present century, power driven rice mills came to replace the ancient traditional hand pounding industry. From being a simple home and village small scale industry providing self employment to millions of people and also to some more millions of working women in their own homes or villages on a respectable living wage which was mostly paid in kind, paddy processing business has now grown to be a big industry involved fully in all the ramifications of finance, banking, marketing, cornering of stock and price fluctuations, scarcity and glut.¹

It has withstood the onslaught of rice mills and huller and therefore, nearly two thirds of the paddy converted into rice in the country is by hand pounding even today². The marketing of hand processed rice inspite of its higher nutritious value, has become difficult mainly due to higher cost of production and partially because of unfavourable consumer taste to its colour. If we can succeed in bringing down the

cost by systematic efforts like introduction of better tools and techniques improving the managerial efficiency etc., can put this industry in good shape. Systematic efforts, therefore, have to be made to overcome these difficulties. The important place it occupies among the village industries has brought it under the purview of the Khadi and Village Industries Commission in 1953-54.

Since the inception of this scheme, it has made a steady progress. The scope of the industry has so far been confined to revival as well as development of hand pounding of paddy industry. The specific schemes for providing assistance and technical guidance to the implementing agencies, formulated in accordance with the needs and resources in the initial stages, have since undergone many changes and the final pattern that has now emerged appears to be capable of ensuring more satisfactory results.

Experience gained during the past few years clearly indicates that effective solution to the problems of backward techniques of production, inadequacy of trained personnel and competition from rice mills and hullers will pave the way for an accelerated development of hand processing of paddy industry.

High Nutritious value:

A common feature in rice eating countries of the world, mostly confined to Asian countries is malnutrition. The

1. Ibid.
2. Ibid.
unpolished rice, which is rich in nutrients, loses considerable amount of its nutrients after milling.

In view of its high nutritious value of hand pounded rice, and also because of its highly labour oriented nature, efforts should be made to develop this village industry in places where milling has not yet been established. In areas where the prospects of establishing of rice mills are not bright due to lack of infra structure facilities, hand pounding of rice is bound to make an impact on the rural people. In Andhra Pradesh, there are a large number of small villages where electricity has yet to reach and communications are underdeveloped especially in agency tracts of forest regions, the development of this industry promises manifold advantages. The government may specify such areas and give protection to this ancient village industry for its development and growth.

**Rice Milling:**

The superiority of the Mills over hand pounding gave great impetus to the present position of the rice milling industry in the country. Rice milling industry is well developed in the state and the entire paddy is processed within the state. Most of the rice mills are in the hands of rich paddy dealers and well to do farmers. The most striking feature of these millers is that they indulge in speculation for their gains and little attention is paid to processing activity. This situation leads to monopoly in paddy trade and price rise. Efforts should be made to break this stronghold not only for price stabilization
but also for total elimination of speculation.

Besides, the rice mills are not evenly located in all the paddy growing areas of the state. In certain areas the concentration is more and in other areas less. Where the concentration is heavy, rice mills run for 200 to 220 days in a year. It may be noted that the willing cooperation of marginal and small farmers of the village can be obtained for bringing them under cooperative fold. Besides supply of credit, fertilizers, seeds, equipment, etc., marketing of the produce through a marketing society may result in price stabilization as well as in elimination of speculation in paddy trade.

Most of the mills in Andhra Pradesh are of huller/sheller type. In Andhra Pradesh there are 10,779 hullers, 1005 shellers and 3,568 huller cum shellers and 15 modern rice mills. The total production of paddy in Andhra Pradesh is 71 lakh metric tonnes. In huller type mills, the rice yield is lower. Due to excessive breakages, husk and bran comes out in a mixed form and the same cannot be separated subsequently. Because of this the rice bran got from these mills can neither be used for extraction nor as cattle fodder due to excessive fibre and silica contents. The sheller type is slightly improved and better than the huller type of mills. These rice mills are un-economical as the output

of rice will be as low as 65 percent sheller type rice mills and improved over huller and since better outturn of 69 percent which is an improvement of 4 percent.\textsuperscript{1}

**Modern Rice Milling:**

In India rice is used as a staple food by majority of the people. It is produced on more hectares and consumed by more people than any other agricultural commodity. In spite of its predominant place in the economy of the country, rice milling has remained one of the most neglected industries. We have been importing rice spending valuable foreign exchange. The imports are to the extent of 2 percent of over production in any year. The Planning Commission evaluated that this shortage can be overcome by processing the available paddy by applying modern rice milling methods and scientific shortage techniques.

Under the Rice Milling Industry (Regulation) Act, the Central Government has made it obligatory to change the conventional rice mills into modern mills within a period of three years and in special cases up to five years with effect from May 1970. However, as the existing cooperative rice mills are incurring losses largely on account of state government paddy/rice levy policies, they are not willing to invest funds for modernisation of their plants and to establish rice mills. To remedy the situation whenever necessary the state governments paddy/rice levy policy will have to be suitably

\textsuperscript{1} C.S.N. Reddy, Paddy Processing: A decade of service; Andhra Pradesh State Cooperative Marketing Federation Ltd., Hyderabad, 1974.
modified.

A new rice milling technology which will result in higher outturn of rice and utilisation of bran for making edible oil has been perfected and is ready for implementation throughout the country. The new technology developed by the Paddy Processing Research Centre at Tiruvuru in Tanjavur district (Tamil Nadu) involves an addition of a few mechanical units to the existing hulling units to separate the function of de-husking from polishing and introduction of new units for grading of de-husked paddy before polishing. According to the ex-chairman of Food Corporation of India, R.N. Chopra, this will bring about a revolution in rice milling technology and legal measures to compel the hullers to go in for such modification are in the offing.

It has been estimated that the country can get at least five lakh tonnes of more rice and at least three lakh tonnes of edible rice bran oil by adopting the new technology.

The Food Corporation of India has examined the new technology in a hired rice mill at Muttaiam in Tanjavur district with an investment of Rs.20,000 for modifications of the mill. The additional recovery of rice and bran fetched

1. Proceedings of the conference of Registrar of Cooperative Societies at New Delhi Sept. 29 and 30, 1972, Govt. of India, Ministry of Agriculture (Department of Cooperation) (Cyclostyled)
2. The Indian Express, Vijayawada, November 4, 1974.
3. Ibid.
an additional return of ₹48,587.50 a year. The mill which processes about 8.5 tonnes of paddy per day, now produces an additional quintal of rice daily. It produced 400 kg of bran daily which has 22-23 percent of oil content.

There are thousands of huller mills in our country which need modernisation. The new technology can bring additional income to the millers and higher outturn of rice to the country's buffer stock.

On the basis of an evolution study conducted by an expert team appointed by the Government of India, it has been found that the rice output from a modern rice mill is 6.6 percent higher than that of huller rice mill and 2.5 percent higher than that of sheller rice mill on an average. In case of parboiled paddy the increase in output is 1.6 percent higher than the huller yield on an average and 0.8 percent than the sheller yield on an average, when rice is processed on a modern rice mill. Apart from this, there is a considerable reduction in breakage of rice, when rubber roll shellers are used for dehusking paddy.

**Features of modern rice milling:**

Modern rice milling consists of the following machinery viz. cleaning and handling equipment, parboiling and charging equipment, milling machinery, grading equipment by product treatment units etc.

1. Ibid.
1) Paddy cleaner: Generally paddy received in a mill for processing will be in the pre-cleaning state. Before it is ready for feeding into a mill, cleaning is done in a scapling machine which helps in removing large slumps of earth, straw etc. But in modern rice mill, care is taken to remove the foreign matters, such as dust, clay, stones, straw, iron particles, sand, chaff etc. For this purpose a cleaner is installed to clear the paddy. Besides cleaning the paddy of foreign matter, it improves the life of the rubber shellers and other parts of the machinery. Consequently the bran that comes out will be free, to a large extent, from the acid insoluble ash content of the bran. Therefore a cleaner is a must for all modern rice mills using rubber roll shellers. An ideal cleaner is expected to remove completely all the impurities. However in practice, any machine that removes a major part of the foreign matter present in paddy is generally acceptable. There is no such cleaning device in conventional rice mills and uncleaned paddy is administered in hullers resulting in the admixture of finished rice with all sort of foreign matter. Even the inert materials comes out in a mixed form in the bran also.

Rubber Roll Shellers:

The rubber roll sheller is an important item of the modern rice milling technology, which to a large extent adds
to the efficiency of rice milling. Even the rubber lined
dehusker is being used which serves the same purpose as that
of rubber roll sheller. The shelling life of rubber roll
shellers, which are being made in the country, is estimated
to be of 200 tonnes with par-boiled paddy and 100 tonnes in
case of raw paddy. The rice millers are complaining about
the wear and tear of the rubber roller shellers, which is
considerable. Hence there is a need to undertake research
in improving the quality as well as shelling life of rubber
roll shellers. Manufacturers are engaged in further research
in improving the quality. The use of polyurethane rolls is
also being studied for obtaining better service. At present
various manufacturers are engaged in making different sizes
of rolls to suit the requirements of different types of
machines. Even the patent designs vary from one another and
have special advantages in each case. Unless a standard and
acceptable design is evolved to the satisfaction of one and
all, this problem cannot be tackled effectively. It also
helps in cost reduction and facilitate inventory control by
the millers. At present majority of the mills are being
operated by unqualified hands, without special training and
knowledge. Most of them gained experience only in huller
type mills where it is simple to operate with less technical
knowledge.

Rubber roller shellers can be put to good use if certain
precautions are taken such as interchanging the rolls from right to left and vice versa as per the manufacturers instructions, and by cooling the rolls during shelling at proper temperature.

So far 24 modern rice mills have been financed by the Andhra Pradesh State Finance Corporation, out of which 12 mills have already been commissioned. Most of the modern rice mills financed by the corporation could not fare well especially during 1974-75 due to government levy policy and as such the corporation has now stopped financing more modern rice mills in the state.

Suggestions:

The following suggestions are made for speedy implementation of this new rice milling technology in the state:

1. The central government should evolve a National Policy for propagating the new rice milling technology in all the rice producing states of India.

2. The Food Corporation of India/ The Andhra Pradesh Agro-industries Corporation Ltd., as the case may be, should be entrusted with the task of hiring mills for the purpose of modernising at least one unit in a district in all the rice producing states of the country on experimental basis for a period of 5 years initially.

3. Establishment of huller rice mills should be discouraged or stopped completely.

4. The renewal of licenses for old and antiquated mills should be discontinued.
5. In future licenses should be granted only for the establishment of modern rice mills based on new technology.

6. As far as possible, modern rice mills should be located in rural and semi urban areas.

7. While hiring rice mills, huller mills under cooperative sector should be taken up for modernisation.

8. Bank loans should be made available to all rice mills for modernisation.

9. Technical knowhow should be made available to the millers and to all those who are interested in establishing or modernising the existing units.

10. Technically unemployed should be encouraged to start modern rice mills under self employment schemes.

11. Industries based on the utilisation of by products of rice milling industry should be encouraged.

12. Industries manufacturing the machinery and other equipment required for modernisation etc., should be encouraged.

13. Services of technical officers should be made available to propagate modern technology and allied matters.

14. Paddy collected under compulsory levy should be processed in the rice mills so hired.

15. Efforts should be made to coordinate the activities of industries department, revenue department and the Food Corporation of India the Andhra Pradesh Agro-Industries Corporation Limited.

Caution:

The millers are not showing much interest in the modern rice technology as they think that it serves no useful
purpose. Their pleas is that the type of paddy which is presently grown under short duration crop in the state is not suitable for modern rice milling, as the breakages will be more and rice bran yield also may not be substantial. The wear and tear of the rubber roller shellers which are employed in shelling paddy is also considerable. They cited the example of a modern rice mill established at Tadepalligudem in the West Godavari district.

Before we embark on modern rice milling technology in the state, efforts are to be made to examine the feasibility and profitability of its introduction in Andhra Pradesh, taking into consideration whether the objections raised by the rice millers in the state are genuine or fake.

The future policy should be directed towards the modernisation and expansion of the existing mills. At present there is little scope for increasing the number of units as most of the units are having idle capacity. The outturn of paddy also has not made any substantial increased in the state. Unless the real break through in rice is achieved, the prospects for establishing the additional units are not bright.

**Deoiled Rice Bran:**

Andhra Pradesh is one of the richest agriculturally developed states and produces about 4.5 to 5 million tonnes of paddy annually for home consumption and also substantially contributes to the buffer stock. If the entire production of
paddy is processed, an yield of about 270,000 to 300,000 tonnes of rice bran can be obtained and if the entire quantity of rice bran produced in the state is used for extraction of oil, the oil so produced can substantially meet the non-edible oil requirements for the soap industry. At present, the country's non-edible oil deficit is met by imports, causing a drain on the foreign exchange resources.

Bran is one of the by products of rice milling industry. Bran has an average oil content of 15 percent. The oil is rich in fatty materials and it can be processed to yield an edible oil called 'rice bran oil'. It has been found that every quintal of paddy contains, on an average, about 2.5 kg of oil.

De-oiled rice bran is another important agro-based product in the state of Andhra Pradesh. The state produces about 30 percent of India's total production of deoiled rice bran.

The developing of this industry is of recent origin and for a very long time there was no industry to utilise this very important by product of rice milling industry. This industry is mainly concentrated in the coastal Andhra region of the state. The exports have recorded a steady

2. Recent Advances the Rice Processing, Milling and By-Products Utilisation(cyclostyled).
increase from year to year and reached a level of Rs.1.25 crores during 1970-71. The state offers a considerable scope for further expansion. De-oiled rice bran is used as animal feed.

**Rice Bran Utilisation**

A peculiar practice in the state not found in other states is the use of rice bran as animal fodder. It has been found to have harmful effects on the health of the animals. Due to the presence of lipase in rice, the oil undergoes very rapid hydrolysis with the result that the free fatty acid of the oil rises up to 40 to 45 percent whereby the acidity starts.

The deoiled rice bran is more nutritious and offers the following advantages:

1) easily digestible;
2) no problem of free fatty acid formation;
3) less chances of fungus growth;
4) Higher nutritive value.

In view of the advantages offered by deoiled rice bran over rice bran, the use of deoiled rice bran should be encouraged for the consumption of cattle. There is need to popularise its utility and convince the cattle breeders of the advantages it has over rice bran.

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1. Recent Advances in Rice processing, Milling and By-products utilisation, pp.5, 6.
Deoiled Cakes:

Andhra Pradesh produces several varieties of oil seeds; of these, groundnut, castor, cotton, safflower (Kardi) seasamum and linseed are important. The deoiled cake industry has, therefore, assumed importance in the area of exports. The industry is concentrated mainly in Kurnool district, even though the oil seeds are grown in almost all the districts of the state.

The varieties of cakes produced in the state are groundnut cake, cottonseed cake, safflower (Kardi) mohwa cake and castor cake. Besides these, compound cattle feed is also exported from Andhra Pradesh. The annual exports of these cakes range between ₹3 to 4 crores.1

Deoiled groundnut cake is one of the important agro-based products being exported from India to the tune of 20 percent of the world total demand. This commodity constitutes about 78 percent of India's bulk export of deoiled cakes. Andhra Pradesh is a major producer of deoiled groundnut cake in the country and its exports account for about 0.4 lakh tonnes.2 The exports during 1971-72 were ₹2.53 crores showing a decline, but they have picked up during 1972-73 accounting for about ₹4 crores.

2. Ibid.
Paddy husk and its utilisation:

The husk and chaff that comes out during processing of paddy would be about 25 percent of the total weight. Thus a rice mill processing 40 tonnes of paddy per day will produce 10 tonnes of husk as a by-product. Out of this, only 25 to 30 percent is being used as fuel for boiler for producing steam in for boiled rice mills. In the country nearly 50 percent of the total rice produced is parboiled. The remaining paddy husk is not put to any useful purpose.

In recent years attention has been paid to the utilisation of paddy husk; some hotels are using it as fuel and the remaining husk is thrown away as waste. It is, therefore necessary that efforts should be directed towards its use at a time when the country is facing an acute shortage of fuel. For generating of steam in parboiled rice mills, paddy husk can be put to economically where turbo-generators are installed, it can also provide power for running the machinery as well. In case there is a bran oil plant attached to it, it can serve the dual purpose of getting power and steam through this source. The husk is used for generating steam through heat exchangers for drying moist or parboiled paddy. The increasing use of heat exchangers for heating the air for drying the paddy has presented many problems. The heat generated by this method is not very high. A large portion of husk which is used is partially burnt with the result that black ash comes out. In
order to get the full value of the fuel used, there is a need to evolve a satisfactory method of designing as well as efficient combustion which can give white ash content.

There is need for more intense research to find means of briquetting or other means of ensuring steady and efficient means of burning husk. Wherever it is feasible, the means of converting husk into forms (like firewood) which can be burnt, without much smoke, as domestic fuel should be taken up. Extruding presses suitable for converting husk into the desired shapes and sizes, with or without suitable binders, should be designed and used for this purpose. This line of development will not only meet the growing need, but also prove to be highly paying. The Food Corporation of India is at present working on the feasibility of producing 'hullite' from paddy husk.

The Regional Research Laboratory, Assam, the Indian Institute of Technology, Kharagpur and other institutions have already taken up the work on the utilisation of paddy husk and brought out a number of project reports.

The Regional Research Laboratory, Assam has developed the following processes for utilisation of paddy husk, which hitherto was/considered as agro-waste, as the chief raw material.

1. Recent Advances in Rice Processing, Milling and byproduct utilisation—Paddy Processing Research Centre, Tirumarur, Tamil Nadu, pp.9-10.(cyclostyled).
1) Bricks from paddy husk
2) Bricks from paddy ash
3) Household detergent based on paddy husk
4) Masonry cement from paddy husk

The Regional Research Laboratory at Hyderabad has evolved a process of utilisation of rice husk for the production of high grade active carbon.

1. **Bricks from paddy husk**

Burnt clay bricks which are used in the construction of houses and other purposes have become very expensive and are out of reach of the common man. In the process evolved the agro-waste mainly paddy husk, can be utilised in making bricks which can be used in the construction of houses. The main feature of this process is that these bricks can be made at the construction site itself using suitable binders and with the help of simple brick making equipment. It has been estimated that the cost of such bricks manufactured with husk varies from ₹.80 to 90 per thousand.

**Bricks made from husk have the following advantages:**
1) Light weight
2) Less dead load
3) Saving in foundation due to less dead load
4) Cheaper
5) Easy handling
6) Better insulation and attractive appearance
7) Production not affected by seasonal changes.

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2. **Bricks from paddy husk ash**

Paddy husk ash can be obtained from the mills directly or from other sources and the same is treated. Suitable quantities of paddy husk ash and filler along with binder and other chemicals are mixed together with water. The bricks are moulded in a brick making machine.

**Bricks made from paddy husk ash has the following advantages:**

1. Light weight—weighs about 2.2 kg against 3.5 kg burnt clay bricks.
2. Reduced dead load
3. Saving in foundation due to reduced dead load
4. Cheaper
5. Easy handling
6. Better insulation and attractive appearance
7. Production not affected by seasonal changes
8. Strength to density ratio higher than burnt clay bricks.

3. **Household detergent based on paddy husk**

In India, dish washing detergent powder (like VIM) is very expensive and hence the same is not within the reach of common man. The production is undertaken by companies and their marketing and overhead charges make the product costly. It contains more than 50 percent of Silica flour and the same can be prepared locally with the available raw material like paddy husk along with other raw materials. The detergent powder so manufactured from paddy husk as the chief raw material costs less. By using the available paddy husk in different parts of the country, a large number of

1. Ibid.
of small units can be started successfully. Andhra Pradesh being a rich paddy growing state offers bright prospects.

4. **Masonry cement from paddy husk ash:**

Cement has become a scarce commodity because of its high cost and limited supply which has placed it beyond the reach of common man. A new process developed by the Regional Research Laboratory, Jorhat (Assam) for the manufacture of cement like material from paddy husk has opened new opportunities for commercial exploitation of the agro-waste like paddy husk in the country on a large scale. The material can be put to a large variety of uses like plastering, foundations, concrete work, masonry mortar etc. About 60 million tonnes of paddy is milled in India per year. In case the entire paddy is husked it will yield 4 million tonnes of ash, and the same can be utilised for processing the cement like product. All the equipment and other machinery required for this purpose is indigenously available or can be fabricated locally. The cost of production is estimated at Rs.100 per ton.

The cement like product has the following advantages:

1) Low cost of production
2) The capacity of plant can be designed according to the availability of raw material.
3) In different milling areas separate mini plants can be set up without much affecting the cost of production.

1. Cement like product from paddy husk for use in Masonry works, Regional Research Laboratory, Jorhat, Assam. (cyclostyled).
2. Ibid.
5. **Active Carbon from rice husk**

The Regional Research Laboratory, Hyderabad has evolved a process of utilisation of rice husk for the production of high grade active carbon. Active carbon will be of high absorption capacity and low ash content and thus is particularly suitable for the pharmaceutical industry. At present, a part of the requirements of the country are met by imports. It is envisaged that the active carbon made from paddy husk will fill the gap.

Besides, sodium silicate obtained as a by-product of this industry may be useful in the manufacture of soap, paper, and other industries. Thus, a cheaper variety of activated carbon made from paddy husk can be used for the bleaching of oils, sugar, syrups and in other bleaching operations.
PART III

TOBACCO INDUSTRY

Andhra Pradesh enjoys the pride of place among the tobacco growing states in India. The main varieties of tobacco produced in the state are flue cured virginia tobacco and 'natu' or desi tobacco. Besides these, varieties like 'Rayala', Harrison special, 'Toka-aku', and white Burley are also grown. Tobacco is largely grown in Guntur, Prakasam, East Godavari, Krishna, West Godavari, Kurnool and Khammam districts. The state has a near monopoly in the cultivation of virginia tobacco, with more than 95 percent of the country's total production of this variety. It accounts for 85 percent or Rs.35 crores worth of tobacco exported from India annually.\(^1\)

Export is done mainly from Guntur and Prakasam districts. The largest demand in the international market is for flue cured virginia tobacco of which India is the second largest exporter.\(^2\) Out of the total exports of Rs.31.39 crores and Rs.42.25 crores in 1970-71 and 1971-72 respectively, flue cured virginia tobacco accounted for Rs.29.24 crores and Rs.39.49 crores. The Government of India earns about Rs.150 crores yearly by way of excise duties and about Rs.3 crores through export duty.\(^3\)

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The tobacco industry is engaged in purchasing leaf tobacco from the farmers, handling the tobacco purchased by grading, stemming etc. processing the same by what is known as redrying and supplying the processed tobacco to cigarette manufacturers in India and abroad. There are about 150 units in the leaf tobacco industry in Andhra Pradesh. The number of workers employed in this industry (of whom bulk are seasonal workers) is estimated at about 93,000. The changing trend in the world market in respect of quality and price has made the future position of India somewhat gloomy. In the recent past, a large number of countries have newly entered the market, producing quality flue cured tobacco under more favourable soil and climatic conditions. In India the production is confined mainly to traditional black cotton soils and the type of tobacco which is grown does not suit the requirements of the importing countries. Development schemes have been drawn up in this direction to increase the production of flue cured and other cigarette tobacco to meet the weight and quality targets. The future production of flue cured tobacco on light soils in different parts of the country offer better prospects of quality tobacco.

Marketing problems:

The crisis in tobacco trade has become a regular feature in Andhra Pradesh, causing anxiety to growers, traders, exporters and also to the government. Any year during

which due to favourable trend in the world market, higher prices were paid by exporters/traders, resulted in a steep increase in production in the year followed. Of course, this is a common factor in the cultivation of any crop, more so in case of commercial crops. As a result there will be a slump; this happens in an uncontrolled economy. It is quite but natural that the exporters and traders may not be in a position to offer remunerative prices resulting in an alarmed situation and causing anxiety to growers.

The Virginia tobacco which is grown in Andhra Pradesh is intended either for exports or to be used in the manufacture of cigarettes in the country. Since the local consumption, by and large, is limited we have to depend more on exports.

The growers complain that the prices offered by the purchasing firms are unremunerative resulting in a heavy loss to the ryots. The cost of cultivation is increasing in view of the price rise in inputs like fertilisers, pesticides and insecticides as well as seedlings, apart from the rise in the wages paid to the agricultural labour.

Every year the farmers urge the government to come to their rescue and fix a reasonable remunerative price before stocks are put in the market for sale. In case the purchasing firms fail to concede the demand both the state and central Trading Corporations State/should come to the field to purchase the tobacco and
and pay a reasonable price after a scientific scrutiny of growers' cost. While pressing for a price of Rs.1,200 per quintal for fourth grade tobacco the growers feel that there should be a statutory committee consisting of representatives of the State Agricultural Ministry, Marketing and Export Promotion Department together with growers' and trader's representatives for fixing a reasonable price every year before the commencement of season taking in the account the cost production. Tobacco exports, however, fell recently. The reasons for the fall were attributed to lower imports by USSR and Bangladesh and also lower production of exportable varieties in 1972-73. As against 131 million kg of flue cured virginia tobacco produced in 1971-72, its production in 1972-73 was estimated at less than 100 million kg.

According to the unions, the leaf tobacco industry is in a flourishing state and there is likely to be further growth. The consumption of cigarettes in this country has increased and the number of exporters has declined from about 62 in 1964 to about 38 in 1969.

1. The Indian Express, Vijayawada, Jan, 24, 1975.
2. The Indian Express, Vijayawada, Nov. 26, 1974.
According to the Indian Trade Association and other employers, the tobacco industry has to depend on overseas market as it is an export oriented industry. The quantity and quality of crop depend much on the vagaries of climate. In the export market, increased costs cannot be passed on to the consumer because of severe competition from other countries. In case the cost of production is increased further there is a danger of India being outwitted from the international market. As a matter of fact the exports have gone down from 72 million kg. in 1964 to ~ 55 million kgs. in 1969. The leaf tobacco industry is struggling hard to sustain the level of exports.

The chairman of the Tobacco Export Council, in his address at its 13th annual general meeting has pointed out that "apart from traditional countries exporting F.C.V. (flue cured virginia) tobacco viz., U.S.A. and Canada, there are other countries such as Thailand, South Korea, Philippines and Pakistan which have increased their production of tobacco to a considerable extent and are trying vigorously to have a share for their tobacco in world markets. It is also a matter of concern to us that those countries are in a position to supply F.C.V. tobacco at low prices. U.K., Japan and other countries are increasing their import duties and the export duty levied on export of Indian tobacco adds further to the cost of Indian tobacco, so much so that Indian tobacco becomes more and more non-competitive in the international
markets. There is no gainsaying the fact that by abolition/reduction of export duty, Indian tobacco would become more competitive. The Council has already submitted a detailed note to the government favouring the abolition/reduction of export duty”.

In addition to the above Pakistan, Thailand, South Korea, Brazil and other countries have increased the production, in recent years. Pakistan has adopted a system of 'bonus' vouchers' where 20 to 25 percent of bonus is allowed on the tobacco exported. This system puts tobacco exporters of Pakistan in an advantageous position over the Indian exporters. Besides this, India has to face an uphill task in the event of Southern Rhodesia's entry into the world market and the lifting of trade embargo on tobacco. In such case exports to U.K. may decline considerably. The countries which are competing with India in the tobacco market are in an advantageous position because of higher yield per acre, modern machinery for handling tobacco such as tipping and threshing machines and most up-to-date redrying equipment.

Of the varieties of tobacco grown in the state, high grade virginia goes to indigenous cigarette making or abroad, while the low grade varieties as well as the waste which are available in large quantities have not been put to commercial use. The state offers a good scope for exploiting the same profitably for the manufacture of nicotine acid much needed

1. Ibid. p.5.
by the pharmaceutical industry. In fact insecticides obtained from the natural materials are less harmful than synthetic insecticides, as the former do not create the problem of harmful residues.

Suggestions:

It is beyond doubt that there has been a steady fall in the export of tobacco from this country. In the light of the existing circumstances and to put the tobacco industry on sound footing, the following suggestions are made:

1. It is in the fitness of things that the government comes out with a policy to boost exports.
2. Certain concessions should be given to the exporters to enable them to compete in the world market.
3. The government should fix the targets of exports every year, after studying the trends in the other exporting countries.
4. The government should fix the prices to be paid to growers before the stocks are put into the market with consultation of exporters growers and trade associations.
5. The government should encourage the formation of cooperatives both at farmers as well as exporters level by offering certain concessions.
6. The government should study the feasibility and profitability of introducing new methods of 'plant position grading' in place of the existing 'colour grading'.

7. The government should arrange periodic study tours to different countries to understand the problems connected with the tobacco trade and industry in the right perspective. Representatives of growers/farmers, traders and exporters should be selected and sent. A top official connected with the tobacco industry or research may be sent as secretary or leader of the team.

8. The achievements made at Research Stations and Institutes are not reaching the growers at farm level. Every effort should be made to pass on the modern techniques and knowledge to the farmers. The services of the field staff should be made available to the growers mainly to the marginal farmers.

9. The government should examine the possibilities of modernisation of the machinery and other equipment in the tobacco industry.

10. Industries based on the utilisation of tobacco waste and low grade tobacco should be encouraged.

But we cannot expect the government to solve all the problems starting from the grower to the exporter. It is, therefore, necessary that everyone connected with this export oriented industry should contribute their due share to put it on the right track. At one of the meeting of Tobacco Export Promotion Council held at Madras, the chairman rightly stated "considering all circumstances together I feel confident the
tobacco trade can continue to have its accustomed share of the world market, with a little extra effort which is not beyond its capacity.¹

¹ Report of the Wage Board for the Leaf Tobacco Industry, Govt. of A.P. op.cit. p.4.
PART - IV

CASHew INDUSTRY

The origin of cashew tree can be traced to North Brazil; it was first introduced some 400 years ago by the early Portuguese missionaries for checking soil erosion on the coast. The cashew tree is drought resistant adaptable to different kinds of soils and thrives under a variety of climatic conditions. It flourishes in well-drained soil and warm humid climate. But a horticulture soil preferably deep loam with adequate moisture and drainage is ideal for cashew cultivation.

The economic importance of this crop had been realised in course of time and today it has a prominent place in the exports from India. India started exporting cashew kernels shortly after the First World War. Export raised steadily from a few thousand tonnes to 52,293 M.T. in 1973-74 earning a foreign exchange of Rs.74.43 crores.

India has also exported 3845 M.T. of cashewnout shell liquid (C.N.S.L.) valued at Rs.49.61 lakhs during 1973-74. Our principal buyers are U.S.A., U.S.S.R., U.K., Eastern Europe, West Germany, Australia and Canada. Export earnings

1. 'Export of Cashew Kernels from India', The Cashew Export Promotion Council, Cochin- p.5(cyclostyled)
from cashew can be compared favourably with some of the better known traditional commodities like Jute, textiles, tea and paper. Cashew kernel is India's second largest dollar earner.\textsuperscript{1}

In India, cashew is grown in a variety of soils and climatic conditions, but grown extensively in Kerala, Karnataka, Tamil Nadu, Goa, Andhra Pradesh and Maharashtra. In recent years the same has been introduced in a few places like Orissa, Assam, Bengal and Andaman and Nicobar Islands.

Cashew is one of the world's most delicious wholesome food stuffs. They are full of vitamins, have good measures of organic iron, calcium and phosphorous.\textsuperscript{2} Cashew Kernel is considered as an ideal snack item in many foreign countries. It is also used widely as a flouring medium in the confectionary and baking industry.

India is foremost in processing raw nuts. From being a very small cottage industry the processing has developed into a highly organised labour-intensive industry.

In the recent past, attempts have been made by other cashew growing countries viz. Tanzania and Mozambique to put up highly mechanised plants. Even though they follow the traditional steps in the processing, these modern mechanised plants are intended to maximise the quality of whole kernels.

\textsuperscript{2} Indian cashew grades, The Cashew Promotion Council, Cochin.
and recovery of CNSL. The technological advances made in other countries, and the recent fall in exports of cashew kernel from India, has created a position where we have to review our activities and plan for a more profitable future course of action.

The first and foremost thing is to step up production of raw nuts in India. All these years we have been importing a substantial quantity of raw nuts from African countries for processing purposes. Since these countries are now establishing the processing units of their own, the supply of raw nuts may diminish. Even though India occupies a very prominent position in the world market in cashew kernels, we should not forget that the present requirements of this industry to a large extent are met by imports of cashewnuts for its very existence. Under these circumstances there is an urgent need to increase internal production of cashewnuts.

For the Fifth Plan, the assured base level in respect of cashewnut production is fixed at 2.10 lakh tonnes. The Fifth Plan target is to raise the level of production to 2.80 lakh tonnes by the end of 1978-79. It is estimated that the total requirement of raw nuts by 1980 will be about 4.4 lakh tonnes and then our entire requirements may have to be met solely from our internal production and towards this goal

our production programmes have to be formulated and implemented. It means that there will still be shortage of raw nuts of over one lakh tonnes for indigenous consumption as well as for export requirements. This shortage, therefore, has to be met by imports.

Cashew nut shell liquid (CNSL)

The cashew shell liquid, as the name implies is the liquid contained in the shell of the cashewnut. The shell of the cashewnut ordinarily about 1/8" thick, comprises of a soft honeycomb structure inside, containing the dark, reddish brown, viscous liquid known as the cashewnut shell liquid. This liquid is the pericarp fluid of the cashewnut. It is extracted from the shell of the cashewnut, while roasting the nuts. The liquid is thus obtained as a byproduct of the cashew industry. The cashew shell liquid consists chiefly of the two naturally produced phenolic compounds viz., anacardicad (about 90 percent) and cardol (about 10 percent).

The practice of roasting adopted by most of the processing units, specially in Andhra Pradesh does not provide for recovery of most valuable shell liquid which has innumerable industrial uses. Of late the importance of this versatile liquid has been realised, and more processing units are now coming up to make use of this product of cashew industry.

2. The Cashew Export Promotion Council, Ernakulam, Cochin.
3. Ibid.
Cashewnut shell liquid is used in the manufacture of a variety of products such as resins, condensation products, colours, dye bases, plastic material, reaction products, waterproofing material, electrical insulation material, adhesives, phenols, ether, coating materials, hydrogenated cardonol, polymerised cardonol, laminated products, rubber-like predict, floor covering material, insecticides, mineral oils, dyestuffs, etc. The Export Promotion Council has published a comprehensive collection of patents covering the use of cashewnut shell oil in two volumes. The first volume covers patents in the U.S.A. and the second volume deals with the patents in U.K., Japan and India.

**Cashew husk or skin of kernel (Testa)**

Cashew husk or skin obtained during peeling of cashew nuts kernel can be used in the manufacture of chicken feed. The composition of testa is said to contain high tannin and fibre content. Cashewnut testa, if made available in large quantities, may be used in the manufacture of commercial tanning extract. Efforts should be made to popularise the use of this material, which is now being put to no use.

**Cashew Apple**

Cashew apple is richly coloured, yellow or red. It is consumed either in the raw or wasted. Rotten or damaged cashew apples are also used as cattle feed. Cashew apple was hitherto considered as a waste material of no industrial significance. In the recent past, the usefulness of this material has become
known and the same can be used in the manufacture of 'Cashew Apple Juice', 'Cashew Apple Syrup', 'Cashew Apple Jam', 'Fruit Chutney', 'Curried Vegetables' Clarified Juice', 'Cloudy Juice', etc. In Goa, this apple is used to produce an alcoholic drink known as 'Feni' on cottage scale. The Central Food Technological Research Institute at Mysore has developed a process to manufacture wine and brandy from these fruits. Efforts should be made to popularise this fruit, which has immense potentialities for industrial use, and may also bring additional income to the farmers.

This fruit being of a seasonal nature, available for a short period during the year, unless the juice concentrate is made and stored for a longer period, the industry cannot use of this fruit commercially. In preservation special attention is to be paid in respect of colour and retention of flavour. Due to highly perishable nature of the cashew fruit(apple) and its prolonged harvest full utilisation of apple is posing a problem.

Cashew Cultivation in Andhra Pradesh:

Cashew is grown mostly in the sandy coastal belt of Andhra Pradesh. The cultivation is confined to Srikakulam, Visakahapatnam, East Godavari, Guntur and Prakasam districts. Cashew is also grown in the reserve forest areas.

In Andhra Pradesh cashew was grown in 21,922 hectares during 1972-73. During 1972-73, 18,425 tonnes of cashew nuts were produced in the state.

Table showing the production and value of Cashew output in Andhra Pradesh.

TABLE No.30

<table>
<thead>
<tr>
<th></th>
<th>1972-73</th>
<th>1971-72</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cashewnuts (tonnes)</td>
<td>18,245</td>
<td>18,168</td>
</tr>
<tr>
<td>Total value of output at current prices (Rs. in lakhs)</td>
<td>351.24</td>
<td>343.56</td>
</tr>
<tr>
<td>Total value of output at constant (1960-61) prices (Rs. in lakhs)</td>
<td>135.47</td>
<td>133.58</td>
</tr>
</tbody>
</table>


Schemes for the development of cashew were first initiated in the state during the second Five Year Plan. Under the schemes 3,771 hectares of land under forest department were brought under cashew cultivation at a cost of 6.30 lakhs.

The development schemes implemented during the Second and Third Five Year Plans were mainly for increasing the area under departmental plantations. However little attention was paid to increase the area under non-departmental areas through disbursement of loans and supply of planting material at subsidised cost.

