Study No. 159

UNDERSTANDING THE GROWTH AND PROSPECTS OF AGRO-PROCESSING INDUSTRIES IN WEST BENGAL

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PREFACE

The present study was undertaken at the instance of Directorate of Economics and Statistics, Ministry of Agriculture, Government of India, Krishi Bhavan, New Delhi as a coordinated study, the act of coordination being vested upon us.

The study is based on both primary and secondary data. As far as secondary data is concerned, the study makes use of survey data on un-organised manufacturing sector furnished by NSS and Annual Survey of Industries (ASI) data for the organised segment. The primary data was collected from 30 sample processing units selecting at random proportionately spread over food and non-food processing segment of agro-based enterprises. The sample processing units consisted of paddy processing, fruit (mango) processing, fish processing in the food-processing segment and units manufacturing textile products, wood-based products, paper-based products and leather-based products in non-food processing segment. Considering the concentration of sample processing units, the sample districts identified for the study were Burdwan, Malda, South 24 Parganas and North 24 Parganas.

Evidently, within the group of food-processing industries, paddy-processing activity gave maximum net return. The state of West Bengal being blessed with largest production of paddy has the potentials for investing in paddy processing industry. The industrial units in future can take advantage of the growing demand for the value added processed product in India as well as abroad. However, as observed in the study, this would be possible if the units have access to information network to keep track of raw materials prices and availability. Within the group of non-food industries, textile and leather units yielded lower net income, although, they have shown relatively better performance in terms of growth in number of units. The common problem faced by the entrepreneurs of these units reported to be the absence of network for the marketing of their products. Obviously, these units could enhance their earning capacity if they are provided with better infrastructure purveying market information for their processed products. Paper-based manufacturing units gave highest net return amongst the non-food processing units and thus offers scope for investing in units manufacturing paper-based products.

The study team associated with the study consisted of Dr. Jiban Kumar Ghosh, Fazlul Haque Khan and Mr. Vivekananda Datta. Dr. Jiban Kumar Ghosh shouldered the responsibility of conducting the study and took all the pains for drafting of the report. The field investigation and tabulation works were jointly done by Fazlul Haque Khan and Mr. Vivekananda Datta. Sri Nityananda Maji and Munshi Abdul Khaleque painstakingly performed the tedious job of typing who also helped in compilation of

data at the computer. The secretarial assistance was received from Sarbasri D. Mondal, P. Das, A. R. Patra and P. Hazra.

On behalf of the centre, the undersigned takes the opportunity to thank the officials of the Government of West Bengal for their kind help and cooperation in carrying out the study. I am especially thankful to the officials of the Bureau of Applied Economics and Statistics, Department of Food Processing Industries and Horticulture, Government of West Bengal, Directorate of Cottage and Small Scale Industries, Government of West Bengal, National Bank for Agriculture and Rural Development, Government of West Bengal, Regional Office, Kolkata who extended whole-hearted support to the study team and spared time to give us the necessary information. I also take this opportunity to thank the sample entrepreneurs of the processing units in the study area of the state of West Bengal for their cooperation at the time of collecting primary data.

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Chapter – I

Introduction

1.1: Background

Dependence on agricultural sector, particularly on crop cultivation has resulted in widespread unemployment and underemployment in the country. The agricultural sector is characterized by ever declining land-man ratio, predominance of small and fragment land holdings and increasing application of labour saving production technologies. Thus it is being increasingly realized now a days that the very capacity of the agricultural sector is not enough to absorb the growing labour force. While the labour absorptive capacity of agriculture appeared to be limited, the growth of the labour-intensive rural agro-based non-farm sector is seen as a critical component of rural transformation. In the process, the major role is ascribed to manufacturing activity so as to take advantage of the vast potential rural demand for industrial goods. Government of India has been encouraging certain activities in the sphere of non-farm sector, agro-processing being one of them. Agro-processing is necessarily a process of value adding activity to agricultural production and thus makes agriculture a more effective contributor to industrial growth establishing agriculture-industry linkages.

The issue of interdependence between agriculture and industry has been a long debated one. The present study recognizes the linkage of agriculture with non-agricultural sectors based on exchange of products between agriculture and non-agricultural sectors of the economy. It concentrates on the supply or the forward linkage of the agricultural sector and the demand or backward linkage of agriculture. Supply linkage of agriculture arises from agricultural supplies in the form of raw materials such as cotton, jute, sugarcane, production of food grains and horticultural crops to a number of agro-based industries including food-processing industries. The demand or backward linkages of agriculture originate from the demand from the farm sector for industrial consumer products as well as non-traditional agricultural inputs produced in the industrial sector. Such linkages between agriculture and industry have always been a subject of economic theorizing, keeping in view the issue of resource transfer across sectors in the context of overall economic development. India being an agrarian economy, development of agro-based industries that make use of produces of agriculture become imperative for sustained economic development.

In agro-based industries, the basic elements are inputs drawn from agriculture and their processing to suit the requirement of the consumers. The agro industries thus provide the crucial farm-industry linkage which help accelerate agricultural

development by creating backward and forward linkages. The growth in agro-based industries has a big potential to trigger development through adding value to the farmers' produce, generating employment opportunities and increasing farmers' net income. This in turn motivates the farmers for better productivity and opens up possibilities of industrial development. The processed products also have a large export potential.

1.2: Need for the Present Study

Agro-processing involves transformation of the raw materials into final consumer goods or intermediate goods and thus results in increase in value addition. The value adding processes range from simple preservation to production of high value products. On the other side, the demand for processed food is increasing in recent years with the growth of population, rapid urbanization and changing life styles. Agro-processing industries thus offer enormous potential to boost an economy.

The agro-processing sector has the vast potential in the development of an economy through its multiplier effect. The potential becomes manifold when the processing possibilities of the entire commodity system are taken into account. For example a farmer cultivates paddy on his farm and the paddy plants produce paddy, straw, husk, bran, and rice kernel. Thus with an initial investment for growing paddy, produce of paddy has a potential of supporting a complex of processing industries (rice mills, solvent extraction plant for rice bran oil, processing of husk for variety of products and straw paper/ board mills). Similarly, in animal-based products we get the raw materials like meat, bones, hides, skins, wools, etc. and thus, the processing of these raw materials opens up large value addition possibilities. In India, the processing units based on grains, horticultural products, livestock products, fish have ample opportunities. However such potential is hardly exploited. This underscores the need for undertaking the study.

The process of agro-based industrialization is already on in our country in response to increasing demand for various agro-based products for direct consumption, industrial use and export. Therefore the significance of agro-industry in India's industrial sector needs to be underlined. At the all-India level, the share of agro-based industry in terms of number of units, employment and output in the manufacturing sector is 65.0 per cent, 63.0 per cent, and 35.0 per cent respectively (Chadha and Sahu, 2003). In rural India, the three figures corresponding to its share in the number of units, employment and output is 71.3 per cent, 70.6 per cent and 43.4 per cent. It is equally important to mention that agro-industry is largely a house of small-scale enterprises. As recorded in the year 1994-95, the unorganized segment of the agro-industrial sector largely characterized by small and tiny enterprises sharing as

many as 99.4 per cent of enterprises, 86.8 per cent of employment and about 36.4 per cent of output as against their share of 99.4 per cent in total agro-based industrial enterprises in India. The rural component of the agro-industrial sector is more dominated by the unorganized segment with its share in the number of units, employment and output being 99.7 per cent, 93.0 per cent and 42.6 per cent respectively (Chadha and Sahu, 2003). In sum, agro-industry has a strong presence in the industrial sector of the Indian economy and is largely a house of small and tiny enterprises.

Agro-based activities being predominantly a house of small-scale enterprises, are highly heterogeneous in terms of capital investment, technology in use, scale of operation, quality and quantum of output, composition and level of employment. Distressingly, levels of productivity among tiny and small enterprises are also low. There must be a host of institutional, technological and marketing constraints that are holding up productivity of the agro-industry units to low levels. There is therefore need to address these constraints so that productivity of the agro-industry sector may be improved. Moreover, the growth profile of the number of agro-based enterprises is uneven across the regions of India. In the state of West Bengal, the rapidly increasing production of vegetables and foods has created a vast potential for food processing industries. In terms of investment potential, West Bengal has been ranked third after Maharashtra and Tamil Nadu (NABARD, 2000-01). The state government of West Bengal has also been developing infrastructure for tapping the potential for food processing industries in the state. Despite all these, when we look at the Annual Survey of Industries data, agro-industry does not appear to be the dominant constituent of the industrial sector of West Bengal. The strength of agro-based industry in West Bengal is comparatively less than those of non-agro-based industries. This can be gauged through their 42.99 per cent share in the total number of manufacturing industrial units covered by the Annual Survey of Industries data, 2001. Within the group of agro-based industries, food-processing industries predominate with their share being 57.62 per cent in total number of agro-based industrial enterprises. In terms of share in investment, non-agro-based industries rank much ahead of agro-based industries. As a whole, the strength of agro-based industry in the state of West Bengal is comparatively less than those of non-agro based industries. The observed trend relates to the organized segment of manufacturing enterprises. It is this trend in the growth of agro-based manufacturing enterprises calls for undertaking the study in West Bengal with the broad objective of studying the problems and prospects of agro-processing industries in the state.

1.3: Objectives of the Study

The present study has been taken up keeping up the following objectives in mind.

1. To present a profile of the agro-processing industries and the recent trend.
2. To examine the existing location pattern of selected agro-industries.
3. To study the impact of agro-processing industry on agriculture.
4. To study the economics of agro-processing units.
5. To analyse the marketing behaviour of agro-processed products.
6. To study the employment potential from agro-processing industries.
7. To analyse the constraints on acceleration of production.
8. To review the export performance of various agro-based commodities and constraints faced in accelerating the growth of export from the sector.

1.4: Data Base

The study is based on both secondary and primary data. In order to gain a comprehensive view of the agro-processing sector, the study makes use of secondary data such as the quinquennial National Sample Survey data on unorganized manufacturing and Annual Survey of Industries data for the organized segment. Economic Census provides information on economic activity specially for the unorganized segment of the economy. However the Economic Census data are not strictly comparable to National Sample Survey data because in Economic Census there is no information on employment in field crops and plantations and thus the estimates of non-agricultural enterprises is likely to be on the higher side. Thus for secondary data the study mostly relies upon the quinquennial survey data for unorganized manufacturing furnished by National Sample Survey and Annual Survey of Industries data for the organized segment.

In India, bulk of the units in agro-processing sector is small and unregistered. Considering this, primary level data from the selected processing units are collected in order to capture the problems at the grass root level so that recommendation for policy formulation can be made for the promotion of agro-based industries. Since tiny and small-scale agro-based industrial enterprises are highly heterogeneous, the present study intends to look into each of the three layers namely OAMEs, NDMEs and DMEs that are provided for in the NSS survey reports on unorganized manufacturing. Own account manufacturing enterprises (OAMEs) are those units which are run without the help of any hired worker. An enterprise run with the assistance of at least one hired worker employed on a fairly regular basis is called an establishment. An establishment that employs less than six workers is known as a Non-Directory Manufacturing Establishment (NDME) while the one employing a total of six or more

workers is categorized as a Directory Manufacturing Establishment (DME). Directory manufacturing establishments with power employing ten or more workers and units without power employing twenty or more workers are categorized as organized manufacturing enterprises covered by Annual Survey of Industries. Our sample agro-processing enterprises are mainly unorganized enterprises covering the three layers namely OAMEs, NDMEs and DMEs respectively.

1.5: Sampling Design, Methodology and Coverage of the Study

Primary data was collected from the selected agro-processing units. As the products of agro-industries are both edible and non-edible, the agro-industries are classified into agro-food industries (or food-processing industries) and agro non-food industries. Thus, in order to have a comprehensive and total view of agro-processing sector, primary data are collected from the selected processing units chosen from both agro-food industries and agro-non-food industries. All together, 30 sample processing units are studied selecting at random proportionately spread over food and non-food processing segment of agro-based enterprises. Considering the dominance of food processing activity in the total number of agro-based industries, 18 processing units are selected within the group of food processing and the rest 12 are from non-food processing segment of agro-based enterprises. Again, the food-processing activities are broadly divided into three categories viz. primary food processing units mainly grain processing units; spice and horticultural products and livestock based processing units including fish processing. Similarly, non-food processing units are broadly divided into four categories namely, textile products, wood and its products, paper and its products, leather and its products. Primarily, for the selection of units, sample districts by industry groups are identified on the basis of the annual survey of industries data considering the concentration of units of activities. Finally, the dominant processing unit in the district is selected consulting data from District Industries Centre (DIC), which is the nodal agency in each district. In selecting sample food processing units, apart from the annual survey of industries data, source like State Department of Food Processing Industries and Horticulture (DFPI & H), is also consulted. In the case of food-processing component of agro-based enterprises, for each selected processing enterprise, six units of different sizes namely OAMEs, NDMEs and DMEs with their distribution as 3:2:1 are covered. Within non-food processing segment of agro-based industry, for each selected processing unit, three units of different sizes namely OAMEs, NDMEs and DMEs in the ratio of 1:1:1 are selected. Details of the sample processing units and the selected districts in the state of West Bengal are given below.

Sample Processing Units and the Selected Districts in the State of West Bengal

Processing Activity	Selected District	Number of Sample Units
Food Processing:		
a) Paddy processing	Burdwan	6
b) Fruit (mango) processing	Malda	6
c) Fish processing	South 24 parganas	6
Total		**18**
Non-food Processing:		
a) Textile products	North 24 parganas	3
b) Wood and its products	North 24 parganas	3
c) Paper and its products	North 24 parganas	3
d) Leather and its products	South 24 parganas	3
Total		**12**
Total Sample Size		**30**

Primary data are collected through canvassing structured schedule and questionnaire prepared for the purpose of the study. Data from the selected activities included different aspects of sample entrepreneurs and activities. Socio-economic profile of the sample entrepreneurs is analysed taking into consideration the variables like age, education, land-holding and previous experience in the selected activities. The motivating factors behind choosing particular activity are also ascertained taking into consideration five factors viz. previous experience, family background, higher profit margin, market condition and lack of other avenues. The cost of initial investment and volume of working capital of the sample agro-processing units are assessed. The sources and cost on raw materials as well as other costs of production are collected. The economics of sample processing units covering the various aspects of operation including the cost of production and net income are studied to make an estimation of the viability of the unit. In order to study the marketing behavior of processed items, data regarding volume of product marketed, marketing channels for purchasing the raw materials and selling the main product are collected. The employment generated by the units depending on the nature of activity and the scale

of operation is measured. Finally, the problems and prospects of agro-processing activities are identified.

The present study has been proposed by the Agro-Economic Research Centre, Visva-Bharati, Santiniketan and undertaken at the instance of Directorate of Economics and Statistics, Ministry of Agriculture, Government of India. The study is conducted by the A.E.R.Cs Visva-Bharati, Bhagalpur and Pune in their target states viz. West Bengal, Bihar and Maharashtra respectively wherein A.E.R.C. Visva-Bharati played the leading role in organizing the study through conceptualizing, designing and coordinating the study across the participating centres. This is an individual centre's study report conducted by the centre in the state of West Bengal.

The study is divided into seven chapters. Chapter-I on introduction spells out background, objectives, data-base, sampling design, methodology and coverage of the study. Chapter-II outlines the status of agro-based industries in the state. Chapter-III presents the profile of the sample districts and selected processing activities. Chapter-IV discusses the cost of investment and its financing. Chapter-V deals with the economics of investment in agro-processing units. Chapter-VI analyses the problems and prospects of agro-processing units. Finally, Chapter-VII recapitulates overall findings of the study and provides the broad policy implications emerging from the study.