Progress made under cashew development programme during the Fourth Five Year Plan in Andhra Pradesh can be seen from the table below:

**TABLE No.31**

<table>
<thead>
<tr>
<th>Target for Fourth Five Year Plan</th>
<th>Achievements during Fourth Five Year Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical (Hectares)</td>
<td>Financial (₹. in lakhs)</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>1. Non Departmental:</td>
<td></td>
</tr>
<tr>
<td>a) Area expansion</td>
<td>Nil</td>
</tr>
<tr>
<td>b) Maintenance</td>
<td>}</td>
</tr>
<tr>
<td>2. Departmental:</td>
<td></td>
</tr>
<tr>
<td>Area expansion</td>
<td>255</td>
</tr>
</tbody>
</table>

**SOURCE:** Cashew Development Annual Programme, 1974-75, Directorate of Cashew Nut Development, Cochin, p.3.

**Cashewnut Development Scheme:**

This scheme was first sanctioned for a period of two years i.e. till the end of March, 1960 and subsequently extended from year to year till the end of February 1963. The object of the scheme was to increase the cashewnut production by granting long term loans to landed cultivators at the rate of ₹. 100 per acre up to a maximum of ₹.2,000 per individual for raising orchards. This scheme was launched to step up the area and production of cashewnut in order to make the country self sufficient in raw cashewnuts required to feed various processing factories and also to sustain
India's monopoly in the internal cashew trade.

The cashew research station at Bapatla (A.P.) has conducted studies regarding cashew cultivation, viz., varietal studies for economic characters like tree size, yield in terms of nuts per tree, nut size, shelling percentage etc., with a view to spot out the best performance so that the same can be propagated and given for large scale planting.

Programme for work during the Fifth Plan Period:

State Sector Schemes: (Prepared by the Government of A.P.)

The proposals for cashew development programme for the Fifth Plan period under the state sector are given below:

**TABLE No.32.**

<table>
<thead>
<tr>
<th></th>
<th>Target for the Fifth Five Year Plan</th>
<th>Physical (hectares)</th>
<th>Financial (in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(I) Area Expansion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Non departmental</td>
<td></td>
<td>Nil</td>
<td>nil</td>
</tr>
<tr>
<td>b) Departmental</td>
<td></td>
<td>6,000</td>
<td>30.00</td>
</tr>
<tr>
<td>c) Distribution of Planting material (25 ha)</td>
<td></td>
<td>5,000 (air layers)</td>
<td>0.11</td>
</tr>
<tr>
<td>(II) Maintenance</td>
<td></td>
<td>15,000</td>
<td>30.00</td>
</tr>
</tbody>
</table>


Cashew Development schemes under central sector:

The central sector has launched schemes for setting up cashew development corporations to look after the development of cashew in departmental areas. Under this sector the state governments of Karnataka, Goa, Andhra Pradesh, Tamil Nadu and Orissa are to set up state cashew development corporations in order to intensify efforts, to increase cashew production and also to take up large scale coverage of the existing plantations under a package programme. Such corporations will be under the joint control of state and central, in which central participation will amount to a share of 51 percent of the capital. The Planning Commission has earmarked an outlay of Rs.200 lakhs under this sector to meet the required share capital by the centre.

It is pertinent to mention here that in view of the development of various varieties of plantations like coffee, pepper, cocoa, rubber and cashew in the state, it will be desirable to set up a separate corporation to bring into fold all these plantation crops. At present the cultivation of cashew by the forest department is mostly confined to forest areas. Being limited in area and scope, the setting up of a corporation exclusively for the development of cashew may not bring the desired results. Hence a plantation corporation to cover all the plantation crops will bring manifold advantages.
PART V

SAVO AND STARCH INDUSTRY

INTRODUCTION:

Tapioca is native to South America and the origin of this plant can be traced to Brazil. It grows in tropical countries and yields considerable quantity of tubers rich in starch. It was introduced in India in 1840 and concentrated mainly in Kerala, Tamil Nadu in the South and Assam in the North East region of the country. In Andhra Pradesh, for a long time it was cultivated in forest and upland areas in a limited way intended for local human consumption. In recent years its industrial use as a raw material for the manufacture of Sago and starch has resulted in the establishment of a large number of Sago and starch manufacturing units. Consequently the area under cultivation of tapioca has gone up in Andhra Pradesh mainly in the East Godavari District.

Soil:

Tapioca can be grown on any soil if it is well drained. If no other crop can be grown in a particular soil, Tapioca can be grown there, however inferior it may be. But good creation is most essential for proper root development. The plant is drought resistant and also can withstand heavy rainfall even up to 100" but cannot bear water stagnation around the plant.
Uses of Tapioca:

The tuber is used as an item of food like potato chips. Starch manufacture from tapioca is used for the sizing and finishing operations in textile-mills, for manufacturing Dextrine Alcohol for automobiles, cosmetics and in the manufacture of Glucose and biscuits. It can be mixed with wheat flour for making bread, chapatties and puries. Mixing of at least 10 percent of Tapioca flour in the manufacture of bread etc. has been statutorily made compulsory in Cuba. It is also used in Veneer industry in the manufacture of adhesives and gums. By converting into sago balls and flakes, it is used for human consumption. Tapioca can be treated not only as food crop but also as a commercial crop. In these days of food shortage it can be a good substitute food crop in the drought-hit, dry and upland areas. It can be termed as "poor man's rich food" due to high nutritive value. Besides Sago and starch, several other items like flour, Suji, macaroni and synthetic rice, cattle feed can also be made from tapioca.

Cultivation of Tapioca in Andhra Pradesh:

The cultivation of tapioca in Andhra Pradesh is showing an upward trend. In the recent years, there has been sudden increase in the cultivation of tapioca leading to
marketing problems as the tuber is sold only to the manufacturers of sago and starch. Direct human consumption is strictly limited. This sudden rise in the supply position has resulted in a downward trend in prices of sago and starch in the country. The cultivators complain that it is the manufacturer who is responsible for this state of affair and he is being exploited by the manufacturer by offering unremunerative price for tapioca.

East Godavari District stands first in the state for the cultivation of tapioca in 2,762 hectares (1972-73) as compared to total cultivated area of 4,393 hectares in the state. The yield is also very high in the coastal Andhra region. The increase in area in the East Godavari district in 782 hectares when compared to the preceding five years average. It is estimated that the present net area under cultivation of tapioca is said to be around 25000 acres in upland areas of the district.¹ There are two varieties of tapioca. Bombay variety is commonly grown in these parts, while the Kerala variety is confined to South.

Cost of Cultivation:

The estimated cost of cultivation of tapioca (under rainfed cultivation) per acre is analysed under different heads in the following table:

¹. District Collector's note Collectorate, East Godavari district, Kakinada (A.P.)
The cost of cultivation of tapioca tuber in East Godavari district.

### TABLE - 33

I. **Preparatory Cultivation**  
(Under rainfed cultivation)  
- 3 ploughings @ Rs.6 per plough (3 times)  
- 3 men @ Rs.3 (three times)  
- Levelling of land

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 ploughings</td>
<td>54.00</td>
</tr>
<tr>
<td>3 men</td>
<td>27.00</td>
</tr>
<tr>
<td>Levelling of land</td>
<td>9.00</td>
</tr>
</tbody>
</table>

II. **Seeds & Sewings**  
- Cost of 5000 sets (i.e. 2 M.Ts) of seed material at Rs.100/- per m.tonne  
- Planting sets 12 women @ Rs.3/- and 2 men @ Rs.3/- (2 times)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of 5000 sets</td>
<td>200.00</td>
</tr>
<tr>
<td>Planting sets</td>
<td>84.00</td>
</tr>
</tbody>
</table>

III. **Process of seed materials**  
- Irrigation - pot watering twice at interval of 10 days each time  
- 10 men and 10 women @ Rs.3/- each

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irrigation</td>
<td>120.00</td>
</tr>
</tbody>
</table>

IV. **Manures & Manuring**  
- 50 kg urea  
- 50 kg 17:17:17

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 kg urea</td>
<td>225.00</td>
</tr>
<tr>
<td>50 kg 17:17:17</td>
<td></td>
</tr>
</tbody>
</table>

V. **After cultivation**  
- 4 weedings and hoeings (20 women @ Rs.3/-)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weedings and hoeings</td>
<td>240.00</td>
</tr>
</tbody>
</table>

VI. **Harvesting**  
- 20 men @ Rs.5/-  
- Processing of produce (4 women and one man @ Rs.3/- each)

<table>
<thead>
<tr>
<th>Item</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 men</td>
<td>100.00</td>
</tr>
<tr>
<td>Processing of produce</td>
<td>15.00</td>
</tr>
</tbody>
</table>

VII. **Marketing**  
- Transport cost - S.M. Tonnes @ Rs.15/- per M.T.  
- Total Expenditure 1,194.00  
- Or Say Rs.1,200.00  
- VIII. Yields 8 M.T. @ Rs.300/- per M.T.  
- IX. Net Profit (2,400 - 1,200)  
- Source: Deputy Director of Agriculture, East Godavari District, Kakinada, A.P.
A brief history of Sago and Starch industry:

Tapioca is the raw material used for the manufacture of sago-balls and starch. The manufacture of starch from tapioca in India dates back to war period when the supply of tapioca starch from Malaya and Java was stopped due to Japanese occupation. The entire demand for textile mills in India was to be met from Travancore and Cochin. In Andhra Pradesh an humble beginning was made in 1942 on a cottage industry basis. Some entrepreneurs coming from agricultural families visited Kerala and Tamil Nadu States and after making an on the spot study started manufacturing units in the East Godavari district. This was the origin of entrepreneurship in this industry. One of the manufacturers who happen to be the pioneer of this industry and the President of the Andhra Sago Mill Manufacturers Association is a progressive farmer with modern outlook. He said that he started the factory in backward like (Mallisala) with a view to develop the area. He also said that he is a follower of Gandhian philosophy. He himself is a cultivator of Tapioca. Before he took up manufacturing side, he visited Tamil Nadu and Kerala states for 15 days and studied the working of the different units and virtually brought the seedlings from Kerala and made a humble beginning (in his own land) in few acres and gradually expanded it and other farmers followed his example and started raising it. This was the beginning of
the industry as well as cultivation in the district. At the beginning he employed local labour and gave them necessary training. He says that he also invited 70 to 75 labour families from Srikakulam and Visakhapatnam districts and gave necessary training. He says that Skin (outer layer) can be used for cattle feed but care should be taken to feed it in limited quantities. The Skin also can be used as manure. He is of the opinion that there will be growth in the crop but not much in the yield. Most of the Millers are not utilising this waste material for any useful purpose. He is of the opinion that during these days of good shortages we can bank on tapioca - Sago to meet the food shortage. He expressed his intention of arranging an exhibition to popularise the use of tapioca as food to the public. Electricity was not supplied to Mallisala, even after 10 years of the establishment of the factory. The factory is run by oil. Even for repairs one has to get a person from Samlkoth which is 5 K.M. from Mallisala.

Manufacture of sago on large scale basis involves the following process.
1. Peeling of skin of the tubers
2. Washing the tubers
3. Crushing of Tubers and extracting starch milk.
4. Filtering of the milk and sedimentation.
5. Crushing the sedimented cakes into powder.
6. Pellet making
7. Slevation of sizes.
8. Frying of pellets.
9. Drying of pellets in hot sub.
10. Polishing)
11. Packing )

Just before marketing.

Features of the Industry:

1. Labour oriented: About 250-300 labourers are employed in a unit per day during the season for peeling work.
2. Not much skill is required: One can learn the art of peeling in a short span of time.
3. Raw material is the key factor which is available locally.
4. Seasonal Industry: Normally a unit works for 6 months in a year.
5) The machinery is indigenous and fabricated locally.
6. Pure and regular supply of water is essential.
7. The industry has been brought under the perview of Central Excise recently, wherever the number of workers exceed 50.
8. Regular supply of Electricity is essential for the tuber has a tendency of losing weight. All the sago and starch manufacturing are located in rural areas in the road side fields where electricity and water are available. In a way these industries are providing employment opportunities in the season for the agricultural labour and indirectly helping in dispersal of industries in rural areas.
9. Fire wood which is required for frying purpose is available from the forests of the district.

10. Gunney bags are used for packing purposes.

**The position of Sago/Starch manufacturing industry in East Godavari district in 1975.**

**TABLE - 34**

<table>
<thead>
<tr>
<th>Particulars of units</th>
<th>No. of units</th>
<th>In Existence</th>
<th>Under implementation</th>
<th>Regis. Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sago Factories</td>
<td>27</td>
<td>5</td>
<td>2</td>
<td>34</td>
</tr>
<tr>
<td>Sago and Starch factories</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>15</td>
</tr>
<tr>
<td>Starch Flour Mills</td>
<td>5</td>
<td>4</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>41</strong></td>
<td><strong>13</strong></td>
<td><strong>18</strong></td>
<td><strong>62</strong></td>
</tr>
</tbody>
</table>

**Note:** Data collected from the Registrars and other records of the Office of the Deputy Director of Industries, East Godavari district, Kakinada.

The number of Sago/Starch flour units is increasing from year to year. There has been a sudden increase in 1973-74. At the time of survey there were 9 units working and one unit under implementation at Vetlapalem of Kakinada taluk in East Godavari district.

The following table gives a clear idea of increase in number of units. The number of units are arranged in chronological order basing on the date of their registration.
Table showing increase in number of Sago/Starch/Flour units in East Godavari district.

**TABLE - 35**

<table>
<thead>
<tr>
<th>Year</th>
<th>Proprietary concerns</th>
<th>Partnership firms</th>
<th>Private Limited Company</th>
<th>Total</th>
<th>Progressive Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior to 1971</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
<td>N.A.</td>
</tr>
<tr>
<td>1971</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1972</td>
<td>-</td>
<td>9</td>
<td>-</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>1973</td>
<td>5</td>
<td>23</td>
<td>-</td>
<td>28</td>
<td>38</td>
</tr>
<tr>
<td>1974</td>
<td>10</td>
<td>11</td>
<td>1</td>
<td>22</td>
<td>60</td>
</tr>
<tr>
<td>1975</td>
<td>1</td>
<td>11</td>
<td>-</td>
<td>2</td>
<td>62</td>
</tr>
</tbody>
</table>

N.A.: Not available

Source: Complied by the author from the records of the Deputy Director of Industries Office, East Godavari district, Kakinada.

The magnitude of the industry can be understood from the fact that about Rs. 2 crores have been invested in this industry providing employment to about 9,000 persons for 100-120 days in a year.

It is estimated that this crop (tapioca) is raised in about 25,000 acres with the yield to be in the order of 1,25,000 M.Tones providing employment to several thousand agricultural labour in rural areas. The present crushing capacity in the existing units is about 96,000 M.Tonnes per annum. Thus it is clear that the supply of tapioca is more than the demand.
even after allowing some margin for flour production.

The price of tapioca during 1973-74 ranged between Rs. 80 to 120 per "putty" i.e. 226 kg. while the price during 1974-75 has come down to Rs. 20.35 per 226 kg. This is due to extensive cultivation during 1974-75. The problems of the industry are further beset with another factor cited by the millers. It is said that the mills in Tamil Nadu switched over their production from starch to sago because of the fall in demand for starch in the textile industry as shortage of power has effected the working of the textile mills in the country during 1974-75.

Consequently the production of sago in the country has increased considerably making supply more in relation to demand, which again resulted in a steep fall in the prices of sago from Rs. 210 in 1973-74 to as low as Rs. 145-Rs. 148 during 1974-75.

The cost of production of sago per day (i.e.) 40 bags of 90 kg. each is estimated as follows:

**TABLE - 36**

<table>
<thead>
<tr>
<th></th>
<th>1st estimation</th>
<th>2nd estimation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs.</td>
<td>Rs.</td>
</tr>
<tr>
<td>1) For peeling</td>
<td>260</td>
<td>270</td>
</tr>
<tr>
<td>11) Salaries and wages</td>
<td>410</td>
<td>385</td>
</tr>
<tr>
<td>111) Fuel</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>1v) Power</td>
<td>140</td>
<td>140</td>
</tr>
</tbody>
</table>

Contd..
v) Depreciation 300 300
vi) Interest 600 600
vii) Loading charges per day 10 10

\[
\begin{array}{c}
\text{Total cost of production} \\
5,466 & 5,406
\end{array}
\]

Source: Deputy Director of Industries, Kakinada, East Godavari district, (A.P.)

The cost of one bag (90 kg.) of sago produced comes to Rs.135 which goes up to Rs.140 including the cost of gunny bag. The market price per bag (90 kg.) of sago is reported to be about Rs.145-148 which leaves a margin of Rs.5-8 per bag. At this rate the millers are expected to get a net profit of Rs.20,000 per annum which is 4% of the turnover.

Starch and sago are mostly sent to Bombay, Calcutta, Poona, Vijayawada and Guntur and from there to other parts of the country.

In view of the easy method of cultivation of tapioca and a large number of manufacturing units having come up in recent past, we can presume that this industry has any excellent scope for further development. It is suggested that some of the units may diversity their production and can take up the manufacture of adhesives and macrones. Cattle feed compounds can also be manufactured from the waste. The de-dydrated leaves
of tapioca can be used as substitute for Agar Agar in view of their vitamin content.

One unit for the manufacture of liquid glucose at a capital investment of Rs. 7.00 lakhs is coming up at Kakinada.

Difficulties/Problems:

In all the six units where survey was conducted it has been stated that the shortage of power supply is the main difficulty which is coming in the way of efficient running. To overcome this shortage almost all the units have installed oil engines for generating electricity. They would be requiring electricity for at least 16 hours per day continuously. They complain that the electricity is supplied only for 10 hours per day and that too not continuously. During the peak season, i.e. January, February and March each factory requires at least 9000 units while in April, May, June 4500 units would be sufficient. For the remaining 6 months electricity will be required only for lighting purposes. Each unit is allotted a monthly quota of electricity by the A.P.S.E.B. The unit exceeding the allotted quota is penalised.

The second problem confronting this industry is the allotment of railway wagons. The entire produce is said to be exported to the Northern parts of India. For want of required number of wagons, some of the units are transporting their products by road, which is very expensive. Where wagons are

1. Ibid, p.33.
are alloted, they are not alloted in time. Since they are 
marketing their products mostly in far away places like Bombay, 
Poona, Calcutta, Delhi, Nagpur etc. If required number of 
wagons are not alloted in time, the units could not be run on 
sound lines.

In certain places the roads are not well maintained, 
for example the units located in Mallisala are facing difficulties 
in transporting their products by road mainly to Korukonda.

Suggestions/Recommendations.

(a) Cultivation of Tapioca:

1) It has been proved beyond doubt that East Godavari 
district has all the potentialities for the cultivation of 
tapioca. The recent developments that are taking place in the 
cultivation practices of tapioca are not reaching the farmer. 
The experiments and research conducted by the Central Tuber 
Crops Research Institute, Trivandrum may be made available to 
the cultivations. Hence there is an urgent need to establish 
a separate agricultural model demonstration farm in the up land 
areas of the district where it is presently grown extensively. 
It will help the cultivation to increase the production as well 
as productivity.

2) There has been a steady increase of tapioca crop in 
the district. With a view to protect the farmer from being 
exploited by the manufacturer, the commodity may be notified 
under the Andhra Pradesh(Agricultural Produce and Livestock)
Markets Act, 1966 and market yards may be established where tapioca is grown. At present, the cultivators bring the produce to the unit directly where the manufacturer determine the price after examining the quality etc. The cultivator has no say whatsoever in the fixation of price. In some cases, the manufacturer advances money to the cultivator (say Rs. 200/- per acre) and the price is pre-determined. The cultivator under the agreement has to deliver the produce to the manufacturer at the price so determined earlier but not on the prevailing market price. In order to overcome these difficulties, and to prevent distress sale of tapioca, the cultivator may be encouraged to form Agricultural Marketing Cooperative Societies.

(l) Tapioca based industries:

1) The State Electricity Board may be asked to provide regular supply of electricity during the peak season i.e. January, February and March. In case it is not possible, supply of electricity may be so arranged enabling each unit to run for 16 hours per day on rotation basis.

2) Regarding the supply of required railway wagons, the matter may be taken up with railway authorities. Sago being a food product, wagons may be made available on priority basis as is the case with other food grains.

3) The imposition of 10% ad valorem excise duty on tapioca starch in the recent union budget (1976) is very high and may cripple this cottage/small scale industry since the
small factory owners have neither the ability nor the financial strength to bear the burden. At present, most of the units do not have the pucca godowns to store the produce. The sago manufacturers are unable to move stocks from godowns. Under the new rule sago factories are required to take out a licence and furnish stock details periodically to the authorities. It is feared even the cattle feed made from the tapioca waste will not be allowed to be moved from the factories by the Excise Officials.

4) As a long term measure, to solve the marketing problems faced by cultivators as well as millers, it is desirable to form cooperative mills with growers and workers. The Government should allow only establishment of such units under cooperative sector for the benefit of all those who are concerned with this industry.

5) Government to prepare a scheme to popularise the sago as food product in the country as well as in Afro-Asian countries with an intention to facilitate exports of sago and starch in particular.

Tapioca based industry namely sago and starch manufacturing is one of the biggest small scale industries of the district. It is seasonal in character and located in rural areas. This is highly labour oriented and helps the dispersal of industries in rural areas. In view of its importance in the economy of the district in particular and the State in
general, the sympathetic outlook of the Government and the incessant efforts of the manufacturers may put this industry on right track. One can visualise bright prospects for this industry.

(c) **Hygienic conditions- I.S.I. Standards**

Above all, most of the sago units are not maintained at a satisfactory level of hygienic conditions. Waste water is let out in the open fields outside the factory. The accumulated water breeds mosquitoes. Efforts should be made to utilise this waste water which is said to be good as manure in the fields. At present this waste water is not put any use. Besides, there is an urgent need to maintain a satisfactory level of hygienic conditions. Keeping in view the fact that sago is consumed by children and convalescents I.S.I has provided certain specifications in respect of sago and for this purpose special standards relating to the code for hygienic conditions for sago units have been published. No unit in the district is following these specifications laid down by ISI nor the code for hygienic conditions. It is therefore suggested that the need to improve the hygienic conditions should be popularised and to maintain the specifications as laid down by the ISI for the healthy growth of this industry.
PART - VI

PALMYRA FIBRE INDUSTRY

Origin and Growth:

Palmyra fibre, an important raw material for the manufacture of brushes and brooms, is obtained from the palmyra tree. Palmyra tree is believed to be the native of South Africa. The palm belt in the world roughly extends from $44^\circ$ south latitude to $45^\circ$ North latitude spreading in tropical countries like Congo, Burma, Sri Lanka, India, Bangladesh, Indo-china, Indonesia, Malaya and also in West Africa. But fibre is extracted commercially mainly in India. In India it grows in Bihar, West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Karnataka and Maharashtra. Palmyra fibre industry is confined mainly to Andhra Pradesh, Tamil Nadu and Kerala. India's production of palmyra fibre by and large corresponds to world production. The average annual output of 10,000 tonnes in India is concentrated in Andhra Pradesh (59.0 percent), Tamil Nadu (40.6 percent) and Kerala (1.0 percent). The exporting centres comprise of Tuticorin and Colachel in Tamil Nadu, Kakinada and Visakhapatnam in Andhra Pradesh and Calicut in Kerala. Of the total production, the medium staff variety is estimated to account for 70 percent price stiff 15 percent and soft variety 15 percent.

2. Ibid, p.1
Extracting fibre from Palmyra trees is an ancient industry of India; presently it has great export potential earning foreign exchange over ₹2 crores per year. The Khadi and Village Industries Commission has been entrusted with the responsibility of ensuring healthy growth of this industry to strengthen employment opportunities and rural economic development. Palmyra fibre industry is heavily export oriented as more than 90 percent of its output is entering into the overseas markets. Only a negligible percentage of the total production is utilised in our country. No reliable statistics regarding the number of Palmyras utilised for extraction of fibre and the annual output of raw or processed fibre are available.

Description:

Palmyra fibre is extracted from the sheath or bifurcated portion at the base of the leaf stalk of the tree. The harvested leaf-sheath is then split into parts. These pieces are beaten with wooden hammer to extract the fibre after removal of pith and outer skin. Sometimes water is also sprinkled to facilitate separation of fibre. The beaten sheath fibre is generally known as "Kora". The new palmyra fibre so obtained undergoes further cleaning and processing before it is exported. The quality and price of Kora fibre depends largely upon its colour, stiffness and moisture, etc.

Classification:

The factors taken into account while judging the quality of Palmyra fibre are: colour, length, thickness, stiffness, moisture content and the extent of foreign matter including pith, dirt, dust etc.; of which colour and length are the most important. The fibre is usually classified as black, light brown and white. The colour also indicates to a great extent the index of strength and stiffness. Consequently black fibre is also known as "Prime Stiff", light brown as "medium stiff" and white fibre as "soft". It is the age of the Palmyra tree which largely determines the quality of the fibre extracted.

Therefore all Palmyra trees are not fit for extraction of the fibre. Palmyra palms have male and female varieties. Neera is obtained from the female variety, while the leaf stalks of male varieties are suitable for fibre extraction. The middle aged trees yield strong fibre of dark colour, while the leaf stalks of male varieties are suitable for fibre extraction. The middle aged trees yield strong fibre of dark colour, while the fibre of younger or older trees is of lighter colour and weak.

Trade Description:

Palmyra fibre is usually marketed under two trade descriptions namely (i) Natural length fibre(ii) dressed or dassine(out length) fibre.
Grading is undertaken on the basis of colour, strength and thickness of the fibre. Graded fibres are designated as "superior", "special ordinary", "Ordinary" and "fair" average quality. The natural graded fibre is relatively in greater demand. The dassine or dressed fibre is graded into "extra stiff" "Superior stiff", "Prime stiff", "medium stiff" and "soft. The grades, however are designated differently in various centres. At Kakinada, the fibre is sorted into four grades viz. "Superior" "Special ordinary", "Ordinary" and FAQ in the descending order of quality. At Tuticorin, three grades are in existence namely "extra-superior", "Superior" and "Ordinary". At Calicut the fibre is traded under the name of "Malabar fibre" only. All the grades fibre is also sorted according to its length. In all centres there are only three grades according to length. The length of each grade, however, varies from centre to centre as can be seen from the table below:

Grades and lengths of fibre at various centres.

**TABLE- 37**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Kakinada</th>
<th>Tuticorin</th>
<th>Calicut</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. or A</td>
<td>16&quot; and above</td>
<td>15&quot; and above</td>
<td>18&quot; and above</td>
</tr>
<tr>
<td>2. or B</td>
<td>12&quot; to 16&quot; or 14&quot; to 16&quot;</td>
<td>12&quot; to 15&quot;</td>
<td>16&quot; to 18&quot;</td>
</tr>
<tr>
<td>3. or C</td>
<td>5&quot; to 12&quot; or below 14&quot;</td>
<td>Below 12&quot;</td>
<td>7&quot; to 12&quot;</td>
</tr>
</tbody>
</table>

Source: Survey on India's Export potential of palmyra fibre and allied products in U.K., U.S.A. and Japan, Indian Institute of Foreign Trade, New Delhi, op.cit. p.115
There is no standardisation of various grades of palmyra fibre and it is not subjected to any kind of pre-shipment inspection. The exporters expressed disagreement with the Government of India's intention to extend quality control and pre-shipment inspection. They are of the opinion that this idea of extending quality control and pre-shipment inspection is quite unwarranted and uncalled for, as the trade has been smoothly running on for a number of years to the satisfaction of exporters from India and importers in foreign countries. It is further stated that government interference in the smoothly running business will only cause unnecessary delay, loss, hardship and inconvenience with no corresponding benefit or satisfaction to anybody. They argue that there are numerous grades of fibre and the foreign demand varies from place to place. Therefore, fixing of uniform standard will serve no useful purpose.

From the above it is evident that there is no uniformity in the quality of fibre of various grades and within the grades the quality varies between the various centres. In the villages mostly Harijans and other backward communities scattered over several hundreds of villages generally do not undertake sorting of fibre according to colour or length and the same is disposed off to the village level merchant who in turn move considerable quantity of fibre from rural areas to the brokers at pooling centres of exporters without any sorting.
The market at pooling centres, however, quite often undertakes the sorting activity into black, brown and white fibre. Fibre of longer length is also separated from shorter one. Each lot is separately banded and passed on to the exporter. The exporters have their own units where final cleaning, grading, handling and packing operations of the fibre are undertaken. It is a weight losing commodity. To suit the tastes of individual importer, the fibre is cut into various sizes ranging usually from 5 cm. to 45 cm. fibre is also dyed dark brown and red for special purposes. It is interesting to note that every exporter has his own conception about the quality. This is not desirable as it may affect the regulation of Indian palmyra fibre industry in the long run.

Uses:

Brushes and brooms are the chief and products of palmyra fibre. Palmyra mats are used generally for packing purposes. Brushes and brooms manufactured with palmyra fibre are utilised mostly for household cleaning and in industries. The shape, size and material of the brushes vary in accordance with the use to which it is put. It is mainly used for floor cleaning, street cleaning, drain, lavatory cleaning etc. It is said that besides manufacture of brushes, the fibre is being used in some countries for making roofing sheets or false ceilings for theatres. Industrial uses of brushes are many. Scrapping brushes for buildings and roads, paints and
varnish brushes and jewellery cleaning brushes are also in demand. A special variety of brushes for painting and lettering purposes can also be made with palmyra fibre.

**Brush making industry:**

Brush is simple cleaning equipment consisting of a wooden board and filling materials of animal, vegetable or man-made fibres. Brush making industry is well advanced in U.K., U.S.A., Japan and West European countries, whereas in India it is still in its infancy.

The data on production of palmyra brushes and brooms in the country is not available. It is however estimated that the total production is of the order of ₹10 lakhs of which Cooperative Societies in Tamil Nadu account for about ₹20,000. The rest originates from small/cottage industries in U.P., Delhi and Maharashtra.¹

With palmyra fibre, different types of brushes are made in India like drain cleaning brushes, laboratory brushes, deck scabbing brushes, hand brushes, scrubbing brushes etc. The important centres are Calcutta, Bombay, Kanpur, Agra, Delhi, Palghat etc.

The palmyra fibre is used in Telangana districts of Andhra Pradesh for rope making for domestic purposes.²

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¹ Survey on Indian Export Potential of Palmyra fibre and allied products in U.K., U.S.A. and Japan, op.cit. p.42
² D.V. Raghawara Rao, palmyra fibre Souvenir, platinum jubilee celebrations, 1885-1969. The Godavari chamber of Commerce Ltd., Kakinada(A.P.)
Palmyra fibre industry in Andhra Pradesh

In Andhra Pradesh this industry is known to be in existence mainly in Kakinada for more than 100 years. The chief reason for the development of this industry at Kakinada is the existence of shipping facilities for exports to other countries of the world. Availability of skilled labour, proximity of raw material and the patronage of the experienced and enthusiastic entrepreneurs are the other factors which contributed for its concentration at Kakinada.

Jagannaickpur in Kakinada is the nucleus for the operation of various processes of this commodity. Most of the businessmen are engaged in this industry more or less on a hereditary basis. Lucrative earning, of course is the main guiding factor.

Palmyra trees which yield fibre are found throughout the coastal districts of Andhra Pradesh. However, the trees are thickly concentrated in the East Godavari, West Godavari, Visakhapatnum and Srikakulam districts.

Families of tappers, Harijans and other backward classes constituting the weaker section of the community are engaged in the industry of extracting fibre from palmyra trees. Generally the tree owners collect a rent of ₹0.50 per tree for cutting the sheath or bifurcation portion of the base of the leaf stalk of the tree. The palmyra leaves that are cut will be taken by the owner of the tree. The tappers or the persons who undertake the extraction of fibre are allowed to take the sheath on payment of rent but not the other parts of the tree.
Andhra Pradesh Palmgur Co-operative federation Ltd.

The Andhra Pradesh State Palmgur Cooperative Federation Ltd. is an apex organisation which was established in 1959 to take up the responsibility of developing palmgur and palm products industry in the state. The federation's area of operation has been extended to the entire state and its headquarters are located at Nidadavole in the West Godavari district. It has 548 members on its rolls. The authorised capital of the federation is Rs.5 lakhs, while its paid up share capital is Rs.2,12,850 (excluding the state government contribution of Rs.2 lakhs). With the lifting of prohibition in the state and consequent to the restriction on the concessions to tap trees for manufacture of palm Jaggery, the federation has lost its business. This resulted in a shift in the activities of the federation to processing of palmyra fibre in the modest way with the limited finances made available by the Khadi and Village Industries Commission. Till the end of 1973, the federation has received Rs. one lakh as short term working capital for undertaking palmyra fibre trade. The federation has also prepared a scheme to strengthen the fibre trade and sent the same to the Khadi and Village Industries Commission for its approval which requires about Rs.4.5 lakh towards working capital. The federation has three processing units at Nidadavole, Madhavaram in West Godavari district and Mummidivaram in East Godavari district. The
federation, so far, trained 83 persons in the art of processing fibre with the financial assistance granted by the K.V. Industries Commission and the Government of Andhra Pradesh. Of these, 70 persons have been absorbed in the processing centres of the federation. There is scope for extending the activities to other areas where such facilities are not available. The federation could not extend its activities and enter into the export trade in a big way due to paucity of funds, shortage of godowns, work sheds etc.

Exporters who bought processed fibre from the federation previously are coming forward to offer higher rate, since the federation has been maintaining high standards of finished fibre. With the experience it has gained in trading of palmyra fibre internally, the federation can take up direct exports to foreign countries. In case the required finances are made available by the Khadi and Village Industries Commission and by the state government, the federation can go a step ahead and participate in the export trade activities.
CHAPTER IV

AGRO-EXPORT POTENTIALITIES OF ANDHRA PRADESH

PART I

The economy of Andhra Pradesh is primarily agricultural oriented. Besides food crops, which account for a major portion of agricultural production, a wide variety of commercial crops are grown in all the three regions of the state. Among these, tobacco, groundnut cake, de-oiled rice-bran, cashew, palmyran fibre chillies, turmeric etc., are important which figure in the country's export trade.

The following pages are devoted to explain the need and importance of standardisation and export promotion in respect of the agro-commodities exported from Andhra Pradesh have been dealt.

Standardisation and Export Promotion:

Export play a very important role in the economy of any country. Exports not only bring valuable foreign exchange which is badly needed, but also helps in building up the image of the country by popularizing the goods produced indigenously.
To achieve these aforesaid objectives, we have to specify certain standards which reflect the requirements of consumer, either within the country or abroad. It also serve as a guide to the producer hence it serves as the only understandable and acceptable link between the supplier and the importers. Standards also facilities certification.

In India, as beginning was made with the establishment of India Standards Institution which was entrusted with this responsibility. So far the Institution has formulated over 5,500 Indian Standards covering such diverse fields as Electrical, Mechanical, Agricultural, Food product etc. Over 10 per cent i.e. more than 600 Indian Standards in the field of Agriculture and Food Product Bakery and Confectionary product, by products of oil seed milling industry, meat and fish product etc.

In a developing country like India standardisation has a vital role to play in the all round development in industry and trade. More so in the field of Export Trade. Shortage of goods offer still 'Sellers Market' internally and maintenance of quality standard has yet to assume importance. Products exported are facing stiff competition in the field of price and quality. As a result we are forced to sell our products at unremunerative price for want of quality standards. In this context we have to adhere to standardisation, in order to meet the challenge effectively by offering competitive price through reduced cost of production, consumer satisfaction and high quality

standard. It is, therefore, quite essential for exports that not only the standards for the products be fixed but adhered to. A periodical revision of standards is also important in view of the technological changes. But the level of available technology within the country is to be taken into consideration while determining the standard. The rise in standard of the product manufactured will speak of the level economic development and the prestige that our country is enjoining in the filed of export trade from the time immortal, particularly those of agriculture and food product. The pattern of export from India has also changed considerably from purely traditional agricultural commodities and the raw material to increasing volume of manufactured goods; we cannot, therefore, be indifferent to the changes that the are taking place in the field of export trade, it is not natural that we have to march with other nations only to maintain the present position but also to increase the volume of exports. Thus, the enforcement of quality field control in the field of exports cannot be over emphasised. It has manifold advantages of producing better quality products, reducing the cost of production, protecting consumers interest and ensuring protection of health against hazards. The ultimate aims of quality control are to provide an economic means of attaining, maintaining and checking an objective standards quality.

In order to put the exports on sound footing Govt. of

India took legislating measures for variety of commodities in 1963. As a result, Fruit Products Control Order, Vegetable Oils Products Control Order, the Preservation of Food Adultration Act, The Drugs Act etc. have came into light. Lately a large number of agricultural products have come under the purview of agricultural marketing organisation, whose 'Ag-mark' on the packages of goods is now considered as a taken of guaranteed quality. Another important event that took place towards a rational quality promotion in export was the appointment of special committee under the chairmanship of Dr. Lal C. Verma, who examined the various aspects of export Vis-a-vis quality standard prevailing and recommended the setting up of a special Agency for Pre-shipment inspection, of export goods and certification of the quality on the basis of national standard. Accordingly the export quality control and inspection Act was passed in 1963 and the Export Inspection Council has been constituted to operate pre-shipment inspection for the major portion (more than 85 percent) of export commodities. However, the advantages offered by these schemes have not been fully utilised by industries concerned with the development of Export Trade. These schemes are yet to make a full impact on those industries. Even though it is practically impossible to formulate standards for every product we export (specially for some traditional commodities) in the interest of trade and with a view to popularise the products abroad, some kind of control in respect of quality and pre-shipment inspection is desirable as a measure of long rang policy.
Since agro-industrial products are governed by standards, and come under quality control and pre-shipment inspection, it is felt that there is a need for improving the existing arrangements of grading for export in respect of commodities like tobacco and cashew kernel. Besides, there is a need to bring into the fold of quality control some more commodities like de-oiled ground nut, de-oiled rice bran and palmyra-fibre.

**PART - II**

**Position of Exports of Agro-Commodities and products from Andhra Pradesh**

In the following pages an attempt is made to explain the exports of agro-commodities and products from Andhra Pradesh in respect of Tobacco, De-oiled cakes, De-oiled Groundnut cake, De-oiled rice bran, Cashew Kernel, palmyra fibre and other items on the basis of the table given below.

**ESTIMATED EXPORTS FROM ANDHRA PRADESH**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Commodity</th>
<th>Exports during 1970-71</th>
<th>Exports during 1971-72</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Tobacco (Virginia)</td>
<td>2,854.67</td>
<td>3,901.88</td>
</tr>
<tr>
<td>2.</td>
<td>Chillies</td>
<td>10.87</td>
<td>28.56</td>
</tr>
<tr>
<td>3.</td>
<td>Turmeric</td>
<td>130.38</td>
<td>98.74</td>
</tr>
<tr>
<td>4.</td>
<td>Sann Hemp Fibre.</td>
<td>4.53</td>
<td>6.10</td>
</tr>
<tr>
<td>5.</td>
<td>Wheat Bran</td>
<td>2.89</td>
<td>--</td>
</tr>
<tr>
<td>6.</td>
<td>Cashew Kernels</td>
<td>5.53</td>
<td>2.17</td>
</tr>
<tr>
<td>7.</td>
<td>Sandal Wood Oil.</td>
<td>43.45</td>
<td>42.71</td>
</tr>
<tr>
<td>8.</td>
<td>Sandal Wood Spent Dust</td>
<td>1.56</td>
<td>1.34</td>
</tr>
<tr>
<td>S.NO.</td>
<td>COMMODITY</td>
<td>EXPORTS DURING</td>
<td></td>
</tr>
<tr>
<td>-------</td>
<td>----------------------------------------------------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1970-71</td>
<td>1971-72</td>
</tr>
<tr>
<td>9.</td>
<td>Sandal Wood Powder &amp; Chips</td>
<td>0.05</td>
<td>0.12</td>
</tr>
<tr>
<td>10.</td>
<td>Davana Oil</td>
<td>0.77</td>
<td>1.36</td>
</tr>
<tr>
<td>11.</td>
<td>Palmyra Fibre</td>
<td>122.65</td>
<td>118.06</td>
</tr>
<tr>
<td>12.</td>
<td>Palmyra Stalks</td>
<td>1.42</td>
<td>0.97</td>
</tr>
<tr>
<td>13.</td>
<td>De-Oiled Rice Bran</td>
<td>124.91</td>
<td>86.96</td>
</tr>
<tr>
<td>14.</td>
<td>De-Oiled Cakes (Grondnut Cotton, gingelly, Kardi)</td>
<td>332.29</td>
<td>252.70</td>
</tr>
<tr>
<td>15.</td>
<td>Cigarettes</td>
<td>0.42</td>
<td>--</td>
</tr>
<tr>
<td>16.</td>
<td>Instant Coffee</td>
<td>72.92</td>
<td>78.24</td>
</tr>
<tr>
<td>17.</td>
<td>Sugar</td>
<td>101.64</td>
<td>642.90</td>
</tr>
<tr>
<td>18.</td>
<td>Fruits Juices</td>
<td>26.46</td>
<td>6.50</td>
</tr>
<tr>
<td>19.</td>
<td>Pickles and Chutneys</td>
<td>0.24</td>
<td>0.19</td>
</tr>
<tr>
<td>20.</td>
<td>Tamarind Seed &amp; Flour</td>
<td>0.81</td>
<td>1.80</td>
</tr>
<tr>
<td>21.</td>
<td>Annato Seeds</td>
<td>0.34</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>3,838.80</strong></td>
<td><strong>5,272.27</strong></td>
</tr>
</tbody>
</table>

Seminar on Standards Appraisal & Utilisation in Export Promotion Souvenir, Directorate of Commerce & Export Promotion (Govt. of A.P.) & India Standards Institution 14th December, 1973, Hyderabad pp. 22-

I. Tobacco:

Andhra Pradesh occupies a prominent place among the tobacco-growing states in India. The two main varieties of tobacco grown in the state are flue cured verginal (F.C.V.)
and the NAFU or DESI tobacco. Andhra Pradesh virtually accounts for the production entire virginia tobacco in India. The largest demand in the international market is for F.C.V. tobacco of which India is second largest exporter. Out of total exports of Rs 31.39 crores and Rs 42.25 crores in 1970-71 and 1971-72 respectively the F.C.V accounts for Rs 29.24 crores and Rs 39.49 crores. Exports are made mainly from Guntur and Prakasam districts.

Except in the year 1972, the tobacco exports are either stationary or showing a downward trend particularly to the traditional markets in U.K. and Europe. The tobacco exports are being replaced in traditional market by Thailand, South Korea, China and Latin American Countries on the price factor. We are unable to reduce value of the tobacco paid to the farmers as he has to get a fair return from tobacco compared to other cash crops. Further in view of the general inflation, labour and the prices of other materials used for packing etc. too have gone up considerably. In order to be made competitive in the export markets the plea made by the ILTD Co.Ltd. for reduction in export duty is quite reasonable and genuine.

U.K.
For a long time, has been our single largest customer for Virginia tobacco. U.K.'s entry into the European Economic community has made the situation very critical.

The phase wise adjustments in U.K. tariff with effect on India's exports particularly tobacco. The position will become more critical after July 1977, by that time, all imports from EEC member countries will be admitted without duty, while non-EEC countries including India will be subjected to full tariff. Under these circumstances, our tobacco will cost more in U.K. and in the course of time, the Indian tobacco will be out of demand. This in turn effects the production of tobacco in the state. In the interest of all those who are concerned with the industry, and in the economy of the state in general there is a imperative need to prevail upon the U.K. to seek protection for the India tobacco in the U.K. Market. This can not be a permanent solution, but such concession is inevitable till we stabilise ourselves. For want of required railway wagons, the tobacco exports are being sent to Madras port by road, which results in higher transport charges and consequently the f.o.b. charges are increasing. It is for this reason the exports have become expensive in shipping these products. Particularly to U.K., as there is fall in the frequency of the ships going to U.K. in these days. To come out of this situation, efforts should be made to divert the exports from Visakapatnam and also to from Kakinada port in future.

Frequent increase in freight rates in the another reason which is going against the interest of Indian Exporters. It is quite amusing to note that ocean freight rates South Korean and Thailand to U.K. are cheaper than from Indian ports to U.K., inspite of the additional distance involved. Unfortunately, in India we do not have a agency
like Maritime Boards as in U.S.A. without its permission to enhancement of ocean freight rates by the conference lines is possible. Frequent increases in ocean freights by the conference lines may come in the way of the export promotion activities, and therefore, the government of India may take appropriate action to remedy the situation.

The system of grading followed by farmers is known as 'Kutcha' grading, under this system the tobacco can be graded from IV to 8 V. While the Agricultural Marketing Organisation prescribed as many as 23 grades "Ag-mark". The method followed in these cases is otherwise called as 'Colour Grading' based on colour, size and blemish in tobacco to suit the requirements of different cigarette manufacturers.

In recent years, there has been a marked change in consumer preference abroad from the United Kingdom, there is now a demand for stems, while Japan wants the lower leaves in the plant because they are said to contain low nicotine content. By and large the tobacco industry is governed by the consumer preference and therefore, fluctuates very widely.

In view of the above factors and in conformity with the structural changes in the cigarette manufacturing patterns, the emphasis is being given to the internal chemical qualities of the leaf rather than the external quality. These factors lead to the adoption of a new grading called 'plant position grading' replacing the old system of 'colour grading' in almost all the countries of the world with the exception of India. This system is intended to explain the basic characteristics of the leaf in relation to its nicotine
and sugar contents. Apart from these the other qualities tobacco in like texture, thinness, colour and blemish of the leaf are also important, which can be judged by feel and sight.

It is an admitted fact that the present method of grading in India is outdated and does not suit the requirements of foreign buyers. It is, therefore, imperative that India should also switch over the new method of 'plant position grading' in the interests of all those who are connected with the Industry.

The world demand of flue cured tobacco in the year 1974-75 has been estimated to be to the tune of 21,97,000 tonnes of which India's share is expected to be 48,000 tonnes as against an export feasibility of 63,000 tonnes, if satisfactory assurance about the supply of quality tobacco can be provided.

In short, the future prospects of tobacco trade appears to be grim, unless the some of the above stated problems of the industry are solved, tobacco industry not be put on sound footing.

II. De-oiled cakes:

Andhra Pradesh has to privilege of producing a large variety of oil seeds. De-oiled cake industry is concentrated mainly in Kurnool district. The varieties of de-oiled cakes have been produced in the state. The important are, groundnut cake, cotton seed cake, Safflower (Kardi), seasaman (gingelly) cake.

a) **De-Oiled Groundnut Cake**

De-oiled groundnut cake is one of the important agro-base product which is being exported from India regularly. India is meeting 20 percent of the world's total demand. This commodity constitutes about 78 percent of India's bulk export of de-oiled cake.

As far as de-oiled groundnut cake is concerned, no standard specifications have been evolved for the purpose of exports. At present exports are made according to the buyers specifications which form the basis for quality control and pre-shipment inspection.

In case of exports to the United Kingdom, specifications stipulated in contract number six of the London Cattle Food Trade Association, London, are followed. The specifications laid down in the contract are as follows:

1. **Moisture**
   - Not more than 10 percent.
2. **Oil and alluminoids**
   - Not less than 50 percent (acceptable up to 44 percent at discount)
3. **Oil**
   - Not more than 1.5 percent.
4. **Sand & Selica**
   - Not more than 2.5 percent.
5. **Fibre**
   - Not more than 8-12 percent.
6. **Castor Rusk**
   - Nil.

Out of the total exports of De-oiled ground nut cake of 6 lakh tonnes from India during 1971-72, Japan was the principal buyer importing about 20 percent, East European

\[\text{Ibid.}\]
countries accounted for about 70 percent, while the share
of U.K. was only 10 percent.

b) Exports of Japan, East European Countries, are made
according to their own requirements as these are no
standard specifications from evolved as in case of the
United Kingdom.

Hence there is a need to set up standard specifications
for de-oiled ground nut cake to suit the requirements of all
the major importing countries.

b) De-Oiled Rice Bran:

There is currently a world market for de-oiled rice
bran with low acid insoluble ash content. Such a stipulation
is desired in the interest of the animals. If the
necessary precautions are taken, it would be possible to
produce rice bran with 1.0 - 1.5 percent of acid insoluble
ash. Such a precaution will also ascertain about 15 percent
protein and 2.5-3.0 mg. of Vitamin B, in 100 gms. With such
precaution this product can be even used as human food,
at any rate, in combination with cereals and other starchy
foods so as to reduce the average acid insoluble ash content
to less than 0.5 percent. It is suggested that such a
preparation can be used for the manufacture of Bakery produc-
ts and also in low cost food preparations. At present, an
average high quality bran is produced containing about 5 to
8 percent of acid insoluble ash. Such a bran gets the

highest international price ranging between £ 25 - 30 per

1. Recent advances in Rice Processing Milling and By-
productibsaison op.cit. 11 (Cyclostyled).
Japan requires cakes of superior quality with only 3 to 8 percent of silica content. The grade with 5 to 8 percent of silica content fetches lower price and the same is preferred by the continental countries. In London Market, the standard terms of the London Cattle Feed Merchants Association are as given below:

- Oil content: 16 percent
- Aluminoids: 5 to 7 percent
- Silica: 8 to 10 percent

At present export of rice bran to Japan is very little, but we can look forward to Japan as a potential buyer in future as the demand for cattle feed is on increase. Secondly, the bran exported to Japan is fetching 2½ times more than from other countries. In view of the prevailing higher price of the product and also to earn more foreign exchange, it is desirable that the manufacturers should come forward increasingly to produce quality bran in conformity with the standard specifications regarding silica content. Much depends upon the quality of the raw rice bran which become the raw material for rice bran extraction.

The quality of rice bran can be enriched by taking very simple precaution at the time of processing. It is said that during the process of rice milling, some particles of husk, stones, sand etc, are collected through a waste pipe, and instead of being separated are allowed
to be mixed up in the rice bran out of sheer negligence or some time intentionally. This ultimately spoils the quality of the bran. The solvent extraction plant manager complained during the course of my survey that "if the millers do not mix foreign material in the bran it is enough to gain the weight. Thus we are losing much needed foreign exchange due to excessive presence of silica content in the de-oiled rice bran manufactured at present.

Andhra Pradesh being a major rice producing state in the country, accounts for a considerable share in exports of de-oiled rice bran. The de-oiled rice bran industry as spread over the entire coastal districts of Andhra Pradesh. There has been an increase in the exports, from year to year and reached a level of ₹1.25 crores during 1970-71.

3) Palmyra fibre:

Palmyra fibre is a heavily export oriented industry. Andhra Pradesh ranks first with 59 percent of the total export from the country, followed by Tamil Nadu and Kerla with 40 percent and one percent respectively. Fibre extraction is heavily concentrated in East Godavari, West Godavari, Visakhapatnam and to a lesser extent in Srikakulam, Krishna, Guntur and Nellore district. The exports are made from Kakinada and Visakhapatnam ports. Fibre valued more than one crore of rupees is being exported to other countries annually from Kakinada port.
Export of Palmyra fibre

Figures relating to 1911 show that 4,508 tonnage of fibre has been exported from this country. It is presumed that the trade has been in existence at least 10 years prior to 1911. Export during 1911 to 1917 was 4,000 tonnes on an average, but after the First World War the exports have fallen to 3,100 tonnes. The year 1919-20 showed a tremendous increase of 8,383 tonnes and gradually it went up to 8,7000 tonnes in 1929. During the Second World War period again the exports have fallen, the lowest being 2,635 tonnes due to non-availability of shipping operations. After the war again the exports picked up steadily and touched a higher figure during 1946-47 of about 10,000 tonnes.

The following table shows the figures indicating the quality and value of fibre exported from Kakinada port during the periods.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>Quantity in (M.Tonnes)</th>
<th>Value (in rupees)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1966-67</td>
<td>6450.887</td>
<td>101,78,206</td>
</tr>
<tr>
<td>2.</td>
<td>1967-68</td>
<td>5799.934</td>
<td>118,01,506</td>
</tr>
<tr>
<td>3.</td>
<td>1968-69</td>
<td>4845.000</td>
<td>94,60,481</td>
</tr>
<tr>
<td>4.</td>
<td>1969-70</td>
<td>5027.963</td>
<td>103,50,495</td>
</tr>
<tr>
<td>5.</td>
<td>1970-71</td>
<td>5416.176</td>
<td>122,64,881</td>
</tr>
</tbody>
</table>

Source: Andhra Pradesh Palmgur Co-operative Federation Ltd., Nidadavola, West Godavari district (A.P.).

**Palmyra Stalks:**

In the recent past, palmyra stalks have also gained a place in the exports from Andhra Pradesh. A byproduct which is obtained from the palmyra leaf during the process stripping of leaves for matting is known as palmyra stalk. One Palmyra leaf generally contains 26 to 36 stalks which weigh about one lb. Village merchants collect these stalks in small bundles and pass on the whole sellers, who undertake sorting operation according to the quality and length. Generally sorting is done between fine and coarse qualities and out into various length. Sometimes dyeing is also undertaken before packing them for export it is used for making brooms in mechanically operated road and stress cleaning machines in foreign countries. Palmyra stalks are being exported mainly to U.S.A. Hongkong, France and also to China through Hongkong.

The extraction of stalks in confined to Andhra Pradesh and Tamil Nadu Practically the whole produce of palmyra stalks is exported.

The following table shows the quantity and value of exports of palmyra stalks during the periods 1967-71.

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Year</th>
<th>Quantity (in Tonnes)</th>
<th>Value (Rs in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1967-68</td>
<td>2,128</td>
<td>17.58</td>
</tr>
<tr>
<td>2.</td>
<td>1968-69</td>
<td>1,626</td>
<td>8.89</td>
</tr>
<tr>
<td>3.</td>
<td>1969-70</td>
<td>1,517</td>
<td>8.40</td>
</tr>
<tr>
<td>4.</td>
<td>1970-71</td>
<td>1,252</td>
<td>6.90</td>
</tr>
</tbody>
</table>

Source: Survey on India's Export Potentialities of palmyra fibre and allied products in U.K., U.S.A and Japan, Indian Institute of Foreign Trade, op. cit p.44.
It is known from the above table that there is a steady fall in the exports of stalks during the year 1967-68. There has been a considerable fall in the exports to U.S.A. and U.K. The principal buyer is U.S.A. and exports have declined from 7.14 lakhs in 1967-68 to 2.25 in 1970-71.

Reasons for the fluctuations in the export of palmyra fibre from Kakinada and fall in the exports to U.S.A. and U.K. and suggestions for improvements

In recent years, it has been found that there is an increasing tendency on the part of the importers to switch our gradually to synthetic fibre, or man-made fibre. Hence, the use of vegetable fibre is on its decline and consequently the use of synthetic fibre is on its increase.

In some countries palmyra fibre is being used along with others fibres in different proportions for the manufacture of brushes etc. The other reason for this fall in exports from Andhra Pradesh, particularly from Kakinada, may be the sub-standard material which is being processed and exported. The survey conducted by the Institute of Foreign Trade on "India's export potentialities of palmyra fibre and allied fibres in U.K. U.S.A. and Japan" makes reference to the complaints received by the importers on the quality of fibre which is being exported from India particularly from Kakinada.

It is pointed out that the fibre exported from Kakinada has not been consistent in quality and that the dyes are not fast. Besides this, the fibre is duty, uneven and poorly mixed. Since the fibre supplied is not clean enough to be

1. *India's Exports (country side) of palm leaf stalks*, Department of Commercial Intelligence and Statistics, Calcutta.
fed directly into the machines, the importers have to undertake further processing. The machines used are highly sophisticated and it is for this reason that slightest variation in the quality of the fibre with either break the fibre or the machine stops working. The importers have also expressed concern about short weight, and the wide variation in the samples shown and the subsequent deliveries.

In the recent past, there has been a rapid progress in field of man-made or synthetic fibre, which is posing a serious threat to the very existence of this industry. The exporters prefer synthetic fibre to palmyra or any other natural fibre for the following three reasons namely (1) lack of quality (2) price rise and (3) irregular delivery schedules. The exporters are not in a position to supply fibre due to irregular shipments of fibre from India, mainly from Kakinada. If this irregularity is rectified, we can improve the position of export of fibre from Kakinada. It is also pointed out that a small rise in price by the exporters results in an increase in the manufacturing cost.

Besides synthetic fibre this industry, is facing heavy competition from other natural fibres like Mexican fibre, coco fibre, African piassava, bahia piassava etc. Stability of prices, and maintenance of quality of the fibre exported are the two important considerations, which require consistent efforts on the part of the exporters. In order to control the prices at the current level there is an urgent need to eliminate the middlemen who are operating
between the primary processor and the exporter. The economic condition of thousands of poor village artisans who depend either wholly or partly on the fibre processing profession can be improved bringing them under the cooperative fold. Primary Fibre Processing Industrial Cooperatives may be established in various centres under the purview of Andhra Pradesh Palmyra Cooperative Federation at Nidadavole. The Corporation has been engaged in training persons in the art of processing and other allied matters. This facility can be extended to these artisans who become members in the primary cooperative societies. This federation is the most proper channel to take up the export of the fibre processed in these primary societies at the village level. If the above stated steps are taken and implemented properly, the efforts may bring manifold benefits to the primary processor at the village level, the exporter, and the importer.

The government should improve the shipping facilities at the Kakinada port till such time, arrangements may be made to export palmyra fibre from the Visakhapatnam port on a large scale.

There is an urgent need to bring this product under the purview of voluntary preshipment inspection and quality control, in order to ensure the export of quality products and also to check the irregularities. Otherwise, there is an inherent threat of the importers switching over the synthetic substitutes in future. But care should be taken, as far as
possibility to ensure that there three is no dislocation of the shipments. Otherwise, this may effect the working of the industry and the poor labour will be put to available hardships.

4) **Sandalwood Oil:**

The production of sandalwood oil is concentrated in Koppam of Chittor district of Andhra Pradesh. The annual export of sandalwood oil are of about ₹ 43 lakhs. In recent years efforts have been made to export Davana oil from Andhra Pradesh in small qualities.

5) **Processed food:**

Instant coffee, fruit juices, biscuits, confectionery, pickles and chutneys are the important items of processed food figures in exports from Andhra Pradesh. Of these, instant coffee and fruit juice account for major portion of processed food exported from Andhra Pradesh. The mango jelly industry is concentrated mainly in Krishna, a West Godavari, East Godavari and Visakhapatnam districts to coastal Andhra. A large number of units (cottage industries) are engaged in the manufacture of mango jelly. If the units are modernised with improved packing and labelling, production can be taken up on a large scale and exports can be increased.

Exports of processed foods accounted for about ₹ 86 lakhs during 1971-72.

6) **Spices:**

Of late efforts have been made to grow pepper, in the
forest areas of the coastal districts of Andhra Pradesh. Experiments have proved to be successful, and the area under this crop may go up in the coming years. At present export of spices is limited to turmeric, chillies, coriander and ginger from Andhra Pradesh. Of these, turmeric and chillies are being exported through middlemen of Tamil Nadu. The government should encourage the export of these items directly from the state. The exports of spices from Andhra Pradesh are estimated to be of about Rs 1.27 crores 1971-72.

7) **Sugar:**

Export of sugar from Andhra Pradesh is made on the basis of the quotas apportioned by the Government of India every year. Exports are being from Visakhapatnam port. Exports made through this port have been estimated at Rs 6 crores during 1971-72.

8) **Handloom Products:**

The export of handloom products is made through All India Handloom Fabrics Cooperative Marketing Society, Bombay. Handkerchiefs, towels, bedspreads, lungies etc are the important items of export of handloom fabrics manufactured in Andhra Pradesh.

9) **Handicrafts:**

Andhra Pradesh has earned a name in the field of handicrafts in India as well as abroad. Of these, Bidriware, Rumroo, Nirma artwave silver filigree, woollen pile carpets
and crocket lace are important. Crochet lace industry is concentrated mainly in West Godavari district. The annual exports of crochet lace is about Rs 13 lakhs. Woollen pile carpets is another important item of handicraft exported. Eluru in West Godavari district is the main centre of woollen pile carpet manufacturing industry. Mural artistic paintings and Bidriware reflect the artists talent of Andhra Pradesh. Exports are directed through government Emporia at New Delhi and Hyderabad. Besides these some exports are also made through other merchants. The famous Kandapalle toys and Trivpathi red sanders are produced in Andhra Pradesh. The total exports of all these items from the state accounts for over Rs 2.4 crores annually.

10) Cashew Kernel:

The image of the India cashew Kernels has been built over many years. But the dependence on foreign countries for raw nuts has created a challenging situation. The need and utility of quality control and preshipment inspection assumes paramount importance in the field of exports. The government had initiated a scheme of quality control and pre-shipment inspection from 18th April 1963. Consequent to the formation of Export Inspection Council this work has been entrusted to the cashew promotion council a specialised agency, with effect from 1st April, 1966. This scheme is intended to see whether the cashew kernels processed confine to the specifications recognised by the Government of India under export (quality control and inspection) Act. 1963 and
that proper designation labels have been affixed on the
tins containing cashew or nut.

An exporter intending to export cashew kernels
submits an applications to the Export Inspection Agency
giving particulars of the consignment to be exported, not
less than 24 hours before the date of commencement of loading
to the ship. The Export Inspection Agency after inspection,
issues certificate of grade and export worthiness, specifying
the in the number of the grade designation labels used.

The cashew kernels are first graded into wholes and
splits. The wholes are sub-divided according to American
Market standards in to different counts. The wholes
according to standard specifications are graded into seven
standards under the grade designations, as given below:

Specifications of cashew Kernels:

General Characteristics: Cashew kernels which are obtained
after thorough sheelling and peeling of cashew nuts, should
be reasonably, dry, free insect damage, free from rancid
kernels and testa.

Tolerance: In all grades, tolerance upto 5 percent of
the next lower grade is allowed except in Dessert cashew
Kernels (Pieces) where it is allowed upto 10 percent, at the
time of packing.
### Cashew Kernels (Whole)

<table>
<thead>
<tr>
<th>Grade Designations</th>
<th>Number of Kernels per Lb.</th>
<th>General Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>W 210</td>
<td>200/210</td>
<td>Shall have the characteristics</td>
</tr>
<tr>
<td>W 240</td>
<td>220/240</td>
<td>Shall be white, pale inony or light ash in colour, free from black or brown spots.</td>
</tr>
<tr>
<td>W 280</td>
<td>260/280</td>
<td></td>
</tr>
<tr>
<td>W 320</td>
<td>300/320</td>
<td></td>
</tr>
<tr>
<td>W 400</td>
<td>350/400</td>
<td></td>
</tr>
<tr>
<td>W 450</td>
<td>400/450</td>
<td></td>
</tr>
<tr>
<td>W 500</td>
<td>450/500</td>
<td></td>
</tr>
</tbody>
</table>

Source: Indian cashew grades, the cashew Export promotion Council, Ernakulam, Cochin.

Similarly, for scorched kernel (whole) the grade designation is "SW" and for Dessert Kernels (Whole) the grade designations are "SSW" or "SWIA" and "DW". Likewise, for the brokens (white pieces), five grades have been adopted, the grade designations being "BS", "LP", "SWP", "BB". Similarly, for scorched pieces the grades are designated as "SB", "SS", "SP", AND "SP" and for dessert kernels pieces, as "SPS", "DP", "DSP", "DB" and "DS".

Position of Andhra Pradesh:

The grades mentioned above are being followed by processors all over India. With an exception to A.P. especially the cashew processing units at palasa adopt only three categories for wholes namely 'special jumbo wholes'
and 'standard American.' While the broken are classified as 'halves' and 'pieces.' Since the cashew processing units in palasa have failed to adopt the type of export grading (mentioned above) notified by the government of India, they are not in a position by the government of India, they are not in a position to export their products. The industrialists at palasa are of the opinion that the specifications notified by the government of India are based on the availability of raw nuts in Kernels and Tamil Nadu. This is the reason why the cashew Kernels processed in palasa could not be exported. They also believe that there will a sizeable demand in America for the palasa quality of Cashew Kernels. In case their grades are also included in the grades notified by the government, it will be an incentive for them to produce kernels economically and to take part in the exports. There by cashew kernel industry in the state can develop and expand on sound lines. Since there is a local market for their products to fall back, they think that there is no need to adopt the grades specified by the government of India. Because they do not have export performance, as a rule they cannot get the imported raw materials for processing purpose.

In a way these processors are at loss in two ways:
1. They cannot export their products directly.
2. They are not entitled to get the quota of imported raw material.

For an industry to develop and expand regular supply of quality raw material as well as the exports are essential. In the interests of the processing of cashew
palasa as well as in the interest of the Industry
as a whole, it is advisable that the government
should assess the demand for palasa quality in America
and other countries. In case there is a sizeable demand;
they should be allowed to export their producing and their
grades to be included in the permissible quality grades
for export.

*********
CHAPTER-V

ECONOMY OF EAST GODAVARI DISTRICT

PART-I

Geographical Situation of East Godavari District.

Introduction:

The systematic development of a region or an area depends upon the proper utilisation of its resources both human and material. It is, therefore, essential to understand the economic activities of man as they are conditioned by his environment or surroundings. It is imperative to have thorough knowledge of the resources and the ways and means of putting them to right use, which in turn contribute to the material prosperity of a region. More so, when the nature has been generous in its resources where we can put them to a wide variety of uses. The techno-economic survey conducted by the National Council of Applied Economic Research has revealed that the State of Andhra Pradesh has a wide range of prospects for the rapid industrialisation and made
many useful suggestions for follow up action. In the present era of planned economic development it becomes imperative to understand the resources in order to attain the main object. The purpose of this Chapter is to provide (the reader) with general background of the economy of East Godavari District in Andhra Pradesh, which is taken for research study.

East Godavari District is a rich coastal district with a population of 30.87 lakhs spreading over 10,950 sq. kms. One fourth of the area is covered by Forests.

The district can be divided into three natural zones, namely (1) Agency (2) Delta and (3) Uplands. Godavari river is the major source of irrigation. The other rivers Yelemu, Tandava and Pampa, tanks and tube wells account for the cultivation of considerable extent of upland in the district.

The chief crops are paddy, bajra, pulses, chillies, sugarcane, sesamum, groundnut, coconut and tapioca. Palm trees are found throughout the district.

and palm fibre is exported through Kakinda port.

The main fruits grown in the district are coconuts, mangoes, citrus, batavia, banana, guava, anona, cashew and tamarind.

LOCATION:

The district of East Godavari is situated in the North-Eastern part of Andhra Pradesh on the Eastern Coast. It lies between $16^\circ$-20' and $18^\circ$-20' of the Northern Latitude and $81^\circ$-30' and $82^\circ$-30' of the Eastern Longitude. It is bounded on the North by Orissa State, on the North-East by Visakhapatnam district on the North-West by Khammam District. On the West by the river Godavari and on the South and East by the Bay of Bengal. The District falls in the Coastal plain of Andhra Pradesh. The District has a coast line of 120 km as against 960 km coast line of the State of Andhra Pradesh. The general elevation of the district varies from a few feet above the sea level to 1,000 feet.

CLIMATE:

Temperature and Rain fall: The climate is compa-
 relatively moderate. April, May and June are, however, warm where the temperature touches 39.9°C approximately.

The normal rainfall (annual) of the district is 1137.6 mm. per year.¹ The number of seasons into which the year is divided depending upon the local rainfall conditions are as follows:

1. South-West Monsoon --- 1st June to 30th September.
2. North-East Monsoon --- 1st October to 31st December.
3. Winter --- 1st January to February.
4. Summer --- 1st March to May.

The district falls within the highest rainfall region of the State.

There are three seasons viz., summer, monsoon and winter, summer extending from March to June with May as the hottest part of the season. Summer is followed by tropical rains. The highest rainfall is recorded in the tribal areas (Agency tracts) of Rampachodavaram and Yellavaram Taluks of the district.

TOPOGRAPHY:

Basing on the topography and physical features, the district is discerned into three natural zones viz., the Delta, the Upland and the Agency or the hill tract.

The Delta portion comprises of Mimmidivaram, Razole, Amalapuram, Kothapeta Taluks and major portions of Ramachandrapuram and Kakinada and minor portions of Rajahmundry Taluk.

The upland area comprises of Tuni, Pithapuram, Peddapuram, Prathipadu taluks and a large portion of Rajahmundry taluk and a small portion of Kakinada, Alamuru and Ramachandrapuram Taluks.

The agency hill tract comprises of Yellavaram and Ramapachodavaram Taluks.

SOILS:

The district has four types of soils viz. 1. Red soils, 2. Deltaicalluvium 3. Coastal sand and 4. Laterite.
1. **Red Soils**: The major portion is covered by red loamy and red sandy soils towards the northern side of the district, consisting of Maredumilli, Rampachodavaram, Addategala, Rajavommangi and Korukonda blocks. These soils are generally rich in organic matter and poor in plant nutrition. However, these soils are rich in phosphoric contents.

2. **The Deltaic Alluvium**: Alluvial type of soils consist of alternate layers of sand and silt brought down by river in successive years. This is found mainly in the Delta and few other areas as of the District viz. Kapileswarapuram, Razole, Kothapeta, Rajanagaram, Rangampeta, Peddapuram, Samalkot, Tallarevu and Rayavaram blocks of the district. This part of the district is extremely fertile and well suited for agricultural operations.

3. **The Coastal Sand**: The coastal sand is also fertile, by virtue of the mud which the river carries during its flow. The Godavari silts are considered to be rich as they contain lime, potash and phosphates. Coastal sands are mainly found on the coastal belts of the district stretching inside a distance of 10 to 15 km.
4. The Laterite Soil: This type of soil consists of light texture of sandy loams at the surface and becomes clayish with depths. This is found mainly in the parts of Rajanagaram, Rangampetta and Rayavaram blocks of the district. Though laterite soil is deficit of Nitrate, Potash, Phosphates and Lime, it is well suited for horticulture and for the production of pulses and oilseeds.

Geographical Resources:

The East Godavari has a special significance as it consists of a variety of geographical formation. The geology of the district reveals the formations of coal bearing rocks and graphite granet, Silliminite Sechist genises with or without felspars and Lime stone on the side of the river Godavari.

Sand stones are used for purposes of grinding and crushing and useful for the construction of the buildings. These are available in Rajahmundry, Paddapuram and Samalkot areas. Lime stone associated with traps is used for lime making and also found in these regions. Lime and graphite deposits and special
grade foundry sand are also available near Rajahmundry and Kateru.

Graphite occurs in rocks mainly in two types: viz. Schistose deposits and Kelin deposits.

Both of these rocks yield coarse graphite flake which is used in the crucible industry, but vain type of deposits can be employed in the crucible manufacturing better than the Schistose deposits.

These deposits are said to be found in the eastern flank of Pulikonda, northern flanks of Rachakonda and southern flank of Sutrakonda, west of Pulikonda, Graphite occurs in hill locks near Kottadi village, Seetapalli, Gollagudem, Rampachodavaram, Addateegala, Vetakonda and Peetavaram areas of the district.

The Ceramic clay deposits which include ball clays, fire clays and plastic clays are situated at Bommuru near Rajahmundry. These deposits are useful for the manufacture of fire clay bricks and glass furnace refractories. Deposits of this clay have been estimated at 99,000 tonnes.
The white clay at Punyakshetram is found to be suitable for stone jars, sanitaryware, etc. This ingredient is also used in the manufacture of graphite crucibles. About 1.4 million tonnes of clay reserves are estimated in the area. The Government porcelain factory at Bangalore has been using this clay for manufacture of insulators. The Andhra Pradesh Mining Corporation are exploiting the clay reserves at Punyakshetram and supplying to industries.

Reserves of large clay deposits in East Godavari District:

<table>
<thead>
<tr>
<th>Place</th>
<th>Reserves:</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kotta Bommur</td>
<td>0.9 million tons</td>
<td>Lumpy, Gritty Clay, fairly plastic suitable for sanitaryware after washing.</td>
</tr>
<tr>
<td>Punyakshetram</td>
<td>1.4 million tons</td>
<td>Ball Clay, High plasticity excellent for high class ceramicware and porcelain</td>
</tr>
<tr>
<td>Jagampeta Peddapuram</td>
<td>0.02 million tons</td>
<td>Earthenware.</td>
</tr>
</tbody>
</table>

The district is divided into four revenue divisions with fourteen taluks including six independent sub-taluks. The district has nine municipalities, 20 Panchayat Samithis and 920 Gram Panchayats. There are in all 1,513 villages in the district. Among these, 1,344 are inhabited and the remaining 169 villages are uninhabited. The district has 13 towns including two class I towns each with a population of more than one lakh viz. Rajahmundry and Rakinada. Rakinada is the district Head-quarters with a minor port in between Visakhapatnam and Madras in the Bay of Bengal on the East Coast.

Bhadraohala and Nagur Taluks which were once part of the district comprising an area of 4,023.00 sq.km., were transferred to Khammam district for administrative convenience and accessibility in the year 1959.
NATURAL RESOURCES:

Rivers: East Godavari district is endowed with fertile soil and perennial water supply from the river Godavari with its tributaries Sabari, Sileru and Yeleru. Besides these, there are two streams, Tandava and Pampa, running down from north into the sea. River Godavari is the largest river of the south with a length of 1,498 kms., and with a total catchment area of 315,000 sq.km. Originated in the western ghats in Maharashtra it enters into Andhra Pradesh in Adilabad district. It flows to a length of 720 km., in the state and has a catchment area of 90,650 sq.km. Mostly it passes through the forests, and flows across the peninsula for 1,440 km., enters the plains through a gorge Papi hills up to Rajahmundry. It is 2.9 kms., wide at Rajahmundry, while at Dhaweleswaram about 3 kms., from Rajahmundry, it splits into two branches, the eastern part Gowtami flows between Ramachandrapuram and Kakinada on one side and Amalapuram and Kothepetta taluks on the other.

The Godavari river is the main source of irrigation providing an ayacut for 4.45 lakhs of acres in
seven delta taluks of the district. Yelleru is another important river of the district providing irrigation facilities to Yellavaram, Prathipadu, Peddapuram, Pithapuram, and Kakinada taluks. Other minor water sources in the upland taluks include Pamalaru, Buradakalva, Sithapalli, Vagu and Pampa tanks and wells. Bore wells are mostly found in upland taluks and also in delta taluks like Ramachandrapuram. The Dowlaismwaram anicut which was constructed by Sir Arthur Cotton, a British Engineer, is the main source of irrigation for East and West Godavari districts these districts are known as the Rice Bowl of India.

Ground water resources are found near Draksharama, Dwarapudi with arterean and sub-arterean veins.¹ Tapping is done for agricultural purpose by boring tube-wells and filter points. So far no systematic studies have been made for exploiting the underground water sources fully. Tanks in Peddapuram taluk, Peravaram pumping scheme in Razole taluk and Polavaram project are other sources of water for irrigation purposes. Subterranean water is tapped by digging shallow wells to lift water for irrigating coconut and banana.

¹. Andhra Pradesh Almanac, Directory & Handbook, contd
plantations in Razole, Amalapuram and Kothapeta taluks.

FORESTS:

The district has 2,543 sq.km. of forests forming 22.8 percent of the total geographical area of the district. The forest is mainly concentrated at Rampachodavaram, Yellavaram and Rajahmundry taluks, yielding good quality timber, while the forests of Peddapuram, Tuni Kakinada taluks have mediocre type. Different types of teak as well as non-teak timber, and abundant quantity of bamboo are available in the district. Rajahmundry, Rampachodavaram, Yellavaram taluks have forests yielding good timber. Peddapuram, Tuni, Kakinada taluks have mediocre forests yielding bamboo mainly. The district is interspersed by Eastern Ghats and moderately dense forests. Besides timber, eucalyptus, coffee, cocoa, rubber, pepper etc., have been introduced in the interior agency tracts in the district. Experiments conducted have proved that the agency areas of Maredumilli provide congenial

The Educational Products of India, Madras, pp. 250 & 251.
climate for raising these plantations, mainly coffee. Minor forest produce consists of tamarind, shikakai, soapnuts, nux-vomica, beedi leaf, myrabolam, etc. Bamboo is the chief raw material for the paper mill at Rajamundry.