Chapter – II

Status of Agro-based Industries in the State

Agro-processing is necessarily a process of value adding activity to agricultural production and thus makes agriculture a more effective contributor to industrial growth establishing agriculture-industry linkages. Value added processing activity has long been influenced by a host of factors such as increasing human population, increase in incomes, the pace of urbanization, growing volume of commercialized agricultural products. On the other, the changing character of agriculture itself, say a gradual shift from field crop production to allied activities such as animal husbandry, fishing forestry etc. has induced to diversify the base of agro-industrialization heading towards non-food processing activities such as cotton, wool and silk textiles, jute textiles, wooden, bamboo and Cane furniture, paper and paper products, leather and leather products and so on. Those apart, consequent upon the implementation of economic reforms in July 1991, the widespread relaxation of trade and foreign direct investment restrictions provided stimuli for capital investment in export oriented agro-based industries. Despite all these, our country is far from harvesting the full potential of this sector. It is thus necessary to have a close look at the growth and structure of agro-based manufacturing enterprises and to identify the rising and the declining segments of the industry to gain a purposeful policy perspective for industrial development. In this context, the present chapter intends to examine the present status of agro-based manufacturing industries in the state of West Bengal using data for organised and unorganised segments of manufacturing enterprises to gain a purposeful policy perspective for the future in the state.

2.1: A Review of Existing Data Sources

For the purpose of collection of data on manufacturing industries, industrial activity is divided into factory and non-factory sectors based on the size of employment in producing units under the activity. The factory sector covers units registered under the Factories Act 1948. The non-factory sector consists of the remaining units. The factory sector is designated as a registered organised sector and the non-factory sector is called the unregistered or unorganised sector. On the other hand, manufacturing industries are divided into large and small scale industries on the basis of the limit of capital employed in plant and machinery. Units below that limit are called small-scale industrial (SSI) units and the rest are called large and medium scale units.

Sources of Data for Organised Manufacturing Enterprises

The main source of data pertaining to the organised sector is the Annual Survey of Industries published by Central Statistical Organisation (CSO), the survey being conducted annually. The ASI covers all factories under sections 2m(i) and 2m(ii) of the Factories Act 1948, that is, those employing 10 or more workers using power and those employing 20 or more workers without using power on any day of the preceding 12 months. The list of such units is maintained by the Chief Inspector of Factories. The ASI frame is based on the list of registered factories maintained by the Chief Inspector of Factories (CIF) in each state.

Sources of Data for Unorganized Manufacturing Enterprises

There was no periodical collection and publication of statistics for the unorganised sector as a whole. The NSSO surveyed the unorganised sector at the national level as part of their multi-purpose surveys in some of their rounds. The first such survey was conducted during the 7^{th} round covering the period 1953-54. Since then a number of surveys were conducted by the NSSO. The surveys on non-factory manufacturing have been conducted for 1978-79, 1984-85, 1989-90, 1994-95 and 2000-01.

From 1994-95 onwards, the responsibility for collecting and analyzing data and publishing the results for the entire unorganised sector lies with the NSSO. **The estimates for unorganised manufacturing industries are available only once in five years.** Thus, for **unorganized manufacturing**, data sources are NSS Reports on Unorganized Manufacturing, published quinquennially, the latest available year being 2000-01.

Data Source for Small Scale Industries

Manufacturing industries are divided into large and small-scale industries on the basis of the limit of capital employed in plant and machinery. Units below that limit are called small-scale industrial (SSI) units, and the rest are called large and medium-scale units. Data for small-scale industries by activity registered with Directorate of Cottage And Small Scale Industries are available with Directorate of Cottage And Small Scale Industries, in the respective states.

In the context of West Bengal, apart from the above sources, the state of West Bengal has a separate Department of Food-Processing Industries & Horticulture. Thus data for Food-Processing Industries, are available from State Department of Food Processing Industries and Horticulture (DFPI & H) Government of West Bengal, Saltlake, Kolkata.

Data Sources Used in the Study

The present study uses quinquennial survey data on un-organised manufacturing and annual survey of Industries (ASI) data for the organised segment.

For the unorganised segment, we draw upon the National Sample Survey (NSS) for 1994-95 and the latest available published data for 2000-01 (56th round, July 2000-June 2001). In order to familiarize ourselves with the composition of agro-based industry in India, as well as in order to have a comprehensive view of the manufacturing sector as a whole, the Annual Survey of Industries (ASI) data for the organised segment are used picking up the very select year 2000-01, the year for which unorganised segment data is used and compared with those for the unorganised segment. In addition for studying the inter-temporal changes, data for the year 1994-95 is also used.

Since tiny and small-scale agro-based industrial enterprises are highly heterogeneous, the study looks into each of the three types of enterprises namely OAMEs, NDMEs and DMEs that are provided for in the NSS survey reports on unorganized manufacturing. In Indian system of classification of business enterprises. Own account manufacturing enterprises (OAMEs) are those units which are run without the help of any hired worker. An enterprise run with the assistance of at least one hired worker employed on a fairly regular basis is called an establishment. An establishment that employs less than six workers is known as a Non-Directory Manufacturing Establishment (NDME) while the one employing a total of six or more workers is categorized as a Directory Manufacturing Establishment (DME). Directory manufacturing establishments with power employing ten or more workers and units without power employing twenty or more workers are categorized as organized manufacturing enterprises covered by Annual Survey of Industries. The present study analyses the status of unorganised manufacturing enterprises (both agro-based and non-agro-based) covering the three layers namely OAMEs, NDMEs and DMEs respectively.

2.2: A Macro- view of Agro-based Industry in India

Before we start our analysis in the context of West Bengal, we must familiar with the composition of agro-based industry in India. Given the structure of Indian economy with heavy weight attached to its agriculture, agro-based enterprises are continuing to dominate its industrial sector. For example, in 2000-01, agro-based enterprises accounted for 87.20 percent of the total manufacturing industrial units (table-2.2.1). The significance of agro-based industry in India's industrial sector is thus a feature that needs particular attention in the context of overall industrial development of the country.

The dominance of agro-based industries featured prominently in the unorganised segment of Indian industry, more markedly in the rural areas. In rural sector, as many as 88.77 per cent of the un-organised manufacturing units was contributed by agro-based manufacturing enterprises. The situation is not markedly

different in urban areas. In urban areas too, agro-based industry predominate with their 84.57 per cent share in the total number of unorganized manufacturing units. In short, agro-based industries dominate in the industrial sector of Indian economy, standing out more unambiguously in the rural sector of India.

Table – 2.2.1

Share of Agro-based Manufacturing Enterprises in the Organised and Unorganised Segment of India (2000-01)

Item	Percentage shares of agro-based manufacturing enterprises		
	Rural	Urban	Combined sectors
Share of agro-based industry within:			
Organised manufacturing	-	-	45.69
Unorganised manufacturing	88.77	84.57	87.52
Total manufacturing	-	-	87.20
Share of unorganised agro-based industries to total agro-based enterprises	-	-	99.60

Data Source: 1. For Unorganised sector National Sample Survey (NSS) 56th round July 2000-June 2001, Report no. 478(56/2.2/2), Ministry of Statistics and Programme Implementation, Government of India

2. For organised sector. Annual Survey of Industries 2000-01 vol. – 1, Government of India, Ministry of Statistics and Programme Implementation, Central Statistical Organization, Kolkata.

Importantly, agro-based industry is largely confined to the unorganized segment of manufacturing enterprises largely featuring the characterizes of small and tiny enterprises. As table – 2.2.1 shows, in 2000-01, the unorganized segment of the agro-industrial enterprises had as many as 99.60 per cent of total agro-based manufacturing industrial units. Moreover, unorganized sector is in the main represented by agro-based industries with their relative share being 87.52 percent in total manufacturing units. In other words, analysis of the agro-based manufacturing enterprises is in the main an analysis of the unorganized manufacturing enterprises.

2.3: Nature, Composition and Trend in Agro-based Industries in the State

The annual survey of industries (ASI) is one of the large scale surveys and collects comprehensive information regarding organised (registered) manufacturing sector in India on an annual basis. First of all, we analyse the annual survey of industries data for the organised segment which are picked up for the select years viz. 1994-95 and 2000-01.

Given the structure of the Indian Economy, especially in view of the importance of agriculture in the national economy, agro-industry is expected to continue to be the dominant constituent of its industrial sector. The state of West Bengal however revealed an exception to this when we look at the Annual Survey of Industries data. In the state, dominance of non-agro based manufacturing enterprises

stands out clearly as follows from Annual Survey of Industries data presented in table 2.3.1. In the year 2000-01, the year for which the latest data are available, organised segment of agro-based industries shared 42.99 percent in terms of enterprises. For their non-agro based industries counterpart, the figure stood at 57.01 percent. The strength of agro-based industry is thus comparatively less than those of non-agro-based industries in West Bengal as evidenced by Annual Survey of Industries data.

Within the group of agro-based industries, food-processing industries predominate with their relative share being 57.62 percent in the total number of agro-based enterprises. During the concerned period between 1994-95 and 2000-01, food processing units in number increased by 38.57 per cent while in the corresponding period, the number of non-food processing industries grew at the rate of 10.78 per cent. Thus in terms of growth of enterprises, non-food processing industries, lagged behind food processing industries.

A close look at the compositional change of organised segment of manufacturing enterprises reveals that within the group of food-processing industries, manufacture of beverages, tobacco, and tobacco products increased at a fairly high rate, the percentage increase being 271.77 percent (table 2.3.1) during the period under study. In the non-food processing segment, manufacturing of leather and its products recorded highest increase of 65.44 per cent followed by manufacture of textile products (8.70 per cent). Manufacture of paper and its products has recorded a decline in the number of enterprises by 4.94 per cent. Thus in the organised segment of agro-based manufacturing enterprises, food-processing and non food-processing units witnessed varying degree of increase during the 7 year period between 1994-95 and 2000-01. Clearly, in recent years beverages and tobacco have been surging ahead under the organised food processing component. Among the non-food processing enterprises, the number of units manufacturing leather products increased phenomenally during the reference period, although, the number of units manufacturing textile products increased their numerical strength during the same period.

With relatively greater share of non-agro based manufacturing units, the organised segment of manufacturing witnessed a decline of 0.83 per cent in the number of non-agro based enterprises during the period between 1994-95 and 2000-01. In other words, the organised segment housing relatively larger sized enterprises is now tending to concentrate more and more on agro-based industrial enterprises witnessing varying degree of increase in the selected groups of enterprises during the concerned period.

Under the unorganised segment of manufacturing enterprises, the dominance of agro-based industries is featured prominently. In 2000-01, as many as 86.30 per cent of the total manufacturing units in the unorganized segment is contributed by agro-based manufacturing enterprises (table-2.3.1). Moreover, unorganized sector is in the main represented by food-processing industries with their relative share in units being 59.37 per cent in the total agro-based industries.

Table -2.3.1

Nature and Composition of Agro-based Industries in the State of West Bengal

Sl. No	Industry	Working Units(Nos)					
		Organized Sector			Unorganized Sector		
		1994-95	2000-01	% Change	1994-95	2000-01	% Change
1	Manufacture of food products	965 (17.25)	1048 (17.20)	8.60	550607 (28.84)	562432* (20.48)	2.15
2	Manufacture of beverages, tobacco and tobacco products	124 (2.22)	461 (7.57)	271.77	350937 (18.38)	844643** (30.76)	140.68
3	**Food processing industries(1+2)**	1089 (19.47)	1509 (24.77)	38.57	901544 (47.23)	1407075 (51.24)	56.07
4	Manufacture of textile & its products	322 (5.76)	350 (5.75)	8.70	258428 (13.54)	552602 (20.12)	113.83
5	Manufacture of wood and wood products, furniture and fixtures	220 (3.93)	227 (3.73)	3.18	326796 (17.12)	368717 (13.43)	12.83
6	Manufacture of paper & paper products, printing publishing & allied industries	324 (5.79)	308 (5.06)	-4.94	39571 (2.07)	31074 (1.13)	-21.47
7	Manufacture of leather and leather and fur products(except repair)	136 (2.43)	225 (3.69)	65.44	10618 (0.56)	10453 (0.38)	-1.55
8	**Non-food processing industries (4 to 7)**	1002 (17.92)	1110 (18.22)	10.78	635414 (33.29)	962846 (35.06)	51.53
9	**Total agro-based industries (3+8)**	2091 (37.39)	2619 (42.99)	25.25	1536957 (80.51)	2369921 (86.30)	54.20
10	**Total non-agro-based industries**	3502 (62.61)	3473 (57.01)	-0.83	372027 (19.49)	376340 (13.70)	1.16
11	**All industries (9+10)**	5593 (100.00)	6092 (100.00)	8.92	1908984 (100.00)	2746261 (100.00)	43.86

Data Source: 1. Annual Survey of Industries (ASI) data for organised manufacturing

2. National Sample Survey (NSS) data for unorganised manufacturing

Note: The latest available NSS data for the unorganised segment is for the year 2000-01.

*includes beverages also, **includes tobacco products

Figures in brackets indicate percentages

The growth profile of the manufacturing enterprises in the unorganized segment during the reference period between 1994-95 and 2000-01 reveals that while the number of agro-based industries increased at a fairly high rate with the percentage increase of 54.20 per cent, their non-agro based counterpart witnessed very small increase (percentage increase of 1.16 per cent) in the number of units. Within the group of agro-based manufacturing enterprises, food-processing and non-food

processing enterprises recorded the varying degree of increase, the percentage increase being 56.07 per cent for food-processing industries and 51.53 per cent for non-food industries. Clearly, food-processing industries have grown faster than the non-food processing industries in the unorganized segment of manufacturing enterprises. It follows that the unorganized sector is now tending to concentrate more and more on food-processing industries with 40.63 per cent share in units of its non-food processing counterpart.

Under the unorganized manufacturing, changes in the number of enterprises engaged in the manufacture of beverages-tobacco during 1994-95/2000-01 was as high as 140.68 per cent against only 2.15 per cent for those engaged in manufacture of food-products (table-2.3.1). Within the group of non-food processing unorganized agro-based enterprises, the number of units manufacturing textile products increased appreciably with the percentage change being 113.83 per cent during the period under study. The other segment of the non-food processing agro-based enterprises namely wood-based manufacturing units also recorded improvement in the number of units by 12.83 per cent during the post 1994-95 years. Unlike other components of non-food processing enterprises in the unorganized segment, number of units engaged in manufacture of paper and its products and those engaged in manufacturing leather and leather products declined by 21.47 per cent and 1.55 per cent respectively. The total effect of all these changing trends is that under the unorganized segment, agro-based industrial enterprises increased at a much faster rate than those of non-agro based industrial units. Within the group of agro-based enterprises, food-processing units increased their numerical strength appreciably. It was thus very similar to that observed in the organised segment in respect of compositional change of manufacturing enterprises during the reference period.

2.4: Structure of Agro-based Industries

So far our analysis has not looked into locational characteristics of enterprises. In fact, the rural sector lags behind the urban counterpart in respect of the availability of infra-structural and institutional support items. Accordingly, enterprises located in rural areas might suffer from special locational handicaps having important bearing on the performance of rural enterprising units. Moreover household based tiny and small enterprises might suffer from diseconomies of scale more acutely by rural enterprises than their urban counterparts. We thus need to look into locational characteristics of manufacturing enterprises as well as composition of enterprises in terms of three sub-groups within the unorganised sector namely OAMEs, NDMEs and DMEs both among the rural and urban enterprises. Finally, to derive a more firm picture about the dominance of agro-based industries in the state as well as specific component of agro-based industrial enterprises that were rising or declining in the concerned period

between 1994-95 and 2000-01, our analysis has been extended to examine the shares of enterprises in terms of the variables namely the number of units, investment, employment, output and net value added.