LIVE STOCK AND FISHERIES:

The district has livestock population of 11.16 lakhs; Mandapeta is known for the quality milch cattle particularly for natural breed.

East Godavari district has a coast line of 120 km., as against 960 km., coast line of Andhra Pradesh. The long coast line and its canals, along with several tanks in the district offer vast water source potentialities. Rich prawn grounds are located at Godavari point, off Hope Island and Uppada. Other important fish available are shell fish and shark. Prawns and other varieties of fish are exported to other states as well as to Japan, U.S.A. and U.K.²

SALT:

Common salt or sodium chloride occurs in abundant quantities. Nearly 1,400 acres of salt pans are located in the district producing annually about 2,600 tonnes of salt.¹ There is further scope of salt extraction from sea water. Besides salt, it contains a number of important chemicals in varying percentages. Plaster of Paris, magnesium, sulphate or Epson salt etc., can be manufactured in the district.

TOPOGRAPHICAL ZONES:

The district can be conveniently classified into three zones depending on the different degrees of economic development. These topographical zones are: 1). The Delta 2). The Upland and 3). The Agency.

1. The Delta:

The delta area, popularly known as Kona Seema, comprises of Amalapuram, Kothapeta, Razole, Mummidi-varam, a part of Kakinada and Ramachandrapuram taluks.

¹. Ibid., p. 3.
This is extremely fertile due to deposits of silt by Godavari.

Till 1850 this area was noted for droughts, floods and famines. The area was surveyed by Sir Arthur Cotton, who developed a well planned irrigation-cum-flood control system. A part of the canal system was useful for navigation purposes. This century old Godavari irrigation system is truly multipurpose in character and utility. A second barrage is under construction across the river Godavari.

The Delta area presents a vast field with variety of crops viz., plantations, sugarcane, betel and coconut and innumerable palmyrah trees. The canal system provides transport facilities for their agricultural produce.

On account of recent development of Agro-industries, dairy, canning, coir workds etc., of advanced type can be found. Large quantities of prawn and fish are available. The mechanised boats the more would be the fish landings. The Andhra Pradesh Fishermen Central Co-operative Society Ltd.,
with headquarters at Kakinada, caters to the needs of fishermen of the coastal Andhra as well as Rayalaseema districts. It has the distinction of designing and construction of the mechanised boats entirely with local enterprise. The first phase of the construction of 37 feet travelling boats commenced in October 1973 and the same were pressed into service in June 1974.

UPLAND:

The Upland or plains covers the central part of district comprising of Tuni, Pithapuram, Peddapuram, Prathipadu, and a large portion of Rajahmundry taluk and a small portion of Kakinada, and Ramachandrapuram taluks. It forms a gently undulating and fairly wooded plain. The soils are fertile and the level of economic development is very high. It enjoys moderate irrigation facilities from Yelleru river and Godavari. Tanks and tube wells from important source of irrigation in uplands.

Att the large and medium size industries such as paper, sugar, tobacco, spinning and malted milk
products are located in this area. Similarly, the traditional and modern type of small scale industries such as crucible, alluminium, rice milling saw milling, sago, tile making, brick making, jar making, etc., are also located in this region. The graphite crucibles and allied industries are mostly located in Rajahmundry (The Crucible Town of India). The working clay mines of Punyakshetram are located about 12 km., away from this place. The graphite crucible industry is native to this place and has fast developed with local skills. Now Indian crucible industry occupies the third place in the world. Three large scale units are also located at Rajahmundry - A.P. Paper Mills, The Co-operative Spinning Mills, and the Horlicks Project, Anam Electrical Manufacturing Company producing A.C.S.R. conductors is another medium size unit located at Kadium about 14 km., from this place.

The population of Rajahmundry town during the decade 1961-71 has increased from 1,30,002 to 1,65,912 (27.62 percent). The non-municipal area is a out growth with pronounced urban characteristics around the core town. Hence the non-municipal area combined
with the municipal area is justly given a separate classification as Rajahmundry "Urban Agglomeration" with a population of 22,993 persons in 1971.

THE AGENCY:

The eastern ghats rise by gradations from the level of the coast and are spread throughout the Agency. The Agency area is covered mostly by hills or forests and forms the northern part of the district. This comprises of Rampachodavaram and Yellavaram taluks occupying an area of 1,838.9 sq. km., and 2,201 sq. km., respectively. These taluks constitute 37.3 percent of the total geographical area of the district. Out of 30.87 lakhs population in the district 1.36 lakhs forming 4.5 percent of the total population lives in the agency area. Out of 1.36 lakhs, the scheduled tribes are 1.19 lakhs. These two taluks represent 80 percent of the total population of scheduled tribes living in the district. The density of the population of these area is very thin, respectively 30 and 38 persons per sq. km., in Rampachodavaram and Yellavaram, as against the district average of 282 persons per sq. km. The
people are very backward, socially, economically and educationally. Methods of cultivation in these areas is different from other areas as there is no settled mode of cultivation. Here the prevalent practice of cultivation is very primitive and is known as the 'Podu' or the shifting method of cultivation. This type of cultivation is very common among the Adivasis (tribals). The systematic assessment of land revenue has not yet been resorted to. Measures are being taken to eradicate podu cultivation. This type of cultivation by tribals has been proving to be a great threat to forest wealth and an immediate danger to hydel projects like Sileru etc. The tribals burn up patches of forests to cultivate crops for an year or two and more else where. Such patches not only destroy invaluable wealth matured over thousands of years but also result in soil erosion. The Central and State Governments are now seriously planning to take up long range steps to prevent podu cultivation once for all. One of such schemes was the creation of coffee plantations which serves the dual purpose 1). alternative employment to the tribals and 2). save soil conservation. Experiments have shown
encouraging results. The agency soil is generally deep, porous, loomy as well drained with 1,400 feet and the average annual rain fall ranging between 1,332.6 mm. to 863.6 mm. The temperature varying between 17.9 C - 39.1 C. These factors provide congenial climate for raising plantations like coffee, pepper, cocoa and rubber. Most encouraging results come from the coffee plantation of 2,000 acres at Maradumilli in Rampachodavaram taluk. The yield is of a good quality as is produced in the coffee plantations, traditional of India. Therefore, one can visualise a bright future for production of coffee on large scale in these agency areas. It has been decided to establish a coffee research station at Chintapalli village in Rampachodavaram taluk.

In addition to this, the forest department has started pepper plantation on experimental basis. The scheme was proved to be successful by providing seven to eight lakh cuttings for future propagation of pepper in this district. Pepper is already known in this region. With modern methods, there is bright prospects of raising this plantation also on a large
scale in near future. Efforts should be made to
grow rubber in large quantities for which congenial
conditions prevail in this area.

These plantations are highly remunerative,
therefore it improves better living conditions in
tribal people socially and economically. In order
to develop this area, the Government of Andhra
Pradesh has entrusted the collection of minor forest
produce available in the area from the local inhabi-
tants. The produce is being collected through
field societies of Girijan Corporation.
East Godavari, district, with a population of 30,87,262 is the most populous district in Andhra Pradesh. The population of East Godavari district increased from 13.39 lakhs in 1901 to 30.87 lakhs in 1971. Over a period of 70 years the population increased by 17.38 lakhs. The average rate of increase in the population is 12.39 over a decade.

<table>
<thead>
<tr>
<th>Year</th>
<th>Population</th>
<th>Decade variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1901</td>
<td>13.39 Lakhs</td>
<td>---</td>
</tr>
<tr>
<td>1911</td>
<td>15.11 &quot;</td>
<td>+ 12.86</td>
</tr>
<tr>
<td>1921</td>
<td>15.69 &quot;</td>
<td>+ 1.70</td>
</tr>
<tr>
<td>1931</td>
<td>17.57 &quot;</td>
<td>+ 14.31</td>
</tr>
<tr>
<td>1941</td>
<td>19.77 &quot;</td>
<td>+ 12.52</td>
</tr>
<tr>
<td>1951</td>
<td>23.02 &quot;</td>
<td>+ 16.45</td>
</tr>
<tr>
<td>1961</td>
<td>26.08 &quot;</td>
<td>+ 13.32</td>
</tr>
<tr>
<td>1971</td>
<td>30.87 &quot;</td>
<td>+ 17.97</td>
</tr>
</tbody>
</table>

It can be seen from the above that the population of the district has increased steadily from one

decade to another except during 1911-21. It has been doubled during the course of six decades. Yet the percentage increase of population in the district is only 18.4% as compared to 20.9 for the state as a whole. The district constitutes only 3.9% of the state territory but supports 7% of the state's population.

The most basic factors in the analysis of socio-economic setting is the spread of population over the area of the district. A statement showing area, number of towns, population and density of the East Godavari district taluka-wise in 1971 is given below:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Taluk</th>
<th>Area in sq.km</th>
<th>No. of towns</th>
<th>Population (persons)</th>
<th>Density (population per sq.km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Amalapuram</td>
<td>558.1</td>
<td>2</td>
<td>2,63,412</td>
<td>472</td>
</tr>
<tr>
<td>2.</td>
<td>Alamur</td>
<td>311.4</td>
<td>1</td>
<td>1,73,435</td>
<td>557</td>
</tr>
<tr>
<td>3.</td>
<td>Kakinada</td>
<td>994.6</td>
<td>2</td>
<td>4,83,773</td>
<td>486</td>
</tr>
<tr>
<td>4.</td>
<td>Kothapets</td>
<td>297.9</td>
<td>-</td>
<td>1,99,422</td>
<td>669</td>
</tr>
<tr>
<td>5.</td>
<td>Mummidivaram</td>
<td>356.2</td>
<td>-</td>
<td>1,63,171</td>
<td>430</td>
</tr>
<tr>
<td>6.</td>
<td>Peddapuram</td>
<td>978.2</td>
<td>1</td>
<td>2,25,896</td>
<td>231</td>
</tr>
</tbody>
</table>

...contd
1. Pithapuram 355.6 1 1,88,998 531
2. Prathipadu 582.7 - 1,59,100 273
3. Rajahmundry 979.0 3 4,64,959 475
4. Ramachandrapuram 437.1 1 2,67,229 611
5. Rampachodavaram 1838.9 - 54,325 30
6. Razole 455.8 1 2,16,240 474
7. Tuni 474.0 1 1,53,692 324
8. Yellavaram 2201.5 - 83,610 38

<table>
<thead>
<tr>
<th>1.</th>
<th>2.</th>
<th>3.</th>
<th>4.</th>
<th>5.</th>
<th>6.</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.</td>
<td>Pithapuram</td>
<td>355.6</td>
<td>1</td>
<td>1,88,998</td>
<td>531</td>
</tr>
<tr>
<td>8.</td>
<td>Prathipadu</td>
<td>582.7</td>
<td>-</td>
<td>1,59,100</td>
<td>273</td>
</tr>
<tr>
<td>9.</td>
<td>Rajahmundry</td>
<td>979.0</td>
<td>3</td>
<td>4,64,959</td>
<td>475</td>
</tr>
<tr>
<td>10.</td>
<td>Ramachandrapuram</td>
<td>437.1</td>
<td>1</td>
<td>2,67,229</td>
<td>611</td>
</tr>
<tr>
<td>11.</td>
<td>Rampachodavaram</td>
<td>1838.9</td>
<td>-</td>
<td>54,325</td>
<td>30</td>
</tr>
<tr>
<td>12.</td>
<td>Razole</td>
<td>455.8</td>
<td>1</td>
<td>2,16,240</td>
<td>474</td>
</tr>
<tr>
<td>13.</td>
<td>Tuni</td>
<td>474.0</td>
<td>1</td>
<td>1,53,692</td>
<td>324</td>
</tr>
<tr>
<td>14.</td>
<td>Yellavaram</td>
<td>2201.5</td>
<td>-</td>
<td>83,610</td>
<td>38</td>
</tr>
</tbody>
</table>

Total 10940.0 13 30,87,262 282


**DENSITY:**

The pressure of population on land in the district is too heavy. The density of population per square Kilometre in East Godavari district in 1971 was 282 persons as against 157 persons in the State. The density of population per square kilometre increased from 238 in 1961 to 282 in 1971, representing a steep increase of 43 persons per square kilometre over a decade.
It is interesting to note that the density of the district varies from 669 sq. km., in densely populated Kothepeta taluk to 30 sq. km., sparsely populated Rampachodavaram taluk.

SEX RATIO:

The sex ratio of the district is 996 females per 1,000 males as against 997 in the state. The sex ratio was slightly higher in 1961 being 999 females per 1,000 males.

URBANISATION:

In 1971, 19.2 percent of the population of the district was living in Urban areas as against 19.3 percent of the total population of Andhra Pradesh. Among the taluks, the proportion of population living in urban areas was higher in Rajahmundry and Kakinada Taluks. The proportion of rural and urban population to the total population is 80.8 percent (24.84 lakhs) and 19.2 percent (5.94 lakhs) respectively. Rajahmundry and Kakinada which are Class I towns, account for 55.6 percent of the total urban population. (Rajahmundry: 1,65,912 and Kakinada: 1,64,200 persons). The percen-
tage of urban population which was 18.5 percent in 1961 increased to 19.2 percent in 1971. According to 1971 census, the district has 1,513 villages. Among these 1,344 villages are inhabited and the remaining 169 are uninhabited. The district has 14 taluks while the 12 taluks lie in the upland and delta regions. The Agency tract comprises of 676 villages (536 inhabited and 140 uninhabited). The remaining 837 villages (808 inhabited and 29 uninhabited) are located in the upland and Delta areas. A statement showing the taluk wise distribution of villages along with the size of population is given below:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Name of the taluk</th>
<th>Total inhabited villages</th>
<th>Less than 500</th>
<th>1000 to 2000</th>
<th>2000 to 4999</th>
<th>4999 to 9999</th>
<th>9999 and above</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Kakinada</td>
<td>101</td>
<td>--</td>
<td>1</td>
<td>15</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>2.</td>
<td>Amalapuram</td>
<td>69</td>
<td>--</td>
<td>1</td>
<td>2</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>3.</td>
<td>Mummidivaram*</td>
<td>36</td>
<td>--</td>
<td>-</td>
<td>2</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>4.</td>
<td>Razole</td>
<td>54</td>
<td>--</td>
<td>-</td>
<td>3</td>
<td>13</td>
<td>12</td>
</tr>
<tr>
<td>5.</td>
<td>Kothapeta</td>
<td>54</td>
<td>--</td>
<td>2</td>
<td>4</td>
<td>10</td>
<td>13</td>
</tr>
</tbody>
</table>

...contd
It is evident from the above table that there are glaring differences among the taluks, 663 villages (49.4 percent) of the total inhabited villages have a population of less than 1000 persons each. Half of these villages (27 percent) are very small with a population of less than 200 persons each. These tiny villages are mostly concentrated in the Agency. Taluks of Rampacho-
varam and Yellavaram. 225 villages (16.7 percent of the total inhabited villages) belong to the population size of 1000-1999 persons each, while 327 villages (24.3 percent) fall under the population range of 2000-4999 persons each. There are 114 (8.5 percent of the total inhabited villages) with a population of 5000-9999 persons each, while there are only 15 villages with a population of 10,000 or more each. The number of villages with a population of 5000 or more persons each lie in the Delta taluks of the district. The Agency taluks do not have a single village with a population range of 10,000 or above. Though there is an increasing trend of urbanisation, the district as a whole is rural in character.

SCHEDULED CASTES & TRIBES

The total scheduled caste population in the district in 1971 was 5.18 lakhs forming 16.8 percent of the total population of the district as against 13.3 percent for the state as a whole. The proportion of scheduled caste population to the total population in the state. In 1971, the scheduled tribe population of the district was 1.19 lakhs, accounting for 7.18 percent
of the total scheduled tribe population of the state or 3.9 percent of the total population of the district. The proportion of scheduled tribe population to the total population of the district is almost equal to the state figure. About 98 percent of the total scheduled tribe population of the district is spread over rural areas of the district.

Scheduled tribes are 1.19 lakhs strong in the district and are spread over mainly Agency tracts of the district - Ramachandrapuram, Addateegala, Rajaommanji and Maredumilli Panchayat Samathi areas which account for 37 percent of the total geographical area of the district. The scheduled tribes are generally very backward socially, financially and educationally. Of late, the Government of Andhra Pradesh have enunciated some measures to benefit those weak sections of the society in the field of education, health and housing. In the field of education the State Government has started 21 Ashram Primary Schools and 2 Ashram Upper Primary Schools with free boarding facilities. Besides, tribal children are being supplied with books, clothes, slates etc., free of cost.
LITERACY:

In 1971 there were 9,54,617 literates forming 30.84 percent of the total population of the district. During the decade 1961-71 the literacy percentage has increased from 26.00 to 30.84. The district ranks fourth in the state in literacy the first three being Hyderabad, West Godawari and Krishna districts.

The percentage of literates by sex to the total population in total, rural and urban areas in the district in 1961 and 1971 is given below.¹

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persons</td>
<td>22.69</td>
<td>40.61</td>
<td>26.00</td>
<td>26.91</td>
<td>47.34</td>
<td>30.84</td>
</tr>
<tr>
<td>Males</td>
<td>29.62</td>
<td>49.93</td>
<td>33.40</td>
<td>33.03</td>
<td>55.26</td>
<td>37.31</td>
</tr>
<tr>
<td>Females</td>
<td>15.74</td>
<td>31.19</td>
<td>18.59</td>
<td>20.76</td>
<td>39.34</td>
<td>24.34</td>
</tr>
</tbody>
</table>

Though the district percentage exceeds the State figure the percentage of literates in some of the taluks like Ramachandrapuram and Yellavaram and Agency areas has been very low. The incidence of literacy among females is very high being 24.3 percent to the total population.

EDUCATION:

In 1971 out of the total 1,341 inhabited villages in the district primary schools existed in 867 villages, forming 60 percent of the total inhabited villages. While the remaining 477 villages (35.5 percent of the total inhabited villages) do not have minimum educational facilities. Upper primary or middle schools are available only in 133 villages which account for 9.8 percent of the total inhabited villages. The higher secondary schools exist in 88 villages or 6.5 percent of the total inhabited villages in the district. The district with 38 colleges (professional & general) is well provided with educational facilities mostly confined in Southern region of the district, which include one Engineering College, two Medical Colleges and two Polytechnics and two Junior Technical Institutions.

POWER:

Availability of cheap electricity is the prerequisite for the development of modern Industry. The power requirements of East Godavari district are met from the Mackund Hydro Electric System. The Hydro-electric
power project on O Lower-Sileru at Donkarai is under construction. The project, when completed, will have six units of 100 M.W. with one more unit as standby.

The per capita consumption of electricity in the district is said to be of 47.16 K.W. The power position will ease with the completion of Nagarjunasagar project, Sri Sailam Hydro electrical project and the commissioning of additional units under the Kothagudem Thermal Scheme.

**DISTRIBUTION OF ELECTRICITY:**

Out of 1,513 villages in the district 574 villages constituting 37.9 percent are electrified. It may be noted that higher proportion of villages near and around urban areas are electrified. This proportion would be higher if Agency villages which form 45 percent of the total villages in Delta and upland are much better with 67.3 percent of the total villages receiving power supply. The taluk-wise break up figures of the villages electrified and the percentage to the total number of villages are given as under:

---

1. On the basis of 1971 Census.
Distribution of Electrified Villages Taluk-wise

<table>
<thead>
<tr>
<th>Name of the town</th>
<th>Total villages</th>
<th>No. of Electrified villages</th>
<th>Percentage to Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Ramachandrapuram</td>
<td>72</td>
<td>72</td>
<td>100.0</td>
</tr>
<tr>
<td>2. Alamur</td>
<td>42</td>
<td>41</td>
<td>97.6</td>
</tr>
<tr>
<td>3. Rajahmundry</td>
<td>83</td>
<td>80</td>
<td>96.4</td>
</tr>
<tr>
<td>4. Kothapeta</td>
<td>54</td>
<td>50</td>
<td>92.6</td>
</tr>
<tr>
<td>5. Amalapuram</td>
<td>70</td>
<td>55</td>
<td>78.6</td>
</tr>
<tr>
<td>6. Kakinada</td>
<td>105</td>
<td>80</td>
<td>76.2</td>
</tr>
<tr>
<td>7. Razole</td>
<td>54</td>
<td>40</td>
<td>74.1</td>
</tr>
<tr>
<td>8. Pithapuram</td>
<td>49</td>
<td>36</td>
<td>73.5</td>
</tr>
<tr>
<td>9. Mummidivaram</td>
<td>36</td>
<td>22</td>
<td>61.1</td>
</tr>
<tr>
<td>10. Tuni</td>
<td>52</td>
<td>25</td>
<td>48.1</td>
</tr>
<tr>
<td>11. Peddapuram</td>
<td>87</td>
<td>37</td>
<td>42.5</td>
</tr>
<tr>
<td>12. Prathipadu</td>
<td>133</td>
<td>25</td>
<td>18.8</td>
</tr>
<tr>
<td>13. Rampachodavaram</td>
<td>201</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>14. Yellavaram</td>
<td>475</td>
<td>4</td>
<td>0.8</td>
</tr>
<tr>
<td>Total</td>
<td>1513</td>
<td>574</td>
<td>37.9</td>
</tr>
</tbody>
</table>

Ramachandrapuram taluk ranks first among the taluks in the district, where all the villages are electrified. Alamur, Rajahmundry and Kothapeta taluks come next in

order: 97.6 percent, 96.4 percent, 92.6 percent respectively. It can be seen from the table that all the 14 towns and more than 90 percent of the total villages in the Delta taluks are electrified. Even in upland taluks the position is quite satisfactory. But the two Agency taluks of Rampachodavaram, Yellavaram are the least served with 4.3 percent of the total villages. Under the electrification programme, the Rural Electrification Corporation of India a has sanctioned three schemes to serve four backward taluks: Rampachodavaram, Tuni, Prathipadu and Pithapuram. These schemes will help in increasing agriculture production as well as starting of new industries in Agency and upland areas of the district. The number of villages electrified raised from 574 in 1970-71 to 643 in 1973-74.

TRANSPORT & COMMUNICATION:

The East Godavari district endowed with a good transport network which consists of road, rail and waterways inland as well as high seas.

The Madras-Calcutta national high way passes through the district for 96 km. People living in the interior have to depend on road transport. For a very
long time the "Kona Seema" was cut off virtually from other parts of the district as one has to take the help of a ferry to cross the river Godavari at one point or the other. The completion of two bridges, one at Alamuru and the other at Sidhantam, has made it possible not only to link up with other parts of the district but also resulted in uninterrupted road traffic between East and West Godavari districts round the year. The commissioning of the newly constructed rail cum road bridge on Godavari at Rajahmundry is a landmark in the annals of development of the communication system in the state. This newly constructed bridge forms a link between Rajahmundry and Kovvur, the two important towns situated on opposite banks of the river. The bridge is the longest rail cum road bridge in Asia constructed at a cost of Rs. 12.22 crores. These two industrial towns with the potentiality to develop into a twin Urban complex will usher in a fresh era of prosperity.

Prior to the commissioning of this bridge, the road traffic has carried on a ferry or used to take a diverted route of about 30 km. down stream of the river, where two bridges were constructed across Vasista and
Gowtami, branches of the river Godavari. Consequently, for the first time in the history of the district, the Konaseema area has been brought on the road map. Although the general plains have a well developed transport network, the Konaseema area was kept isolated from the outside world. The entire traffic, flowing westwards, has to cross the river Godavari. Even the internal traffic has to depend mainly on the canal system and the parallel roads, which are capable of bearing light traffic. Goods are mostly carried in this area by boats while buses and other means of transport carry passengers from one place to the other. Truck traffic is prohibited in the central delta adjacent to the canals as the soil under the roads being soft due to heavy silt deposits and weak soil structure. However, tractors are permitted to carry certain amount of load, of late, trucks are now allowed to carry goods, due to increase in commercial activity, in a limited way in special cases.

By 1971, the district had pucca roads connected with 505 villages or 33.4% of the total villages, while 397 villages or 26.2 percent of the villages are connected with Katcha Roads. The district does not have road transport facilities in 611 villages out of the total
The broad gauge railway line runs through the district from Godavari to Tuni for a total distance of 123 kms. Kakinada, the port town is well connected by a branch line from Samalkot to the main line. The new bridge constructed at Rajahmundry facilitated the doubling of the entire Waltair-Gudur Section, which carries the heaviest of traffic of the South Central Railways. Consequently, the bottleneck caused by the single railway track over Godavari is removed to facilitate the free flow of both rail and road traffic. The district has 25 railway stations on the 123 kms., double line. Taking into consideration the over all economic and social picture, the district is underdeveloped with regard to railway facilities. The people living in Northern and Southern parts of the district are not served by railways. For the development of the forest-based industries a railway line connecting Agency taluks with upland area is desirable.

Water transport is one of the ancient and most common modes of transport of the district. Even today, commodities like rice, paddy, oils, salt, chillies, tobacco, building material, iron, coconut fibre, palmyra leaves, coir ropes, manures, bones, paddy husk,
and other forest resources including timber etc., are transported by cargo boats. The island water ways extend over a length of about 134 km., in the district. This cheapest mode of transport is on its decline with the improvement of roads and construction of new bridges over Godavari at various places, providing for speedy means of communication.

The district, with a wide net work of canals, water transport can be economical and can be made use of profitably, provided the canals are widenened and dredges and modern motorised boats are introduced. It is said that this mode of transport is not only inexpensive but also the most easily available mode of transport. Timber and other forest produce from the Godavari valley are transported to Rajahmundry mainly by river. Throughout the year, motor boats of all sizes playing between Bhadrachalam and Rajahmundry are used for carrying passengers and goods. For over a century, the only recognised way to Bhadrachalam has been by travelling on the river Godavari. In the recent past, with the laying of new roads and repairing and widening of the existing ones, the frequency of launches to Bhadrachalam is on its decrease. But even
today timber and other forest products are being transported by the river Godavari.

The district has a all weather port at Kakinada the district headquarters on the east coast. This port is located between Visakhapatnam and Madras ports. It has a rich hinter-land. The hinterland has a rich agricultural base. Besides this, minerals like iron ore, coal and barytes exist in the area. Iron ore, pig iron, tobacco, rice, bran, bones, palmyra fibre are the important items of export from this port, while fertilisers, Urea, Potashe etc., are the major items of import. The port has earned an amount of Rs. 3.5 crores during the year 1973-74. The port development plan is underway and efforts are being made to improve the port into deep sea port. This scheme is estimated to cost Rs. one crores. Consequently of the port which is half a million metric tones, capacity is likely to be doubled.

In order to facilitate the water transport the Government of Andhra Pradesh has started a Boat Building Yard at Kakinada. The Boat Building Yard is intended

to develop sea-craft designs for motorisation of the indigenous crafts. The Boat Yard has a capacity to construct 70 boats per year. It is capable of constructing medium sized boats of 50' length. But there is a proposal to construct bigger size boats of more than 50' length. Since its inception the Boat Building Yard has successfully designed various boats to suit the requirements of the Government departments and other private parties.

The district is well served by Post and Telegraph and Telephone facilities. The proportion of villages having post offices is higher in Kothapeta, Ramachandrapuram, Alamur, Amalapuram, Razole, Pithapuram, Mummudivaram, Prathipadu, Kakinada and Tuni taluks while it is low in Rampachodavaram and Yellavaram. The district is divided into three postal divisions, Kakinada, Rajahmundry and Amalapuram.
PART-III

AGRICULTURE

Paddy, bajra, pulses, chillies, sugarcane, groundnut, tobacco and tapioca are the chief crops grown in the district. Besides, coconut, mangoes, tamarind batavia, guava, cashew, banana are the fruits grown in the district. Rubber, pepper and coffee are also produced. Palm trees are found throughout the district and palm fibre is exported to foreign countries.

Cropping Pattern:

A wide variety of food and non-food crops are grown in the district, depending upon soil conditions, availability of required water and also on the demand for the produce. In delta areas, crops like paddy, sugarcane, coconut, bananas etc. are grown extensively while in upland areas, depending upon the required water supply either from rainwater reservoirs or from ground water sources, paddy, sugar and other wet crops are raised. In the absence of assured supply of water, depending upon the type of soil, different types of dry crops are raised by the farmers.

A special mention is to be made of the "padu" method cultivation resorted to by the tribals in agency areas of the district. Under this method, the tribals choose a patch of forest land to raise a crop. The area required for raising a crop is cleared in the forest by
burning and the crops are raised. After a few harvests, the place is abandoned and another fresh area is taken up for cultivation. They believe that this method does not exhaust the fertility of the soil. This method is said to be causing great threat to the forest wealth and also leads to soil erosion. Whatever may be said of this method, it is laborious and time consuming and is not suitable for the present day practices. It is estimated that 10 lakh hectares of land is under "Padu" cultivation in different parts of the country. During the 5th Plan period 10 crores have been earmarked to eradicate and control this kind of cultivation in the country.

The area under food crops and non-food crops in the district for the two decades is given below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Area under Food crops</th>
<th>Area under Non-food crops</th>
<th>Total of food and non-food crops</th>
<th>Net areas sown</th>
<th>Area sown more than once</th>
</tr>
</thead>
<tbody>
<tr>
<td>1951-52</td>
<td>11,16,778</td>
<td>2,18,178</td>
<td>13,34,956</td>
<td>10,56,649</td>
<td>2,78,247</td>
</tr>
<tr>
<td>1960-61</td>
<td>10,65,13</td>
<td>1,59,066</td>
<td>12,10,579</td>
<td>9,79,138</td>
<td>2,31,441</td>
</tr>
<tr>
<td>1970-71</td>
<td>11,74,115</td>
<td>2,04,704</td>
<td>13,78,819</td>
<td>10,34,440</td>
<td>3,44,376</td>
</tr>
</tbody>
</table>

Source: Census 1961 and District Statistical Officer-Kakinada.

One of the reasons for the reduction in the area both under food and non-food crops and net area sown in 1960-61 on 1951-52 may be attributed to the transfer of two laks vis Bhadrachalam and Nagur to Khamman district.
Area under some of the important crops in the district for the periods 1951-52, 1960-61 and 1970-71.

<table>
<thead>
<tr>
<th>Crops</th>
<th>1951-52</th>
<th>1960-61</th>
<th>1970-71</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>7,02,886</td>
<td>7,33,944</td>
<td>8,35,740</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>23,430</td>
<td>28,345</td>
<td>42,000</td>
</tr>
<tr>
<td>Ground nut</td>
<td>5,844</td>
<td>13,076</td>
<td>41,661</td>
</tr>
<tr>
<td>Tobacco</td>
<td>30,585</td>
<td>23,279</td>
<td>23,871</td>
</tr>
</tbody>
</table>


Wet crops occupy a major portion of the area under food and non-food crops. Exempting tobacco there is an increasing trend in the area under all crops. On the whole, there is an increasing trend in the gross cropped area. With increasing number of tubwells sunk to supply water to the upland and agency areas and due to increasing advancement in the farm technology especially in the dry farming techniques, the entire cropping pattern may undergo a rapid change in coming years. Generally two crops are grown in a year, one during Kharif and another Rabi. Sometimes single crop is grown due to lack of required water supply. The farmers are showing interest in multi and mixed cropping methods, thus raising two or more different crops on the same land. They also prefer high yielding varieties of crops of short duration. It facilitates crops to mature quickly and thus enable the farmer to go for another crop much earlier than what was possible otherwise. However one of the bottlenecks in adopting a multi cropping pattern is the lack of assured supply of water, more so in the upland region of the district.
Land Utilisation:

The land utilisation statistics for the two decades are given below:

<table>
<thead>
<tr>
<th>Classification of the area</th>
<th>1950-51</th>
<th>1960-61</th>
<th>1970-71</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area</td>
<td>% of the total geographical area</td>
<td>Area</td>
</tr>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Forests</td>
<td>8.65</td>
<td>23.8</td>
<td>5.20</td>
</tr>
<tr>
<td>Barren and uncultivable land</td>
<td>7.55</td>
<td>20.8</td>
<td>2.23</td>
</tr>
<tr>
<td>Land put to non-agricultural use</td>
<td>2.02</td>
<td>5.6</td>
<td>1.90</td>
</tr>
<tr>
<td>Permanent pasture and others grazing lands</td>
<td>1.39</td>
<td>3.8</td>
<td>1.22</td>
</tr>
<tr>
<td>Miscellaneous tree crops and groves not included in net area sown</td>
<td>0.55</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Cultivable waste</td>
<td>4.04</td>
<td>11.1</td>
<td>4.54</td>
</tr>
<tr>
<td>Other fallow lands</td>
<td>1.07</td>
<td>2.9</td>
<td>0.79</td>
</tr>
<tr>
<td>Current fallows</td>
<td>0.53</td>
<td>1.5</td>
<td>0.53</td>
</tr>
<tr>
<td>Net area sown</td>
<td>10.57</td>
<td>29.0</td>
<td>9.79</td>
</tr>
<tr>
<td>Total Geographical area</td>
<td>36.36</td>
<td>100.</td>
<td>26.74</td>
</tr>
</tbody>
</table>

It is evident from the above table that the total geographical area of the district has been fluctuating. The area has decreased by 9.62 lakh acres from 1950-51 to 1960-61 as a result of transfer of two taluks to Khammam district. But the subsequent increase of about one lakh acres from 1960-61 to 1970-71 is surprising. There is no explanation available to explain this increase. Barren and uncultivable land, cultivable waste and other fallow lands have shown a favourable trend over the years. However the land under current fallow has increased from 53,000 acres in 1950-51 to 3,08,000 acres in 1970-71. This may be attributed to non-availability of timely financial assistance to the farmers and to the vagaries of monsoon, etc. A major portion of the next area sown lies in the delta area. Of the total geographical area, the area under forests forms nearly 20 percent forming agency taluks, where under agency laws outsiders are not permitted to settle. This legal protection given to tribals is said to be the cause coming in the way of outsiders to settle and take up agricultural activities on progressive lines.

### Cultivation Holdings:

<table>
<thead>
<tr>
<th>Size Group (acres)</th>
<th>No. (% in Brackets)</th>
<th>Area (% in Brackets)</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 2.5</td>
<td>104 (49.0)</td>
<td>130 (11.7)</td>
</tr>
<tr>
<td>2.5 to 5.0</td>
<td>44 (20.8)</td>
<td>163 (14.7)</td>
</tr>
<tr>
<td>5.0 to 10.0</td>
<td>39 (6.2)</td>
<td>238 (21.5)</td>
</tr>
<tr>
<td>10.0 to 15.0</td>
<td>13 (6.2)</td>
<td>154 (13.8)</td>
</tr>
<tr>
<td>15.0 to 20.0</td>
<td>11 (5.3)</td>
<td>252 (22.6)</td>
</tr>
<tr>
<td>20.0 to 30.0</td>
<td>5 (2.5)</td>
<td>174 (15.7)</td>
</tr>
<tr>
<td>Total</td>
<td>211 (100)</td>
<td>174 (100)</td>
</tr>
</tbody>
</table>

Source: 1961 Census.
Note: (1) The number of holdings and area are estimated on the basis of 20% sample taken in 1961 census.

(2) Figures in brackets are percentages to the total.

Razole taluk of the district had predominantly larger number of very small holdings (less than 2.5 acres) where as much as two-thirds of the holdings were in this category. Kothapetia, and Amalapuram taluks had 55 to 60 percent of holdings in this category. In the category of small holdings (i.e) 2.5 to 5.0 (acres) almost all the taluks ranged between 19 to 26 percent except Razole which had only about 16 percent of the holdings in this category. Many taluks in this district had substantial concentration of large holdings (more than 30 acres). All the taluks had more than one percent of the holdings in this category. Pedapuram and Rajahmundy taluks have 4.0% and 3.9 percent of the larger holdings respectively followed by Prattipadu, Kakinanda and Tuni. Small and marginal farmers put together about 70.0 percent of the total number of house holds engaged in cultivation. If this is taken to represent the whole district, nearly 70 percent are small and marginal farmers.

Occupational Pattern

The following table gives the percentage distribution of working population, cultivation, agricultural labourers and other workers in the district during 1961 and 1971 census.
Percentage Distribution of workers 1961 and 1971

<table>
<thead>
<tr>
<th>Total workers as to total population</th>
<th>Percentage of Agricultural &amp; other workers to total workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cultivators</td>
</tr>
<tr>
<td>Persons</td>
<td>41.9</td>
</tr>
<tr>
<td>Males</td>
<td>63.0</td>
</tr>
<tr>
<td>Females</td>
<td>30.8</td>
</tr>
</tbody>
</table>

Source: Coastal Andhra, Planning Govt. of A.P. Hyderabad p.96.

The total workers at the 1971 census account for 38.1 percent of the total population as against the proportion of 41.9 percent recorded at the 1961 census. Male workers constitute 57.1 percent and female workers 38.9 percent of the total population (1971). Cultivators and agricultural labourers account for 24.1 percent and 43.9 percent respectively of the total population. Workers other than cultivators and agricultural labourers constitute 35 percent of the total population in 1971. With an exception to agricultural labour, there is a substantial drop in the percentage of workers in the district compared to 1961 figures.