2.4.1: Locational Characteristics of Enterprises

Going by the distribution of enterprises as rural and urban it is apparent that unorganised manufacturing enterprises are mostly located in rural areas (table-2.4.1). Considering all the manufacturing units together, the share of rural units accounted for 77.33 per cent in West Bengal as recorded in the year 2000-01. The proportion of rural units was comparatively higher (80.21 per cent) in the year 1994-95. A comparison of agro-based and non-agro based manufacturing enterprises reveals that a greater proportion of units (79.70 per cent) are located in

Table: 2.4.1

Characteristics of Enterprises by Rural-Urban Location in the State: Unorganised Manufacturing Sector

	1994-95			2000-2001		
Description	Rural	Urban	Total	Rural	Urban	Total
Manufacture of food products	503759 (91.49)	46847 (8.51)	550607 (100.00)	495747* (88.14)	66685* (11.86)	562432* (100.00)
Manufacture of beverages, tobacco and tobacco products	315424 (89.88)	35513 (10.12)	350937 (100.00)	684192** (81.00)	160451** (19.00)	844643** (100.00)
Food processing industries	819183 (90.86)	82361 (9.14)	901544 (100.00)	1179939 (83.86)	227136 (16.14)	1407075 (100.00)
Manufacture of textile & its products	203647 (78.80)	54781 (21.20)	258428 (100.00)	346237 (62.66)	206364 (37.34)	552602 (100.00)
Manufacture of wood and wood products, furniture and fixtures	289394 (88.55)	37402 (11.45)	326796 (100.00)	338499 (91.80)	30218 (8.20)	368717 (100.00)
Manufacture of paper & paper products, printing publishing & allied industries	21437 (54.17)	18134 (45.83)	39571 (100.00)	20966 (67.47)	10108 (32.53)	31074 (100.00)
Manufacture of leather and leather and fur products(except repair)	3062 (28.84)	7556 (71.16)	10618 (100.00)	3230 (30.90)	7223 (69.10)	10453 (100.00)
Non-food processing industries	517540 (81.45)	117874 (18.55)	635414 (100.00)	708933 (73.63)	253913 (26.37)	962846 (100.00)
Total agro-based industries	1336723 (86.97)	200235 (13.03)	1536957 (100.00)	1888872 (79.70)	481049 (20.30)	2369921 (100.00)
Total non-agro-based industries	194460 (52.27)	177566 (47.73)	372027 (100.00)	234785 (62.39)	141555 (37.61)	376340 (100.00)
All industries	1531183 (80.21)	377801 (19.79)	1908984 (100.00)	2123657 (77.33)	622603 (22.67)	2746261 (100.00)

Data Source: National Sample Survey (NSS) data for unorganised manufacturing sector in India for the respective years

Note: Figures in brackets indicate percentages

*includes beverages also, **includes tobacco products

rural areas in the case of agro-based industries as compared to non-agro based industries (62.39 per cent). Notably, however, non-agro based industries are tending to concentrate more in rural areas, the proportion of rural units being increased from 52.27 per cent in 1994-95 to 62.39 per cent in 2000-01. The position is markedly opposite in the case of agro-based enterprises. Within the group of agro-based manufacturing units, the differences in the rural-urban concentration between food-processing segment and non-food processing segment need to be stressed. The number of enterprises engaged in food-processing activities are located more (83.86 per cent) in rural areas as compared to their non-food processing counterpart (73.63 per cent). Among the non-food processing enterprises, units manufacturing wood-based products are extraordinarily located in rural areas (91.80 per cent) as compared to other components of non-food processing segment. In sum, given the dominance of agro-industrial enterprises in the unorganized sector, agro-based industry in the segment has a strong presence in the rural sector.

2.4.2: Type of Enterprises

Since tiny and small-scale enterprises are highly heterogeneous in terms of scale of operation, the size of capital investment and employment, it is necessary to have a look into different types of enterprises namely OAMEs, NDMEs and DMEs that are provided for the NSS Survey Reports on un-organised manufacturing. Table – 2.4.2a presents the structure of the un-organised sector manufacturing enterprises in terms of types of units, namely, OAMEs, NDMEs and DMEs Evidently, the un-organised segment of manufacturing enterprises is preponderantly a house of small and tiny enterprises. For the whole of unorganized sector manufacturing enterprises, the proportion of OAMEs is much higher (89.59 per cent) as compared to NDMEs (7.78 per cent) and DMEs (2.63 per cent). Agro-based industries as a whole have as many as 92.57 per cent of the units working as OAMEs. Further, within the group of agro-based industries, the share of OAMEs in the case of food processing sector units is seen to be 95.24 per cent as against the figure of 88.66 per cent for the non-food processing component. Thus within the unorganized agro-industrial segment, agro industry in general and its food processing component in particular are dominated by OAMEs clearly representing the house of household-based tiny and small enterprises.

The preceding analyses do not look into rural urban differences according to categories of units viz. OAMEs, NDMEs and DMEs. Thus table 2.4.2b presents unorganized manufacturing sector data separately for rural and urban sectors according to categories of enterprises. As follows from the table-2.4.2b, un-organised manufacturing enterprises are mostly (77.33 per cent) located in rural areas. Further, it

is evident that Own Account Manufacturing Enterprises (OAMEs) is the pre-dominant category in rural areas. Among agro-based units in general (food and non-food units), OAMEs dominate in the rural areas while NDMEs and DMEs dominate in the urban areas. Notably, rural sector in seen to be dominating both food processing and non-food processing segments of agro-based industrial enterprises where OAMEs pre-dominate. As the rural sector lag behind the urban counterpart in respect of the availability of infrastructure, one could reasonably expect that un-organised agro-based industry in general and OAMEs amongst them in particular must be operating under technological, institutional and marketing constraints.

Table-2.4.2(a)
Characteristics of Enterprises by type of Enterprise in the Unorganized Manufacturing Sector of the State: 2000-01

Description	OAME	NDME	DME	Total
Food Products & Beverages	503716	50983	7734	562432
	(89.56)	(9.06)	(1.38)	(100.00)
Tobacco Products	836421	6127	2095	844643
	(99.03)	(0.73)	(0.25)	(100.00)
Food Processing	1340136	57110	9829	1407075
	(95.24)	(4.06)	(0.70)	(100.00)
Textile	478234	50082	24285	552602
	(86.54)	(9.06)	(4.39)	(100.00)
Wood & its products	352459	12963	3295	368717
	(95.59)	(3.52)	(0.89)	(100.00)
Paper & its products	20182	8276	2616	31074
	(64.95)	(26.63)	(8.42)	(100.00)
Leather & its products	2787	3662	4005	10453
	(26.66)	(35.03)	(38.31)	(100.00)
Non-Food Processing	853661	74983	34201	962846
	(88.66)	(7.79)	(3.55)	(100.00)
Total agro-based industries	2193798	132093	44030	2369921
	(92.57)	(5.57)	(1.86)	(100.00)
Total non-agro based industries	266528	81542	28270	376340
	(70.82)	(21.67)	(7.51)	(100.00)
All Industries	2460326	213635	72300	2746261
	(89.59)	(7.78)	(2.63)	(100.00)

Data Source: National Sample Survey (NSS) data for unorganised manufacturing sector in India, 2000-2001,
Note: Figures in brackets indicate percentages

2.4.3: Economic Structure of Enterprises

Table – 2.4.3a and 2.4.3b present the economic structure of manufacturing enterprises in the organized and un-organized segments respectively. When we look at the annual survey of industries data presented in table 2.4.3a, the dominance of non-agro-based industry is clearly noticed. The relative strength of agro-based industry can be gauged through their share in units, investment, employment,

Table: 2.4.2(b): Characteristics of Enterprises by Type of Enterprise and Rural-Urban Location : Unorganised Manufacturing Sector in the State, 2000-01

Description	OAME			NDME			DME			All Categories		
	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Food Products and Beverages	465925	37791	503716	28659	22324	50983	1163	6571	7734	495747	66685	562432
	(92.50)	(7.50)	(100.00)	(56.21)	(43.79)	(100.00)	(15.04)	(84.96)	(100.00)	(88.14)	(11.86)	(100.00)
Tobacco Products	677326	159095	836421	5124	1004	6127	1743	352	2095	684192	160451	844643
	(80.98)	(19.02)	(100.00)	(83.62)	(16.38)	(100.00)	(83.21)	(16.79)	(100.00)	(81.00)	(19.00)	(100.00)
Food Processing	1143251	196886	1340136	33782	23328	57110	2906	6922	9829	1179939	227136	1407075
	(85.31)	(14.69)	(100.00)	(59.15)	(40.85)	(100.00)	(29.57)	(70.43)	(100.00)	(83.86)	(16.14)	(100.00)
Textiles	315751	162483	478234	18447	31635	50082	12039	12247	24285	346237	206364	552602
	(66.02)	(33.98)	(100.00)	(36.83)	(63.17)	(100.00)	(49.57)	(50.43)	(100.00)	(62.66)	(37.34)	(100.00)
Wood & its products	332263	20195	352459	5175	7789	12963	1061	2234	3295	338499	30218	368717
	(94.27)	(5.73)	(100.00)	(39.92)	(60.08)	(100.00)	(32.20)	(67.80)	(100.00)	(91.80)	(8.20)	(100.00)
Paper & its products	20182	-	20182	740	7536	8276	45	2572	2616	20966	10108	31074
	(100.00)	(-)	(100.00)	(8.94)	(91.06)	(100.00)	(1.70)	(98.30)	(100.00)	(67.47)	(32.53)	(100.00)
Leather & its products	2787	-	2787	77	3584	3662	366	3639	4005	3230	7223	10453
	(100.00)	(-)	(100.00)	(2.11)	(97.89)	(100.00)	(9.14)	(90.86)	(100.00)	(30.90)	(69.10)	(100.00)
Non-food processing	670984	182678	853661	24439	50544	74983	13510	20691	34201	708933	253913	962846
	(78.60)	(21.40)	(100.00)	(32.59)	(67.41)	(100.00)	(39.50)	(60.50)	(100.00)	(73.63)	(26.37)	(100.00)
Total agro-based industries	1814234	379563	2193798	58221	73872	132093	16417	27613	44030	1888872	481049	2369921
	(82.70)	(17.30)	(100.00)	(44.08)	(55.92)	(100.00)	(37.28)	(62.72)	(100.00)	(79.70)	(20.30)	(100.00)
Total non-agro-based industries	186010	80518	266528	32682	48860	81542	16093	12176	28270	234785	141555	376340
	(69.79)	(30.21)	(100.00)	(40.08)	(59.92)	(100.00)	(56.93)	(43.07)	(100.00)	(62.39)	(37.61)	(100.00)
All Industries	2000244	460082	2460326	90903	122732	213635	32510	39790	72300	2123657	622603	2746261
	(81.30)	(18.70)	(100.00)	(42.55)	(57.45)	(100.00)	(44.97)	(55.03)	(100.00)	(77.33)	(22.67)	(100.00)

Data Source: National Sample Survey (NSS) data for unorganised manufacturing sector in India, 2000-2001,

Note: Figures in brackets indicate percentages

gross output and net value added. It can be seen from table–2.4.3a that in 1994-95, organised segment of agro-based industries shared 37.39 per cent in terms of enterprises, 10.83 per cent in terms of investment, 45.49 per cent of workers employed, 26.46 per cent in gross output and 25.76 per cent in net value added. Food processing component of agro-based industries had 19.47 per cent of enterprises, 2.85 per cent of investment, 9.73 per cent of employment of workers, 10.62 per cent of gross output and 5.56 per cent of net value added. For the non-food processing counterpart, the figures corresponding to its share in the number of units, investment, employment of workers, gross output and net value added are 17.92 per cent, 7.98 per cent, 35.76 per cent, 15.85 per cent and 20.20 per cent respectively. In the corresponding year, organised sector of non-agro based industries shared as many as 62.61 per cent of organised manufacturing units, 54.51 per cent workers employed by them, 89.17 per cent of investment, 73.54 per cent of output and 74.24 per cent of net value added. In sum, organised segment of manufacturing enterprises is dominated by non-agro based manufacturing units as recorded in the year 1994-95. The situation is not different in the year 2000-01 where organised manufacturing sector in the state is still dominated by non-agro based manufacturing enterprises with their share in number of units, investment, employment, output and net value added being 57.01 per cent, 74.62 per cent, 41.13 per cent, 64.99 per cent and 55.83 per cent respectively. Notably however, the share of agro-based industries (both food and non-food) increased during the period between 1994-95 and 2000-01, the figures corresponding to its share in the number of units, investment, employment, output and net value added in the year 2000-01 being 42.99 per cent, 25.38 per cent, 58.87 per cent, 35.01 per cent and 44.17 per cent respectively. Correspondingly, the share of the domineering non-agro based manufacturing enterprises decreased during the concerned period between 1994-95 and 2000-01, (table-2.4.3a).

Table-2.4.3b presents the economic structure of un-organised manufacturing enterprises. As recorded in the year 2001, the un-organised segment of manufacturing enterprises is dominated by agro-based enterprises through their 86.30 per cent share in the number of un-organised manufacturing units, 81.54 per cent share in workers employed by them and 69.09 per cent share in gross value added. In the case of agro-based enterprises (both food and non-food) the number of units increased during the concerned period between 1994-95 and 2000-01 (table – 2.4.3b) leading to an increase in their share in terms of number of units from 80.51 per cent in 1994-95 to 86.30 per cent in 2000-01. The main driving force in the growth of agro-based enterprises has been the phenomenal growth of manufacturing units of tobacco products in the food processing segment and

Table-2.4.3(a)

Economic Structure of Factories Covered by Annual Survey of Industries (Census and Non Census Sectors) In the State of West Bengal

Industries	Working Units		Investment		Employment							
	No	Percentage Share	Amount (Rs. lakh)	Percentage Share	No of Workers	Percentage Share	No of Employees	Percentage Share	Gross Output (Rs.lakh)	Percentage Share	Net Value Added (Rs.lakh)	Percentage Share
1994-95												
Manufacture of food products	965	17.25	64075	2.28	45525	7.83	56524	7.57	226906	8.75	21739	4.22
Manufacture of beverages, tobacco and tobacco products	124	2.22	15765	0.56	11056	1.90	13169	1.76	48281	1.86	6909	1.34
Food processing industries	1089	19.47	79840	2.85	56581	9.73	69693	9.33	275187	10.62	28648	5.56
Manufacture of textile & its products	322	5.76	145023	5.17	181039	31.14	198478	26.57	284985	10.99	79471	15.43
Manufacture of wood and wood products, furniture and fixtures	220	3.93	7705	0.27	4493	0.77	5720	0.77	12895	0.50	1109	0.22
Manufacture of paper & paper products, printing publishing & allied industries	324	5.79	51297	1.83	15274	2.63	21716	2.91	63324	2.44	16097	3.12
Manufacture of leather and leather and fur products(except repair)	136	2.43	19833	0.71	7111	1.22	10290	1.38	49571	1.91	7380	1.43
Non-food processing industries	1002	17.92	223858	7.98	207917	35.76	236204	31.62	410775	15.85	104057	20.20
Total agro-based industries	2091	37.39	303698	10.83	264498	45.49	305897	40.95	685962	26.46	132705	25.76
Total non-agro-based industries	3502	62.61	2501192	89.17	316896	54.51	441139	59.05	1906208	73.54	382444	74.24
All industries	5593	100	2804890	100	581394	100.00	747036	100.00	2592170	100.00	515149	100.00

Data Source: Annual Survey of Industries (ASI) data for organised manufacturing for the respective years

Contd. Table-2.4.3(a)

Contd. Table-2.4.3(a)

Industries	Working Units		Investment		Employment							
	No	Percentage Share	Amount (Rs. lakh)	Percentage Share	No of Workers	Percentage Share	No of Employees	Percentage Share	Gross Output (Rs.lakh)	Percentage Share	Net Value Added (Rs.lakh)	Percentage Share
2000 - 01												
Manufacture of food products	1048	17.20	130863	5.19	102782	22.55	49498	8.69	404962	10.34	19593	3.44
Manufacture of beverages, tobacco and tobacco products	461	7.57	51507	2.04	12636	2.77	15531	2.73	152142	3.88	49539	8.69
Food processing industries	1509	24.77	182370	7.23	115418	25.32	65029	11.41	557104	14.22	69132	12.13
Manufacture of textile & its products	350	5.75	251971	9.99	131742	28.90	212336	37.26	534959	13.65	132406	23.23
Manufacture of wood and wood products, furniture and fixtures	227	3.73	13277	0.53	3779	0.83	4857	0.85	27527	0.70	2435	0.43
Manufacture of leather and leather and fur products(except repair)	225	3.69	58120	2.30	6823	1.50	9896	1.74	108846	2.78	11787	2.07
Manufacture of paper & paper products, printing publishing & allied industries	308	5.06	134420	5.33	10565	2.32	16424	2.88	143276	3.66	35986	6.31
Non-food processing industries	1110	18.22	457788	18.15	152909	33.55	243513	42.73	814608	20.79	182614	32.04
Total agro-based industries	2619	42.99	640158	25.38	268327	58.87	308542	54.15	1371712	35.01	251746	44.17
Total non-agro-based industries	3473	57.01	1881938	74.62	187485	41.13	261296	45.85	2546560	64.99	318170	55.83
All industries	6092	100	2522096	100	455812	100.00	569838	100.00	3918272	100.00	569916	100.00

Data Source: Annual Survey of Industries (ASI) data for organised manufacturing for the respective years

Table-2.4.3(b)
Economic Structure of Unorganized Manufacturing Enterprises in the State

Description	Estimated manufacturing enterprises		Estimated workers engaged		Estimated gross value added (000 Rs)		Value added per enterprise (Rs)	Value added per worker (Rs)	Estimated employment per enterprises
1994-95									
	Number	Percentage	Number	Percentage	Number	Percentage			
Food & Bev	550607	28.84	1338587	30.57	--	--	--	--	2.43
Tobacco	350937	18.38	739546	16.89	--	--	--	--	2.11
Total Food	901544	47.23	2078133	47.45	--	--	--	--	2.31
Textile	258428	13.54	713481	16.29	--	--	--	--	2.76
Wood	326796	17.12	617871	14.11	--	--	--	--	1.89
Paper	39571	2.07	107083	2.45	--	--	--	--	2.71
Leather	10618	0.56	45104	1.03	--	--	--	--	4.25
Non-Food	635414	33.29	1483539	33.88	--	--	--	--	2.33
Agro-Pros	1536957	80.51	3561672	81.33	--	--	--	--	2.32
Non-Agro-P	372027	19.49	817605	18.67	--	--	--	--	2.20
All Industries	1908984	100.00	4379277	100.00	--	--	--	--	2.29
2000-01									
Food & Bev	562432	20.48	1353342	23.06	17157666	23.35	30506	12678	2.41
Tobacco	844643	30.76	1315143	22.41	9453248	12.86	11192	7188	1.56
Total Food	1407075	51.24	2668485	45.47	26610914	36.21	18912	9972	1.90
Textile	552602	20.12	1174828	20.02	14737795	20.06	26670	12545	2.13
Wood	368717	13.43	765451	13.04	5700317	7.76	15460	7447	2.08
Paper	31074	1.13	117676	2.01	1861847	2.53	59917	15822	3.79
Leather	10453	0.38	58133	0.99	1858934	2.53	177831	31977	5.56
Non-Food	962846	35.06	2116089.2	36.06	24158893	32.88	25091	11417	2.20
Agro-Pros	2369921	86.30	4784573.9	81.54	50769807	69.09	21423	10611	2.02
Non-Agro-P	376340	13.70	1083467	18.46	22715481	30.91	60359	20966	2.88
All Industries	2746261	100.00	5868041.2	100.00	73485288	100.00	26758	12523	2.14

Data Source: National Sample Survey (NSS) data for unorganised manufacturing sector in India for the respective years

sizable improvement in the number of units manufacturing textile products in its non-food processing component.

In as much as tiny and small enterprises (OAMEs) in the unorganised sector suffer from productivity handicaps emanating from low capital investment, backward technology in use, the present study estimates the productivity levels of un-organised manufacturing enterprises in the state. Table – 2.4.3b presents per worker productivity approximated by gross value added per worker. Looking at the data contained in table – 2.4.3b, it is clear that labour productivity in agro-based industries (Rs.10,611) is significantly lower than that in non-agro-based industries (Rs.20,966). Evidently, productivity level of agro-based industries is no higher than 50 per cent of the productivity level achieved by the non-agro-based industries. Again the productivity gaps between food and non-food processing components of agro-based enterprises is sharply observed. Labour productivity in agro-based industry in its food processing component is of the order of Rs.9,972 as against the corresponding figure of Rs.11,417 for its non-food processing counterpart. Distressingly, low levels of productivity among agro-based enterprises immediately throws light on the low productivity problem of un-organised agro-based manufacturing enterprises.

Since tiny and small scale enterprises in the unorganised sector are highly heterogeneous, it is desirable to look into the productivity levels of each of the three categories of enterprises namely OAMEs, NDMEs and DMEs. Accordingly, estimates of gross value added per worker are presented separately for those three layers in Table – 2.4.3c. Evidently productivity levels among OAMEs (the tiniest among the unorganised manufacturing units) are much lower than those among other type of enterprises viz. NDMEs and DMEs. This is uniformly observable in the state as well as in India.

Table – 2.4.3(c)

Estimated Annual Gross Value Added (Product Approach) per Worker in the State of West Bengal vis-a-vis India

State	Rural Sector				Combined Sectors (rural and urban)			
	OAME	NDME	DME	ALL	OAME	NDME	DME	ALL
West Bengal	8200	16200	26300	10200	8800	20500	28200	12500
All India	8800	19100	21200	11100	10200	27100	30500	16200

Data Source: National Sample Survey (NSS) data for unorganised manufacturing sector in India, 2000-01

In 2000-01, at the all India level, productivity among OAMEs was just 33 percent of that among DMEs (the top group among the unorganised manufacturing units) while the same in the rural component was about 41 percent (Table-2.4.3c). When we compare productivity levels of the lowest strata (OAMEs) with those of the highest (DMEs) strata, the state of west Bengal displayed productivity levels of OAMEs no higher than 31 percent. In rural units, the position is markedly similar to

those of their urban counterparts. The fact that in 2000-01, within the unorganised manufacturing sector, 89.59 percent and among the two components of agro-based industry, 92.57 per cent (Table – 2.4.2a above) were of the OAME type tended to illustrate the fact that the tiniest group of manufacturing enterprises are operating under diseconomies of scale. There must be a lot of other problems that they are facing which will be analyzed later in the chapter (chapter-VI) to follow.

2.5: Linkage between Agriculture and Growth of Agro-based Industries

Structurally, the state of West Bengal witnessed the trend of transition from agriculture to non-agriculture. According to the data furnished in table –2.5.1, the share of agriculture declined over the concerned period between 1999-00 and 2004-05. In the total, the share of agriculture in the net state domestic product has dropped to 25.35 per cent in 2004-05 from 31.81 per cent in 1999-2000. Correspondingly, the share of non-agriculture has expanded by 6.46 percentage points from 68.19 per cent in 1999-2000 to 74.65 per cent in 2004-05. Thus the

Table – 2.5.1
Estimated Net Domestic Product of West Bengal by Industry of Origin (at Current Prices) Base year: 1999-00

Sl. No.	Industry	1990-00	%	2004-05	%
1	Agriculture	34341.09	27.52	40397.62	21.37
2	Forestry	973.63	0.78	1356.72	0.72
3	Fishery	4383.74	3.51	6148.72	3.25
	Agriculture	**39698.46**	**31.81**	**47903.06**	**25.35**
4	Mining & Quarrying	1298.01	1.04	2459.38	1.30
5	Manufacturing:				
5.1	Registered	4887.67	3.92	8789.17	4.65
5.2	Un-registered	5797.15	4.64	9494.2	5.02
6	Construction	6240.93	5.00	13357.14	7.07
7	Electricity, Gas & Water	1224.29	0.98	2152.13	1.14
8	Transport, Storage & Communication:				
8.1	Railways	1279.61	1.03	1832.94	0.97
8.2	Transport by other means and storage	5634.44	4.51	9029.55	4.78
8.3	Communications	1493.22	1.20	2580.48	1.37
9	Trade, Hotel & Restaurant	19767.11	15.84	31548.78	16.69
10	Banking & Insurance	9225.91	7.39	12252.04	6.48
11	Real Estate, Ownership of Dwellings	9050.83	7.25	19394.42	10.26
12	Public Administration	6395.94	5.12	8870.97	4.69
13	Other services	12814.76	10.27	19333.41	10.23
	Non-Agriculture	**85109.87**	**68.19**	**141094.61**	**74.65**
	Total	**124808.33**	**100.00**	**188997.67**	**100.00**

Data Source: Statistical Abstract, Bureau of Applied Economics & Statistics, Government of West Bengal, 2005

reduction in the share of agricultural activities is accompanied by the corresponding increase in the share of non-agricultural activities. Turning to the pattern of non-agricultural activities, manufacturing is the second major activity after trade, hotels and restaurant. However, manufacturing being the second largest activity among non-agricultural enterprises grew marginally by 1.11 percentage points, it's share being increased from 8.56 per cent in 1999-2000 to 9.67 per cent in 2004-05, while the share of agriculture declined by 6.46 percentage points during the concerned period.

In fact there is a strong linkage between the development of agriculture and the growth of agro-based industries. Growth in agricultural production creates surplus in the agricultural sector which if invested in developing agro-industrial enterprises would lead to the growth of agro-based industrial units. The development of agro-based industries would in turn stimulate the growth of agricultural productivity via investment of surplus back to agriculture and thus establishes a sort of inter-linkage between agriculture and agro-based industry. Looking at from the other side, agro-based industry draws raw material inputs from agriculture and processes agricultural raw materials adding value to the farmers' produce. Agro-based industry thus provides agriculture-industry linkage which help accelerate agricultural development. In the present study we have taken recourse to both regression and correlation exercises for drawing inference about the linkage between agriculture and the growth of agro based industry in the state. The phenomenon of interlinkage is clearly noticed when it is found that agricultural production linkages did not figure so much in regression exercises as measured by R^2 rather appeared as highly correlated in the estimates of rank correlation coefficient, particularly, in the case of food processing units with a stray exception of fruit processing units. In fact, the possible influence of agricultural development is truly captured by the estimates of correlation coefficient where agriculture and non-agricultural sectors are to be looked upon as two inter-linked sectors. Thus, to lend statistical firmness, the present study examines the linkage relationship by carrying out rank correlation analysis.

Location of agro-based industries is expected to be influenced by the comparative advantage/ efficiency in the production of the crop. Alternatively cultivation of a crop might be advantageous to the farmers because of the location of agro-industry even when the region does not enjoy comparative advantage in the cultivation of the crop. Thus, using district level data, importance of the selected industries in terms of their share in units of enterprises was related to the production of the relevant crop estimating rank correlation coefficients. The estimated results of rank correlation (Spearman's rho) coefficients are presented table-2.5.2

Going by the magnitudes of rank correlation coefficient, it is apparent that agro-industrial units in its food processing segment located in the districts are having positive association with production of the crop i.e. the resource base in the district. The association turned out to be highly positive and significant in case of paddy processing/ cereals-pulses processing units. Fruit processing units however throws stray exception bearing very weak statistically non-significant positive association. That gives us confidence to say that for fruit processing units, no firm conclusion can be drawn regarding the concentration of the units and the production of the crop in a district. As far as non-food processing units are concerned, the association with production of the crop was found to be positive in case of textile units but found statistically insignificant. In case of units manufacturing wood-based products, the association turned out to be negative and appeared statistically insignificant. In both cases, thus the observed relationship did not appear to be consistent.

In short, leaving aside a stray exception of fruit processing units, location of agro-based industries in its food-processing segment is greatly influenced by comparative advantage in the production of the crop. Fruit processing units in the category of food processing and the selected non-food units viz textile and

Table –2.5.2

Rank Correlation Analysis to Find the Association between the Number of Processing Enterprises and Agricultural Production.

Item	Rank correlation coefficient	Significant / Non-significant
1. Number of fruits & vegetable Processing units associated with production of fruits and vegetables	0.010	Non-significant
2. Number of paddy processing units associated with production of rice (husked paddy)	0.731	Significant
3. Number of cereals of pulses processing units associated with production of cereals and pulses	0.732	Significant
4. No of textiles units associated with production of Jute	0.196	Non-significant
5. Number of wood-based manufacturing units associated with production of timber wood	- 0.056	Non-significant

wood-based processing units require appropriate infra-structure for their growth apart from production demanded by the processing units as raw materials. Specifically, fruit processing units face major problem of non-availability of quality raw materials throughout the year. Fruits output are characterized by seasonality, perishability and variability. Fruits as a commodity go through a specific product cycle and they are available in a particular season. Hence extending their supply in fresh form beyond the season is not possible although the demand for the commodity is throughout the year. Thus, fruit processing units require separate infrastructure like cold-storage facility in order to store adequate quantity of raw materials, apart from ensuring the availability of raw materials through enhancing crop production base.

We may now move on to the empirical evidence obtained from regression exercises done separately for each processing unit taking into account number of units as dependent variable and production as independent variable. The idea is to estimate the extent of influence caused by agricultural production to the growth of agro-based entrepreneurial units. Single variable regression for each dependent variable was run. The results of the regression exercises are presented in the form of estimated equations furnished as under.

Estimated Regression Results:

Name of the activity: Fruit Processing

Number of Fruits and Vegetable Processing units related to production of fruits and vegetables
Functional Relation Fitted :
$\log y = \log a + b \log x + ui$
where y = number of processing units
x = production of fruits and vegetables
Estimated equation :
$\log y = 1.4612 - 0.0468 \log x + ui$ …….. $R^2 = 0.0017$
(0.3057)

Name of the activity: Paddy Processing

Number of Paddy Processing units related to production of rice (husked paddy)
Functional Relation Fitted :
$\log y = \log a + b \log x + ui$
where y = number of paddy processing units
x = production of rice
Estimated equation :
$\log y = -1.3669 + 1.0091^* \log x$ …….. $R^2 = 0.4508$
(0.2977)
* significant at 5 per cent level of significance

Name of the activity: Cereals and Pulses Processing

Number of Processing units related to production of cereals and pulses
Functional Relation Fitted :

$\log y = \log a + b \log x + ui$

where y = number of processing units
x = production of cereals and pulses

Estimated equation :

$\log y = 0.6902 + 0.4909^{*} \log x + ui$ …….. $R^2 = 0.3106$

(0.1809)

* significant at 5 per cent level of significance

Name of the Processing Activity: Jute Textiles

Number of Textile units related to production of jute
Functional Relation Fitted :

$\log y = \log a + b \log x + ui$

where y = number of textile units
x = production of jute

Estimated equation :

$\log y = 0.1920 + 0.3485^{*} \log x$ …….. $R^2 = 0.2651$

(0.1551)

* significant at 5 per cent level of significance

Name of the Processing Activity: Manufacturing of Wood-based Products

Number of wood-based manufacturing units related to production of wood (timber)
Functional Relation Fitted :

$\log y = \log a + b \log x + ui$

where y = number of wood-based manufacturing units
x = production of wood (timber)
Estimated equation :

$\log y = 0.5113 + 0.2470 \log x$ …….. $R^2 = 0.0770$
(0.2285)

As follows from the single regression equation estimates, processing units having the desired sign and found statistically significant are paddy processing units, cereals and pulses processing units in the food processing segment of agro-based enterprises. The desired relation is also observed in the case of units manufacturing textile products in the non-food processing segment of agro-industrial enterprises. However out of those only paddy processing units are largely explained by agricultural production, cereals and pulses processing units being the next as judged

by the explanatory power of the regression equation (R^2). Thus, the fact that location of the units is greatly influenced by the comparative advantage in the production of the crop is strongly observed in the case of paddy processing units.

Evidently thus a comparison of results of regression exercises and the estimates of rank correlation coefficient establishes a sort of inter-dependence between the location of units and agricultural production in a district rather than showing one way causal relationship between agricultural production and the locational concentration of the processing units. This gives us the confidence to say that growth of agriculture is dependent on and also determine the growth in agro-based industry. This suggests that agricultural sector has to be vibrant for the promotion of agro-based industries in the state.

To sum up, the strength of agro-based industry is comparatively less than those of non-agro-based industries in the organised sector of manufacturing enterprises of the state. Evidently however, in the concerned period between 1994-95 and 2000-01, the organised segment has tended to concentrate more and more on agro-based industrial enterprises. Within the group of food-processing industries, manufacture of beverages, tobacco and tobacco products increased at a fairly high rate while in the non-food processing segment, leather-based units recorded highest increase followed by the units manufacturing textile products. In the un-organised segment of manufacturing enterprises of the state, the dominance of agro-based industry is clearly noticed. The un-organised segment of agro-industrial sector had as many as 86.30 per cent of total manufacturing enterprises, 81.54 per cent of employment of workers and 69.09 per cent of gross value added. During the reference period, agro-based enterprises (both food and non-food) witnessed increase in the number of units leading to an increase in their share in units from 80.51 per cent in 1994-95 to 86.30 per cent in 2000-01. The main driving force has been the phenomenal growth of manufacturing units of tobacco products in the food processing segment and improvement in the number of units manufacturing textile products in it's non-food processing counterpart. Importantly agro-based industry is largely a house of household based tiny and small enterprises. As is evident, the proportion of OAMEs in the un-organised segment of manufacturing enterprises is 89.59 per cent while agro-based industries as a whole have as many as 92.57 per cent of the units working as OAMEs.