**Area under principal crops:**

The following statement shows the percentage of area under principal crops to the total area sown in the East Godavari district during 1971-72.
From the above table it is clear that the district has more than 85 percent of the area under food crops and about 15 percent under non-food crops. Of the total area under food crops about two thirds is under paddy alone, followed by bajra, jowar and ragi. As a result, the district has a surplus rice production and contributes a significant.
portion to other deficit rice producing states as well as the country's rice pool. About 15 percent of the total area under non-food crops covers gingelly, groundnut, coconut, tobacco and cotton. The district, with 22,764 hectares of area under coconut, ranks first in the state in respect of total area under coconut as well as outturn. Similarly the district has 5,683 hectares of area under banana with an outturn of 65,076 tonnes, ranking first in the state both in respect of area and outturn. In the case of tapioca tuber the district has the highest area as well as outturn in the state. The district has 14,353 hectares of area under mango crop. Of late, efforts are being made to grow coffee, cashew, pepper, rubber and cocoa, casuarina and eucalyptus, and bamboo in the forest areas of the district. Development of plantation crops in forest areas may go a long way not only in bringing economic and social transformation of the tribals but also in bringing prosperity to this most backward region of the district.

Conclusion:

It is clear from the above that East Godavari district is agriculturally the most advanced district of the state. And agriculture provides a sound base for the growth of agro-based industries. A wide variety of food and commercial crops are being grown in the district. More than 85 percent of the total cropped area is under food crops, the important crops being paddy, sugarcane, banana, tobacco, coconut, bajra, groundnut, sisamum, tapioca, mango and cashew. The Godavari river which provides the water for irrigation is the
main artery of all economic activities in the district. A large number of schemes are being implemented to improve the overall performance of agriculture in the district. High breed seeds, improved quality of fertilizers, pesticides, modern farm equipment etc. are being increasingly used by the farmers. All these efforts are being made by the agricultural department through extension programmes and also by the progressive farmers to step up agricultural production. In future the agricultural department and other governmental agencies should extend their activities increasingly for the benefit of small and marginal farmers who form the bulk of the farming community in the district, so as to enable them to take advantage of the modern techniques of agriculture to achieve a real breakthrough in the agricultural front. The cumulative effect of all these measures will have a beneficial effect on the industrial sector too, especially for the development of agro-based industries in the district.

In the following pages, an attempt has been made to explain the industrial picture of the district with special reference to agro-based industries.
PART - IV

INDUSTRIAL DEVELOPMENT IN EAST GODAVARI DISTRICT

Introduction:

It is clear from the previous chapter that the district has a well developed agricultural base with wide variety of food and non-food crops; vast stretches of coconut, mango, banana, cashew, batavia and guava plantation are also found in the district.

East Godavari district can also be considered as one of the industrial advanced districts in the State next only to Hyderabad and Visakhapatnam. Endowed with rich agricultural base, large forests and other mineral resources, a long coastline with one minor port at Kakinada offering good scope for industrial development in the district.

Inspite of its predominantly agricultural character a sizeable number of large and medium sized industries have been established in the district covering the fields of sugar, paper, textiles, solvent extraction, dehydration of vegetables and fruits, cigarettes, tobacco, redrying, automobile parts, electrical cables, deep freezing of prawns and frog legs, and malted milk, while plywood and chip unit, mini paper plant, manufacturing of deep sea fishing trawlers, fertilizer factory, brewery and mini-steel plant are some of the important large/medium sized units which are under various state of implementation.
Coming to the small scale industries there has been
a rapid growth in the recent past in the fields of foundry,
graphite crucibles, beam scales, general engineering, rice
mills, oil mills, Khandasari sugar, sago, brass-ware, paints
varnish, palmyra fibre, coir bristle and mattress fibre,
aluminium ware, gut manufacturing, tile factories, mechanised
bricks, fountain pen, ice and aerated water, tyre
retreading bakery and confectionery, cement products, chemicals
and fertilisers, footwear, match making, paper straw boards,
salt based industries, soap, wood based industries, textiles
fish based industries, re-rolling mills etc.

Of these, the district occupies a place of pride
in the industrial map of the country as more than 75 percent
of the country's graphite crucibles and 50 percent of beam
scale requirements are met from this district.

Several items like palmyra fibre, sugar, paper,
tobacco leaf, dehydrated fruits and vegetables, frozen sea
food, rice bran oil and de-oiled rice bran are exported to
foreign countries from this district. This district accounts for
65 percent of the total exports of palmyra fibre from India.

1. Industrial Development Potentialities in East Godavari
district (A.P) Small Scale Industries Servic Institute
Hyderabad op. cit. p. 1.
**Industrial Statistics (Large & Medium)**

A statement showing the particulars of existing large/medium sized industries in East Godavari district is given below:

<table>
<thead>
<tr>
<th>S.no.</th>
<th>Category</th>
<th>No. of units</th>
<th>Place of location</th>
<th>Licensed capacity</th>
<th>Capital investment in crores</th>
<th>No. of persons employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Paper Mill</td>
<td>One</td>
<td>Rajahmundry</td>
<td>75000 tones per annum</td>
<td>3.00</td>
<td>1,800</td>
</tr>
<tr>
<td>2</td>
<td>Sugar Factory</td>
<td>Three</td>
<td>1) Samakkota</td>
<td>1500 tones of cane crushing per day, 13 lakhs litres of industrial alcohol per annum, carbon dioxide 2.07 lakh kg. per annum,</td>
<td>3.10</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2) Pithapuram</td>
<td>1000 tones of cane crushing per day, 15 lakhs litres of industrial alcohol per annum,</td>
<td>2.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3) Challuru</td>
<td>4000 crates of soft drinks per annum.</td>
<td>0.38</td>
<td></td>
</tr>
<tr>
<td>3.10</td>
<td>Electric Conductors</td>
<td>One</td>
<td>Kadiam</td>
<td>5000 tones</td>
<td>0.10</td>
<td>240</td>
</tr>
<tr>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
<td>0.10 of conductors and 3000 tons of Aluminum rod per annum.</td>
<td>240</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Automobile Components</td>
<td>One</td>
<td>Kakinada</td>
<td>17.8 lakhs pieces per annum</td>
<td>0.38</td>
<td>480</td>
</tr>
<tr>
<td>0.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S.no.</td>
<td>Category</td>
<td>No. of units</td>
<td>Place of location</td>
<td>Licensed capacity</td>
<td>Capital investment. Rupees in crores</td>
<td>No. of persons employed</td>
</tr>
<tr>
<td>-------</td>
<td>-------------------------------</td>
<td>--------------</td>
<td>-------------------</td>
<td>-------------------</td>
<td>-------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>5.</td>
<td>Solvent oil Extraction</td>
<td>One</td>
<td>Kakinada</td>
<td>960 M.Tons</td>
<td>0.20</td>
<td>80</td>
</tr>
<tr>
<td>6.</td>
<td>Deep freezing prawn &amp; frog legs</td>
<td>One</td>
<td>Kakinada</td>
<td>700 M.Tons</td>
<td>0.20</td>
<td>40</td>
</tr>
<tr>
<td>7.</td>
<td>Malted Milk Food</td>
<td>One</td>
<td>Dowlaiswar</td>
<td>6,000 Tonnes</td>
<td>1,00</td>
<td>1,000</td>
</tr>
<tr>
<td>8.</td>
<td>Spinning Mills</td>
<td>Three</td>
<td>1) Pandalapaka</td>
<td>40 count spinles</td>
<td>12,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2) Kakinada</td>
<td>2,40,60880 count fare</td>
<td>25,080 spindles</td>
<td>5.61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3) Rajahmundry</td>
<td>40 to 60 count</td>
<td>12,000 spindles</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Dehydration of fruits &amp; vegetables</td>
<td>One</td>
<td>Kakinada</td>
<td>150 tonnes</td>
<td>0.15</td>
<td>50</td>
</tr>
<tr>
<td>10.</td>
<td>Cigarettes</td>
<td>One</td>
<td>Biccavolu</td>
<td>5 million</td>
<td>1.00</td>
<td>1,000</td>
</tr>
</tbody>
</table>

Source: Deputy Director of Industries, Kakinada, East Godavari District, Andhra Pradesh.

In the following pages an attempt is made to give a brief account of the large/medium sized agro based industries in the district.

1) **Paper Mill**

The Paper Mill at Rajamundry was established in 1930. The
same was taken away by the Government in 1948 and again in 1964. The same has been returned to private management. Under Government management it was producing 10 tons of paper per day. As a public limited company it has made a steady progress and at present manufacturing a wide variety of paper and has a licensed capacity of 75,000 tonnes per annum. It employs more than 13,000 persons.

Different types of teak and non-teak timber as well as abundant quantity of bamboo are available in the district. Bamboo resources are available over an area of 625 sq. miles and 3,8000 tonnes of bamboo is estimated to be available per annum in this area. Mostly this is used in the manufacture of paper in the paper mill at Rajahmundry.

The production of the paper mill in terms of quality and value has been steadily increasing since 1969. The following table gives the figures for 1969-71.

<table>
<thead>
<tr>
<th></th>
<th>1969</th>
<th>1970</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality (M.Tonnes)</td>
<td>34,903</td>
<td>36,902</td>
<td>51,179</td>
</tr>
<tr>
<td>Value (in lakhs)</td>
<td>553.82</td>
<td>636.62</td>
<td>973.81</td>
</tr>
</tbody>
</table>


The company has a wide market extending to Maharashtra, Tamil Nadu, Karnataka, West Bengal, Madhya Pradesh, Rajasthan and Uttar Pradesh. Besides meeting the total internal demand,

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V. Industrial Development Potentialsities in East Godavari, District, Small Scale Industries Services Institute, Hyderabad, p. 13.
It is evident from the above figures that the exports have been increasing steadily. The company has good prospects as the products manufactured are in demand in foreign countries.

2. Sugar Factories:

The district has three large/medium size sugar factories located at Samalkote, Pithapuram and Challuru.

The sugar factory at Samalkote is the oldest large scale unit started in 1899 in the district. The factory has an installed crushing capacity of 1,500 metric tonnes per day. Besides manufacturing sugar the company also produces industrial alcohol and carbonic acid, gas. The sugar produced is being exported to West Bengal, Orissa and Madhya Pradesh. The factory also exports sugar to foreign countries through Indian Sugar Industry Export Corporation, New Delhi. It employs more than 1,000 regular and seasonal workers.

The sugar factory at Pithapuram was started in 1951. The factory has an installed crushing capacity of 1,000 metric tonnes per day. It employs about 635 persons during crushing season and about 300 persons during off season. The sugar produced is exported to Assam, West Bengal, Kerala and Orissa. It also exports sugar to foreign countries through Indian Sugar Industry Export Corporation.

The sugar factory at Challuru (near Ramachandrapuram) was started in 1969. The licenced capacity of this company has been increased in 1969-70 from 1,000 metric tonnes to
1,500 metric tonnes per day. An expansion programme is under way to increase the crushing capacity to 35,000 metric tonnes per day from 1975-76.

Besides sugar, the company also produces industrial alcohol and soft drinks for which the production capacity is 300 G.P.D. and 400 crates per day respectively. It employees about 1,000 persons of which 450 are employed during crushing season. Besides local markets, it also export sugar to foreign countries.

3. Solvent Extraction:

This unit is located at Sarpavaram near Kakinada, started as a private limited company. Though this company was established in 1966 it actually started production during 1968. It produces rice bran oil and deoiled rice bran mainly for export. Rice bran oil is used for the manufacture of soaps. It exports mainly to U.K., Singapore and West Germany. The company employs 66 permanent and 11 temporary persons. The production capacity of the company is 80/85 metric tonnes per day. Besides exports, the company products are marketed throughout India. The company has a proposal to start the manufacture of cattle feed compound, soaps, in order to utilise its own raw materials.

4. Deep Freezing of Prawns and Frog Legs:

The company was established in 1971 at Kakinada. It is engaged in the manufacture of frozen sea foods like frozen shrimps, lobster tails production capacity is 2 metric tonnes
per day. There is a bright scope for expansion. One of the major difficulties faced by this company is the nonavailability of vessels and refrigeration facilities at Kakinada, the products have to be transported to Cochin for export.

5) Malted milk food:

This unit was established very recently at Dowlaisaram near Rajahmundry as a public limited company, it procures the milk that is available mainly in Rajahmundry and Ramachandrapuram taluks of the district. It has a licenced capacity of 6,000 metric per annum and provides employment to about 1000 persons.

6) Dehydration of fruits and vegetables:

The district is known for its variety of fruits and vegetables. To make use of these and to meet the increasing demand for canned food a public company was started in 1972. It has a production capacity of converting 5 metric tonnes of fruits and vegetables into 0.5 metric tonnes of dehydrated fruits per day. The company provides employment to about 150 person of all categories. The products manufactured are supplied to defence establishments. It is also exporting its products to U.K. and other European countries. There is a proposal to diversify its production and to make use of some of the vegetables grown in the district on a large scale. At present the company is securing raw material from outside the district.
f) **Cigarette manufacturing:**

Originally this unit was established in 1948 for the purpose of redrying tobacco. In 1973, it has changed its production to the manufacture of cigarettes. This factory is expected to meet the entire demand of South India. It is located at Bikkavolu and its production capacity is 5 million cigarettes per annum. It provides employment to about 1,000 persons of all categories.

8) **Spinning Mills:**

There are three spinning mills one each Kakinada, Pandalapaka and Rajahmundry. The spinning mill at Rajahmundry is under the cooperative sector while the first two are under private sector. The spinning mill at Kakinada is a public limited company established in 1957 with an authorised capital of Rs one crore. The company produces cotton yarn and waste cotton. At the time of establishment the company had only 17,600 spindles but subsequently the same has been raised to 25,080 per annum and produces 20, 40, 60 and 80 count yarn. The mill at Pandalapaka is also a public company started recently and has a licenced capacity of 12,000 spindles per annum and produces 40 count yarn. The spinning mill at Rajahmundry has a licenced capacity of 12,000 spindles per annum and produces 40 to 60 count yarn. This factory is under the process of expansion. These three spinning mills are providing employment to our 1,000 persons. Though there is no textile mill in the area, there are a good number of handloom industries functioning on cottage basis concentrated mainly to Mori, Bandarilanka Peddapurum and Uppada.
Statement showing the particulars of large/medium sized industries under implementation in the district.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Category</th>
<th>No.of units</th>
<th>Place of location</th>
<th>Licenced capacity</th>
<th>Proposed capital investment</th>
<th>Proposed Employment in No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Steel Melting</td>
<td>One</td>
<td>Lakshmi Narasapuram</td>
<td>300 tonnes steel.</td>
<td>0.20</td>
<td>40</td>
</tr>
<tr>
<td>2.</td>
<td>Brewery</td>
<td>One</td>
<td>Ramachandra puran.</td>
<td>25,000 hecto-letters per annum</td>
<td>0.25</td>
<td>100</td>
</tr>
<tr>
<td>3.</td>
<td>Deep sea fishing trawlers.</td>
<td>One</td>
<td>Kakinada</td>
<td>15 nos. per annum</td>
<td>1.20</td>
<td>200</td>
</tr>
<tr>
<td>4.</td>
<td>Plywood &amp; ships unit.</td>
<td>One</td>
<td>Rampachoda- varam.</td>
<td>Plywood</td>
<td>1.00</td>
<td>350</td>
</tr>
<tr>
<td>5.</td>
<td>Fertilizer factory.</td>
<td>One</td>
<td>Kakinada</td>
<td>Urea 1,550 tonnes per day De-ammonia Phospate 1920 tonnes per day.</td>
<td>150.00</td>
<td>2000</td>
</tr>
<tr>
<td>6.</td>
<td>Mini steel plant</td>
<td>One</td>
<td>Dowlai- swaram</td>
<td>Carbon steel in gots 9000 tons per annum.</td>
<td>1.00</td>
<td>200</td>
</tr>
<tr>
<td>7.</td>
<td>Mini paper Plant</td>
<td>One</td>
<td>Kadium</td>
<td>Industrial &amp; cultural paper 2,500 tons per annum.</td>
<td>0.95</td>
<td>200</td>
</tr>
</tbody>
</table>

Source: Deputy Director of Industries, Kakinada, East Godavari District (A.P).
Small Scale Industries in East Godavari district:

Introduction:

East Godavari is one of the industrially advanced districts in the state. But this development is not much if we take into account the potentialities of agricultural, marine, and forest resource and infrastructural facilities that are available for the growth of industries in the district. Hence there is much scope for greater development, especially of the agro-based industries in the district. The growth of industries in the recent past has been marked with new trend. Increasing number of entrepreneurs are coming forward to start new lines of manufacturere provided they are assured of good returns. Such industries are sago, tractor drawn agricultural implements, refractories, carbonic gas, rice bran oil and de-oiled rice-bran dehydration of fruits and vegetables coir products, fish based industries etc. Instead of increasing the number of units in the same line of manufacture which might lead to undesirable competition and unhealthy growth, the local entrepreneurs are taking up new lines of manufacture which is a welcome departure from the existing practice.

The number of industries registered with the Department of Industries till the end of November, 1974 is 2,894 in the district. The total capital invested was Rs 24.35 crores with an employment potential of 34,472 persons. 91 new units were under different stages of implementation at the end of 1974 capital investments of Rs 132.53 lakhs and employment potential of 1,634.

1. Deputy Director of Industries, Kakinada, East Godavari district (A.P.)
2. Ibid.
During the recent years the rate of development of small scale industries has been fairly high. Against 486 industries registered with the Department of Industries up to the end of March, 1966, the cumulative number of units registered with the department at the end of March, 1972 rose to 2,150.

The year-wise break up figures of number of units, investment and employment during 1968-1972 is given below:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of units registered including existing &amp; proposed</th>
<th>No. of units started</th>
<th>Investment of new units started (Rs. in lakhs)</th>
<th>Employment in new units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1968-69</td>
<td>494</td>
<td>60</td>
<td>59.58</td>
<td>639</td>
</tr>
<tr>
<td>1969-70</td>
<td>507</td>
<td>90</td>
<td>39.00</td>
<td>670</td>
</tr>
<tr>
<td>1970-71</td>
<td>384</td>
<td>94</td>
<td>38.00</td>
<td>815</td>
</tr>
<tr>
<td>1971-72</td>
<td>268</td>
<td>84</td>
<td>43.27</td>
<td>1,408</td>
</tr>
<tr>
<td>Total</td>
<td>1,653</td>
<td>328</td>
<td>179.85</td>
<td>3,532</td>
</tr>
</tbody>
</table>

Source: District Industrial profiles for East Godavari district, small industry extension Training Institute, Hyderabad.

It can be seen from the above that 328 new units came into existence during the years 1968-72 with a capital investment of Rs 179.85 lakhs.

Financial help rendered by the state Bank of India and other banks and also by the APSFC has recorded a sharp increase
during the years 1968-72 and the same can be seen from the statement given below.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Year</th>
<th>No. of units assisted</th>
<th>Cumulative total credit sanctioned (₹ in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1967-68</td>
<td>363</td>
<td>156.76</td>
</tr>
<tr>
<td>2.</td>
<td>1968-69</td>
<td>587</td>
<td>295.45</td>
</tr>
<tr>
<td>3.</td>
<td>1969-70</td>
<td>807</td>
<td>455.00</td>
</tr>
<tr>
<td>4.</td>
<td>1970-71</td>
<td>995</td>
<td>588.00</td>
</tr>
<tr>
<td>5.</td>
<td>1971-72</td>
<td>1,115</td>
<td>640.56</td>
</tr>
</tbody>
</table>

Self Employment Schemes (1974-75)

- Target fixed for the district: 1,200
- Number of applications registered: 1,071
- Percentage of registered: 89%
- Number of cases technically approved: 891
- Investment (₹ in lakhs): 255.82

Employment

1) Direct: 891
2) Indirect: 1852

Total: 2,743

From the above particulars, it is clear that the district has almost reached the target fixed under self employment schemes. Out of the 1,071 applications, and 891 have been technically approved. These schemes will result in the investment of ₹ 255.82 lakhs and may provide employment to 2,743 persons.

1. District Industrial profile for East Godavari District, Small Industry Extension Institute, Hyderabad.
During the year 1974-75, 408 cases have been finally accorded sanction with an investment of Rs 81.62 lakhs providing employment to 1,435 persons.

During the year 1974-75, 208 units under the self-employment scheme have gone into production involving an investment to the tune of Rs 36.47 lakhs providing employment to 861 persons.

2. Ibid.
Out of the 208 units put on ground 182 units have been inspected by the field staff. In general all the units are said to be working satisfactorily except business units like provision stores and general stores. The remaining units using power are not working to full capacity for want of adequate power supply. These cases have been referred to the Director of Industries, Hyderabad for enhancement of power quota.

Industrial programme for weaker sections:

The following Industrial Cooperative Societies have been organised for the economic uplift of the Scheduled Castes and other weaker sections of the community in the district.

1. The Kakinada Gut Technicians Industrial Cooperative Society Limited.
2. The Tallarevu Boat Builders Industrial Cooperative Society
3. The Rajahmundry Beds and Pillows Industrial Cooperative Society.
4. The Ceramic Technicians Industrial Cooperative Society.
5. The Kakinada Cattle Feed Industrial Cooperative Society.
8. The Kakinada Palm Fibre Works Industrial Cooperative Society.
9. The Surampalem Palm Fibre Workers Industrial Cooperative Society.
10. The Rajanagaram Palm Fibre Workers Industrial Cooperative Society.
11. The Rajampet Palm Fibre Workers Industrial Cooperative Society
12. The Thonodangi Palm Fibre Workers Industrial Cooperative Society.
15. The Chappal Workers Industrial Cooperative Society, Tallarevu.
16. The Palm Fibre Makers Industrial Cooperative Society, Tallarevu.

1. Ibid.
Financial assistance is under consideration by various agencies for the six palm fibre societies registered at Kakinada, Tallarevu, Rangampet, Surampalem and Thondangi. The boat building society at Kakinada has already started construction of country boats. In the case of the Beds and Pillows Society at Rajahmundry, it has started production. The remaining societies registered during 1974-75 are under different stages of implementation. It is for the first time that Industrial Cooperative Societies were registered in varied fields in the district. The success of these societies may attract more number of industrial Cooperatives in the coming years.

Members of these societies are either from scheduled castes or from the backward classes, majority of them being illiterates and poor. Besides financial help, the success of these societies largely depends on efficient management, which the members are not capable of. It is therefore suggested that the government should depute full-time officers to have close supervision and provide necessary guidance for the efficient running of the societies.

Review of Industrial Development during plan periods.

It can be seen from the above that though the district is predominantly agricultural in character, it has succeeded to some extent in the exploitation of the available resources and making use of the facilities provided by the government and other institutions. There is a glaring change for the better in respect of industries established prior to 1966-77.
and after. The industries that were established earlier were only those which were assured of adequate raw material and based on agricultural produce. Prior to the First Five Year Plan period, a paper mill, a sugar factory, few tobacco redrying plants, rice mills, saw mills and oil mills were in existence. In this pre-extension period, only sporadic attempts have been made mainly to foster the growth of cottage industries by providing financial assistance to the needy artisans and village craftsmen.

During the Second Five Year Plan period, which can be considered as an extension phase, action programme has been launched by the Industries Department for adopting the extension techniques to focus the attention of the people towards the establishment of small industries. It is aimed to improve the skills of rural arts and crafts through propagation of improved tools and equipment with a training programme in the use of improved appliances for better productivity and quality.

Consequently training centres for crafts like carpentry, blacksmithy, pottery, footwear, tailoring, and book binding have been established at various Community Development Blocks. During this period Industrial Estates one at Samalkot and another at Dowlaismwaram near Rajahmundry were established to facilitate entrepreneurs to take up the line of manufacture in the ready-made factory sheds with all the necessary facilities provided.

The Third Five Year Plan period, can be termed as post extension phase, efforts have been oriented to attract the private sector to the field of industry through conducting
industrial surveys to disseminate information on various industries in each district. Government sponsored agencies like the Andhra Pradesh Industrial Finance Corporation, the Small Industries Development Corporation, Andhra Pradesh Industrial Development Corporation and National Small Industries Corporation were pressed into service. Technical guidance was also provided by the Industries Department and the Small Industries Service Institute established at Hyderabad. Raw Material Service Centres were also established. Preferential treatment was accorded to the products manufactured by the small Industries in the government purchase programme. Power subsidy had also been provided for the small units having a contracted load not exceeding 20 H.P. An Incentive programme has been launched for the supply of machinery on hire purchase basis through The National Small Industries Corporation. Short training courses have been organised through the Small Industries Service Institute and Small Industry Extension Training Institute. By the end of the Third Five Year plan period, a few large and medium scale industries have been established in the field of sugar, textiles, automobile parts and electrical conductors. A Modernisation and expansion programme has been taken up in the paper mill at Rajahmundry. Covering the above fields, ten large scale industrial units were established providing employment to 600 people.

In the small scale sector too some development has taken place in the fields of foundry engineering workshops,

1. Invitation to investors in Industry, East Godavari District Booklet issued by the Collectorate, Industries Wing, Kakinada, East Godavari district, A.P. p.5.
graphite crucibles, beam scales, domestic utensils, tiles, palmyra fibre processing, paints, plastic products, match works, painting, cement products, rice mills and oil mills. Engaged in the above line of production, 595 small scale industries were established with a total investment of Rs 120 lakhs and an employment potential of 3,200.

Inspite of the above measures taken by the Department of Industries, the growth of small scale industries in the district continued to be slow till 1966-67. With a view to augment the industrialisation in the state, the state government has offered the following incentives to the entrepreneurial class for setting up new industries.

Incentives offered by the state government to entrepreneurs in 1962:

1) Refund of sales tax on raw material, machinery and finished goods levied by the state government subject to a maximum of 10 percent of the equity capital in case of public limited companies and the actual outlay (excluding working capital) in case of others.

2) Subsidy on power consumed, to the extent of 10 percent in case of medium and large scale industries, 12½ percent in the case of small scale industries. This will not apply to the cases where power concessional tariffs are allowed by the Electricity Board.

3) Exemption for payment of water tax on water drawn from sources not maintained at the cost of government of any other local body.

4) Refund of water tax in respect of water drawn from government sources.

5) Liability on account of assessment of land revenue or taxes on land, used for establishment of an industry shall be limited to the extent of such taxes payable immediately before the land is so used.

6) The following incentives will be allowed to new industrial units set up in the aycut areas of Nagarjunasagar and K.C. Canal and the Ramagundam-Kothaguda areas:

1. Ibid.
a) Sale or lease of Government land at concessional rates
b) Grant of financial assistance on a priority basis by the state Financing Institutions.

After the announcement of the above incentives, intensive drive was launched by the Industries Department in each district and entrepreneurs were given on the spot assistance in respect of certain schemes prepared by the Industries department. The entrepreneurs were provided with necessary credit facilities through financial agencies like the A.P. State Financial Corporation and other banks. The liberalised policy of banks to give credit facilities to small scale industries, and the intensive campaign launched by the Industries Department have attracted entrepreneurs, unemployment technocrats, traders and agriculturists into the field of industries. This has resulted in the increase of the number of smallscale industries in the district. During 1969-70, 1970-71 and 1971-72, 268 new units have been established in the district.

The new approach and methodology adopted for attracting more entrepreneurs have, no doubt, infused confidence and expelled the hesitation lurking in the minds of the well to do sections of the people. But still a large number of rich people in the district are still following the age old conservative profession of making easy money through money lending trade.

The following are the new trends of investment witnessed in the district:

1. The emerging investors instead of going in for lines of investment which yield quick return, are showing preference for such lines with long gestation period which assure
higher income in the long run. Such projects are tractor drawn implements, steel refractories etc.

2. Instead of choosing the lines of manufacture which are already successfully established, the emerging investors are now prepared to take up new lines of manufacture. This trend has far reaching economic importance as this shift towards diversification may result in the production of such products which do not exist in the district. Such products are plastics, carbonic gas, refractories, cine carbon etc.

3. Among the new entrepreneurs, technocrats and skilled workers are taking up the field of manufacture. Agricultural sprayers, centrifugal pumps, and tamarind seed are some of the industries taken up by such persons.

4. Another novel trend in the growth of industries is that some of the entrepreneurs have gone a step ahead in marking use of patents developed by the National Research Laboratories. Such industries are carbon bonded crucibles, desiccated coconut, and mechanized brick making.

5. New entrepreneurs are also taking up local resource based industries which are export oriented or with markets in far away places like Bombay, Calcutta, Poona etc. Such industries are coconut shell powder, coir bristle, mango, cashew, palmyra fibre, dehydration of fruits and vegetables etc.

The flow of industrial finance by the State Bank of India and other scheduled banks and the A.P., S.P.S. has also recorded a sharp rise from Rs 156.76 lakhs during 1967-68 to Rs 455 lakhs in 1969-70. The number of units
assisted by the financing agencies has also increased from 363 in 1967-68 to 1969-70.

The infrastructure and the industrial climate built up in the district has attracted the attention of a few investors for setting up large and medium industries. A medium scale industry for rice bran oil extraction, a large milk food industry, a deep sea fishing Travellers project and dehydration of fruits and vegetables unit have come up in the district during the Fourth Five Year Plan period. A steel melting unit, a brewery, a plywood chips unit, a fertiliser factory, a mini steel plant and mini paper plant are some of the medium/large scale industries are under various stages of implementation in the district.

Conclusion:

From the above we can safely presume that an industrial climate conducive for the rapid development of the industries is well set and the recent trend appears to be encouraging for the district to take a respectable place in the industrial map of the country.

East Godavari district, having made a good start, has offered ample opportunities for the emerging investors to play a decisive role for the economic prosperity of the region in particular and the state in general. In view of the massive programme for industrial development launched by the government offering technical advice,

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1. Invitation of investors in Industry, East Godavari district issued by the Collectorate, Industries Wing, Kakinada p.9
industrial counselling and liaison, liberal credit facilities
marketing assistance in government purchase programme,
self employment schemes and a host of package incentives,
may have cumulative effect on the emerging investors to
think and strike quickly to take a honourable place in the
field of industries. In this context the development
of agro-industries in rural areas may act as frontier
check posts to stop the flow of rural labour to cities
and also create self generating growth centres to
absorb more labour force in the rural areas.

Careful and systematic planned development of agro-
based industries in rural areas may pave the way to strength-
en the ties between the villages and towns, agriculture
and industry, the produces and processors, the peasants and
factory workers and ultimately result in accelerating
industrial growth for the benefit of the state, and of the
people.

The next chapter is devoted for the sample surgery
conducted in the East Godavari district in selected agro-
based industries to understand the present position of agro-
based industries with reference to facilities available and
difficulties faced by the entrepreneurs.

********
It has been established from the previous chapter that the East Godavari district is agriculturally well developed and also there has been remarkable progress in recent the past in the Industrial sector too. In view of its fertility and strong agricultural base, the district has been selected for conducting a survey of agro-based industries as the district, in question resembles the state in all respects.

The survey has been conducted with the following objectives.

**Objectives:**

1) To study the present position (working) of the agro-based industries in the district with reference to the available facilities.

2) To suggest measures for the future development of agro-based industries taking into consideration the difficulties faced by the entrepreneurs.

**Scope of Survey:**

The study is based on diligent field investigation in selected agro-based industries (products of plant and vegetable origin) engaged in the manufacture of various agro-products. Effort have been made to cover all the export oriented agro-based industries in the district.

**Survey design and Methodology:**

The study is based on interviews with various
entrepreneurs, industry association, labour unions, and government officials. The selection of industries has been made from the list of industries provided by the Department of Industries, Kakinada, East Godavari district.

The units have been selected at random but due weightage given to the following variations:

1) Age of the unit
2) Location of the unit
3) Export orientation
4) Organised sector

The following agro-based industries were originally selected to be covered by the survey:

1) Sago & Starch
2) Palmyrea fibre
3) Pure silk
4) Tobacco
5) Khadasari sugar
6) Biscuits & confectionery
7) Handloom textiles
8) Solvent Extraction
9) Fruits and vegetables
10) Cashew processing
11) Straw Board & Hand made paper
12) Coir
13) Rice Mills
14) Oil Mills
15) Spinning Mills
16) Sugar Factories
Out of the above, survey could be conducted in the first 12 types of industries as shown above. Due to non-cooperation on the part of some industrialists and also due to unresponsiveness and indifference on the part of many entrepreneurs, rice mills, oil mills, spinning mills, and sugar factories were dropped out from the original list. In the case of paper mill at Rajahmundry the survey could not be conducted as at the time of survey the mill was not working due to the strike by the workers and subsequently the lock-out declared by the management resulted in prolonged closure of the mill on the issue of wages.

The survey was conducted in 28 units covering 12 different types of industries in the district. Personal interviews were conducted with the help of questionnaire covering the following aspects:

1) Part I- Physical profile-general information,
2) Part II- sources of finance,
3) Part III- employment,
4) Part IV- production,
5) Part V- Marketing,

The questionnaire used for the purpose of survey appears in appendix No.

The list of agro-based industries and the number of units covered in the survey is given as under:

<table>
<thead>
<tr>
<th>Industry</th>
<th>No. of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sago &amp; Starch</td>
<td>6</td>
</tr>
<tr>
<td>Palmyra fibre</td>
<td>6</td>
</tr>
</tbody>
</table>
3) Pure silk weaving 3
4) Tobacco redrying & Cigarette manufacturing 2
5) Khandasari sugar 2
6) Biscuits & Confectionary 2
7) Handloom textiles 2
8) Solvent oil extraction 1
9) Dehydration of fruits & vegetables 1
10) Cashew processing & skin oil 1
11) Straw Board & Hand made paper 1
12) Coir 1

Total number of units covered in the survey 28

Limitations of the Survey

The data collected for any survey cannot be taken as wholly reliable. This survey is no exception to this. The study covered large/medium/small scale/Cottage agro-based industries in the district. During the course of survey it is observed that certain sensitive issues which were included in the survey were excluded as the data on such issues may not be truely reliables as majority of the entrepreneur respondents gave imaginary figures. For instance majority of the entrepreneurs interviewed readily on profit and loss position, but refused to state the exact amount of profit made or the extent of loss incurred.
Since the survey has been conducted by the author above without any help from any sources-financial and otherwise-there is every possibility of some lapses and shortcomings in the final analysis of the survey. These shortcomings though are unavoidable, the author makes himself responsible for all possible defects in conducting the survey.

PART I

RESPONDENTS/ENTREPRENEURS:

Physical Profile

1) Age Group

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 25 years</td>
<td>2</td>
</tr>
<tr>
<td>25-35</td>
<td>5</td>
</tr>
<tr>
<td>35-45</td>
<td>7</td>
</tr>
<tr>
<td>45 and above</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

The survey revealed that most of the manufacturers were in the age group of 45 years and above.

2) General Educational background

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informal</td>
<td>2</td>
</tr>
<tr>
<td>Formal (1) School</td>
<td>14</td>
</tr>
<tr>
<td>(2) College</td>
<td>12</td>
</tr>
<tr>
<td>(3) Professional</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

Regarding the educational background of the individuals in the field, most of them had their education only up to the high school level. It is interesting to note that 12 out of 28 had college education. Surprisingly, none had professional education.
3) **Technical background**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Technically qualified</td>
<td>2</td>
</tr>
<tr>
<td>(2) Technically Trained</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Only two out of the 28 had technical qualifications and only one had undergone training.

4) **Previous occupation**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Formal study</td>
<td>13</td>
</tr>
<tr>
<td>(2) Agriculture</td>
<td>7</td>
</tr>
<tr>
<td>(3) Trading</td>
<td>5</td>
</tr>
<tr>
<td>(4) Professional</td>
<td>2</td>
</tr>
<tr>
<td>(5) Money lending</td>
<td>Nil</td>
</tr>
<tr>
<td>(6) Other (PMO contracts)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

Regarding the motives of individuals who have taken to the line of manufacture, besides requisite skills, profit seems to be the chief principal motive which attracted them to this line of activity.

13 have entered manufacturing after their studies, while 7 come from agricultural background since they could foresee the growing opportunity for agro-based industries.
Majority of the manufacturers coming from agricultural background/cultivators of the same commodity which is the raw material for their industry.

5) Experience in the line of manufacture

(1) Less than 5 years 12
(2) 5 to 10 years 2
(3) 10 to 15 years 2
(4) 15 years and above 12

Total 28

The district appears to be well balanced between the experienced and the new entrants to the manufacturing line.

6) Organisation structure

(1) Proprietoarships 3
(2) Partnership firms 20
(3) Cooperative Societies 1
(4) Private Limited Companies 3
(5) Public Limited Companies 1
(6) Public enterprises Nil

Total 28

The organisation structure of Agro-industries is dominated by partnership firms.

7) Location

Rural 13
Urban 15

Total 28
It is interesting to note that all sago tobacco, Khandari sugar, cashew-straw board and coir units are located in the rural areas. The export oriented industries are located mainly at Kakindao, an urban area, because of port facilities. The location pattern is also well balanced in the district.

8) Reasons for location

<table>
<thead>
<tr>
<th>Availability of</th>
<th>1) Raw material</th>
<th>17</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Labour</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>3) Power</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>4) Market</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>5) Transport facilities (including port facilities)</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>6) Govt.Policy/ Political consideration</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7) Other reason</td>
<td>Nil</td>
<td></td>
</tr>
</tbody>
</table>

Total 28

Availability of raw material within the district is the main reason for the establishment of 17 out of 28 industrial units in the district. For 6 units availability of skilled labour is the reason for their location. Two firms have set up industries due to the availability of port facilities Kakinando. The reason behind two firms is the availability of raw material and also port facilities.
For one manufacturer providing employment opportunities in rural areas is a secondary reason for location in rural area, besides availability of raw material. Native place for another manufacturer seems to be the reason for location the unit, besides availability of raw material.