The linkage between the level of agricultural production and the concentration of agro-based industrial units is clearly visualized in the estimates of rank correlation coefficient through the positive association between location of industrial units and the level of agricultural production. Agro-based industries are thus expected to grow in regions where agriculture is growing. Structurally, however the state of West

Bengal witnessed the trend of transition from agriculture to non-agriculture wherein the share of agriculture in state domestic product declined over the periods. It can thus safely be said that agro-based industry in the state is facing problems at the stage of procurement of raw materials in getting adequate quantity of raw materials throughout the year. Obviously, this calls for public investment in agriculture to make the agricultural sector more effective contributor of agro-industrial growth.

Chapter – III

Profile of Sample Districts and Selected Processing Activities

This chapter presents a brief account of the selected districts and also gives a profile of sample entrepreneurs of agro-processing activities. However before presenting the profile of the selected districts, the chapter provides background information of the state.

3.1: Selection of Sample Districts

As the products of agro-industries are both edible and non-edible, the agro-based industries are classified into agro-food industries (or food-processing industries) and agro non-food industries. Primary data was collected from the selected processing units chosen from both agro-food industries and agro-non-food industries. The food-processing activities were broadly divided into three categories viz. primary food processing units mainly grain processing units; spice and horticultural products and livestock based processing units including fish processing. Similarly, non-food processing units were broadly divided into four categories namely, textile products, wood and its products, paper and its products, leather and its products. In selecting districts, sample districts by industry groups were identified on the basis of annual survey of industries data considering the concentration of units of activities. The selected districts, thus were more than one depending on the location of the specific agro-based activity chosen for the study.

3.2: Profile of the State and the Districts Selected for the Study

3.2.1: About the State

This section presents a brief background of the state of West Bengal depending on available secondary data relating to the state.

First of all we spell out the broad demographical characteristics of the state.

Demographic Features

According to 2001 census, the state has a population of 801.76 lakhs with an area of 88752 sq. km. A total of 577.49 lakhs (72.03 percent) are found to live in rural areas and the rest are urban population, which accounted for 27.97 percent. As per 2001 census the proportion of scheduled caste and scheduled tribe population were of the order of 23.02 and 5.50 percent respectively. The sex ratio of the state stood at 1000 males for every 934 females. The total workforce of the state constituted 36.78 percent in relation to the total population. The proportion of cultivators among total workers accounted for 19.18 percent and the corresponding share of agricultural labourers in total working population stood at 24.97 percent. The state is inhabited by

15715915 households of which rural households make up 71.02 percent of total households and the rest belongs to urban.

Overall, the level of literacy in the state as captured by the percent of literate persons among total population works out at 69.2 percent. Urban population is relatively more educated (81.6 percent) as compared to rural (64.1 percent). Across sexes, the percentage of literate persons among males is relatively higher which shows the proportion of 77.6 percent as against the comparable figure as 60.2 percent for females (table - 3.2.1.1).

Pattern of Land Holdings

The marginal (below 1ha) and small (1.00 –2.00ha) sized land holdings form the bulk of the farm holdings in the state. These two size classes together accounted for 95.30 per cent of the total holdings. The average size of holdings in respect of all size classes hardly works out to 0.82 ha for the state (table - 3.2.1.1).

Irrigation

As recorded in 1995-96 agriculture census, the state of West Bengal has 55.24 per cent of the net sown area as irrigated area. Tube-wells play major role as a source of irrigation where 55.80 per cent of total irrigated area is catered to by this source. The next important source is canal, which serves 23.50 per cent of total irrigated area in the state. Area irrigated by tanks constituted 10.50 percent occupies the position after canal (table - 3.2.1.1).

Agriculture, Land Use and Productivity

The economy of the state is mainly based on agriculture. There is not much uncultivated land left which could be conveniently utilized for agricultural purpose. In the year 2003-04, total cultivable area constitutes 67.69 percent of which 92.30 percent are brought under cultivation. About 62.48 percent of the total area of the state falls under net sown area. On an average 18.83 percent of the area is not available for cultivation. About 14 percent of the area of the state is covered by forests. Density of cultivating population as measured by the number of cultivators per 100 ha of cultivated land works out at 103. The comparable estimates for agricultural labourers stood at 134. In the year 2000-01, net sown area per agricultural worker works out at 0.42 ha. whereas cultivable area per agricultural worker stood at 0.53 ha. As recorded in the year 2003-04, the index of multiple cropping as measured by the level of crop use intensity is estimated to be 178 percent. Rice is the predominant crop of the state and productivity level of rice is estimated at 2504 kgs per ha. Productivity of cereals works out at 2484 kgs per ha while the corresponding figure of pulses stood at 840 kg and combining these two crops together, productivity level of food grains is estimated at 2421 kg per ha (table - 3.2.1.1).

Table – 3.2.1.1

Profile of West Bengal

Description		Year	Unit	Particulars
I. Area and Population				
Area	a) Total	2001	Sq. Kilometre	88752
	b) Rural	2001	Sq. Kilometre	85444
	c) Urban	2001	Sq. Kilometre	3308
Total Population		2001	In Lakhs	801.76
Male Population		2001	In Lakhs	414.66
Female Population		2001	In Lakhs	387.10
Density of Population		2001	No. per sq. km	903
Urban Population	a) Total	2001	In Lakhs	224.27
	b) Male	2001	In Lakhs	-
	c) Female	2001	In Lakhs	-
Rural Population	a) Total	2001	In Lakhs	577.49
	b) Male	2001	In Lakhs	-
	c) Female	2001	In Lakhs	-
Urban Population in relation to total Population		2001	Percent	27.97
S.C Population		2001	In Lakhs	184.53
S.T. Population		2001	In Lakhs	44.07
Percentage of S.C. Population to Total Population		2001	Percent	23.02
Percentage of S.T. Population to Total Population		2001	Percent	5.50
Sex Ratio (Female per 1000 Males)		2001	Number	934
Number of main Workers	Total	2001	In Lakhs	230.64
	Rural	2001	In Lakhs	161.15
	Urban	2001	In Lakhs	69.49
Number of Marginal Workers	Total	2001	In Lakhs	64.39
	Rural	2001	In Lakhs	57.82
	Urban	2001	In Lakhs	6.57
Number of Non-Workers	Total	2001	In Lakhs	50.72
	Rural	2001	In Lakhs	35.84
	Urban	2001	In Lakhs	14.88
Work force (Main & Marginal) in relation to total Population		2001	Percentage	36.78
Proportion of agricultural labourers to total workers		2001	Percent	24.97
Proportion of cultivators to total workers		2001	Percent	19.18
Number of cultivators per 100 ha of cultivated land		2001	Number	103
No. of Households	Total	2001	Number	15715915
	Rural	2001	Number	11161870
	Urban	2001	Number	4554045

Contd. Table-3.2.1.1

Contd. Table-3.2.1.1

Description		Year	Unit	Particulars
II. Education				
Percentage of Literates	a) Male	2001	Percent	77.6
	b) Female	2001	Percent	60.2
	c) Total	2001	Percent	69.2
	d) Rural	2001	Percent	64.1
	e) Urban	2001	Percent	81.6
III. Classification of Holdings				
Per cent of Marginal Holdings (below 1ha.)		2000-01	Percent	80.44
Per cent of Small Holdings (1-2ha.)		2000-01	Percent	14.86
Per cent of Semi- medium Holdings (2-4ha.)		2000-01	Percent	4.17
Per cent of Medium Holdings (4-10ha.)		2000-01	Percent	0.51
Per cent of Large Holdings (10ha. and above)		2000-01	Percent	0.01
Average Size of Holdings		2000-01	ha	0.82
IV. Irrigation				
Per cent of Net Sown Area Irrigated		1995-96	Per cent	55.24
Per cent of Net Irrigated Area under Canals		1995-96	Per cent	23.50
Per cent of Net Irrigated area under Tanks		1995-96	Per cent	10.50
Per cent of Net Irrigated area under Wells		1995-96	Per cent	1.80
Per cent of Net Irrigated area under Tube wells		1995-96	Per cent	55.80
Per cent of Net Irrigated area served by Other Sources		1995-96	Per cent	8.40
V. Agriculture Land Use & Productivity				
Area Under Forest		2003-04	Percent	13.48
Area not available for cultivation		2003-04	Percent	18.83
Other uncultivated land excluding current fallows		2003-04	Percent	0.71
Current fallows		2003-04	Percent	3.84
Net area sown		2003-04	Percent	62.48
Ratio of cultivable area to total area		2003-04	Percent	67.69
Ratio of Net area sown to cultivable area		2003-04	Percent	92.30
No. of Cultivators per 100 hectares of cultivated land		2001	Number	103
No. of Agricultural Labourers per 100 hectares of cultivated land		2001	Number	134
Cultivable area		2000-01	Per Agricultural Worker in ha.	0.53
Net area sown		2000-01	Per Agricultural Worker in ha.	0.42
Gross Cropped Area		2003-04	'000 ha	9661.32
Net Cropped Area		2003-04	'000 ha	5427.67
Cropping Intensity		2003-04	Percent	178
Productivity of Rice		2003-04	Kgs Per ha	2504

Contd. Table-3.2.1.1

Contd. Table-3.2.1.1

Description	Year	Unit	Particulars
Productivity of Cereals	2003-04	Kgs Per ha	2484
Productivity of Pulses	2003-04	Kgs Per ha	840
Productivity of Foodgrains	2003-04	Kgs Per ha	2421
VI. Livestock and Poultry			
Cattle: Cows	2003	Number	6568239 (19.01)
Bulls and Bullocks	2003	Number	3618078 (10.47)
Youngstock	2003	Number	7797763 (22.57)
Total	2003	Number	17984080 (52.06)
Buffaloes: Cows	2003	Number	205881 (0.60)
Bulls and Bullocks	2003	Number	505813 (1.46)
Yongstock	2003	Number	163812 (0.47)
Total	2003	Number	875506 (2.53)
Total Bovine Population			18859586 (54.60)
Sheep	2003	Number	1411049 (4.08)
Goats	2003	Number	11756690 (34.04)
Total Ovine Population			13167739 (38.12)
Horses & Poines	2003	Number	10575 (0.03)
Pig	2003	Number	898831 (2.60)
Other Livestock	2003	Number	1605918 (4.65)
Total Livestock	2003	Number	34542649 (100.00)
Poultry: Fowls	2003	Number	37685574 (73.73)
Ducks	2003	Number	13024453 (25.48)
Others	2003	Number	404524 (0.79)
Total	2003	Number	51114551 (100.00)

Contd. Table-3.2.1.1

Contd. Table-3.2.1.1

Description	Year	Unit	Particulars
VII. Infrastructure			
Proportion of Villages electrified	As on 31.03.03	Percentage	82.66
Road length			
1. Public Works and P.W.D Roads			
a) Total	31.3.2003	Km.	18091
b) Surfaced	31.3.2003	Km.	17892
c) Un-surfaced	31.3.2003	Km.	199
2. Zilla Parishad Roads			
a) Total	31.3.2001	Km.	42478.42
b) Surfaced	31.3.2001	Km.	12774.85
c) Un-surfaced	31.3.2001	Km.	29703.57
3. Municipalities Roads			
a) Total	31.3.2002	Km.	20587.91
b) Surfaced	31.3.2002	Km.	13431.66
c) Un-surfaced	31.3.2002	Km.	7156.25
Scheduled Commercial Banks			
1. Number of Offices	Dec'2004	Number	4500
2. Population per Bank Office	Dec'2004	'000 Number	18
3. Per Capita Bank Deposits	Dec'2004	Rs.	13055
4. Per Capita Bank Advances	Dec'2004	Rs.	6824
5. Credit-Deposit Ratio	Dec'2004	Percent	52.27

Data Source:1. Statistical Abstract, Bureau of Applied Economics & Statistics, Government of West Bengal
2. Statistical Hand Book, Bureau of Applied Economics & Statistics, Government. of West Bengal, Relevant Issues.

Note : Figures in brackets indicate percentages.

Livestock and Poultry

The rural economy of West Bengal is mostly a mixed economy of agriculture and animal husbandry. As an allied component of agriculture, animal husbandry provides supplementary income to rural households. According to Livestock Census 2003, the total livestock population in the state was 345.43 lakhs of which bovine population comprising of cattle and buffaloes accounted for 54.60 per cent. Ovine population covering sheep and goats formed 38.12 per cent in total livestock population. In the total livestock population of the state, the cattle population accounted for 52.06 per cent while those of buffalos constituted 2.53 per cent. The state's cattle population comprised of 36.52 percent females, 20.12 percent males and 43.36 per cent young-stock. According to 2003 livestock census, there were 551.14 lakhs poultry birds in the state (table - 3.2.1.1).

Infra-structure

Infra-structure plays the key role in promoting agricultural development which in turn exert influence on the growth of non-agricultural activities. Good infra-structural facility not only ensures smooth flow of inputs and outputs but also facilitates higher accessibilities to knowledge. Again within the group of infra-structures, road transport is crucial.

The road network in the state is maintained by public works and public works (Roads) departments of the State Government, Zilla Parishad and Municipalities. The state has a total of 18091 km. road length maintained by the P.W.D. The area served by rural road system amounts to 42478 km in the state. Such roads are maintained by Zilla Parishad. Those apart, road maintained by the municipality amounts to 20588 km. Thus the total area served by the road system amounts to 81157 km. of which rural roads alone accounted for 52.34 percent in the state. In fact priority is given on improving the connectivity of villages through providing all weather roads to the unconnected villages. The other infra-structure called electrification has focused on extending the grid supply to villages and remote areas and covers 82.66 percentage of total villages in West Bengal. With regard to the access of credit, India has a wide network of rural financial institutions but the moneylenders still are important financial agencies especially in rural areas. West Bengal is not the exception to this. Banking facilities are available in West Bengal and there are 4500 scheduled bank offices and this translates to about 18000 people served by each of bank office. In per capita terms bank advances amounted Rs. 6824 as against the total amount of deposit of Rs. 13055 (table - 3.2.1.1).

3.2.2 : About the Selected Districts

The districts selected for the study included Burdwan for paddy processing (Rice milling), Malda for fruit processing, South 24 Parganas for representing both fish processing and leather-based processing units and North 24 Parganas for units manufacturing textile products, wood-based products and paper-based products. This section presents a brief profile of the sample districts selected for the study.

A. Burdwan District

The district Burdwan is called the granary of West Bengal having the advantages of rich Gangetic and Vindhya alluvial soil with the two River Valley Projects. Burdwan is one of the most important and thickly populated District in the State. Geographical location of the district is surrounded by the district of Nadia and part of Hoogly in the East, Bankura and part of Hoogly in the South, Birbhum and part of Murshidabad in the North and State of Bihar in the West. The district is situated at N 22°56' S 23°53' latitude and E 86°48' and W 88°25' longitude.

The district, according to the census of 2001, has a total area of 7024 sq. km and a total population of 68.95 lakhs of whom 35.88 lakhs are males and 33.07 lakhs are females. The density of population per sq. km. for the whole district works out at 962. According to the 2001 census, 43.48 lakhs persons live in rural areas and 25.47 lakhs persons live in urban areas. The district is thus predominantly rural one.