9) **Size of the Unit**

<table>
<thead>
<tr>
<th>Size</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottage industries</td>
<td>1</td>
</tr>
<tr>
<td>Small scale Industries</td>
<td>22</td>
</tr>
<tr>
<td>Cooperative Societies</td>
<td>1</td>
</tr>
<tr>
<td>Medium sized Industries</td>
<td>2</td>
</tr>
<tr>
<td>Large scale industries</td>
<td>2</td>
</tr>
</tbody>
</table>

**Total** 28

Out of the 28 units selected for survey 22 are from small scale industries sector. The district is dominated by small scale Agro-Industries.
PART II

SOURCES OF FINANCE

1) Capital invested at the beginning

a) Owners/Partners 23
b) Shares 5
c) Friends/relatives Nil
d) State Bank of India 9
e) Financial Institutions 6
f) Government Nil
g) Others Nil

In respect of capital inputs required for starting a manufacturing concern, out of 28 units surveyed 15 manufacturers took financial help both from the State Bank of India and from other financial institutions. The remainder met their capital requirements mostly from personal resources. It is surprising to note that none of them took loans from the Government nor sought help from their friends/relations.

2) Invested in

a) Lands and buildings 15
b) Plant and Machinery 12
c) Other assets 12
d) Working capital 14

It is significant to note that majority of the entrepreneurs spent money on lands and buildings and on 14 have invested as working capital and on plant and machinery. Six units are running their establishment in rented buildings.

3) Did you expend your unit since your started

<table>
<thead>
<tr>
<th>Yes</th>
<th>21</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

21 units out of 28 have expanded their operations since they started their units. Besides one unit was in the process of expansion, while another was newly started.

4) Principal resources of additional finance for expansion

| a) Profits | 6 |
| b) Bank/private loans | 9 |
| c) Personal resources | 3 |
| d) Government | Nil |
| e) Financial Institutions | 3 |
| **Total** | **21** |

5) 9 out of the 28 units have taken Bank/private loans for expansion. Six units have expanded their operations from out of the profits earned. Only three entrepreneurs invested their
personal resources for expansion, while three more have got institutional finance for their expansion. None of them have sought help from the Government. Three entrepreneurs have expanded partly from loans and partly from personal resources.

PART III

EMPLOYMENT

1) Number of persons employed

Factory

<table>
<thead>
<tr>
<th>(a)</th>
<th>Skilled</th>
<th>No. of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 50</td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>50 - 100</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>100- 150</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>150- 200</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>200- 250</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>250- 300</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>300- and above</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

Of the total, 11 units are employing less than 50 skilled workers, while only one unit employing more than 300 skilled workers daily. In most of the cases the employment is seasonal and therefore temporary.
b) **Unskilled**

<table>
<thead>
<tr>
<th>Range</th>
<th>No. of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 20</td>
<td>1</td>
</tr>
<tr>
<td>20- 40</td>
<td>-</td>
</tr>
<tr>
<td>40- 60</td>
<td>1</td>
</tr>
<tr>
<td>60-80</td>
<td>-</td>
</tr>
<tr>
<td>80- 90</td>
<td>-</td>
</tr>
<tr>
<td>90- 100</td>
<td>1</td>
</tr>
<tr>
<td>100- and above</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3</strong></td>
</tr>
</tbody>
</table>

Of the total only three units are employing unskilled workers in their undertakings besides the skilled labour.

c) **Supervisory/Technical**

<table>
<thead>
<tr>
<th>Range</th>
<th>No. of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 5</td>
<td>7</td>
</tr>
<tr>
<td>5- 10</td>
<td>5</td>
</tr>
<tr>
<td>10- 15</td>
<td>2</td>
</tr>
<tr>
<td>15- 20</td>
<td>-</td>
</tr>
<tr>
<td>20 and above</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>14</strong></td>
</tr>
</tbody>
</table>

Of the total, 14 units are having supervisory/technical staff and equal number of units do not have supervisory/technical staff. Most of the staff under this category are permanent.
office

d) **Administration**

<table>
<thead>
<tr>
<th>Range</th>
<th>No. of units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 5</td>
<td>20</td>
</tr>
<tr>
<td>5- 10</td>
<td>4</td>
</tr>
<tr>
<td>10- 15</td>
<td>1</td>
</tr>
<tr>
<td>15- 20</td>
<td>1</td>
</tr>
<tr>
<td>20- 25</td>
<td>1</td>
</tr>
<tr>
<td>25 and above</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total 28**

Majority of the persons employed in office administration are permanent employees. One manufacturer has no permanent employees, one clerk and a typist are employed on part time basis.

2) **Is the Industry seasonal in Nature**

<table>
<thead>
<tr>
<th>Response</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
</tr>
</tbody>
</table>

**Total 28**

All manufacturing units of Sago, Palmyra fibre, tobacco (redrying), and Khandsari are seasonal in nature. The
manufacturers of cashew processing and dehydrated fruits and vegetables stated that although raw material is available seasonally, the industry can be run throughout the year. For one unit manufacturing palmyra fibre, though raw material is available seasonally the unit can be run throughout the year provided there is demand for the product. Since the palmyra fibre industry depends mainly on foreign orders, it is considered to be seasonal. Manufactures of pure silk, cigarettes, solvent oil extraction, handloom weaving, biscuits and confectionery, straw boards, coir, cashew processing, dehydration of fruits and vegetables stated that the industry can be run throughout the year provided there is market for the products manufactured.

3) **Number of working days during the year 1924-25**

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100</td>
<td></td>
</tr>
<tr>
<td>100 - 120</td>
<td>4</td>
</tr>
<tr>
<td>120 - 140</td>
<td>2</td>
</tr>
<tr>
<td>140 - 160</td>
<td>0</td>
</tr>
<tr>
<td>160 - 180</td>
<td>4</td>
</tr>
<tr>
<td>180 - 200</td>
<td>3</td>
</tr>
<tr>
<td>200 - 220</td>
<td>0</td>
</tr>
<tr>
<td>220 - 240</td>
<td>0</td>
</tr>
<tr>
<td>240 - 260</td>
<td>0</td>
</tr>
<tr>
<td>260 and above</td>
<td>11</td>
</tr>
</tbody>
</table>

**Total** 28
It is evident from the above that out of 28 units covered in the survey 11 are working for more than 260 days in a year. Units manufacturing pure silk, biscuit and handloom textiles are working for 300 days. In the coir manufacturing unit there is a fall of 50% in the number of working days during 1974-75, compared to the figures of 1973-74 shortage of power is the reason stated by the manufacturers. A quota of 100 units per month is allotted by the Electricity Board, which is quite insufficient. It is due to power shortage particularly during 1974-75, most of the units could not be run to full capacity. Some of the units even installed oil engines to generate power to make up the deficit and only such units could work throughout the year.

4) **Method of recruitment of labour**

Through

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment exchange</td>
<td>2</td>
</tr>
<tr>
<td>Direct</td>
<td>26</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

Total 28

Almost all the units where the survey is conducted are recruiting labour directly. In one unit, namely tobacco redrying plant, a certain percentage of recruitment is made through workers nomination. A worker wishing to retire may nominate another in his place by transferring his card. It seems the workers prefer to sell away the card
for Rs.1000 to 2000 or even more to make easy money. Majority of the units prefer to employ labour on contact basis for certain types of skilled work. Majority of them are of the opinion that there is no shortage of labour force in the district. When workers are available in good number locally, they did not find it necessary to take the help of the Employment Exchange for recruitment.

5) Do you insist upon

1) Previous experience 28
2) Qualifications
   a) General -
   b) Technical 2

All the units under the survey prefer to have workers with previous experience. In case the required number was not forthcoming, raw hands are recruited and given necessary training. Besides previous experience two units insisted technical qualifications. They are insisting on I.T.I. (Industrial Training Institutes) qualifications for certain types of jobs.

In cashew processing units, skilled workers are brought from Kerala and wages are paid on contract basis. Earlier the manufacturers used to employ local people and give them necessary training, but they could not stay long as they could not earn remunerative wages under contract. Most
of the labour employed is drawn from the agricultural field. Besides there will be ready demand for them in agricultural operations where could earn better wages as they are used to that type of work. The manufacturers are put to hardships, since the units are located away from the traditional cashew processing centre called "Mori" where skilled labour is available in good number.

6) **Payment of wages in kind/cash**

All the units in the district are paying wages in cash.

7) **System of payment**

<table>
<thead>
<tr>
<th>Type</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>-</td>
</tr>
<tr>
<td>Weekly</td>
<td>18</td>
</tr>
<tr>
<td>Monthly</td>
<td>6</td>
</tr>
<tr>
<td>Contract basis</td>
<td>4</td>
</tr>
</tbody>
</table>

(Payment is made as soon as the work is completed.) Total 28

Majority of the units prefer to pay wages on weekly basis. Where the workers are employed on contract basis, advances are paid as and when required and final settlement is made either weekly or monthly. Four units prefer to pay wages as and when the work is completed. In one unit although wages are settled (paid) on weekly basis, in some extraordinary circumstances wages are paid daily also. In all the units,
office staff is paid on monthly basis.

8) **Facilities provided by the Management to labour**

   a) Free housing  
   b) Canteen/subsidised food  
   c) Medical aid including first aid  
   d) Educational facilities to workers children  
   e) Leave concessions  
   f) Cooperative provision and credit societies  
   g) Others

   1) Provident Fund & gratuity  
   2) Grant of loans to workers and to office staff  
   3) Free tea during night shifts

From the above table it is clear that out of 28, only 18 units provide first aid facilities. In majority cases, they prefer to take the help of the local doctors during emergency. Except in one unit, medical aid is not readily available. They do not have even first aid equipment and medicines to attend to the injured. In tobacco (redrying) unit free medical aid is provided to the worker, and also to his family. For prolonged treatment beds are provided in all important hospitals of the state. Expenditure on medicines is fully reimbursed and ex-gratia payment made in case of accidents according to the rules.
Being large sized unit (tobacco redrying plant), it could extend facilities like canteen/subsidised food, free medical aid, scholarships to worker's children, leave concessions, cooperative provision and credit. Grants are given for fire accidents and during floods to the affected workers. Prizes are awarded annually to the best workers, gifts are given to the workers at the time of retirement. Milk snacks are supplied to worker's children, ranging between 2-6 years. Special allowances are given to those who work on night shift. Food, dinner etc. are supplied to workers at subsidised rates. A tobacco unit spends Rs. 60,000 annually for running the canteen.

As for the cashew processing unit, free housing facilities are provided to the workers from Kerala, in the premises of the factory itself by constructing sheds. In one Sago manufacturing unit, tea is supplied to workers free of cost during the night shifts.

In the cigarette manufacturing unit, a co-operative credit society was in the process of formation. On the whole the situation is satisfactory. As majority of the agro-industrial units are located in rural areas, most of the manufacturers are not bothered about the amenities to be provided to the workers for efficient working. As the workers are unorganised, they cannot bring pressure on the managements for minimum facilities of work which are
essential for any industrial unit. There is, therefore, an urgent need for improvement, steps should be taken to improve working conditions of the labour.

9) Whether there is any recognised trade union

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>12</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Only 12 out of 28 have recognised Trade Unions for their respective industrial units. Trade unions exist in palmyra fibre, pure silk, weaving, tobacco, textiles (handloom weaving) and solvent extraction units. All the above units are located in urban areas. Sago, Khandsari, cashew processing, coir, straw board units, which are located in rural areas, do not have trade unions. The reason being almost the entire labourers come from neighbouring villages during slack agricultural seasons to work and earn extra income and are unorganised and do not think of organising a trade union. Steps should be taken to bring these important agro-based industries under the Trade Union Act. (In one unit though there is a trade union, the management says that it is not recognised).

01) If “yes”, state the following

a) Strength and membership

b) Activities

c) Political affiliations
The strength and membership of trade unions varies very widely from 45% in solvent extraction unit to 80-100% in palmyra fibre, pure silk weaving, and textiles (handloom weaving). The activities of the majority of the trade unions involve mainly the problems of wages and bonus. Regarding political affiliations, 2 industries have political affiliation with C.P.I. one with C.P.M. and one with the ruling congress.

11) Has there been any labour unrest in the organisation in the past three years

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5</td>
</tr>
<tr>
<td>No</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Out of the 28 units only 5 can be said to have labour unrest ranging between 2 to 70 days. The labour situation appears to be quite satisfactory in the district.

12) If "yes" state the reasons

1) Wage disputes 4
2) Rate of Bonus and gratuity -
3) Political motivation 1
4) Other reasons -

Total 5

The main reason for labour unrest in the district is the payment of little wages. All the four units have stated that the
reason for labour unrest is wage disputes, which are settled by mutual agreement between the management and the labour unions. Besides wage disputes, rate of bonus is also the cause for labour unrest in some industries. In another unit political motive is the cause for labour dispute. The difference among the workers over the leadership issue is the reasons for the dispute. The two groups among the workers have affiliations with different political parties.

13) Rates of Wages.

Regarding the rates of wages in the district, they differ from industry to industry and from place to place. Daily wages are paid in sago, Khandesari sugar, and solvent oil extraction units for certain types of manual work, wages ranging between Rs. 3 to 6 per day are paid to workers. In majority of the units, wages are paid on contract basis. In all palmyra fibre units, uniform rates of wages are paid on contract basis. For processing 50 Kg. of fibre Rs. 13.50 is paid. Wages have been increased in April 1974 by 35 percent raising the rate from Rs. 10 to 13.50.

In cashew industry wages were revised in 1975, from 0.40 paisa to 0.60 paisa for processing of one Kg. of cashew. In sago industry labour is employed both on daily and also on contract basis.
Rs.3.50 to 4.00 is paid as wage for workers appointed on daily basis. For peeling purposes workers are employed on contract basis. 0.80 paisa to 1.00 is paid for peeling of 75 Kg. bag of Tapioca. The sago manufacturers of Velapalam complain that due to heavy concentration of 9 factories in an area of 3 to 4 miles, they are experiencing scarcity of labour. During peak season (i.e.) January, February, and March they have to offer higher wages to keep the factories running.

14) 1) Is there any bonus payment
2) If 'yes', what is the rate of bonus payment
3) State the criteria deciding bonus

Yes 17
No 11
Total 28

Bonus is paid in palmyra fibre, pure silk weaving, tobacco, biscuit and confectionery, solvent oil extraction and some of the sago units. Bonus is paid as per the Bonus Act in 6 units (i.e.) 8.33%. In palmyra fibre processing units annual bonus is paid @ Rs.25/- to each worker. There is an agreement between the manufacturers and the labour union to this effect. In certain undertakings bonus is paid only to the office staff who are permanent, but not to the workers, while in some others bonus is paid to those
who work at least for six months in a year. In four units so far no bonus was paid to the workers since they established the units very recently and they were exempted for three years from paying bonus to workers under the Bonus Act. In some units, bonus was not paid to workers but "bakshish" was given on festival occasions. In majority of the cases one month's pay was given to the members of the office staff as bonus. This is clear from the above that where Bonus Act is applicable bonus was paid as per the Act, otherwise it is left to the manufacturers either to give or not. When the trade union is strong, manufacturers are entering into agreement with the labour unions with regard to the amount to be paid as bonus, terms of payment and other conditions. Where there is no labour union, only office staff is paid one month's pay towards bonus but not the workers. There is no uniformity with regard to the rate of bonus and no criteria for deciding the amount of bonus in the industries covered in the survey.

P A R T - IV

P R O D U C T I O N

1) What is the main product Manufactured?

Presently 1) Same line 22

2) No line 6

Total 28
Out of 28 units 6 manufacturers have taken new line of production (i.e.) diversified the production.

2) *Is there any change in the line of production in the last three years?*

<table>
<thead>
<tr>
<th>Yes</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>22</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>

3) *If there is a change, what is the reason?*

a) Lack of demand 1
b) Lack of raw-material -
c) Increasing costs -
d) Lack of skilled labour -
e) Scarcity of power -
f) Demand for new products 5
g) Any other reason -

| **Total** | **6** |

It is clear from the above that out of 28 units, 6 units have changed the production to new line mainly due to demand for the new products, while one due to lack of raw-material.

4) *Is it working to the full capacity*

<table>
<thead>
<tr>
<th>Yes</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>20</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>28</strong></td>
</tr>
</tbody>
</table>
Out of total 28 units surveyed, only 8 can be said to be working to full capacity. The work of 5 out of 6 palmyra fibre processing units depends mainly on demand. It is an export oriented industry. It is difficult to predict the probable demand in advance. It depends on the trend in the foreign market.

5) **If it is not working to full capacity or has not worked. What are the reasons?**

   a) Non-availability of power/other sources of energy 13
   b) Non-availability of raw-material 5
   c) Labour trouble -
   d) Lack of capital 1
   e) Competition -
   f) Technical know-how -
   g) Any other reason—depends mainly on the foreign orders (demand) 5
   h) Lack of demand 1

   **Total 20**

Out of 28 units surveyed 20 units are not working to full capacity, the chief reason being non-availability of power. Of the total 20 units which are working below installed capacity 13 gave the non-availability of power as the primary reason. Non-availability of capital was the reason put
forward by one unit. For three units non-availability of raw-material is the second reason. Defects in the machinery is the second reason for not working to full capacity in Khandasari unit, non-availability of skilled labour is the second reason given by the cashew processing unit for not working to full capacity. 5 out of 6 palmyra fibre processing units stated the reason for not working to full capacity "depends mainly on demand" (foreign orders). Majority of the units work only if there are orders, otherwise they will be dormant. No unit would prefer to process the palmyra fibre without orders in hand. Lack of required working capital is the second reason in 2 units. It is clear from the above, that the chief reason which is coming in the way of utilising full capacity of the agro-industry units is the power cut imposed by the government. Majority of the units which are working with full capacity depend on diesel engines for generating electricity to make up the deficit. Regular and required supply of electricity is essential for successful running of the sago units. It is for this reason that the majority of the sago units have installed diesel engines for generating electricity.

6) Is the unit enjoying any protection from the Government

<table>
<thead>
<tr>
<th>Yes</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>23</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>
Of the total 28, only 5 units are enjoying protection from the government.

A manufacturer of sago says that the government has stopped financing and registration new sago units in the district, and therefore it is an indirect protection given to this industry by the government.

A cigarette manufacturing unit says that the unit is receiving defence orders. A manufacturer of biscuits and confectionary says that he is allotted a quota of maida and sugar at controlled price, the Government supplies meet 50 to 80% of the requirements. A cooperative unit is receiving regular Government orders for the products manufactured. Export incentive granted by the Government is the protection given by the Government to the unit manufacturing solvent extraction industry. Excepting 5 units, the management of the remaining 23 units stated that they are not receiving any Government protection.

7) **What type of Government patronage would prosper the industry**

Various manufacturers of agro-industrial units advanced the following suggestions for efficient working of agro-industries in East Godavari District.

1. **Sago**
   1. Regular supply of electricity
   2. Loans to farmers growing Tapioca.
   3. Removal of excise duty which was imposed recently on starch etc.
3) Regular and required supply of Railway wagons.

5) Storage facilities.

2) *Palmira fibre processing units.*
   1. Reduction of freight charges.
   2. Exemption from purchase tax.
   3. Regular steamer facilities.
   4. Colours (required for drying purposes) to be supplied by the Government at controlled prices.

   Or

   Import licences to be given for importing colours on cooperative basis.

3) *Pure Silk Weaving.*
   1. Raw silk to be supplied at controlled prices.
   2. Factory act should not be applicable to this industry as it is a cottage industry.
   3. Marketing facilities to be improved.
   4. Regular and required supply of electricity.
   5. Open loans to be provided by Banks towards working capital.

4) *Tobacco (Redrying plant and Cigarette Manufacturing units).*
   1. Government not to make frequent changes in excise duty.
   2. Electricity to be supplied at concessional rates.

5) *Khandeali.*
   1. Regular supply of electricity at least for 18 hours per day.
   2. Reduction in purchase tax. (which has been increased from 4 to 10% recently.)
6) **Biscuits & Confectionery.**

1. Supply of controlled commodities (i.e.) Sugar, Maida, Milk powder etc. as per requirements.
2. Regular supply of Electricity.

7) **Textiles (Handloom weaving)**

1. Loans to be provided by Banks.
2. Training to workers.
3. Finished products should be purchased by the Government.
4. Raw material to be supplied at factory prices.

8) **Solvent Extraction.**

1. Regular supply of electricity.
2. Steamer rates to be decreased in order to compete in foreign market.
3. Removal of excise duty to boost exports.

9) **Dried fruits and vegetables.**

1. Licensing formalities to be simplified.
2. Bank loans to be made available.

10) **Cashew processing industry.**

1. Imported raw nuts to be made available to this industry in Andhra Pradesh.
2. Proper shipping facilities to be provided at Kakinada as well as at Visakhapatnam.
3. Government to provide training facilities to the local workers in processing of cashew.
11) **Straw Board, Hand-made paper manufacturing industry.**

1. Regular and required supply of electricity.

2. Literature on modern methods of production etc. on straw board and hand made paper manufacturing to be made available either by Government or by Khadi Village Industries Commission.

12) **Coir.**

1. Regular supply of electricity.

2. Power rebate of 10% on gross bills.

3. Tax exemption as given in Kerala

4. Regular supply of Railway wagons.

8) **Is there any expansion of capacity when compared to the year of establishment?**

<table>
<thead>
<tr>
<th>Yes.</th>
<th>18</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Out of the total 28 units surveyed, 18 have expanded their undertakings since the year of establishment.

9) **If "Yes" what are the sources of additional resources of finance?**

a) From out of profits. 7

b) Loans from banks/financial institutions 6

c) Private loans 2

d) Personal resources 2

e) Government 1

Total 18

Of the total units expanded, 7 have expanded mainly out
of profits, while 6 took loans from banks and financial institutions and two units expanded mainly out of personal resources and partly from the profits earned. While two units expanded mainly from private loans and partly from profits earned. Only one unit expanded with Governmental help. It is interesting to note that majority of the units expanded their units out of profits earned.

**PART-V**

**MARKETING**

**AVAILABILITY**

<table>
<thead>
<tr>
<th>INPUT</th>
<th>Raw Material</th>
<th>Within the District</th>
<th>Outside the District</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Tapioca</td>
<td>Jaggampeta, Kakinada Mallisla, Murari, Peddapuram, Rajanagaram, Yeleswaram.</td>
<td></td>
<td>Nil.</td>
</tr>
<tr>
<td>2) Palmyra fibre &amp; Palmyra stalks</td>
<td>Amalapuram, Antarvedi, Bendapudi, Kadiyam, Mandapeta, Peddapuram, Razole, Tuni.</td>
<td>West Godavari district Srikakulam district Visakhapatnam district.</td>
<td>Bangalore (Karnataka state).</td>
</tr>
<tr>
<td>3) Pure Silk Yarn</td>
<td>Nil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Sugarcane</td>
<td>Anaparthi, Duppalapudi, Ramachandrauram Samalkota Pithapuram</td>
<td></td>
<td>(10 to 15 miles radius of the factory)</td>
</tr>
<tr>
<td>Raw Material</td>
<td>Within District</td>
<td>Outside the District</td>
<td></td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------</td>
<td>----------------------</td>
<td></td>
</tr>
<tr>
<td>6) Khandasari sugar, Maida, Milk Power food colours, essences, etc.</td>
<td>Khandasari sugar available throughout the district. Kakinada, Rajahmundry.</td>
<td>Maida from outside the state.</td>
<td></td>
</tr>
<tr>
<td>7) Cotton Yarn Dyres etc.</td>
<td>Kakinada Rajahmundry.</td>
<td>West Godavari district, Adoni (Karnool district), Guntakal (Anantapur district) Hyderabad Secunderabad.</td>
<td></td>
</tr>
<tr>
<td>8) Rice Bran</td>
<td>Amalapuram, Kakinada Mandapeta, Ramchandrapuram.</td>
<td>Bhimavaram (west Godavari district) Krishnana district Guntur district Visakhapatnam district.</td>
<td></td>
</tr>
<tr>
<td>9) Onions.</td>
<td>Nil. (white variety is not grown in the district but there is a proposal to grow it in the district).</td>
<td>Nizamabad (Nizamabad district) Warangal (Warangal district)</td>
<td></td>
</tr>
<tr>
<td>10) Raw Cashew nuts</td>
<td>Rajanagaram Peddapuram Tuni (Upland areas of the district).</td>
<td>West Godavari district Visakhapatnam district Srikakaulam district</td>
<td></td>
</tr>
<tr>
<td>11) Straw (Paddy)</td>
<td>Available in rice growing areas of the district.</td>
<td>Nil.</td>
<td></td>
</tr>
<tr>
<td>12) Coconut husk</td>
<td>Amalapuram, Kothapeta Razole Ramachandrapuram (Konaseema areas)</td>
<td>Nil.</td>
<td></td>
</tr>
</tbody>
</table>
It is clear from the above table that most of the raw-material required is locally available within the district. Where it is not available in required quality as well as quantity, the manufacturers are getting it from neighbouring districts, particularly from West Godavari. The only raw material which is brought from outside the state is pure silk yarn from Bangalore (Karnataka state) and white onions from Nizamabad and Warangal districts (Telangana region).

2) Is there any change in the place from which you get your raw material?

Out of total 28 units surveyed there is a change in places of raw material in respect of tobacco and cotton yarn. The reasons stated are change in quality and price. Excepting three units there is no change in places from where they used to get raw material.

3) If so, what are the reasons for changes?

1) Delay in supply
2) Inferior in quality
3) High prices
4) Non-availability of credit facilities
5) Other

Total 3
Of the total 28 units covered in the survey, only three unit two tobacco units and one handloom weaving unit stated that there is a change in the places of raw material and the reasons given by them are: (1) Inferior in quality (2) High prices. We can well conclude that majority of manufacturers are getting the supply of raw material regularly from within the district.

4) Did you get any raw material from foreign countries?

<table>
<thead>
<tr>
<th>Yes</th>
<th>Nil</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
</tr>
</tbody>
</table>

No unit in the district is getting raw material from foreign countries. Biscuit and confectionary units in the district (Bakery products) were allowed to import packing material, essence, food colours, Milk powder and also machinery. Under a licence. In 1972, this facility was withdrawn on the plea that this industry (Manufacturing of bread and biscuits) does not come under the category of baby food. In case the manufacture of bread and biscuits were to be considered as baby food, they will be allowed to import certain raw material. They argue that if this facility is given, they can improve the quality of products manufactured and also there will be reduction in cost. No agro-based industry in the district is getting raw material from foreign countries.
5) **Where from you get your machinery and spare parts.**

<table>
<thead>
<tr>
<th>Name of the industry</th>
<th>Machinery</th>
<th>Spare parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Sago</td>
<td>Locally available in the district. Rajahmudry Kakinada Samalkota.</td>
<td>Locally available in the district.</td>
</tr>
<tr>
<td>2) Palmyra fibre</td>
<td>Locally available N.B. This industry does not require any costly machinery and equipment. Work is carried on with the help of simple tools which are locally fabricated.</td>
<td>Locally available.</td>
</tr>
<tr>
<td>3) Pure silk</td>
<td>Locally fabricated</td>
<td>Locally available.</td>
</tr>
<tr>
<td>4) Tobacco</td>
<td>Madras, Bombay, N.B. (90% of the machinery is available in the country while 10% is imported) Rajahmudry Kakinada Hyderabad.</td>
<td></td>
</tr>
<tr>
<td>5) Khadasari Sugar</td>
<td>Locally available Rajahmudry, Kakinada Vijayawada Madras</td>
<td>Locally available. N.B. There is a firm manufacturing plant, machinery and equipment required for Khadasari industry at Kakinada.</td>
</tr>
<tr>
<td>6) Biscuits &amp; Confectionery</td>
<td>Locally available</td>
<td>Locally available.</td>
</tr>
<tr>
<td>7) Handloom weaving (Textiles)</td>
<td>Bombay, Secunderabad, and locally available.</td>
<td></td>
</tr>
<tr>
<td>8) Solvent oil extraction.</td>
<td>Bombay</td>
<td>Locally available.</td>
</tr>
<tr>
<td>9) Dehydration of fruits &amp; vegetables.</td>
<td>Imported from Belgium</td>
<td>Locally available.</td>
</tr>
<tr>
<td>Name of industry</td>
<td>Machinery</td>
<td>Spare parts</td>
</tr>
<tr>
<td>------------------</td>
<td>-----------</td>
<td>-------------</td>
</tr>
<tr>
<td>10) Cashew processing</td>
<td>Quilon (Kerala State)</td>
<td>Locally available</td>
</tr>
<tr>
<td>11) Straw Board &amp; Handmade paper</td>
<td>Locally fabricated</td>
<td>Locally available</td>
</tr>
<tr>
<td>12) Coir</td>
<td>Bangalore, Cochin, Kanpur</td>
<td>Locally available</td>
</tr>
</tbody>
</table>

Excepting simple type of machinery and spare parts, most of the machinery required for agro-industries is bought from other parts of the country. No unit is experiencing any difficulty with regard to spares and repairs in the districts.

II. OUTPUT

Channel of distribution

<table>
<thead>
<tr>
<th>Name of industry</th>
<th>Channel of distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Sago &amp; Starch</td>
<td>Direct. Commission agents (2 to 4%)</td>
</tr>
<tr>
<td>2) Palmyra fibre</td>
<td>Direct. Commission agents</td>
</tr>
<tr>
<td>3) Pure Silk (Plain)</td>
<td>Direct.</td>
</tr>
<tr>
<td>4) Tobacco</td>
<td>Direct (leaf) whole sales (Cigarettes)</td>
</tr>
<tr>
<td>5) Khandasari Sugar</td>
<td>Direct. Commission agents (2%)</td>
</tr>
<tr>
<td>6) Biscuits &amp; Confectionery</td>
<td>Direct. Commission agents (3 to 8%)</td>
</tr>
<tr>
<td>7) Handloom fabrics.</td>
<td>Direct. through cooperative emporium and depots</td>
</tr>
<tr>
<td>8) Solvent oil extraction.</td>
<td>Direct. (Bran) Commission agents Exported to U.K and countries</td>
</tr>
<tr>
<td>9) Dehydration of fruits &amp; Vegetables.</td>
<td>Direct (exported to U.K and other European countries.)</td>
</tr>
<tr>
<td>10) Cashew processing</td>
<td>Commission agents (1 to 3%)</td>
</tr>
<tr>
<td>11) Straw Boards and hand made paper.</td>
<td>Direct.</td>
</tr>
<tr>
<td>12) Coir</td>
<td>Direct. (fibre) Commission agents (Copra &amp; oil)</td>
</tr>
</tbody>
</table>
It is evident from the above table that all the manufacturers prefer to sell their products directly. Most of the manufacturers are using both the channels namely Direct as well as through commission agents. Commission allowed varies between 2% to 10%.

2) Indicate the places to which you are sending your products.

<table>
<thead>
<tr>
<th>Name of the products</th>
<th>Within the state</th>
<th>Outside the state</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Sago, Starch, pulp waste,</td>
<td>Rajahmundry, Guntur, Vijayawada Hyderabad.</td>
<td>Calcutta, Poona, Bombay, Nagpur (exported to Calcutta merchants)</td>
</tr>
<tr>
<td>3. Pure silk(Plain)</td>
<td>Hyderabad, Lapakshi Emporium Hyderabad.</td>
<td>Madras, Bombay, Delhi, Calcutta, Nagpur, Ahmadabad, Indirectly exported through Radha Silk Emporium Madras to foreign countries.</td>
</tr>
<tr>
<td>4. Tobacco(Cigarettes) &amp; Tobacco Leaf.</td>
<td>Throughout the state (Cigarettes) Andhra Pradesh, Tamil Nadu, Karnataka, Kerala, Maharashtra.</td>
<td>Defence supplies. Exported to U.K., U.S.S.R., Japan, Middle East &amp; European countries.</td>
</tr>
</tbody>
</table>
From the above particulars, we can safely conclude that palmyra fibre, pure silk (plain), Tobacco (leaf), rice bran oil, dehydration of onions and fruits are mainly intended for exports. Even sago is exported to Bengal through Calcutta merchants. The Cigarettes manufactured are meant to meet the demand of the entire South India. Pure silk (plain) manufactured is believed to be exported to foreign countries through Radha Emporium, Madras. Cashew and coir manufacturers are of the
opinion that their product are being exported through a Cochin
and Calcutta ports through middlemen and exporters. Besides
these items, white sugar and paper manufactured in the district
are included in the items of export from this district.

3) Is there any change in your customer since three years?

<table>
<thead>
<tr>
<th>Yes</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>21</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

4) If so, what are the reasons?

Expansion of market can be said to be the reason for the
change in customers in all the seven units.

5) Whether your products confirm to I.S.I. standards

<table>
<thead>
<tr>
<th>Yes</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>25</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

Of all the products, only leaf tobacco and dehydrated
fruits and vegetables conform to the I.S.I. standards. Cashew
Kernal and cashew shell oil come under quality control and
pre-shipment inspection, while leaf tobacco comes under the
purview of "Ag mark" specifications.
6) **Profit & Loss position.**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit</td>
<td>19</td>
</tr>
<tr>
<td>Loss</td>
<td>6</td>
</tr>
<tr>
<td>Not known</td>
<td>3</td>
</tr>
</tbody>
</table>

Total 28

Of the total 28, 19 units are running profitably, while 6 units are incurring losses. Majority of the units incurring losses are those which are newly established. In three cases neither profit nor loss could be known. In one unit the profit or loss position could not be known as the accounts are maintained by head office. In another case the manager of a private limited company the position without the permission of the Directors (Management). In the third case, he could not sell the products even though he is manufacturing the products for a long time, for want of exemption certificate from the Central Excise Department.

7) **Have your accounts been audited regularly?**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>28</td>
</tr>
<tr>
<td>No</td>
<td>Nil</td>
</tr>
</tbody>
</table>

Total 28

It is interesting to note that all the 28 units surveyed have got their accounts audited. Besides public and private
limited companies, majority of them are partnership firms. Even in case of single proprietary concerns and partnership firms they might be doing to satisfy the Sales Tax and Income Tax departments.

8) Is there any wastage in the production process?

<table>
<thead>
<tr>
<th></th>
<th>24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>28</td>
</tr>
</tbody>
</table>

9) What do you do with the waste and rejected product?

For four out of 28 units, wastage in the production process is either negligible or nil. The wastage is negligible or nil in Kandasari, cashew, straw baord and coir manufacturing concerns. The wastage is abnormal in palmyra fibre extraction units. The production wastage seems to vary from 15 to 25 percent. The finished fibre, before packing, is cut into various lengths to suit the requirement of individual importers. This wastage can be reduced to very extent but cannot be eliminated altogether. At present fibre wastage is thrown out or used as fuel by the workers.

At present, majority of sago and starch manufacturing units are not utilising the tapioca pulp waste. Some of them,
Of course, are selling if @ Rs. 18/- per 100 Kg. locally. The pulp waste can be utilised for the manufacture of manure and cattle feed.

The cotton waste available with the Cooperative Spinning Mill at Hajamundry is being utilised for the manufacture of mattresses and pillows. But the same can be put to better use. At present there is a demand for yarn Nos. 2, 4, 6, 8 and 10 in the district and the demand is met from neighbouring districts. In case this cotton waste from all the three spinning mills in the district is made available, a small scale unit manufacturing the above yarn numbers can be established.

10) Do you incur any expenditure on advertisements

Yes  6
No  22
Total  26

Expenditure on advertisements is incurred by 6 units. Advertisement as an instrument to popularise their products is resorted in pure silk (plain), tobacco (cigarettes), Biscuits and Confectionery and Cashew processing units. In order to face heavy competition, in the market advertising has become an inevitable for them. The amount spent various from Rs. 300 to
Rs.5000 depending upon the size of the unit and its needs.

11) **Difficulties experienced in the marketing of the products.**

<table>
<thead>
<tr>
<th>Products</th>
<th>Difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Sago &amp; Starch</td>
<td>1) Since marketing places are far away from the points of production, it is difficult to predict the changes in the markets.</td>
</tr>
<tr>
<td></td>
<td>2) Shortage of wagons is the main difficulty this industry is facing. Sometimes they have to transport the product by tucks to distance places like Bombay and Poona.</td>
</tr>
<tr>
<td>2) Palmyra fibre &amp; Palmyra stalks</td>
<td>3) No steamer facilities. All ships do not call at Kakinada Port, particulars ships to U.S.A. and Canada. Freight charges are high. Sometimes, export is carried on from the Madras Port which is adding to the cost further. The product is transported to Madras by trucks.</td>
</tr>
<tr>
<td></td>
<td>2) It is very difficult to predict the demand and price position in the foreign market.</td>
</tr>
<tr>
<td>3) Pure silk(plain)</td>
<td>1) Too much of price fluctuation due to severe competition.</td>
</tr>
<tr>
<td></td>
<td>2) The weavers are put to lot of hardship in transporting of cocoons from outside the state since facilities of marketing of cocoons are not available within the state.</td>
</tr>
<tr>
<td>4) Tobacco</td>
<td>There is a readymade demand for the products manufactured.</td>
</tr>
<tr>
<td>1) leaf</td>
<td></td>
</tr>
<tr>
<td>2) Cigarettes</td>
<td></td>
</tr>
<tr>
<td>5) Khandasari Sugar</td>
<td>There is a ready market for Khandasari sugar.</td>
</tr>
</tbody>
</table>
6) Biscuits & Confectionary

The Industry is facing severe competition. A large number of small scale units have come in the district. Locally available raw material is of sub-standard quality. Previously standard raw-material like Milk Powder, food colours, citric acid, essences etc. were used to be imported.

7) Handloom fabrics.

The industry is facing severe competition from the like products manufactured in Salam and Madurai Coimbatore (Tamil Nadu). The industry under cooperative sector has no marketing problem due to regular government orders.

8) Rice bran oil & deoiled rice bran.