Agriculture is the chief occupation of the people of the district. The average size of agricultural land holding (operational land) as per 1995-96 Census in the district is of the order of 1.12 hectares as compared to state average of 0.82 hectare. About 97.38 percent of the cultivable area of the district falls under the net cropped area while the ratio of cultivable area to total area accounted for 67.28 per cent. With increasing pressure on land, cultivable wastes are gradually being used for growing crops. The major crop grown in the district is rice and other important crops are potato, wheat, mustard, jute, pulses, sugarcane and vegetables. The cropping intensity of the district is 183 per cent. The district is enriched with rivers and thus the district is getting the advantage of major river valley projects and river-lift irrigation. The extent of irrigation as measured by the proportion of net sown area irrigated accounted for 79 per cent. The district is essentially agricultural district, growing rice crop in major and thus there are good prospects of agro-based industries in the district particularly of rice milling.

B. Malda District

Malda, the Southernmost of the North Bengal district is situated within the Jalpaiguri Division. The district is bounded on the North by the Uttar and Dakshin Dinajpur District (West Bengal) and the district of Purnia (Bihar). On the east, it is bounded by the district of Rajshahi (Bangladesh) and on the South, by the district Murshidabad (West Bengal) and the district of Santal Parganas (Bihar). Englishbazar, situated almost at the Centre of the district is the principal town and the seat of administrative head quarter. The district comprises an area of 3733 sq. km. as per 2001 census. The census of 2001 finds the district of Malda inhabited by 32.90 lakhs persons of whom 16.89 lakhs are males (51.34 percent) and 16.01 lakhs (48.66 percent) females. The density of population per sq.km stood at 881 persons as against the figure of 903 for the state as a whole. According to 2001 census, 7.32 percent of the population live in urban areas. Characteristically thus, the district of Malda is basically rural.

The economy of the district is mainly based on agriculture. As per 2001 census data, agricultural workers constitute 51.56 percent of total workers. The average size of land holding in the district is 0.85 hectare as against the state average of 0.82 hectare. Land utilization pattern of the district shows that there is not much uncultivated land left which may be conveniently utilized for agricultural purpose. In

the year 2003-04 total cultivable area constitutes 76.18 per cent of which 80.55 per cent are brought under cultivation. Area not available for cultivation constitutes 22.54 percent and about 61.37 per cent of the total area falls under net sown area. Density of cultivating population works out at 125 as against the state figure of 103.

Although, the economy of the district is predominantly agrarian, the small-scale industries sector has tremendous potential for generation of employment. In fact, the industry developed so far in the district is limited to traditional agro-based enterprises like rice milling, wheat grinding, pulse grinding, oil mills, flour mills, silk reeling and weaving, fruit processing etc. Cultivation of mulberry, silk cocoon, mango, lychee are important agricultural products for the development of agro-based industries in the district. Of late, with the development of infrastructure in the district certain items of resource and demand based enterprises has come into being of which fruit processing unit is one of them.

C. 24-Parganas District

The 24-Parganas is one of the largest of the border districts having an area of 14136 sq. km. as per 1981 census. On Economic and Geographical conditions, the district is divided into two parts, north and south. After partitioning, 24-Parganas North and South occupy an area of 4094 sq. km. and 9961 sq. km. respectively (as per 1991 census). As the latest disaggregated data separately for North and South for all the variables are not available, we are presenting the broad features of the district of 24-Parganas as a whole.

The district, largest in West Bengal resembles an irregular triangle in shape. It has artificial land frontiers as well as natural water boundaries. Nadia district lies to its north and the Bay of Bengal to its south. Much of its eastern boundaries with Bangladesh runs along river channels; on the west, it is bounded by Kolkata and the river Hugli which is proceeding from north to south, separates it from the districts of Hooghly, Howrah and Midanpore.

According to the 1991 census, the district, (north and south together) supports a total population of 12996911 persons with an area of 14055 sq. km. (after partitioning) of whom 6780411 are males and 6216500 are females. The sex-ratio for the district works out to 916 females per 1000 males which appears to be very close to the state average (917). The district accounts for 15.84 percent of the total area of the state of West Bengal and supports 19.09 percent of the total population. In 1991, on an average 925 persons lived in per sq. km. area in the district whereas in the concurrent period, 767 persons lived in one sq. km. area in the state as a whole. As per 1991 census, the ratio between rural and urban population stood at 65:35 as compared to the corresponding state ratio of 73:27.

While most of the factory establishments are located in the northern part of the district, the south is predominantly agricultural and has a large forest area (44.12 percent). The net sown area constitutes 68.37 percent of the total area in 24-Parganas (North) while it is 41.12 percent in 24-Parganas (South). The land not available for cultivation accounted for 28.60 percent in 24-Parganas (North) and 13.61 percent in 24-Parganas (South). (source: Statistical Handbook, Government of West Bengal, 1998)

Paddy occupies an area of about 80 percent of the cropped area. The crops like jute, mustard, potato are the principal crops after paddy in order of importance in the district. In 24-Parganas (South), the proportion of area under paddy is about 92 percent. Other crops grown in the district are pulses, jute, oilseeds, chillies etc.

Industrially, 24-Parganas is the industrialised district in the state of West Bengal having the largest number of working factories concentrated here. Many large-scale industries are operating around Kolkata and the presence of such industries provides ample scope for development of ancillary and down-stream industries. Apart from large-scale industries, there are small-scale and cottage industries in different parts of the district which contributes substantially to the economy of the state as a whole. The jute and cotton mills are the oldest industrial units in the district employing largest number of people.

The district of 24-Parganas is extremely rich in fish fauna. The common marine fishes are plentiful and found throughout the year. The growth of Calcutta metropolies has created an ever increasing demand for fish. Paddy land has been converted into fisheries by breaking the bunds in places and allowing the tidewater to flow over the land along various small channels. The varieties of fish are commonly found in the district. In recent years, various schemes have been implemented for the development of the fisheries. Plenty of sea fish is available in the lower Sundarbans. Wholesale fish market of the region is Canning which serves as an important fishing center.

3.3: Selection of Activities

As the products of agro-industries are both edible and non-edible, the agro-based industries are classified into agro-food industries (or food-processing industries) and agro non-food industries. For the purpose of selection of activities, the food processing activities are broadly divided into three categories viz. primary food processing units mainly grain processing units; spice and horticultural products and livestock based processing units including fish processing. Similarly, non-food processing units are broadly divided into four categories namely, textile products, wood and its products, paper and its products, leather and its products.

The Annual Survey of Industries brought out by CSO is the basic data source from where a consolidated picture on the count of all types of manufacturing

enterprises is available. Thus, primarily for the selection of units, the Annual Survey of Industries data were consulted. Firstly, sample districts by industry groups were identified on the basis of annual survey of industries data considering the concentration of units of activities and then the dominant processing unit in the district is selected consulting data from District Industries Centre (DIC) which is the Nodal Agency in each district and make substantial efforts to promote agro-processing activities. In selecting units in the food processing component, apart from the annual survey of industries data, source like State Department of Food Processing Industries and Horticulture (DFPI&H) was was consulted.

3.4: Profile of Sample Entrepreneurs of Agro-Processing Activities

Apart from the use of secondary data on organised and un-organised manufacturing segment, primary data was collected from the selected processing units chosen from both agro-food industries and agro-non-food industries. All together, 30 sample processing units was studied selected at random spread over food and non-food processing segment of agro-based enterprises. Considering the dominance of food processing activity in the total number of agro-based enterprises, 18 processing units were selected within the group of food processing and the rest 12 were from non-food processing segment of agro-based enterprises. The details of the sample units chosen for the study is given in table – 3.4.1. The units are selected in the requisite proportion. In the case of food-processing component of agro-based enterprises, the selected processing units are paddy processing (Rice milling), fruit (mango) processing and fish processing. For each selected processing enterprise, six units of different sizes namely OAMEs, NDMEs and DMEs with their distribution as 3:2:1 were covered. Within non-food processing segment of agro-based industry, the selected processing activities are units manufacturing paper-based products, jute-based textile products, wood-based products and leather based products. For each selected processing unit, three units of different sizes namely OAMEs, NDMEs and DMEs in the ratio of 1:1:1 were selected.

The socio-economic profile of the sample entrepreneurs is analyzed by using the variables like social group, age, education, land-holding and previous experience. Table-3.4.2 presents the socio-economic background of the sample entrepreneurs. It can be seen that majority of the sample entrepreneurs belong to

Table – 3.4.1
District-wise and Activity-wise Selection of Sample Processing Units

(Numbers)

Processing Activity	Burdwan			Malda			North 24 Parganas			South 24 Parganas			Total			
	O A M E	N D M E	D M E	O A M E	N D M E	D M E	O A M E	N D M E	D M E	O A M E	N D M E	D M E	O A M E	N D M E	D M E	A L
A) Food Processing																
1. Paddy Processing	3	2	1	-	-	-	-	-	-	-	-	-	3	2	1	6
2. Fruit (Mango) Processing	-	-	-	3	2	1	-	-	-	-	-	-	3	2	1	6
3. Fish Processing	-	-	-	-	-	-	-	-	-	3	2	1	3	2	1	6
Total	3	2	1	3	2	1	-	-	-	3	2	1	9	6	3	18
B) Non-Food Processing																
1. Paper Product	-	-	-	-	-	-	1	1	1	-	-	-	1	1	1	3
2. Jute-based Textile Product	-	-	-	-	-	-	1	1	1	-	-	-	1	1	1	3
3. Wood Product	-	-	-	-	-	-	1	1	1	-	-	-	1	1	1	3
4. Leather Product	-	-	-	-	-	-	-	-	-	1	1	1	1	1	1	3
Total	-	-	-	-	-	-	3	3	3	1	1	1	4	4	4	12
All Activities	3	2	1	3	2	1	3	3	3	4	3	2	13	10	7	30

Data Source: Primary survey data

the category "others" i.e. other than SC & ST and OBC. It is only in the case of fish processing activity, majority of the entrepreneurs belong to SC & ST category. As may be noticed from table-3.4.2, entrepreneurs mostly belong to the middle age group of 25-45 years age, here again, with the exception of fish processing units where sample entrepreneurs belong to the age group of 45-60 years. Notably, none of the sample entrepreneurs was below 25 years.

The education of the entrepreneurs leaves a lot to be desired. It can be observed that majority of the entrepreneurs have studied only up to middle level i.e. up to 10^{th} standard. However, most of the entrepreneurs engaged in jute-based textile units are better educated having studied beyond 10^{th} standard. Average education level of the entrepreneurs of food processing units is observed to be relatively low and they have learnt the processing activity traditionally.

As far as land holding is concerned, majority of the sample entrepreneurs engaged in food processing activity possessed some amount of land (less than 1ha) while entrepreneurs engaged in non-food processing activities, mostly do not possess land. Entrepreneurial households engaged in food processing activities have rural base and possess land combining both farm and non-farm activities. On the other hand, entrepreneurial households engaged in non-food processing activities are urban-based and do not possess land having the processing activity as the main occupation.

The experience that the entrepreneurs had in their present activity is also discernible from table – 3.4.2. It is observed that all the sample processing units covered under the study were existing ones. Thus it is found that all the sample entrepreneurs had previous experience/ knowledge ranging between 5 to 20 years. While majority of the entrepreneurs of the sample food processing units have learnt and followed the activity traditionally, majority of the entrepreneurs of non-food processing units was found received institutionalised training and gained working experience in carrying out the activity.

The motivating factors influencing the investment decision in the selected processing activity were ascertained in course of primary survey of the sampling units. Major factors behind choosing the particular activity are presented in table – 3.4.3. As may be seen from the table, getting employment is the major motivating factor behind choosing the food processing activity (83.33 per cent). The other equally important factor emerged was previous experience in the business activity which has motivated to carry on the activity traditionally (83.33 per cent). For non-food processing activities, the major factor which influenced the entrepreneurs to take up the activity was higher profit margin accruable from the activity (83.33 per cent). Existence of local demand for the product appeared to be the other equally

Table – 3.4.2

Socio Economic Profile of the Sample Entrepreneurs

(Numbers)

Sl. No.	Variables	Category	Food Processing Units Reporting			Non-Food Processing Units Reporting			
			Processing Activity-I (Fruit) (6)	Processing Activity-II (Paddy) (6)	Processing Activity-III (Fish) (6)	Processing Activity-IV (Leather) (3)	Processing Activity-V (Paper) (3)	Processing Activity-VI (textile) (3)	Processing Activity-VII (Wood) (3)
1	Social Group	SC & ST	2 (33.33)	— (-)	4 (66.67)	1 (33.33)	1 (33.33)	1 (33.33)	— (-)
		OBC	— (-)	2 (33.33)	— (-)	— (-)	— (-)	— (-)	— (-)
		Others	4 (66.67)	4 (66.67)	2 (33.33)	2 (66.67)	2 (66.67)	2 (66.67)	3 (100.00)
2	Age (Yrs.)	<25	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)
		25-45	4 (66.67)	3 (50.00)	1 (16.67)	2 (66.67)	2 (66.67)	3 (100.00)	2 (66.67)
		45-60	2 (33.33)	3 (50.00)	5 (83.33)	1 (33.33)	1 (33.33)	— —	1 (33.33)
		>60	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)
3	Education	Illiterate	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)
		Up to 10th Standard	4 (66.67)	4 (66.67)	5 (83.33)	3 (100.00)	2 (66.67)	1 (33.33)	2 (66.67)
		Above 10th Standard	2 (33.33)	2 (33.33)	1 (16.67)	— —	1 (33.33)	2 (66.67)	1 (33.33)
		Tech Qualified	- (-)	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)
4	Land Holding	Nil	1 (16.67)	— (-)	2 (33.33)	2 (66.67)	3 (100.00)	2 (66.67)	1 (33.33)
		<1 ha	2 (33.33)	3 (50.00)	3 (50.00)	1 (33.33)	— (-)	— (-)	1 (33.33)
		1-2 ha	2 (33.33)	2 (33.33)	1 (16.67)	— (-)	— (-)	1 (33.33)	1 (33.33)
		2-4 ha	1 (16.67)	1 (16.67)	— (-)	— (-)	— (-)	— (-)	— (-)
		4-10 ha	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)
		>10 ha	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)	— (-)
		Secondary							

Contd.Table-3.4.2

Contd.Table-3.4.2

(Numbers)

Sl. No.	Variables	Category	Food Processing Units Reporting			Non-Food Processing Units Reporting			
			Processing Activity-I (Fruit) (6)	Processing Activity-II (Paddy) (6)	Processing Activity-III (Fish) (6)	Processing Activity-IV (Leather) (3)	Processing Activity-V (Paper) (3)	Processing Activity-VI (textile) (3)	Processing Activity-VII (Wood) (3)
5	Previous Experience in Selected Activity	Nil	—	—	—	—	—	—	—
		<5 yrs.	—	—	—	—	—	1 (33.33)	—
		5-10 yrs.	3 (50.00)	1 (16.67)	— (-)	1 (33.33)	1 (33.33)	1 (33.33)	1 (33.33)
		10-20 yrs.	2 (33.33)	3 (50.00)	4 (66.67)	2 (66.67)	2 (66.67)	1 (33.33)	1 (33.33)
		20-30 yrs.	1 (16.67)	1 (16.67)	2 (33.33)	— (-)	— (-)	— (-)	1 (33.33)
		>30 yrs.	— (-)	1 (16.67)	— (-)	— (-)	— (-)	— (-)	— (-)
6	Nature of Experience	Learned Traditionally	3 (50.00)	4 (66.67)	3 (50.00)	— (-)	— (-)	— (-)	1 (33.33)
		Working Experience	2 (33.33)	1 (16.67)	2 (33.33)	1 (33.33)	1 (33.33)	1 (33.33)	2 (66.67)
		Trained	1 (16.67)	1 (16.67)	1 (16.67)	2 (66.67)	2 (66.67)	2 (66.67)	— (-)

Note : Figures in brackets indicate percentages

Data Source: Primary survey data

important factor (83.33 per cent) for undertaking the activity. Again, nearly, 58.33 per cent of the entrepreneurs have reported previous experience as the motivating factor behind choosing the non-food processing activity.

Details regarding the size of the family and its composition of the sample entrepreneurs were collected during the study which are presented in table – 3.4.4.

The table indicates that the average size of the family of the sample entrepreneurs ranged between 4 and 5 for food processing enterprises while the same varied between 3 and 5 for non-food processing units. Considering the number of persons who were dependent on workers/earners, dependency ratios have been calculated and are presented in the table. As may be seen from the table the average dependency ratio ranged between 30.00 per cent and 50.00 per cent for food processing industries. Dependency ratio is smaller for fish processing activity which indicates greater participation of the household members in the business activity. For non-food processing enterprises, dependency ratio varied between 17.00 per cent in the case of textile units and 61.00 per cent in the case of paper-

Table – 3.4.3
Motivating Factors for the Sample Entrepreneurs

(Numbers)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Entrepreneurs Reporting							
		Traditionally followed	Previous experience	Demonstration effect	Persuasion by others	Higher profit margin	Demand for the product	Lack of other avenues	To get employment
Fruit (mango) processing	OAME	3 (100.00)	2 (66.67)	2 (66.67)	– (--)	– (--)	– (--)	2 (66.67)	3 (100.00)
	NDME	1 (50.00)	1 (50.00)	1 (50.00)	1 (50.00)	1 (50.00)	2 (100.00)	– (--)	2 (100.00)
	DME	1 (100.00)	1 (100.00)	– (--)	– (--)	1 (100.00)	1 (100.00)	– (--)	– (--)
	All	5 (83.33)	4 (66.67)	3 (50.00)	1 (16.67)	2 (33.33)	3 (50.00)	2 (33.33)	5 (83.33)
Paddy processing	OAME	3 (100.00)	3 (100.00)	3 (100.00)	– (--)	– (--)	– (--)	2 (66.67)	3 (100.00)
	NDME	2 (100.00)	2 (100.00)	1 (50.00)	– (--)	– (--)	– (--)	1 (50.00)	2 (100.00)
	DME	– (--)	1 (100.00)	– (--)	– (--)	1 (100.00)	1 (100.00)	– (--)	– (--)
	All	5 (83.33)	6 (100.00)	4 (66.67)	– (--)	1 (16.67)	1 (16.67)	3 (50.00)	5 (83.33)
Fish processing	OAME	3 (100.00)	3 (100.00)	3 (100.00)	– (--)	– (--)	– (--)	2 (66.67)	3 (100.00)
	NDME	1 (50.00)	1 (50.00)	1 (50.00)	– (--)	– (--)	– (--)	1 (50.00)	2 (100.00)
	DME	– (--)	1 (100.00)	– (--)	– (--)	1 (100.00)	1 (100.00)	– (--)	– (--)
	All	4 (66.67)	5 (83.33)	4 (66.67)	– (--)	1 (16.67)	1 (16.67)	3 (50.00)	5 (83.33)
Leather and its products	OAME	1 (100.00)	1 (100.00)	1 (100.00)	– (--)	– (--)	– (--)	1 (100.00)	1 (100.00)
	NDME	– (--)	– (--)	1 (100.00)	1 (100.00)	1 (100.00)	1 (100.00)	– (--)	1 (100.00)
	DME	– (--)	1 (100.00)	– (--)	– (--)	1 (100.00)	1 (100.00)	– (--)	– (--)
	All	1 (33.33)	2 (66.67)	2 (66.67)	1 (33.33)	2 (66.67)	2 (66.67)	1 (33.33)	2 (66.67)
Paper and its products	OAME	1 (100.00)	– (--)	– (--)	– (--)	1 (100.00)	1 (100.00)	– (--)	1 (100.00)
	NDME	– (--)	1 (100.00)	1 (100.00)	– (--)	1 (100.00)	1 (100.00)	– (--)	– (--)

Contd.Table-3.4.3

Contd.Table-3.4.3

(Numbers)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Entrepreneurs Reporting							
		Traditionally followed	Previous experience	Demonstration effect	Persuasion by others	Higher profit margin	Demand for the product	Lack of other avenues	To get employment
	DME	1 (100.00)	— (--)	— (--)	— (--)	1 (100.00)	1 (100.00)	— (--)	— (--)
	All	2 (66.67)	1 (33.33)	1 (33.33)	— (--)	3 (100.00)	3 (100.00)	— (--)	1 (33.33)
Textile product (Jute)	OAME	— (--)	1 (100.00)	1 (100.00)	1 (100.00)	1 (100.00)	1 (100.00)	1 (100.00)	1 (100.00)
	NDME	— (--)	— (--)	1 (100.00)	— (--)	1 (100.00)	1 (100.00)	— (--)	— (--)
	DME	— (--)	1 (100.00)	1 (100.00)	— (--)	1 (100.00)	1 (100.00)	— (--)	— (--)
	All	— (--)	2 (66.67)	3 (100.00)	1 (33.33)	3 (100.00)	3 (100.00)	1 (33.33)	1 (33.33)
Wood and its products	OAME	1 (100.00)	1 (100.00)	— (--)	— (--)	— (--)	— (--)	1 (100.00)	1 (100.00)
	NDME	1 (100.00)	1 (100.00)	— (--)	— (--)	1 (--)	1 (--)	— (--)	1 (--)
	DME	— (--)	— (--)	— (--)	1 (100.00)	1 (100.00)	1 (100.00)	— (--)	— (--)
	All	2 (66.67)	2 (66.67)	— (--)	1 (33.33)	2 (66.67)	2 (66.67)	1 (33.33)	2 (66.67)

Note : Figures in brackets indicate percentages of total entrepreneurs in the category of enterprise.
Data Source: Primary survey data

based units. The average dependency ratio is found to be higher for non-food processing units (43.40 per cent) as compared to those of food processing units (38.88 per cent). Greater engagement of family labour in the food processing activity reduced the dependency level for the entrepreneurs of the food processing units. It can also be seen that, in majority of cases women are also the earning members in the entrepreneurs family of the food processing units.

To sum up, the sample districts are mainly agrarian except the district of 24 Parganas. The district of 24 Parganas is the industrialized district in the state having longest number of working factories concentrated here. The jute and cotton mills are the oldest industrial units in the district. As between North and South 24 Parganas, the latter is predominantly agricultural and is extremely rich in fish fauna. The varieties of fish are commonly found in the district.

Profile of the sample entrepreneurs shows that the processing units are mainly owned by those belonging to the category of 'others' i.e. other than SC, ST

Table – 3.4.4
Average Size of the Family and its Composition of Sample Entrepreneurs

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Men (Nos.)		Women (Nos.)		Total family member (Nos.)	Average size of family (Nos.)	Dependency ratio (%)
		Earner	Dependent	Earner	Dependent			
Fruit (mango) Processing	OAME	6	1	5	2	14	4.67	21.43
	NDME	3	1	0	5	9	4.50	66.67
	DME	1	0	2	1	4	4.00	25.00
	ALL	10	2	7	8	27	4.50	37.03
Paddy Processing	OAME	5	1	4	4	14	4.67	35.71
	NDME	4	1	0	7	12	6.00	66.67
	DME	1	1	1	1	4	4.00	50.00
	ALL	10	3	5	12	30	5.00	50.00
Fish Processing	OAME	9	1	6	1	17	5.67	11.76
	NDME	4	2	2	3	11	5.50	45.45
	DME	2	0	0	3	5	5.00	60.00
	ALL	15	3	8	7	33	5.50	30.30
Leather and its products	OAME	2	0	2	0	4	4.00	0.00
	NDME	2	0	1	1	4	4.00	25.00
	DME	1	1	0	1	3	3.00	66.67
	ALL	5	1	3	2	11	3.67	27.27
Paper and its products	OAME	1	1	1	1	4	4.00	50.00
	NDME	1	2	0	2	5	5.00	80.00
	DME	1	1	1	1	4	4.00	50.00
	ALL	3	4	2	4	13	4.33	61.53
Textile Products (Jute)	OAME	1	0	1	1	3	3.00	33.33
	NDME	2	1	2	0	5	5.00	40.00
	DME	2	0	1	1	4	4.00	25.00
	ALL	5	1	4	2	12	4.00	16.67
Wood and its products	OAME	3	0	0	2	5	5.00	40.00
	NDME	2	0	0	4	6	6.00	66.67
	DME	3	1	0	2	6	6.00	50.00
	ALL	8	1	0	8	17	5.67	52.95

Data Source: Primary survey data

and OBC. In case of fish processing units, entrepreneurs are mostly from the SC and ST category. Educationally, majority of the entrepreneurs have their education attainment up to 10^{th} standard. However, entrepreneurs engaged in textile units which need technical know-how are better educated beyond the level of 10^{th} standard. All the sample entrepreneurs had previous experience in the present activity. Entrepreneurs of

food processing units are found to have learnt and followed the activity traditionally while majority of the entrepreneurs of non-food processing units received institutional training and gained working experience in carrying out the activity. With regard to the motivating factors behind the selection of the activity, it is found that getting employment is the major motivating factor as reported by the majority of entrepreneurs in the food-processing category of enterprises. Previous experience in the business emerged as the equally important motivating factor behind choosing the activity in the case of food processing units. In contrast, the units engaged non-food processing activities, reported higher profit margin as the major motivating factor that has motivated the entrepreneurs to take up the business activity.

Chapter-IV

Cost of Investment and its Financing

Processing units are usually characterized by the lack of uniformity in capital intensity, level of technology used, labour requirement, length in production /operation cycle, seasonality in production etc. High level of variation in capital intensity and lumpiness of the investment make wide variation in the cost of investment. This chapter attempts to analyse actual cost of investment of the sample processing activities covered under the study and it's financing. First of all, we look into the status of the sample units in terms of year of existence, registration status, area of operation etc.

4.1: Status of the Sample Units

In course of field visit, status of the units were ascertained in terms of year of existence, average age of the units and registration status which are indicated in table-4.1.1. It was observed that all the sample-processing units covered under the study were existing ones and none of the sample units was set up new (table-4.1.1). As the proportion of existing units was high, the average age of the sample units was also high. Age of the investment unit was the highest in fish processing units at 17.5 years followed by paddy processing 15.5 years, wood and its products 14.67 years, fruit processing 13.67 years, paper and its products 10.67years. The age of the units manufacturing jute-based textile products was lowest at 8.33years.

It was observed that investors are not keen on registering their units with DIC. Details on registration status of the units shown in table 4.1.1 indicate that 50 per cent of the total sample processing units was registered. Further, it was observed that within the group of food processing units, 50 per cent of the paddy processing units were registered as against the corresponding proportion of 17 per cent in case of fish processing units. Fruit processing units were found to have registered in about 33 per cent cases. Notably, it can also be seen that OAME units are entirely unregistered. In the non-food-processing segment, 67 per cent each from leather, textile and wood category are the registered units, and here again OAME units are entirely unregistered. Exceptionally, paper-based processing units are entirely registered. It can also be seen that the concerned activity is the main activity for all the non-food-processing units with only exception of OAME units manufacturing jute-based textile products. In the food-processing segment, for all the processing units other than OAME units of fruit processing, the concerned activity is seen to be the main activity. As may be noted from table 4.1.1, the average area of working place varied depending upon the requirement of the activity. The area of operation covered by the DME units of manufacturing enterprises is seen to be more than the other category of manufacturing units. Further, a relatively lesser work area is covered by OAME units of manufacturing enterprises.

Table – 4.1.1
Status of the Sample Units

(Numbers)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Status of Unit				Average age of the sample unit (years)	Registration Status		Average Area (sq.ft.)
		By occupation of the entrepreneurs		By year of existence					
		Main	Secondary	New	Existing		Registered	Not Registered	
Food Processing Units									
Fruit (mango processing)	OAME	1	2	-	3	11	-	3	367
	NDME	2	-	-	2	10.5	1	1	2650
	DME	1	-	-	1	28	1	-	21000
Paddy processing	OAME	3	-	-	3	15.33	-	3	667
	NDME	2	-	-	2	17.5	2	-	1350
	DME	1	-	-	1	12	1	-	28800
Fish processing	OAME	3	-	-	3	20	-	3	200
	NDME	2	-	-	2	14.5	-	2	700
	DME	1	-	-	1	16	1	-	20000
Non-Food Processing Units									
Leather and its products	OAME	-	1	-	1	20	-	1	800
	NDME	1	-	-	1	7	1	-	900
	DME	1	-	-	1	12	1	-	2000
Paper and its products	OAME	1	-	-	1	12	1	-	2800
	NDME	1	-	-	1	8	1	-	6000
	DME	1	-	-	1	12	1	-	9500
Textile product(jute)	OAME	-	1	-	1	3	-	1	600
	NDME	1	-	-	1	7	1	-	1200
	DME	1	-	-	1	15	1	-	3000
Wood and its products	OAME	1	-	-	1	10	-	1	750
	NDME	1	-	-	1	12	1	-	1100
	DME	1	-	-	1	22	1	-	2000

Data Source : Primary survey data

4.2: Cost of Investment

As indicated earlier in this chapter, sample processing units were existing ones and hence cost of the investment of the units at the time of establishing was hard to collect. Instead, item wise value of the existing investments made by the units were collected from the investors. Table 4.2.1 shows the details of investment made by the entrepreneurs of the sample processing units. It

Table – 4.2.1
Details of Investment made by Entrepreneurs of the Sample Processing Units

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Per Unit Investment (Rs.)		
		Block Capital	Working Capital	Total
Fruit (mango processing)	OAME	4666.67	34166.67	38833.34
		(12.02)	(87.98)	(100.00)
	NDME	45750	153500	199250
		(22.96)	(77.04)	(100.00)
	DME	2000000	4792000	6792000
		(29.45)	(70.55)	(100.00)
Average for 6 units		350916.67	866916.67	1217833.34
		(28.72)	(71.10)	(100.00)
Paddy Processing	OAME	6166.67	491666.67	497833.34
		(1.24)	(98.76)	(100.00)
	NDME	45000	659850	704850
		(6.39)	(93.61)	(100.00)
	DME	5800000	4096950	9896950
		(58.60)	(41.40)	(100.00)
Average for 6 units		984750	1148608.33	2133358.33
		(46.16)	(53.94)	(100.00)
Fish Processing	OAME	1416.67	63666.67	65083.34
		(2.18)	(97.82)	(100.00)
	NDME	6500	86500	93000
		(6.99)	(93.01)	(100.00)
	DME	550000	7800000	8350000
		(6.59)	(93.41)	(100.00)
Average for 6 units		94541.67	1360666.67	1455208.34
		(6.50)	(93.50)	(100.00)

Contd.Table-4.2.1

Contd.Table-4.2.1

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Per Unit Investment (Rs.)		
		Block Capital	Working Capital	Total
Leather and its products	OAME			108400
		15000	93400	
		(13.84)	(86.16)	(100.00)
	NDME	50000	634300	684300
		(7.37)	(92.69)	(100.00)
	DME	25000	939000	964000
		(2.59)	(97.41)	(100.00)
Average for 3 units		105000	555566.67	660566.67
		(15.90)	(84.10)	(100.00)
Paper and its products	OAME	30000	58400	88400
		(33.94)	(66.06)	(100.00)
	NDME	400000	555000	955000
		(41.89)	(58.11)	(100.00)
	DME	1225000	1729000	2954000
		(41.47)	(58.53)	(100.00)
Average for 3 units		551666.67	780800	1332466.67
		(41.40)	(58.60)	(100.00)
Textile products (jute)	OAME	5000	26900	31900
		(15.67)	(84.33)	(100.00)
	NDME	6000	55400	61400
		(9.77)	(90.23)	(100.00)
	DME	20000	169000	189000
		(10.58)	(89.42)	(100.00)
Average for 3 units		10333.33	83766.67	94100
		(10.98)	(89.02)	(100.00)
Wood and its products	OAME	2500	124000	126500
		(1.98)	(98.02)	(100.00)
	NDME	2500	141850	144350
		(1.73)	(98.27)	(100.00)
	DME	500000	616000	1116000
		(44.80)	(55.20)	(100.00)
Average for 3 units		168333.33	293950	462283.33
		(36.42)	(63.58)	(100.00)

Note : Figures in brackets indicate percentages of total investment.

Data Source : Primary survey data

appears that investment in units varies across the food and non-food processing segments of manufacturing enterprises. It is relatively higher in non-food processing segment as compared to its counterpart. Within the group of food-processing units, the size of the investment is higher in case of paddy processing activity while it is found

to be lower for the OAME and NDME units of fish processing activity. On the other hand, among the non-food processing units, size of the investment is seen to be higher in paper-based activity followed by leather-based activity. In general, within a category, size of the investment made by the entrepreneurs varies increasingly with the size of the unit. That is, investment made by OAME unit is lower than that of NDME unit which is again lower than that of DME unit.