It is an export oriented industry. It has to face severe competition in the international market in respect of quality and cost. It is difficult to study the trends in the industrial market.

9) Dehydrated fruits & Vegetables.

This industry has bright prospects. At present it is meeting the defence orders besides exports. There is ready demand in foreign markets, mainly in U.K. There is a need to diversify its production by using other vegetables where are available locally, besides onions.

10) Cashew Kernal & Shell oil.

There is severe competition and therefore price fluctuates very widely. Shell oil has a wide market and the same can be exported to foreign countries from Andhra Pradesh.

11) Straw boards & handmade paper.

There is a ready market for the products manufactured in the district. At present the requirement of packing material is met from Madhya Pradesh. Even though Production started long ago, for want to exemption certificate, from the Central Excise Department the products could not be put into the market for sale, in the unit covered under the survey.
12) Coir

1) Bristle fibre
2) Mattres fibre

The products are being transported to far away places in India. Bristle fibre is sent to Kerala, Orissa, and also to Calcutta. Mattres fibre is supplied to defence establishments at Secunderabad. Though export of the products manufactured in Andhra Pradesh is not allowed, it is said that the products are indireclty exported from Calcutta and Kerala. In case the coconut products are exempted from tax as done in Kerala, there will be no difficulty in marketing the products manufactured in Andhra Pradesh.

The industry is facing difficulty in securing the railway wagons of required number.

Conclusion:

On the basis of the findings made, personal interviews held with various entrepreneurs during the course of survey, and personal observations made, discussions held with various Industry Associations, labour unions and Government officials, suggestions are made in the next chapter for the betterment of the agro-industrial units in the district.
CHAPTER VII

SUMMARY OF RECOMMENDATIONS

On the basis of the findings of the survey conducted in the district and the discussions held with the employees, industry associations, labour unions and government officials and also on the basis of the personal observations made during the course of the visits to various undertakings in the district the following recommendations and suggestions are made for the future development of the agro-based industries in the state with particular reference to East Godavari district. The findings highlight and support various hypotheses around which the suggestions are made. In the following pages an attempt is made to suggest the steps to be taken for future development of agro-based industries in the East Godavari district.

PART-I- GENERAL RECOMMENDATIONS:

1) Legalisation of limited partnership firms:

Of the total units covered in the survey more than 70 percent are partnership firms and if single proprietary concerns are included it will be 82 percent.

Though institutional finance is made available through a sizeable number of financial institutions to all types of industrial undertakings in the state, this opportunity has been availed mostly by the large and medium sized units. But in the case of small scale industries, a large number of them could not
avail this opportunity either due to ignorance or due to poor capital structure or due to complicated procedures involved.

At present the financial institutions can not participate in the equity capital of the small units because they are partnership firms and single proprietary concerns. With a view to enlarge the equity capital structure of these small scale units and also to enable these financial institutions to participate in the equity capital, it is imperative to bring out legislation to permit and legalise "limited partnership firms" in the country.

2) Incentives for setting up of industries in rural areas:

Majority of the entrepreneurs interviewed during the course of the survey are of the view that they did not avail either incentives for locating the industrial units in rural areas nor received any encouragement from the government or from the local bodies. On the other hand the entrepreneurs are put to a lot of hardship in getting licences from the village panchayats. Before any licence is granted the village panchayats prescribe a number of conditions or demand voluntary contributions (certain percentage of the capital invested). In a way this type of attitude on the part of the village panchayat authorities may discourage the setting up of more industries in future in rural areas. With a view to speed up industrialisation in rural areas, the government should come out with an open policy and frame the rules to be followed by the local bodies to ensure an uniform procedure in order to attract more entrepreneurs in rural areas. In the absence of such an uniform and
clear cut directives from government, the approach of the local bodies in dealing with such cases which may go against the interest of the emerging entrepreneurs and come in the way of setting up industries in rural areas.

3) **Installation of generating sets to meet the power shortage:**

Power cut imposed by the government in the recent past is the main reason preventing majority of the units from working to full capacity. Most of the industries located in rural areas are seasonal in nature functioning for 100 to 150 days during the year with full capacity. In view of their location and being seasonal in nature, preferential treatment may be given to these industries with regard to the supply of electricity. A large number of agro-processing units can not be maintained economically if the supply of power is not regular and continuous. Many of the agro industries located in rural areas absorb agricultural labour during off season. With a view to create more employment opportunities in rural areas, the agro-industries should be accorded preferential treatment with regard to power supply.

In case it becomes inevitable to impose a power cut in any area or region the Andhra Pradesh State Electricity Board (APSEB) should make available the necessary funds to the small industrial units to install their diesel engines to meet the shortage. The task of supplying such generating sets on hire purchase basis may be entrusted either to A.P. State Agro Industries Corporation or to the A.P. Industries Infrastructure
Corporation. At present, instead of encouraging the entrepreneurs to have their own generating sets, the APSEB is collecting voluntary donations for giving new connections to the new industrial undertakings which is not desirable. In view of the power shortage in the state for another 5 to 6 years, it is desirable to encourage small industrial units to install generating sets to meet the deficit. A shift in the policy of the APSEB may bring substantial change in the industrial production and create more employment opportunities in the rural areas.

4) Development of Kakinada Port

The main reason for the setting up of industrial units at Kakinada is to facilitate exports from the port. Due to inadequate and irregular steamer facilities, some of the products have to be diverted either to Madras port or to Cochin port. This adds to the transport cost of the goods exported and become unremunerative. It will also result in delay and cause inconvenience to the exporters which goes against the interest of the export trade. With a view to augment exports and to attract more export oriented industries into the district, the development of the Kakinada port should be taken up without loss of time.

The Intermediate Port Development Committee (1960) has described Kakinada port as the safest natural harbour in the whole of East India. But the committee did not recommend the development of this port into a major port mainly on the
on the ground that the traffic is inadequate. But the traffic handled at this port which slumped from 3.7 lakhs tonnes in 1955-56 to 1.6 lakh tonnes in 1960-61, has now gone up to over 5 lakh tonnes. The bulk of the cargo consists of exports of iron ore.

In fact, the National Mineral Development Corporation which went into the implications of the development in the Bailadilla region in Madhya Pradesh, suggested the development of Kakinada as an offshore handling port capable of handling about 2 to 6 million tonnes of iron ore per annum. The corporation made the suggestion against the background of a limited rail capacity of 6 million tonnes on the Bailadilla-Visakhapatnam railways. The corporation preferred transport of iron ore to Kakinada by laying a new railway line from Bailadilla to Kovvur via Bhadrachalam instead of doubling the railway track between Bailadilla and Visakhapatnam.

Though the suggestion of the National Mineral Development Corporation was not accepted, there is an imperative need to develop this port in view of the vast potentialities that exist and, further, the establishment of steel plant at Visakhapatnam and a large sized fertilizer plant of Kakinada may increase the need for an alternative outlet to the sea.

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1. Prospective Plan for Coastal Andhra, Volume 1, Resource Inventory, op.cit. p.352.
2. Ibid.
It is, therefore, suggested that the development of Kakinada port may be taken up earnestly at least during the Sixth Five Year Plan period to facilitate exports from this region. The prosperity of this region is linked with the development of this port/increased industrial activity and exports are anticipated from this port in the coming years.

PART-II - INDUSTRY WISE RECOMMENDATIONS

The following suggestions offered in respect of agro-based industries covered in the survey conducted in the district for future development.

1) Sago and Starch Industry:

Though there is good scope to bring more area under tapioca tuber cultivation in the district taking into consideration the marketing prospects for sago and starch expansion prospects appear to be dull. It is, therefore, suggested that unless and until the diversification of the product is resorted to, the future prospects are not bright. Hence the entrepreneurs may be encouraged to take up the manufacture of glucose, biscuits, flour, suji, macaroni, dextrine alcohol for automobiles, cosmetics and cattlefeed from the tapioca waste.

2) Marketing problems of cultivation can be solved by encouraging the cultivators to form Agricultural Marketing Cooperative Societies in large numbers.

3) As a long term measure, to solve the marketing problems
faced by cultivators as well as millers, it is desirable to from cooperative mills with growers and workers as members.
The government should allow new units only under the cooperative sector.

4) The government should take steps to popularise sago as a food product in the country as well as in Afro-Asian countries to facilitate export of sago and starch.

(2) **Palmyra fibre Industry**

At present internal demand for the fibre is limited. A negligible quantity of palmyra fibre is being sent to Bombay, Calcutta, Kanpur, Ahmadabad, Agra and Delhi, where the fibre is used in the manufacture of brushes. Taking into consideration future needs of the internal demand a medium sized unit may be located at Kakinada for the manufacture of brushes of various sizes. The Andhra Pradesh Industrial Development Corporation may collaborate with foreign firms for the manufacture brushes and other articles with a view to meet the internal as well as foreign demand. Besides fibre, the wood available in the local forests can be made use of. The seasoning plant at Rajahmundry is capable of supplying the seasoned wood (nontsak) at a lower cost. The Andhra Pradesh state palmgur cooperative federation is better placed to supply the required fibre of high quality.

Brush making industry offers bright prospects as raw material is available in coastal districts of Andhra Pradesh.
The present steamer facilities are inadequate and irregular. Unless this facility is improved the export trade may not progress.

The district has 16 units engaged in the processing and exports of palmyra fibre. The wastage is abnormal in palmyra fibre industry which varies from 15 to 25 percent. The finished fibre is cut into various size before packing as per the requirements of buyers (importers). This wastage can be reduced to a large extent but cannot be eliminated. At present this fibre waste is disposed of or used as fuel by the workers. There is an urgent need to put this waste for economic use. Once the utility of this fibre waste is established a good number of small scale units can be established in and around Kakinada. This waste can be utilised for the manufacture of straw board etc.

Palmyra fibre is being used abroad in the manufacture of false ceiling for theatres etc. It is, therefore, advisable that the Regional Laboratories in the state take up this issue and find out the possibility of putting this fibre waste for industrial use.

At present out dated equipment and simple tools are being used in the processing centres of palmyra fibre. With little care and introduction of improved tools and simple machinery, substantial improvement can be achieved in the quality of the product manufactured. Use of quality dyes and
other colours may bring additional price for the products exported from Kakinada port.

Yellow whisk or whisk fibre:

During the course of the survey in the district, it was found that yellow whisk or whisk fibre which is called 'vasa' in the local language is available abundantly in the forest areas of the district. It is the broom root which is left in the earth after cutting the broom sticks (ground portion). The broom root can be plucked very easily during rainy season by employing manual labour. During this period of the year most of the tribal labour will be out of work as agricultural activity is restricted to very limited areas of the forest region. The cost of labour is also said to be cheap in the forest areas.

The yellow whisk has commercial importance if exploited on a large scale. So far no systematic efforts have been made either by traders or by the government for its commercial exploitation. Whisk fibre can be used in the manufacture of brushes. The brushes made of whisk fibre are used for washing gold ornaments, in the handloom industry and also used for making as coat brushes.

The exporters of palmira fibre are of the view that if this whisk fibre is made available in large quantities the same can be exported to foreign countries at it is presently
in demand there. In view of its export potentiality and in order to create employment opportunities to the tribal people, it is desirable to export this fibre on commercial scale. The task of extraction of whisk fibre may be entrusted to the Girjan Corporation, which is presently engaged in collecting the minor forest produce through a well knit field. Societies in the forest areas of the Coastal Andhra region. The tribal labour may be trained in the art of collecting this fibre which is available in large quantities. This may result in providing gainful employment to the tribal people in off seasons and also help earn foreign exchange. Before venturing into this it is desirable that the state government identifies the extent of major potential areas in the forests and study the demand position in foreign markets. Besides foreign demand, there will be internal demand also for brushes made of this fibre.

(3) Pure Silk Industry:

The district has 10 pure silk weaving (plain) units located mainly at Peddapuram and Uppada. Of these survey is conducted in three units.

Mulberry silk industry is mainly located in Anantapur and Chittor districts and to a lesser extent in Peddapuram and Uppada in East Godavari district. Sericulture can be considered as one of the most neglected agro-industries in the state. So far no systematic efforts have been
made to produce cocoon within the state. Siriculture fits in well in rural areas, where agriculture is the mainstay. It will raise the per capita income of the peasantry and solves problems connected with unemployment and underemployment. The chief factor which limits the spread of the industry is that silk worms thrive under certain conditions of temperature and humidity, which is usually obtained in places with an altitude of about 2000 ft and above. Mulberry is cultivated both as a rainfed and as an irrigated crop.

This industry offers great potentiality for development in Hyderabad district, Araku valley of Visakhapatnam district, Palmanur and Horseley Hills in Chittor district and Hindupur in the Anantpur district.

Of late, the importance of this industry has been reorganised and at present the area under cultivation in the state is over 2000 acres largely localised in Anantapur and Chittor districts. It was only 40 to 50 acres in 1956.

There is an urgent need to strengthen the rearers cum reelers organisation and the marketing arrangements of cocoons and twisted silk which can supply raw twisted silk to silk weavers of Andhra Pradesh. It is gratifying to note that the state government has set up an Apex organisation in the cooperative sector to look after the needs of this industry.

1. R.V. Rao, Siriculture Forges Ahead in Andhra Pradesh, Southern Economist (Bangalore) A.P. Number op. cit. p. 25.
2. Ibid
3. Ibid p. 25.
The Central Silk Board rightly feels that the development of silk industry in Andhra Pradesh could be quickened if a priority higher than what it gets at present is accorded to the state's annual programmes. The Central Silk Board should come forward to tackle the situation by providing more financial assistance for the speedy growth of this industry in Andhra Pradesh.

(4) Tobacco Industry:

Two large/medium sized units located in the district have been covered by the survey. Of these one is a tobacco redrying plant and the other is a cigarette manufacturing unit.

The following suggestions are made for the future development of this industry.

1) Need for change in grade specification:

Tobacco is grown extensively in all the coastal districts of Andhra Pradesh. Of the two varieties of tobacco grown Virginia tobacco is intended for exports. For exports the tobacco has to be graded as per "Agmark" specifications. These grades are based on colour, texture and blemish of the leaf. In view of the changes that are taking place all over the world in respect of cigarette manufacturing, the present grade specifications have become out of date and therefore, there is an urgent need to effect necessary changes in the grade specifications. The foreign buyers are showing interest and preferring tobacco of lower leaves with low nicotine and tar content. To catch up
with the changes that are witnessed in the tobacco industry, there is an urgent need to consider the scope and feasibility of adopting plant position grading in place of the present one in India. The government should look into this issue and effect necessary changes for the future development of this export oriented industry.

2) Present position in East Godavari district:

Tobacco is an important crop of the East Godavari district, covering about 24,000 acres (1970-71). The entire production is meant for exports. Almost all the produce is being purchased every year by three to four big companies. The ryots bring the katcha grade bales to the company for auction where the produce is arranged balwise in rows. The buyer of the concerned company inspects the produce and determines the grades and also fixes the prices. The buyer rejects the bales if there are not found to be up to the mark. The ryots have no say whatsoever either in determining the grades or in the fixation of the prices. This procedure is quite arbitrary and unreasonable. In order to protect the grower from exploitation at the hands of monopoly companies in respect of fixation of the grade and price there is a need for a third impartial body to act as a mediator to solve this tangle.

The crux of the problem lies on the proper evaluation of the commodity based on grades. The manufacturing companies accuse the growers of mixing inferior grades with
superior grades etc. Besides, Agmarking is done only at the time of exports. Only katcha grades are permitted for sale by the growers. The reduce the complaining tendency on the part of both the parties on the question of quality, it is essential that grading should take place as Agmark specifications at farmers level in order to root out the misunderstandings between the growers and buyers. If pucca graded tobacco is put for sale at the agricultural marketing committees, there can be no two opinions regarding the quality as well as price.

3) Marketing of tobacco through marketing committees:

Tobacco is one of the products notified under the Andhra Pradesh (Agricultural Produce and Livestock) Markets Act, 1966. Though tobacco has been brought under the purview of this Act with a view to regulate the sale and purchase, no progress has been made so far in this direction. At present the tobacco is being sold out at the purchasing platforms of the major tobacco companies. The tobacco growers have to abide by the grades as well as prices fixed by the company's buyers. In order to avoid this situation, the Agricultural Marketing Committees in the tobacco growing areas should establish marketing yards with all the necessary facilities for the sale and purchase of tobacco in an orderly way. This facility will give an incentive for the tobacco grower to grow more and good quality tobacco, which may result in a healthy development of this export oriented industry of Andhra Pradesh.
4) **Setting up of service cooperatives:**

The individual grower has neither the capacity nor the necessary technical knowledge to undertake the grading of tobacco. It is for this reason that the growers should be helped in grading his produce by establishing Service Cooperative Societies in the tobacco producing areas, so that the produce may be pooled, graded and packed under technical advice of the Directorate of Marketing and Inspection. There is only one such society working at Ongole in Andhra Pradesh. Hence, there is a need to establish a large number of such service cooperatives in all the tobacco growing areas of the state.

5) **Fixation of minimum price:**

It is necessary for the government to fix a grade wise minimum price in consultation with the growers, manufacturers, exporters, industry and trade associations at the beginning of the season each year. Such price may be fixed on the basis of the price prevailing in the international market. In case the purchasing companies do not come forward to purchase tobacco at the rates prescribed by the government, the government should make necessary arrangements of lighting the stock in the same season without causing unnecessary delay and hardship to the growers.

6) **Tobacco based industries:**

At present high grade tobacco is used either in cigarette making or exported, while the low grade tobacco and
the tobacco waste have not been put to any use. The tobacco waste can be profitably exploited for the manufacture of nicotine which is an insecticide. Further the same can be used for the manufacture of nicotonic acid for the pharmaceuticals industry. It is advisable to study the scope and feasibility of establishing such units in the tobacco growing districts of Andhra Pradesh.

Tobacco being an export oriented industry, the government should not make frequent changes in the taxe structure, as it may have adverse effects on the exports of tobacco from this state. For want of required shipping facilities, the exports are being directed through the Madras port. It is advisable to provide necessary facilities for the export of this product from the Visakhapatnam port.

(5) Khandasari Industry:

This district has 15 Khandasari factories of which 14 are working with a total cane crushing capacity of 1,115 metric tonnes per day at the end of March 1973.(as per season and crop report 1972-73). During 1972-73, the quantity of cane crushed was 44,427,051 Metric tonnes and 22,79,000 M. tonnes of sugar was produced. The recovery of sugar worked out to be of 5.1 percent.

Of these 14 factories survey was conducted in 2 units and the following suggestions are made for better workings:-

1) The yield of sugar from Khandasari can be raised by
adopting the improved process of Khandasari sugar manufacture evolved by the Gur and Khandasari Research Scheme of National Sugar Institute, Kanpur. The improved process makes it possible to get a recovery of 7.5 to 8.0 percent of sugar from cane of average quality. A large number of factories are old and there is scope for improvement and modernisation.

2) Regular and required supply of power can improve the present working of these factories to a large extent. It is advisable to establish Khandasari factories where sugar cane is grown in small packets, Khandasari factories can be set up at any place where at least 100 acres of land is under sugarcane cultivation, availability of water being the second prerequisite.

(6) Biscuits and Confectionery:

During the last decade substantial changes have been noticed in the growth of urban areas particularly around Rajahmundry and Kakinada. Besides these two big towns, industrial activity is noted in and around Amalapuram, Samalkota and Ramachandrapuram. These towns have been identified as growth centres in the district. With increased industrial activity and the change in the eating habits of the people in urban areas, the demand for bakery products like bread, biscuits and other confectionery products is likely to increase.
Already the district has 14 small scale industries while a large number of small units are in the unorganised sector manufacturing bread, biscuits etc to cater to the needs of the district. Of these, two units are equipped with machinery and other equipment.

The following suggestions are made for the development of this industry in the district:

1) The government should make available controlled commodities in required quantities. At present Government supplies meet only part of the requirements.

2) Preferential treatment in power supply may be given to this industry.

3) The financial institutions should encourage the development and the modernisation of this industry in the small scale sector by offering the necessary financial assistance and improved machinery so that quality products are made available to the people at reasonable prices.

4) The tapioca flour which is locally available in large quantities in the district may be permitted to be used in required quantities to reduce cost of production and price of the bakery products manufactured.

(7) Handloom Industry:

The Handloom industry has a special significance in that it provides livelihood to a mass of population living in
rural areas and also it earns foreign exchange. Andhra Pradesh is one of the traditional centres of production of handloom fabrics. It is the largest cottage industry of the country with three million handlooms spread throughout the length and breadth of India. Nearly ten million persons depend on this industry for their livelihood. From the point of view of employment potential the industry ranks next in importance to agriculture.

The total number of handlooms in India is 3 million out of which around 5 lakhs are in Andhra Pradesh. These looms use a variety of textile fibres, cotton, pure silk, wool, art silk, jute, coir, flax and hemp. All these fibres are grown in Andhra Pradesh.

**Important Handloom Production Centres of Andhra**

- **Adoni**: Woven and pile carpets
- **Cuddapah**: Lungies, etc.
- **Dharmavaram**: Silk sarees with special figured borders and palay in traditional designs.
- **Chittoor, Chirala**: Bleeding Madras and Madras Handkerchiefs.
- **Gadwal**: Sarees and blouse material in cotton, silk and zari in typical traditional designs.
- **Guntur**: Bleeding Madras


+ A kind of handloom cloth in bright colours.
<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hyderabad</td>
<td>Himroo-figured brocade in silk and rayon.</td>
</tr>
<tr>
<td>Jangaon and Siddipet</td>
<td>Cotton sarees known as gollabhamas with inlay figure work and motifs.</td>
</tr>
<tr>
<td>Kalahasti, Karimnagar</td>
<td>Madras handkerchiefs, Double cloth bed covers and Cotton sarees.</td>
</tr>
<tr>
<td>Kovur</td>
<td>Madras handkerchiefs</td>
</tr>
<tr>
<td>Masulipatam</td>
<td>Ancient printing centre famous for Kalamkari prints (The printing is done in resist style of design with blocks and final details are painted with brushes) Temple curtains.</td>
</tr>
<tr>
<td>Narayanavaram</td>
<td>Cotton dhoties</td>
</tr>
<tr>
<td>Nellore, Peddapuram</td>
<td>Bleeding Madras, Pure silks.</td>
</tr>
<tr>
<td>Pochampalli</td>
<td>Tie-and-dye cottons.</td>
</tr>
<tr>
<td>Sangem Satyavolu, Sulurpetla</td>
<td>Madras handkerchiefs.</td>
</tr>
<tr>
<td>Uppada</td>
<td>Cotton sarees with inlay work and zari borders.</td>
</tr>
<tr>
<td>Varadapalam</td>
<td>Madras handkerchiefs.</td>
</tr>
<tr>
<td>Venkatagiri</td>
<td>Superfine muslim sarees with zari and extra weft figures in counts upto 300s (Also with heavy gold border as well as inlay).</td>
</tr>
<tr>
<td>Vettapalem</td>
<td>Bleeding Madras, Madras Handkerchiefs.</td>
</tr>
<tr>
<td>Yemmiganur</td>
<td>All types of quality fabrics in cotton, especially sarees and shirtings in cotton, gauze Bandage cloth, gray cloth in medium texture and khas design bedspreads, mosquito curtain cloth.</td>
</tr>
</tbody>
</table>

There are two apex weavers cooperative societies: one at Vijayawada and another at Hyderabad supplying spun yarn and other raw materials to the primary cooperative societies in the state. These apex organisations also undertake to market the products through a network of emporia throughout the towns and cities of the state as well as principal cities of the country. They are also providing technical assistance and coordinating the activities of the primary weavers societies of the state.

Two small scale units one from private sector and the other from cooperative sector in the district have been covered by the survey. In respect of availability of raw material as well as in marketing the products, the unit under cooperative sector has no marketing difficulties. But the position of handloom weaving unit under private sector is facing an uphill task in getting high quality raw material as well as in marketing their products due to heavy competition mainly from Salem and Coimbatore (Tamil Nadu).

Quality spun yarn should be made available to these small scale units at factory price so that they can produce quality products at lower costs which will enable them to compete with the products manufactured in other states successfully. These units are also facing shortage of skilled labour. A large number of traditional weavers have taken to trading profession as they find handloom weaving activity unremunerative.
The government should take step to stop this tendency by providing better opportunities to the weavers and see that they earn reasonable wages in the handloom industry.

The establishment of one or two small scale units manufacturing yarn numbers of 2, 4, 6, 8 and 10 is suggested in the district. The same can be manufactured with the waste cotton available in three spinning mills of the district. Present demand for this yarn numbers is met from the neighbouring districts.

(8) Solvent oil extraction industry:

East Godavari in an important paddy growing district of Andhra Pradesh. The district has the following types of mills as on 31st March 1975.

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Huller type</td>
<td>960</td>
</tr>
<tr>
<td>Sheller type</td>
<td>186</td>
</tr>
<tr>
<td>Combined Huller cum sheller</td>
<td>190</td>
</tr>
<tr>
<td>Boiled rice mills</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1278</strong></td>
</tr>
</tbody>
</table>

Most of these mills are located in the paddy growing centres of the district namely Kakinada, Razole, Amalapuram, Ramachandrapuram and Peddapuram. The number of mills has increased to 37 during 1969-75 in the district.

It is evident that the paddy grown in the district is milled in huller or sheller or combined huller cum sheller

1. Collectorate, East Godavari district, Kakinada.
mills. Milling of paddy in these conventional mills results in a loss of rice, and the rice husk and bran comes out in mixed form; neither can it be used for extraction purpose nor it is fit to be cattle feed.

The modern rice mills are being designed in such a way as to get a rice yield of 5 to 6 percent more than that is obtained in the conventional rice mills and the bran obtained can be used for extraction purposes.

For a long time, the rice bran could not be utilised for extraction of oil, which is known as rice bran oil. It contains albumin, vitamins and also oils to the extent of 15 to 20 percent. The bran can be successfully exploited for extraction of oil and the deoiled rice bran can be used as cattle feed. The rice bran oil is mainly used for the manufacture of soaps and also in the fat splitting industries. The district has only one medium sized unit manufacturing rice bran oil and deoiled rice bran. Besides internal demand, rice bran oil is being exported to foreign countries. It is an export oriented industry with good prospects for development.

Suggestions for the development of this industry in the district:

1) The products manufactured should be of such quality as to be able to compete in the world market on two grounds namely (1) price and (2) quality.

2) Since it is an export oriented industry, regular steamer facilities should be made available to this industry to boost exports.
It is desirable to improve the quality of the products manufactured. But quality of the product depends much on the quality of the raw material used (i.e.) rice bran. Quality bran can be had only from modern rice mills, which are very few in the state. There is an urgent need to take up the programme for modernisation of the existing mills in a phased manner. Unless this is done, quality of the product can not be assured.

(9) Dehydration of fruits and vegetables Industry.

Introduction:

Sun drying is perhaps one of the oldest methods of preservation known to mankind. With the advance in scientific knowledge drying can be done without any change in taste and nutritious value. Thus dehydration means drying by mechanical means under controlled conditions of temperature and humidity. The Chief aim of dehydration is to remove the moisture content of the material to a level where micro organisations cannot grow.

The district has one medium sized unit engaged in the manufacture of dehydrated onion. This unit has the latest machines imported from Belgium. At present it is using white onions imported from Nizamabad and Warangal. There is a ready demand for this product in foreign countries mainly in U.K. It is also meeting the defence orders. There is a proposal to diversify the production to make use of other vegetables which are being grown in the district. The industry has bright prospects for further development. The industry has no other problems except inadequate and irregular steamer facilities at Kakinada port besides power shortage.
(10) **Cashew Processing Industry**

Cashew industry is concentrated mainly in the Srikakulam, East Godavari, and Prakasam districts of Andhra Pradesh. In East Godavari district Mori has been a traditional centre for this industry. At present only four small scale units are working in the district. Vemulapali near Dawarapudi is the latest unit established in the district with modern machinery and equipment. Besides cashew processing, the unit has been extracting cashew shell liquid (C.N.S.L.) by resorting to oil bath roasting method. It is for the first time the extraction of cashew shell oil has been undertaken in these parts.

The following suggestions are made for the future development of this industry.

1) The processors of Mori are still following the drum roasting method. The chief disadvantage of this method of roasting is the loss of shell liquid which has commercial value these days. Any little advantage in percentage of better quality kernel claimed by this process cannot offset the additional income that one could obtain by recovery of the oil by resorting to other processes. An additional disadvantage of this process is that the workers are exposed to heat and acrid fumes.\(^1\) Hence there is a need to popularise the advantage of oil bath roasting over drum roasting. This change may facilitate the extraction of cashew shell oil, which has been

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1. Report on the survey team on cashew processing industry, Central Food Technological Research Institute, Mysore, 1965, p.6. (Cyclostyled)
rejected in Andhra Pradesh all these years. The cashew nutshell liquid (C.N.S.L.) has an export potential. The chief buyers are U.S.A., U.K. and Japan.

2) The unit covered under the survey has no other problems except the availability of skilled labour since the unit is located away from the traditional centre Mori. For this reason labour has been recruited from Kerala. The government should make efforts to give necessary training to the local workers in the art of processing of cashew.

3) Besides coastal and upland areas of the district, cashew is also grown in the forest areas. The cashew grown in the forest areas is put to auction every year by the forest department and the same is being purchased by big merchants from Orissa. The local processors being small in number and with limited financial resources are unable to take part in this auction. On the other hand cashew is being supplied back to processors of Andhra region from Orissa. Hence efforts should be made to organise a cooperative marketing society to purchase the entire lot of cashew grown in forest areas from the Forest Department. It would be better if the Girijan Corporation is entrusted with the responsibility of collecting the cashew grown in the forest areas, as this corporation is already engaged in collecting minor forest produce through well knit field societies in the forest areas of coastal Andhra. This arrangement
will ensure a regular supply of cashew to the processors of Andhra, particularly of Palasa, who work only for six months in a year for want of the required amount of raw cashew. This arrangement will also attract more entrepreneurs to this industry. In case imported raw nuts are also made available, cashew processors of Andhra Pradesh will get the opportunity of exporting cashew kernels direct.

(11) **Straw Board and handmade paper industry:**

Mills manufacturing boards depend on waste paper as raw material. With the increase in the cost of waste paper, many of these units have either closed down or running with idle capacity. The high cost of waste paper has made the operations uneconomic. As a way out of this situation, efforts have been made to utilise various straws of rice, wheat and maize, sugarcane bagasse, mesta, waste and sticks.

In Andhra Pradesh, mesta is cultivated mainly in Sikaulam and Visakhapatam districts. Mestra stalks are being wasted or used as fuel by the farmers. The came can be used economically for the manufacturer of unbleached paper and card boards. In East Godavari district palmyra fibre waste can also be used for the manufacture of straw cardboards. All these raw materials have not been put to commercial use at present. Andhra Pradesh has bright prospects in view of the availability of raw material. Straw Boards are required in a number of industries for packing the finished products.

The district has two small scale/ cottage
industrial units manufacturing straw boards and handmade paper. At present the requirements of the district are met from outside the state mainly from Madhya Pradesh.

The coastal districts of Andhra region offer good prospects for setting up of a large number of small scale/cottage industries where the following facilities are available.

1) Abundant supply of water.
2) Availability of raw material at reasonable prices throughout the year.
3) Sufficient open space for drying the boards in the sun.
4) Facilities and equipment to undertake repairs etc.

(12) Coir Industry

Andhra Pradesh has about 50,500 hectares under coconut cultivation in the four coastal districts of Srikakulam, Visakhapatnam, East Godavari and West Godavari. Production of coconut in the four coastal districts is estimated at 31.4 million. In the East Godavari district extensive gardens are found in Godavari delta areas of Amalapuram, Ramole, Kothapeta and Mummidivavam taluks of the district. This area of the district is popularly known as Konaseema. The district has 22,764 hectares of land under coconut cultivation, ranking first in the state in

respective of total area as well as turnout. Almost all the production is being sent to far away places since local consumption is insignificant.

Coir industry in Andhra Pradesh has not yet developed. All these years the coir husk was either used in rope making in the villages or wasted. In recent years, it is being put to commercial use and some units have come up in the district to make use of the husk as raw material.

One of the difficulties that stand in the way of development of coir industry in Andhra Pradesh is the local habit of leaving most of the fibre on the nuts at the time of husking. This habit no doubt has its advantages in preserving the coconut for a long time and also ensures its safety during transportation. Due to the special characteristics of the coconut grown in the state, the number of coconuts necessary to extract one tonne of fibre would be much more than those required in other areas. This has however, not led to any sizeable reduction in the price of the husk either. The result has been that the fibre extracted in Andhra Pradesh costs more than what the market price would justify.

Nevertheless there is a potential for growth if required fibre is made available at a reduced cost than the

prevailing price. Selection of areas where the coconut is grown in large concentration may result in the saving of transport costs.

Establishment of one or two large/medium sized expellors similar to those established in Bombay area of Maharashtra may be established in Konaseema areas to arrest the outflow of coconuts from the district and at the same time demand may be created internally for the husk. The husk thus obtained may be made available to a large number of small scale units manufacturing bristle, mattress fibre and mill fibre. It is the habit of most of the cultivators as well as local merchants in these parts to store the accounts for two or three months and wait for the price to rise. This is happening because the local demand is very little and the merchant has to depend on outside markets.

Another factor that is coming in the way of the speedy development of this industry is the tax imposed by the government on the coir products. The coir products manufactured in Kerala and other coconut producing states are exempted from such tax. For the development of coir industry, especially during initial years, such tax may put the entrepreneurs in a disadvantageous position to compete with other coir products manufactured outside Andhra. It is therefore suggested that such tax may be altogether lifted or heavily reduced by the government for the growth of coir industry in Andhra Pradesh.
Of the 8 units in the district, survey has been conducted in one unit. The unit is manufacturing brittle fibre and mattress fibre. The unit has plans to diversify its production by taking up new lines of manufacture of dessicated coconut powder and copra. The availability of coconut husk of required quality is the only problem faced by this unit. Bristle fibre and mattress fibre are being exported to Orissa and Kerala states and also to Calcutta. It is believed that this fibre is being exported to foreign countries indirectly by Calcutta merchants. Direct export of bristle fibre and mattress fibre is not permitted by the Coir Board on the plea that Andhra fibre is unfit for export purposes. One of the reasons for such attitude on the part of the Coir Board may be due to no proper representation from Andhra Pradesh in the Coir Board though Andhra Pradesh ranks fourth in India in respect of production of coconuts. This matter needs detailed investigation at higher levels. When importers in other countries are satisfied and willing to import this product from Andhra Pradesh it is difficult to see reason in the attitude of Coir Board in preventing Andhra Pradesh from the direct export of coir products.

If direct exports are allowed, this opportunity could be availed of by the local traders and the same may act as an incentive for others to take to this industry. Andhra Pradesh, particularly East Godavari district has all the requisites for the development of this industry in coming years.
### APPENDIX-A

**AREA, POPULATION AND DENSITY OF POPULATION DISTRICT-WISE 1971**

<table>
<thead>
<tr>
<th>S. No.</th>
<th>District</th>
<th>Area (in 000 Sq.Km)</th>
<th>Total Population (Persons)</th>
<th>Density of Population (per Sq.KM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anantapur</td>
<td>1991</td>
<td>21,15,321</td>
<td>111</td>
</tr>
<tr>
<td>2.</td>
<td>Chittoor</td>
<td>15.8</td>
<td>22,85,536</td>
<td>145</td>
</tr>
<tr>
<td>3.</td>
<td>Gudlapah</td>
<td>15.4</td>
<td>15,77,267</td>
<td>103</td>
</tr>
<tr>
<td>4.</td>
<td>East Godavari</td>
<td>10.9</td>
<td>30,87,262</td>
<td>282</td>
</tr>
<tr>
<td>5.</td>
<td>Guntur</td>
<td>11.4</td>
<td>28,44,498</td>
<td>260</td>
</tr>
<tr>
<td>6.</td>
<td>Krishna</td>
<td>8.7</td>
<td>24,93,574</td>
<td>286</td>
</tr>
<tr>
<td>7.</td>
<td>Kurnool</td>
<td>18.8</td>
<td>19,82,090</td>
<td>105</td>
</tr>
<tr>
<td>8.</td>
<td>Nellore</td>
<td>13.1</td>
<td>16,09,617</td>
<td>123</td>
</tr>
<tr>
<td>9.</td>
<td>Ongole</td>
<td>17.6</td>
<td>19,19,995</td>
<td>109</td>
</tr>
<tr>
<td>10.</td>
<td>Srikakulam</td>
<td>9.7</td>
<td>25,89,991</td>
<td>266</td>
</tr>
<tr>
<td>11.</td>
<td>Visakhapatnam</td>
<td>13.7</td>
<td>28,05,366</td>
<td>204</td>
</tr>
<tr>
<td>12.</td>
<td>West Godavari</td>
<td>7.8</td>
<td>23,74,306</td>
<td>305</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>2,76,84,813</strong></td>
<td><strong>171</strong></td>
</tr>
</tbody>
</table>

**TELANGANA REGION :**

| 13.    | Adilabad             | 16.1                 | 12,88,348                  | 80                                |
| 14.    | Hyderabad            | 7.7                  | 27,91,762                  | 362                               |
| 15.    | Karimnagar           | 11.8                 | 19,63,928                  | 166                               |
| 16.    | Khammam              | 15.9                 | 13,69,892                  | 86                                |
| 17.    | Mahbubnagar          | 18.4                 | 19,32,082                  | 105                               |
| 18.    | Medak                | 9.7                  | 14,67,944                  | 152                               |
| 19.    | Nalgonda             | 14.2                 | 18,19,738                  | 138                               |
| 20.    | Nizamabad            | 8.0                  | 13,13,268                  | 165                               |
| 21.    | Warangal             | 12.9                 | 18,70,933                  | 145                               |
| **Total** |                      |                      | **1,58,17,895**            | **138**                           |

**TOTAL ANDHRA PRADESH :**

|                  |                      |                      | 276.7                           | 4,35,02,708                       | 197 |

# APPENDIX-2

## DISTRIBUTION OF POPULATION OF WORKERS ENGAGED IN AGRICULTURAL SECTOR

**DISTRICT-VILL., 1971**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>District</th>
<th>As Cultivators</th>
<th>As Agricultural Total Labourers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Anantapur</td>
<td>3,26,992</td>
<td>6,73,082</td>
</tr>
<tr>
<td>2</td>
<td>Chittoor</td>
<td>4,08,399</td>
<td>7,26,018</td>
</tr>
<tr>
<td>3</td>
<td>Cuddapah</td>
<td>2,02,869</td>
<td>4,58,034</td>
</tr>
<tr>
<td>4</td>
<td>East Godavari</td>
<td>2,19,221</td>
<td>7,84,653</td>
</tr>
<tr>
<td>5</td>
<td>Guntur</td>
<td>2,80,663</td>
<td>7,78,023</td>
</tr>
<tr>
<td>6</td>
<td>Krishna</td>
<td>2,07,903</td>
<td>6,26,199</td>
</tr>
<tr>
<td>7</td>
<td>Kurnool</td>
<td>2,25,086</td>
<td>6,26,336</td>
</tr>
<tr>
<td>8</td>
<td>Nellore</td>
<td>1,65,326</td>
<td>4,76,917</td>
</tr>
<tr>
<td>9</td>
<td>Ongole</td>
<td>2,24,832</td>
<td>5,19,173</td>
</tr>
<tr>
<td>10</td>
<td>Srikakulam</td>
<td>4,27,931</td>
<td>8,45,758</td>
</tr>
<tr>
<td>11</td>
<td>Visakhapatnam</td>
<td>4,89,822</td>
<td>8,08,739</td>
</tr>
<tr>
<td>12</td>
<td>West Godavari</td>
<td>2,16,315</td>
<td>6,98,635</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>34,25,359</strong></td>
<td><strong>80,51,557</strong></td>
</tr>
</tbody>
</table>

## TELANGANA REGION

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>District</th>
<th>As Cultivators</th>
<th>As Agricultural Total Labourers</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Adilabad</td>
<td>2,10,998</td>
<td>3,87,884</td>
</tr>
<tr>
<td>14</td>
<td>Hyderabad</td>
<td>1,83,282</td>
<td>3,52,234</td>
</tr>
<tr>
<td>15</td>
<td>Karimnagar</td>
<td>3,17,581</td>
<td>6,15,635</td>
</tr>
<tr>
<td>16</td>
<td>Khammam</td>
<td>1,81,697</td>
<td>4,14,109</td>
</tr>
<tr>
<td>17</td>
<td>Mahbubnagar</td>
<td>3,62,432</td>
<td>7,13,457</td>
</tr>
<tr>
<td>18</td>
<td>Medak</td>
<td>2,96,881</td>
<td>5,19,275</td>
</tr>
<tr>
<td>19</td>
<td>Nalgonda</td>
<td>2,99,490</td>
<td>6,01,388</td>
</tr>
<tr>
<td>20</td>
<td>Nizamabad</td>
<td>2,40,215</td>
<td>3,93,531</td>
</tr>
<tr>
<td>21</td>
<td>Warangal</td>
<td>2,76,000</td>
<td>5,74,316</td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL</strong></td>
<td><strong>23,69,342</strong></td>
<td><strong>45,71,829</strong></td>
</tr>
</tbody>
</table>

**TOTAL ANDHRA PRADESH**

<table>
<thead>
<tr>
<th></th>
<th>As Cultivators</th>
<th>As Agricultural Total Labourers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL</strong></td>
<td>57,94,701</td>
<td>1,26,23,386</td>
</tr>
</tbody>
</table>

# APPENDIX-C

## AREA UNDER GOOD AND NON FOOD CROPS DISTRICT-WISE 1971-72

(Hectares)

<table>
<thead>
<tr>
<th>S.no.</th>
<th>District</th>
<th>Food Crops</th>
<th>Non-food Crops</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Anantapur</td>
<td>5,98,782</td>
<td>3,19,766</td>
<td>9,18,548</td>
</tr>
<tr>
<td>2.</td>
<td>Chittoor</td>
<td>2,90,220</td>
<td>2,54,203</td>
<td>5,44,423</td>
</tr>
<tr>
<td>3.</td>
<td>Cuddapah</td>
<td>2,81,481</td>
<td>1,67,096</td>
<td>4,48,577</td>
</tr>
<tr>
<td>4.</td>
<td>East Godavari</td>
<td>4,69,825</td>
<td>80,760</td>
<td>5,50,585</td>
</tr>
<tr>
<td>5.</td>
<td>Guntur</td>
<td>6,45,960</td>
<td>1,91,730</td>
<td>8,37,690</td>
</tr>
<tr>
<td>6.</td>
<td>Krishna</td>
<td>5,73,299</td>
<td>86,028</td>
<td>6,59,327</td>
</tr>
<tr>
<td>7.</td>
<td>Kurnool</td>
<td>6,37,605</td>
<td>4,17,848</td>
<td>10,55,453</td>
</tr>
<tr>
<td>8.</td>
<td>Nellore</td>
<td>3,16,630</td>
<td>49,250</td>
<td>3,65,880</td>
</tr>
<tr>
<td>9.</td>
<td>Ongole</td>
<td>4,48,443</td>
<td>1,74,441</td>
<td>6,22,884</td>
</tr>
<tr>
<td>10.</td>
<td>Srikakulam</td>
<td>4,09,307</td>
<td>1,57,222</td>
<td>5,66,525</td>
</tr>
<tr>
<td>11.</td>
<td>Visakhapatnam</td>
<td>4,12,540</td>
<td>1,23,511</td>
<td>5,36,051</td>
</tr>
<tr>
<td>12.</td>
<td>West Godavari</td>
<td>4,49,326</td>
<td>57,207</td>
<td>5,06,533</td>
</tr>
</tbody>
</table>

**TOTAL**       | 55,23,418   | 20,79,002   | 76,02,420

## TELEGANA REGION

<table>
<thead>
<tr>
<th>S.no.</th>
<th>District</th>
<th>Food Crops</th>
<th>Non-food Crops</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.</td>
<td>Adilabad</td>
<td>4,27,105</td>
<td>1,65,858</td>
<td>5,92,963</td>
</tr>
<tr>
<td>14.</td>
<td>Hyderabad</td>
<td>2,93,375</td>
<td>84,137</td>
<td>3,77,512</td>
</tr>
<tr>
<td>15.</td>
<td>Karimnagar</td>
<td>3,99,996</td>
<td>95,104</td>
<td>4,95,100</td>
</tr>
<tr>
<td>16.</td>
<td>Khammam</td>
<td>3,63,247</td>
<td>64,717</td>
<td>4,27,964</td>
</tr>
<tr>
<td>17.</td>
<td>Mahbubnagar</td>
<td>7,31,332</td>
<td>3,22,681</td>
<td>10,54,013</td>
</tr>
<tr>
<td>18.</td>
<td>Medak</td>
<td>3,92,100</td>
<td>56,317</td>
<td>4,48,417</td>
</tr>
<tr>
<td>19.</td>
<td>Nalgonda</td>
<td>6,17,428</td>
<td>2,32,337</td>
<td>8,49,765</td>
</tr>
<tr>
<td>20.</td>
<td>Nizamabad</td>
<td>2,77,892</td>
<td>28,967</td>
<td>3,06,859</td>
</tr>
<tr>
<td>21.</td>
<td>Warangal</td>
<td>4,22,668</td>
<td>74,356</td>
<td>4,97,024</td>
</tr>
</tbody>
</table>

**TOTAL**       | 39,25,143   | 11,25,474   | 50,49,617

**TOTAL ANDHRA PRADISH**       | 94,48,561   | 32,03,476   | 1,26,52,037

## APPENDIX-D

### SIX POINT FORMULA FILLIP TO REGIONAL DEVELOPMENT SCHEME.

The sector-wise allocation for the State under district-wise schemes is as follows:

<table>
<thead>
<tr>
<th>Scheme Description</th>
<th>Amount (Rupees in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium irrigation</td>
<td>6.00</td>
</tr>
<tr>
<td>Minor irrigation</td>
<td>516.90</td>
</tr>
<tr>
<td>Agriculture, Dairy Development</td>
<td>209.45</td>
</tr>
<tr>
<td>Forest &amp; allied sectors</td>
<td></td>
</tr>
<tr>
<td>Rural water supply</td>
<td>203.59</td>
</tr>
<tr>
<td>Economic support programmes for weaker sections</td>
<td>57.84</td>
</tr>
<tr>
<td>Rural Electrification</td>
<td>300.00</td>
</tr>
<tr>
<td>Ground water Development</td>
<td>12.50</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1,305.38</strong> or Rs 13 crores.</td>
</tr>
</tbody>
</table>

Out of the total amount earmarked for the district-wise schemes, an amount of Rs 2.89 crores has been allotted for Coastal Andhra, Rs 3.91 crores for Rayalaseema and Rs 6.75 crores for Telangana region.

### Industrial Development:

Proposals involving an outlay of Rs 4.5 crores also have been considered by the State Government under Industrial Development Programme, the details of which are as follows:

<table>
<thead>
<tr>
<th>Corporation Name</th>
<th>Amount (Rupees in lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh Industrial Development Corporation</td>
<td>155.00</td>
</tr>
<tr>
<td>Andhra Pradesh Industries Infrastructure Corporation</td>
<td>100.00</td>
</tr>
<tr>
<td>Andhra Pradesh Mining Corporation Ltd.</td>
<td>30.00</td>
</tr>
<tr>
<td>Sugar</td>
<td>80.00</td>
</tr>
<tr>
<td>Textiles</td>
<td>25.00</td>
</tr>
<tr>
<td>Leather Industries Development Corporation</td>
<td>30.00</td>
</tr>
<tr>
<td>Small Scale Industries</td>
<td>28.00</td>
</tr>
<tr>
<td>Industries Department</td>
<td>2.00</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>450.00</strong></td>
</tr>
</tbody>
</table>
Of the ₹ 4.50 crores earmarked for the industrial Development Schemes, Telangana has been given ₹ 2.25 crores, Rayalasampa ₹ 1.35 crores and Coastal Andhra Pradesh ₹ 0.90 crores. Following are the important region-wise Industrial development schemes and their cost as approved by the Cabinet.

(Rupees in Lakhs).

1) Coastal Andhra.
   1) Plywood                    Rampachodavaram  8.00
   2) Seafoods                  Nellore district  4.60
   3) Jute Mill                 Salur           18.00
   4) Salt & Marine Complex.    Tekkali          6.00
   5) Industrial Development   Visakhapatnam      12.00
      areas
   6) Industrial Development   Srikakulam Guduru  8.00
      areas
   7) Mining and Processing     Visakhapatnam      6.00
      of Rock Phosphate in Gajapthinagararam and
      S.Kota taluks, Visakhapatnam District.
   8) Co-operative Sugar Factory, Irvine,  16.00
      East Godavari district.

2) Rayalasampa
   1) Pulp & paper                Kurnool         45.00
   2) Barium Chemicals           Cuddapah      4.00
   3) Industrial Development     Renigunta, Tirupathi  15.00
      areas
   4) Industrial Development     Guntakal, Cuddapah, Kurnool,Tirupathi  15.00
      areas
   5) Absestos mining and processing in
      Lepatanuthala, Pulivendla taluk, Cuddapah District.
   6) Barites Mining and processing in
      Managampet Rajampet taluks, Cuddapah District.
   7) Co-operative Sugar Factory, Renigunta,  24.00
      Chittoor District.
   8) Co-operatives Spinning Mills, Nandyal,  5.00
      Kurnool District and Organisation of
      Garment Factory.
3) Telangana Region

1) Rayan Grade Pulp unit, Warangal District 17.00
ii) Solvent extraction, Nalgonda District 4.00
iii) Sponge Iron Khammam District 10.00
iv) Fibre Glass Mahaboobnagar District 15.00
v) Solvent Extraction, Nizamabad District 4.00
vi) Particle Board Medak District 20.00
vii) Industrial Development area, Patancheruve 30.00
viii) Industrial Development area, Shadnagar 10.00
ix) Industrial Estates, Miryalaguda, Adilabad 10.00
x) Copper Mining and Concentration Project in Mailaram, Khammam District 15.00
xi) Sugar Factory at Miryalaguda Nalgonda District 40.00
xii) Co-operative spinning Mills, Adilabad and organisation of garment factory 20.00

Source: State Information Centre issued by Director of Information and Public Relations Government of Andhra Pradesh Hyderabad.

APPENDIX-E

PROGRAMME FOR INDUSTRIAL DEVELOPMENT DURING FIFTH FIVE YEAR PLAN PERIOD

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Total</th>
<th>Corporation's Share</th>
<th>Employment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rs in lakhs</td>
<td>Rs in lakhs</td>
<td>Nos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROPOSED INVESTMENT IN BACKWARD/AGENCY/UPLAND/OTHER AREAS</th>
<th>Investments in Backward areas</th>
<th>Investments in Agency and upland areas.</th>
<th>Sub-Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investments</td>
<td>24,355</td>
<td>2426</td>
<td>37,900</td>
</tr>
<tr>
<td>in Backward areas</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>investments in Agency and upland areas.</td>
<td>2,310</td>
<td>231</td>
<td>5,500</td>
</tr>
<tr>
<td>Sub-Total</td>
<td>26,665</td>
<td>2657</td>
<td>43,400</td>
</tr>
<tr>
<td>REGION-WISE INVESTMENTS</td>
<td>13,000</td>
<td>1271</td>
<td>23,581</td>
</tr>
<tr>
<td>Telengana region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on Rayalaseema region</td>
<td>9,700</td>
<td>979</td>
<td>10,120</td>
</tr>
<tr>
<td>Coastal Andhra Region</td>
<td>10,000</td>
<td>1,020</td>
<td>18,840</td>
</tr>
<tr>
<td>Total</td>
<td>32,700</td>
<td>3270</td>
<td>52,541</td>
</tr>
</tbody>
</table>
### Particulars

<table>
<thead>
<tr>
<th>NEELANGANA REGION</th>
<th>Total outlay in lakhs</th>
<th>Corp's Share in lakhs</th>
<th>Employment Nos.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Adilabad Dist.</strong> (a) Composit Textile Mill</td>
<td>800</td>
<td>80</td>
<td>1600</td>
</tr>
<tr>
<td><strong>Nizamabad Dist.</strong> (a) Furtural</td>
<td>250</td>
<td>25</td>
<td>350</td>
</tr>
<tr>
<td>(b) Straw paper products</td>
<td>200</td>
<td>20</td>
<td>200</td>
</tr>
<tr>
<td>(c) Solvent Extraction</td>
<td>40</td>
<td>4</td>
<td>120</td>
</tr>
<tr>
<td>(d) Pesticides</td>
<td>50</td>
<td>5</td>
<td>150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>540</td>
<td>54</td>
<td>820</td>
</tr>
<tr>
<td><strong>Karimnagar Dist.</strong> (a) Starch based on Maize</td>
<td>150</td>
<td>15</td>
<td>450</td>
</tr>
<tr>
<td>(b) Granulated Mixed Fertilizers</td>
<td>50</td>
<td>5</td>
<td>250</td>
</tr>
<tr>
<td>(c) Wood carbonisation</td>
<td>50</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>250</td>
<td>25</td>
<td>900</td>
</tr>
<tr>
<td><strong>Warangal Dist.</strong> (a) Alluminium foils</td>
<td>300</td>
<td>45</td>
<td>800</td>
</tr>
<tr>
<td>(b) Solvent Extraction</td>
<td>50</td>
<td>5</td>
<td>120</td>
</tr>
<tr>
<td>(c) Rayon Grade pulp unit</td>
<td>1550</td>
<td>150</td>
<td>2000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1900</td>
<td>200</td>
<td>2920</td>
</tr>
<tr>
<td><strong>Medak Dist.</strong> (a) Printed circuits</td>
<td>145</td>
<td>14</td>
<td>350</td>
</tr>
<tr>
<td>(b) Particle Boards</td>
<td>500</td>
<td>50</td>
<td>1200</td>
</tr>
<tr>
<td>(c) E.R.W.pipes</td>
<td>60</td>
<td>6</td>
<td>120</td>
</tr>
<tr>
<td>(d) Cold rolled strips &amp; Box strappings</td>
<td>300</td>
<td>30</td>
<td>500</td>
</tr>
<tr>
<td>(e) Connectors</td>
<td>200</td>
<td>20</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1205</td>
<td>120</td>
<td>2270</td>
</tr>
<tr>
<td>District</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>6) Nalgonda Dist.</td>
<td>(a) Castor complex 500</td>
<td>44</td>
<td>12000</td>
</tr>
<tr>
<td></td>
<td>(b) Solvent extraction 40</td>
<td>4</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>(c) Mini Paper Mill 200</td>
<td>20</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td><strong>740</strong></td>
<td><strong>68</strong></td>
<td><strong>1520</strong></td>
</tr>
<tr>
<td>7) Khammam Dist.</td>
<td>(a) M.S.&amp; H.C. Steel Billets 700</td>
<td>70</td>
<td>410</td>
</tr>
<tr>
<td></td>
<td>(b) Sponge Iron 300</td>
<td>29</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>(c) Industrialgasses 300</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>(d) Graphite crucibles 100</td>
<td>10</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>(e) Calcium Carbide 700</td>
<td>70</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>(f) Newsprint &amp; Paper 4500</td>
<td>420</td>
<td>10000</td>
</tr>
<tr>
<td></td>
<td><strong>6400</strong></td>
<td><strong>609</strong></td>
<td><strong>11380</strong></td>
</tr>
<tr>
<td>8) Mahaboobnagar Dist</td>
<td>(a) Fibre glass 350</td>
<td>35</td>
<td>800</td>
</tr>
<tr>
<td></td>
<td>(b) Mini Paper Mill 200</td>
<td>20</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td><strong>550</strong></td>
<td><strong>55</strong></td>
<td><strong>1000</strong></td>
</tr>
<tr>
<td>9) Hyderabad Dist.</td>
<td>(a) Semi-conductors devices 120</td>
<td>12</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>(b) Scooters 280</td>
<td>26</td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>(c) Tape recorders 55</td>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>(d) Potentiometers 80</td>
<td>8</td>
<td>156</td>
</tr>
<tr>
<td></td>
<td>(e) Synthetic detergents 80</td>
<td>8</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td><strong>615</strong></td>
<td><strong>60</strong></td>
<td><strong>1171</strong></td>
</tr>
<tr>
<td><strong>II. RAYALASEEMA REGION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Anantapur Dist</td>
<td>(a) G.L.S. Lamps 150</td>
<td>15</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>(b) Cattle feed 60</td>
<td>6</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>(c) Shoddy Mill 50</td>
<td>4</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>(d) Cement Unit 1800</td>
<td>180</td>
<td>3000</td>
</tr>
<tr>
<td></td>
<td><strong>2060</strong></td>
<td><strong>206</strong></td>
<td><strong>3630</strong></td>
</tr>
<tr>
<td>District</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>-------------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>2. Chittoor Dist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Nylon Filament Yarn</td>
<td>1850</td>
<td>185</td>
<td>420</td>
</tr>
<tr>
<td>(b) Capacitors</td>
<td>120</td>
<td>12</td>
<td>150</td>
</tr>
<tr>
<td>(c) Composite Textile Mill</td>
<td>500</td>
<td>50</td>
<td>1200</td>
</tr>
<tr>
<td>(d) Industrial gases</td>
<td>100</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td></td>
<td>2570</td>
<td>257</td>
<td>1890</td>
</tr>
<tr>
<td>(a) Pulp and paper</td>
<td>3600</td>
<td>360</td>
<td>2500</td>
</tr>
<tr>
<td>(b) Protein foods</td>
<td>100</td>
<td>10</td>
<td>120</td>
</tr>
<tr>
<td>(c) Calcium carbide</td>
<td>700</td>
<td>70</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>4300</td>
<td>440</td>
<td>2920</td>
</tr>
<tr>
<td>4. Cuddapah Dist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Synthetic Detergents</td>
<td>250</td>
<td>25</td>
<td>180</td>
</tr>
<tr>
<td>(b) Barium Chemicals</td>
<td>103</td>
<td>10</td>
<td>900</td>
</tr>
<tr>
<td>(c) Brake liners &amp; clutch facings</td>
<td>100</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td>(d) Baby foods</td>
<td>120</td>
<td>12</td>
<td>300</td>
</tr>
<tr>
<td>(e) Mini Paper Mill</td>
<td>200</td>
<td>20</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>770</td>
<td>77</td>
<td>1680</td>
</tr>
<tr>
<td>III. Coastal Andhra Region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Srikakulam Dist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Typewriters &amp; Calculators</td>
<td>230</td>
<td>23</td>
<td>350</td>
</tr>
<tr>
<td>(b) Caustic Soda</td>
<td>1000</td>
<td>100</td>
<td>650</td>
</tr>
<tr>
<td>(c) Jute Mill</td>
<td>300</td>
<td>30</td>
<td>2000</td>
</tr>
<tr>
<td>(d) Salt &amp; Marine Complex</td>
<td>100</td>
<td>12</td>
<td>800</td>
</tr>
<tr>
<td>(e) Dichromates</td>
<td>45</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>(f) Pigments</td>
<td>25</td>
<td>3</td>
<td>50</td>
</tr>
<tr>
<td>(g) Mini paper Mill</td>
<td>100</td>
<td>10</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>1800</td>
<td>183</td>
<td>4150</td>
</tr>
<tr>
<td>2. Visakhapatnam Dist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Cement(Barra)</td>
<td>1500</td>
<td>150</td>
<td>3000</td>
</tr>
<tr>
<td>(b) Refractories</td>
<td>500</td>
<td>50</td>
<td>1200</td>
</tr>
<tr>
<td>District</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>(c) Finished Leather</td>
<td>100</td>
<td>12</td>
<td>250</td>
</tr>
<tr>
<td>(d) Calcined Pet. Coke.</td>
<td>100</td>
<td>10</td>
<td>300</td>
</tr>
<tr>
<td>(e) Steel Structures</td>
<td>100</td>
<td>12</td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>2300</td>
<td>234</td>
<td>5050</td>
</tr>
</tbody>
</table>

3. East Godavari Dist.
(a) Plywood (Rampachoda varam agency 100 10 350=  
(b) Industrial Gases 60 6 120  
(c) Finishing 100 12 800  
(e) Mini Paper Mill 100 10 100  
|                   | 360   | 38    | 1370  |

4. West Godavari Dist.  
(a) Baby foods (Polavaram) 80 8 500  
(b) P.V.C. 1000 100 750  
(c) Straw Board 30 3 100  
|                   | 1110  | 111   | 1350  |

5. Krishna Dist(a) Printing Machinery 250 25 400  
(b) Salt Marine Complex 100 12 800  
(c) Mini Paper Mill 100 10 100  
|                   | 450   | 47    | 100   |

6. Guntur Dist (a) Cotton Seed Complex 80 8 300  
(b) Fatty acids & glycerine (Vinukonda & Palnad area) 50 5 150  
(c) Tyres Tubes 2500 250 1500  
(d) Vanaspath 50 6 250  
(e) Protein foods 30 3 150  
<p>|                   | 2300  | 234   | 5050  |</p>
<table>
<thead>
<tr>
<th>District</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Prakasam Dist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Power transformers</td>
<td>200</td>
<td>25</td>
<td>450</td>
</tr>
<tr>
<td>(b) Leather &amp; Footwear</td>
<td>150</td>
<td>15</td>
<td>250</td>
</tr>
<tr>
<td>(c) Baby Foods</td>
<td>50</td>
<td>5</td>
<td>150</td>
</tr>
<tr>
<td>(d) Granulated Mixed fertilisers</td>
<td>30</td>
<td>4</td>
<td>250</td>
</tr>
<tr>
<td>(e) Solvent extraction</td>
<td>40</td>
<td>4</td>
<td>120</td>
</tr>
<tr>
<td>Total</td>
<td>470</td>
<td>53</td>
<td>1220</td>
</tr>
<tr>
<td>8. Nellore Dist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Fishing</td>
<td>100</td>
<td>12</td>
<td>800</td>
</tr>
<tr>
<td>(b) Cold rolled &amp; Box strappings</td>
<td>300</td>
<td>30</td>
<td>400</td>
</tr>
<tr>
<td>(c) Mica Industry</td>
<td>100</td>
<td>10</td>
<td>250</td>
</tr>
<tr>
<td>(d) Mechanised Bricks making</td>
<td>50</td>
<td>5</td>
<td>200</td>
</tr>
<tr>
<td>(e) White cement</td>
<td>250</td>
<td>25</td>
<td>4000</td>
</tr>
<tr>
<td>Total</td>
<td>800</td>
<td>82</td>
<td>2050</td>
</tr>
</tbody>
</table>

## Conversion Co-efficients

(For Changing British Units of Weight, Length and Capacity into Metric Unit)

### I. Standards of Weights

<table>
<thead>
<tr>
<th>British Unit</th>
<th>Metric Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Oz</td>
<td>28.3495 Grams</td>
</tr>
<tr>
<td>1 Gram</td>
<td>0.0352740 Ounces, 0.99 Tolas</td>
</tr>
<tr>
<td>1 Pound</td>
<td>0.45359 Kilograms</td>
</tr>
<tr>
<td>1 Kilogram</td>
<td>2.20462 Pounds</td>
</tr>
<tr>
<td>1 Tonne (Metric Ton)</td>
<td>0.98420 Tons, 1000 Kilograms, 10 quintals</td>
</tr>
<tr>
<td>1 Ton</td>
<td>1.01605 Metric Tons, 2240 Lbs</td>
</tr>
<tr>
<td>1 Maund</td>
<td>0.037324 Metric Tons, 82,2857 Lbs, 0.3732 Quintal</td>
</tr>
<tr>
<td>1 CWT</td>
<td>0.5010 Quintal</td>
</tr>
<tr>
<td>1 Seer</td>
<td>0.9331 Kilogram</td>
</tr>
<tr>
<td>1 Bale of Cotton Line (392 Lbs)</td>
<td>0.1771 metric tons</td>
</tr>
<tr>
<td>1 Metric Ton</td>
<td>5.641 Bales</td>
</tr>
<tr>
<td>1 Bale of Jute (480 Lbs)</td>
<td>0.181436 Metric tons</td>
</tr>
<tr>
<td>1 Metric Ton</td>
<td>5.5166 Bale of June</td>
</tr>
</tbody>
</table>

### II. Standards of Area

<table>
<thead>
<tr>
<th>Metric Unit</th>
<th>Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Hectare</td>
<td>2.47105 acres</td>
</tr>
<tr>
<td>1 Acre</td>
<td>0.404686 Hectre, 4840 sq.yards (43,560 sq.ft)</td>
</tr>
<tr>
<td>1 Sq.Mile</td>
<td>640 acres, 2.59 sq.kilometres</td>
</tr>
<tr>
<td>1 Sq.Kilometre</td>
<td>0.3861 Sq Mile, 100 Hectares</td>
</tr>
<tr>
<td>1 Sq.Yard</td>
<td>0.8361 Sq.metre</td>
</tr>
<tr>
<td>1 Sq.Metre</td>
<td>1.1960 Sq.Yards</td>
</tr>
</tbody>
</table>

### III. Standards of Length and Capacity

<table>
<thead>
<tr>
<th>Metric Unit</th>
<th>Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Kilometre</td>
<td>0.6214 Mile</td>
</tr>
<tr>
<td>1 Metre</td>
<td>1.0936 Yards</td>
</tr>
<tr>
<td>1 Yard</td>
<td>0.9144 Metre, 91.44 Centimetres</td>
</tr>
<tr>
<td>1 Inch</td>
<td>25.4 Millimetres</td>
</tr>
<tr>
<td>1 Millimetre</td>
<td>0.04 Inch</td>
</tr>
<tr>
<td>1 Gallon</td>
<td>4.546 Litres</td>
</tr>
<tr>
<td>1 Litre</td>
<td>0.2199 Gallon</td>
</tr>
</tbody>
</table>

APPENDIX-G

QUESTIONNAIRE

of

"A Study of Agro-industries in East Godavari District."

PART-I.
General Information

1. (a) Name
   &
   Address of the Unit
   (b) Year of (i) Establishment
       (ii) Starting Production

2. (a) Name of the proprietor/Chief Executive
   (b) Age: Below 25-35 35-45 above 45
       24 Year Years Years Years
   (c) General Education background
       Informal: ___________________________ Formal: ___________________________
       School. College Professional
   (d) Technical Background (i) qualifications
       (ii) Training

(e) What was your previous (1) Formal study
    entered the line of (2) Agriculture
    (3) Trading.
    (4) Professional occupation before you
    (5) Money lending.
    (6) Other (Specify)

(f) How long you are this line of manufacture.

<table>
<thead>
<tr>
<th></th>
<th>Less than 5 years</th>
<th>5 to 10 Years</th>
<th>10 to 15 Years</th>
<th>More than 15 Years</th>
</tr>
</thead>
</table>

3. Organisational Structure:
   a) Proprietership
   b) Partnership
   c) Cooperative Society
   d) Prime Limited Company.
   e) Public Limited Company.
   f) Government enterprises.

4. (a) Location Rural/Urban.
   (b) Reasons for location.
       Availability for i.e.
       a) Raw Material
       b) Labour
       c) Power
       d) Market
       e) Transport facilities
       f) Govt. Policy/Political conservation.
       g) Other reason (Specify)
5. **Size of the Unit:**
   a) Cottage Industry.
   b) Small Scale
   c) Medium
   d) Large Scale.

**PART-II**

**Sources of Finance.**

1) **Capital invested at the beginning:**
   a) Own/Partners
   B) Friends/relatives
   c) Banks
   d) Financial Institution LIC, SFC, SSIFC
   e) Government.
   f) Other(specify)

<table>
<thead>
<tr>
<th>Amount</th>
<th>Period of loan</th>
<th>Rate of interest</th>
<th>Percentage to the total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2) **Investment in:**
   a) Land & Buildings. ... Rs
   b) Machinery/Plant ... Rs
   c) Other assets. ... Rs
   d) Working cap. ... Rs
   
   **Total :-**

3) **Did you expand your line since you started.** Yes/No.

4) **If "Yes" what were the principal resources of additional finance from:**
   a) Profits
d) Government
   b) Loans
e) Institutional
   c) Personal resources.
f) Others(Specify)

**PART-III**

**Employment**

1) **Number of persons employed:**
   a) Factory
### LABOUR

<table>
<thead>
<tr>
<th>Skilled</th>
<th>Unskilled</th>
<th>Supervisory cadre (technical)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>Females</td>
<td>Males</td>
</tr>
</tbody>
</table>

**Years:**
- 1. 1971-72
- 2. 1972-73
- 3. 1973-74

**b) Office:**

<table>
<thead>
<tr>
<th>Administration</th>
<th>Executive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>Females</td>
</tr>
</tbody>
</table>

**Years:**
- 1) 1971-72
- 2) 1972-73
- 3) 1973-74

**CO Labour:**

<table>
<thead>
<tr>
<th>Permanent</th>
<th>Temporary</th>
<th>Casual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>Females</td>
<td>Males</td>
</tr>
</tbody>
</table>

**Years:**
- 1) 1971-72
- 2) 1972-73
- 3) 1973-74

2) (a) Is the industry of seasonal nature: Yes/No.

(b) Number of working days during 1973-74 (...... days)

3) **Method of recruitments:**

a) Through Employment Exchange.
b) Direct.
c) Any other (specify)
4) Do you insist upon:
   a) Previous experience.
   b) Qualifications (i) General (ii) Technical.

5) Payment of wages in Kind/cash:

6) System of payment (i) Weekly
    (ii) Daily
    (iii) Monthly.

7) Facilities provided by Management to labour:
   a) Free housing/low rate
   b) Canteen/Subsidised food
   c) Medical
   d) Educational
   e) Leave concessions.
   f) Cooperative Provisions and credit societies.
   g) Other (Specify)

8) Whether there is any recognised Trade Union for the Unit. Yes/No.

9) If 'Yes' state the following:
   a) Strength and membership:
   b) Activities:
   c) Political affiliations:

10) Is there any labour unrest in the organisation in the past three years. Yes/No.

11) If 'Yes' state reasons and the period of unrest(.....days)
    a) Wages disputes
    b) Rate of bonus. and gratuity.
    c) Political motivation.
    d) Any other reason (Specify).

12) Rates of wages (average)

<table>
<thead>
<tr>
<th>Years</th>
<th>Skilled Males</th>
<th>Skilled Females</th>
<th>Unskilled Males</th>
<th>Unskilled Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 1971-72</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) 1972-73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) 1973-74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13) Total amount spent on wages
(a) 1971-72
(b) 1972-73
(c) 1973-74

14) Is there any bonus payment? Yes/No.

15) If 'Yes' what is the rate of bonus paid?
(a) 1971-72
(b) 1972-73
(c) 1973-74

16) State the criteria for deciding bonuses:

**PART-IV**

1) What is the main/manufactured?
   - Initial
     a) Capital
     b) Recently: Same line
     New line
   - Present

2) What are the subsidiary items of productions?

3) Is there any change in the items of production in the last three years? Yes/No.

4) If there is a change, what is the reason?
   a) Lack of demand
   b) Lack of raw material
   c) Increasing costs.
   d) Lack of skilled labour.
   e) Scarcity of power.
   f) Demand of new production
   g) Any other reason (Specify)

5) Products manufactured:

<table>
<thead>
<tr>
<th>Year</th>
<th>Items</th>
<th>Quality</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 1971-72</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) 1972-73</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) 1973-74</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
6) Is it working to the full capacity? Yes/No.
   a) Installed capacity
   b) Actual production

7) If it is not working to the full capacity or has not worked what are the reasons?
   a) Non-availability of power/other sources of energy shortage.
   b) Non-availability of raw material.
   c) Due to labour trouble.
   d) Lack of capital.
   e) Due to competition.
   f) Technical know how.

8) Is the unit enjoying protection from the Government? Yes/No.

   Nature
   Quantum
   a)
   b)

9) What type of Government of patronage would prosper the industry?

10) Is there any expansion of capacity when compared to year of establishment? Yes/No.

11) If 'Yes' what are the additional resources of finance including foreign exchange requirements, if any.
    a) From own profits.
    b) Loans from banks/financial institutions.
    c) Personal resources/relatives.
    d) Government.
    e) Others (specify).

PART-VI

INPUT:

1) What are the places from which you get your raw material?
   a) Within the District.
   b) Outside the District.
2) Is there any change in the places from which you get your raw material? Yes/No.

3) If so, what are the reasons for changes.
   a) Delay in supply
   b) Inferior inquality
   c) High prices.
   d) Non-availability of credit facilities.
   e) Other (specify)

4) Did you get any raw material from foreign countries? Yes/No.
   (Imported)

5) If so, mention the countries from which you get.
   a)
   b)

6) Where from you get your machinery and spare parts?
   a)
   b)

Output:
1) Channels of distributions:
   a) Direct.
   b) Commission agent (%)
   c) Retail dealers.
   d) Whole salers.

2) Indicate the places to which you are sending your products.

<table>
<thead>
<tr>
<th></th>
<th>Within the country</th>
<th>Outside the country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Places</td>
<td>Value</td>
</tr>
<tr>
<td>Quantity</td>
<td>Places</td>
<td>Value</td>
</tr>
</tbody>
</table>

a) Main Product.
b) Subsidiary Products.

Total

3) Is there any change in your customers since three years Yes/No.

4) If so, what are the reasons (a)
   (b)
5) Whether your products confirm to ISI standards? Yes/No.

6) What is the profit or loss made during
   a) 1971-72
   b) 1972-73
   c) 1973-74

7) What are the reason for loss or fluctuation in profits?

8) Have your accounts been audited regularly, if not why?

9) Is there any wastage in the production process? Yes/No.

10) What do you do with wastages and rejections?

11) Do you incur any expenditure on Advertisement? Yes/No.
    If so how much per year

12) Difficulties experienced in marketing (Specify).

13) At present what kind of assistance you are getting from the Government.

   Any other information:

14) Are you experiencing any difficulty in getting things done at any level in the Government?

15) Any other information:
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Rao, M.N.,
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*******
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10. Central Food Technological Research Institute, Mysore.
11. Coffee Board, Bangalore.
15. Cashew Research Station, Bapatla, Guntur district (A.P.).
17. Deputy Director of Industries, Kakinada, East Godavari district.
18. Deputy Director of Agriculture, Kakinada, East Godavari district.
19. District Collector, East Godavari district, Kakinada.
20. District Collector, West Godavari district, Eluru.
22. Director of Tobacco Development, Madras.
23. Director of Coconut Eranakulam.
24. Director of Commerce & Export Promotion, Govt. of Andhra Pradesh, Hyderabad.
25. Director of Industries, Govt. of A.P. Hyderabad.
26. Director of Agriculture, Govt. of A.P. Hyderabad.
27. Director of Information and Public Relations, A.P. Govt. Hyderabad.
29. Forest Research Institute, Dehradun, U.P.
30. Food Corporation of India, New Delhi.
33. Paddy Processing Research Centre, Tiruvuru, Tamil Nadu.
34. Processed Food Export Promotion Council, New Delhi.
35. Regional Research Laboratories, Hyderabad.
36) Regional Research Laboratories, Jorhat, Assam.
37) Reserve Bank of India, Economics, Department, Bombay.
38) Small Industry Extraction Training Institute, Hyderabad.
39) Small Scale Industries Service Institution, Hyderabad.
40) Vikhunta Mehta National Institute of Cooperative Management, Poona.