Investment in block capital included expenditure on machinery, tools, equipment, electric items, building/ work shed. Working capital comprised of expenditure on procurement/storing of raw materials, payment to human labour, transportation charges, marketing expenses, tax, insurance payments etc. It can be seen that the size of the working capital got relatively larger share in all the processing units. The share of block capital in the case of food processing units is seen to have varied from 6.50 per cent in fish-processing units to 46.16 per cent in paddy-processing units. For the segment of non-food processing units, it ranged from 10.98 per cent in case of textile products to 41.40 per cent for paper-based activity. Working capital component got relatively larger share in the units like fish processing (93.50per cent) followed by fruit processing (71.10 per cent) in case of food-processing units. For non-food processing units, the share of working capital ranged from 58.60 per cent in case of paper-based activity to 89.02 per cent in case of units manufacturing jute-based textile products.

4.3: Financing of the Investment

Sources used for financing the investment are documented in table-4.3.1. The sources are categorized as own fund, institutional and non-institutional loans. As may be noted from table-4.3.1, on an average, food-processing industries met their investment requirement from own fund except the paddy processing activity. The similar is the case for non-food processing industries where it may be observed that only the paper-based processing units resorted to outside borrowing to bridge the gap between own contribution and actual cost of investment. Maximum own contribution for the investment was observed in the case of wood-based processing units at 79.24 per cent followed by leather processing units (69.65 per cent), jute-based textile products (68.72 per cent) and paper-making units at 34.46 per cent. The share of institutional loan ranged from 8.89 per cent to 33.02 per cent for such industries. For the units engaged in food-processing activity, the share of institutional loan was of the order of less than 1 per cent in the case of fruit processing units while it was 2.86 per cent in case of fish processing units. The pattern of financing the investment is observed to be markedly opposite in the

Table – 4.3.1
Financing of Investment

(Rupees)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Average Gross Value of Investment Per Unit	Sources of Fund Per Unit		
			Own Fund	Institutional Loan	Non-Institutional Loan
Fruit (mango processing)	OAME	38833.34	18833.33	1666.66	18333.33
			(48.50)	(4.29)	(47.21)
	NDME	199250	174250	25000	-
			(87.45)	(12.55)	(-)
	DME	6792000	6292000	-	500000
			(92.64)	(-)	(7.36)
	AVERAGE	1217833.34	1116166.67	9166.67	92500
			(91.65)	(0.75)	(7.60)
Paddy Processing	OAME	497833.34	176333.33	10000	311666.67
			(35.42)	(2.01)	(62.60)
	NDME	704850	227350	27500	450000
			(32.25)	(3.90)	(63.85)
	DME	9896950	1296950	6600000	2000000
			(13.10)	(66.69)	(20.21)
	AVERAGE	4893833.33	380108.33	1114166.67	639166.67
			(17.82)	(52.22)	(29.96)
Fish Processing	OAME	65083.34	31750	-	33333.33
			(48.78)	(-)	(51.22)
	NDME	93000	47750	-	45250
			(51.34)	(-)	(48.66)
	DME	8350000	4100000	250000	4000000
			(49.10)	(2.99)	(47.91)
	AVERAGE	1455208.34	715125	41666.67	698416.67
			(49.14)	(2.86)	(48.00)
Leather and its products	OAME	108400	51400	10000	47000
			(47.42)	(9.22)	(43.36)
	NDME	684300	434300	50000	200000
			(63.47)	(7.30)	(29.23)
	DME	1189000	489000	300000	400000
			(41.13)	(25.23)	(33.64)
	AVERAGE	660566.67	324900	120000	21566.67
			(69.65)	(25.73)	(4.62)
Paper and its products	OAME	88400	68400	20000	-
			(77.57)	(22.63)	(-)
	NDME	955000	355000	300000	300000
			(37.18)	(31.41)	(31.41)

Contd.table-4.3.1

Contd.table-4.3.1

(Rupees)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Average Gross Value of Investment Per Unit	Sources of Fund Per Unit		
			Own Fund	Institutional Loan	Non-Institutional Loan
	DME	2954000	954000	1000000	1000000
			(32.30)	(33.85)	(33.85)
	AVERAGE	1332466.67	459133.33	440000	433333.33
			(34.46)	(33.02)	(32.52)
Textile product(jute)	OAME	31900	31900	-	-
			(100.00)	(-)	(-)
	NDME	61400	61400	-	-
			(100.00)	(-)	(-)
	DME	189000	100000	25000	64000
			(52.91)	(13.23)	(33.86)
	AVERAGE	94100	64433.33	8333.33	21000.33
			(68.72)	(8.89)	(22.39)
Wood and its products	OAME	126500	51500	-	75000
			(40.71)	(-)	(59.29)
	NDME	144350	64350	-	80000
			(44.60)	(-)	(55.40)
	DME	1116000	516000	100000	500000
			(46.24)	(8.96)	(44.80)
	AVERAGE	462283.33	210616.67	33333.33	21833.33
			(79.24)	(12.54)	(8.22)

Note : Figures in brackets indicate percentages of total investment.

Data Source : Primary survey data

case of paddy processing units where institutional loan contributed 52.22 per cent of total investment. Units engaged in fish processing have taken loan from non-institutional sources to the tune of 48 per cent of their total investment in the activity.

To sum up, all the sample-processing units were existing ones, the average age of the unit being varied from 10 to 20 years in case of food processing units and from 3 to 22 years in case of non-food processing units. It is observed that investors are not keen on registering their units. On the aggregate, in about 50 per cent of the cases, entrepreneurs of the processing units are found to have registered their units. Notably, OAME units in all the category of enterprises are entirely unregistered. The concerned activity did appear as the main activity for the majority of processing units with only exception of OAME units of fruit processing in the food processing category and leather and textile units in the non-food processing category.

The size of the investment is found to be higher in case of paddy processing units within the group of food processing enterprises while it is seen to be lower in fish processing activity. Within the category of non-food processing units, the size of the investment is seen to be higher in paper-based activity. Further, within the category, the size of the investment varied increasingly with the size of the unit.

For all the processing units, the component of working capital got larger share in total investment. The share of block capital for food processing units varied from 6.50 per cent to 46.16 per cent of total investment while the same for non-food units ranged from 10.98 per cent to 41.40 per cent. Food processing industries with only exception of paddy processing enterprises met their investment requirement from own fund. For paddy processing unit, institutional loan contributed the major in financing their investment. For the units engaged in non-food processing activity, majority of the units are found to have financed the activity using their own funds. Only the paper-based industrial units have resorted to outside borrowing both from institutional and non-institutional sources in financing their investment.

Chapter-V

Economics of Investment in Agro-Processing Units

This Chapter attempts to analyze economics of agro-processing activities based on the primary data collected from the sample units. Working out of economics of the activities is done to assess the capability of the units to generate net income. In order to study the economics of investment in agro-processing units, details on working of the sample units are examined considering the level of working of the units, production cycle and operation cycle of the activities. Number of production cycles in a year were also assessed based on total number of working days in a year and seasonality of the activity. Actual costs and gross value of output were worked out to arrive at net income generated by the activity.

5.1: Production and Operation Cycle of the Activities

Details on level of working, production cycle, operation cycle, number of production cycles per year etc. is shown in table-5.1.1. The level of operation of the sample units varied from activity to activity. The level of utilization of the unit was assessed in terms of number of days worked in a month and that of number hours per day. It is seen that the level of utilization/working of the units was influenced by availability of working capital and seasonality of the activity in terms of input availability and demand for output. For all the activities, it is seen that monthly working days ranged between 26 to 30 days. The difference is noted in the case of per year working days. Working days per year for food processing units are relatively less than those of non-food processing units. Low level of demand for the product and non-availability of raw materials adversely affected the number of working days in a year for the food-processing industries.

Operation cycle of the activity included average days of input stored for smooth functioning of the unit, time taken for production (production cycle), output stocking period, time taken for marketing including credit realization. Depending on the time taken for processing of the input, the number of production cycles each unit completes is seen to be different. The normal feature, which has been observed is that the number of production cycles which a unit completes in a year differs with the type and size of activity. Notably within the category of food processing units, the number of cycles completed in a year increased with the size of the unit. Under the segment of food processing, paddy processing has the highest number of production cycles per year as its cycle is of 2–3 days. Relatively, longer duration of operation cycles was observed in the case of OAME units of fruit processing activity resulting in lower number of production cycles in a year. Within the fruit processing category, the number of production cycles

Table – 5.1.1
Details of Functioning of Units

(Per Unit)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Level of working		Operation Cycle (Number of days)					Working Days/Yr.	Prod. Cycle/Yr. (Number)
		Days/M	Hrs./Day	Input Stock	Prod. Process	Output Stock	Marketing	Credit Realisation		
Fruit	OAME	30	10	2	10	60	13	10	120	12
(Mango)	NDME	26	8	120	3	45	14	15	300	100
Processing	DME	26	8	180	2	30	7	30	300	150
	AVERAGE	28	9	70	3	50	11	15	210	70
Paddy	OAME	30	10	7	3	10	7	7	180	60
Processing	NDME	26	8	10	2	2	6	5	312	156
	DME	26	20	15	2	20	9	14	300	150
	AVERAGE	28	11	9	2	9	7	7	244	98
Fish	OAME	30	10	7	17	20	25	8	300	18
Processing	NDME	28	9	6	12	15	20	25	330	28
	DME	26	8	3	6	6	5	30	300	50
	AVERAGE	29	9	6	13	16	20	17	310	24
Leather	OAME	26	10	10	4	15	15	20	300	75
and its	NDME	26	9	7	2	9	12	25	250	125
Products	DME	26	8	10	3	15	15	30	290	97
	AVERAGE	26	9	9	3	13	14	15	280	93
Paper	OAME	26	10	30	2	10	10	10	350	175
and its	NDME	26	10	15	2	5	5	20	310	155
Products	DME	26	8	15	3	12	12	15	300	100
	AVERAGE	26	9	20	2	9	9	15	320	137
Textile	OAME	30	10	10	3	7	7	10	350	117
Product	NDME	30	9	8	2	6	6	15	331	166
(Jute)	DME	26	8	15	1	5	5	20	300	300
	AVERAGE	29	9	11	2	6	6	15	327	164
Wood	OAME	30	10	8	3	15	10	5	350	117
and its	NDME	26	8	7	5	20	14	6	320	64
Products	DME	26	8	6	4	25	15	10	300	75
	AVERAGE	27	9	7	4	20	13	7	325	81

Data Source: Primary survey data

completed in a year is relatively more in NDME and DME units as each cycle comprised of 2–3 days. For food processing units, longer duration of production cycle was observed in the case of fish processing units resulting in lower number of production cycles completed in a year. Among the non-food processing activities covered under the study, all the activities have low duration of production cycles and

thus the number of production cycles completed in a year is comparatively high for them as compared to their food-processing counterpart.

Within the group of food processing units, longest operation cycle also was observed in the case of fruit processing units. Longer input storing period and output stock required for marketing led to a relatively to longer operation cycle for fruit processing units. For non-food processing units, longest operation cycle was observed in the case of paper-based units followed by leather units. Longer input storing period and credit realization time were the reasons for higher operation cycle for paper-based units whereas longer output stocking period and time required for marketing largely affected operation cycle of leather units. It is seen that the number of days taken for credit realization is relatively low at 7 days for paddy processing and wood-based manufacturing units while for other units the credit realization period varied from 15–17 days. Within the food processing segment, the delay in marketing of the produce was observed in case of fish processing units followed by fruit processing while for non-food processing units, the time taken for marketing averaged between 6–14 days.

5.2: Sources of Raw Materials and Marketing Linkages of the Processed Product

This section deals with the markets from where the units obtain their raw materials and sell their finished product. This gives us an idea about the number of linkages the producers have with various input and output markets.

At the very outset, it needs to be emphasized that the sample food processing units are relatively smaller units and as such, they have the limited capacity to reach out to various markets. As observed from table-5.2.1, the food processing units as a whole have obtained raw materials from farmers directly (72.22 per cent) and they do not have strong linkages with input market. Non-food processing units however directly come in contact with the market through established trade/ market channel, having obtained raw materials from the input market. Further, it is observed that some of the units have reportedly procured raw materials from more than one source, the proportion of such units being 22 per cent for food processing units and 50 per cent for non-food processing units.

With regard to the produce sold by the processing units (table–5.2.2), the sample processing units are found to have linkage with various domestic markets stretching from the home district to various places all over India. It can be noticed that the unit owners (both food and non-food) come in contact with the terminal markets located in other districts even in other states of India apart from having their linkage with the local output market. In case of food processing units, the participation of the units in the local product market is relatively more as

Table – 5.2.1
Sources of Raw Materials
(Production Inputs Reported by Sample Processing Units)

Name of the Processing Activity	Type of enterprise (OAME/NDME/ DME)	Units Reporting Sources of Raw Materials (Nos.)			
		Source - 1	Source - 2	Source - 3	Source - 4
		Farmers directly	Farmer's Co-operative Society	Established trade channel	Established market channel
Fruit (Mango) Processing	OAME	3	0	0	0
		(100.00)	(--)	(--)	(--)
	NDME	1	0	1	1
		(50.00)	(--)	(50.00)	(50.00)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	4	0	2	2
		(67.00)	(--)	(33.33)	(33.33)
Paddy Processing	OAME	3	0	0	0
		(100.00)	(--)	(--)	(--)
	NDME	1	0	0	1
		(50.00)	(--)	(--)	(100.00)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	4	0	1	2
		(67.00)	(--)	(16.67)	(33.33)
Fish Processing	OAME	3	0	0	0
		(100.00)	(--)	(--)	(--)
	NDME	2	0	0	0
		(100.00)	(--)	(--)	(--)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	5	0	1	1
		(83.33)	(--)	(16.67)	(16.67)
Food Processing Units		**13**	**0**	**4**	**5**
		(72.22)	**(--)**	**(22.22)**	**(27.78)**
Leather and its Products	OAME	0	0	0	1
		(--)	(--)	(--)	(100.00)
	NDME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	0	0	2	3
		(--)	(--)	(66.67)	(100.00)

Contd.Table-5.2.1

Contd.Table-5.2.1

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Units Reporting Sources of Raw Materials (Nos.)			
		Source - 1	Source - 2	Source - 3	Source - 4
		Farmers directly	Farmer's Co-operative Society	Established trade channel	Established market channel
Paper and its Products	OAME	0	0	0	1
		(--)	(--)	(--)	(100.00)
	NDME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	0	0	2	3
		(--)	(--)	(66.67)	(100.00)
Textile Products (Jute)	OAME	0	0	0	1
		(--)	(--)	(--)	(100.00)
	NDME	0	0	0	1
		(--)	(--)	(--)	(100.00)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	0	0	1	3
		(--)	(--)	(33.33)	(100.00)
Wood and its Products	OAME	0	0	0	1
		(--)	(--)	(--)	(100.00)
	NDME	0	0	0	1
		(--)	(--)	(--)	(100.00)
	DME	0	0	1	1
		(--)	(--)	(100.00)	(100.00)
	ALL	0	0	1	3
		(--)	(--)	(33.33)	(100.00)
Non-Food Processing Units		**0**	**0**	**6**	**12**
		(--)	**(--)**	**(50.00)**	**(100.00)**

Note : Figures in brackets indicate percentages of total reporting units. Percentage figures do not add up to 100 because some units have reported more than one source

Data Source: Primary survey data

Table – 5.2.2
Terminal Markets where Produce is sold by Sample Processing Units

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Units Reporting Terminal Markets (Nos.)				
		Market - 1		Market - 2	Market - 3	Market - 4
		Locally	Within district	Other District	Other State	Other Country
Fruit	OAME	3	2	0	0	0
		(100.00)	(66.63)	(--)	(--)	(--)
	NDME	2	2	2	2	0
		(100.00)	(100.00)	(100.00)	(100.00)	(--)
	DME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	ALL	5	5	3	3	0
		(83.33)	(83.33)	(50.00)	(50.00)	(--)
Paddy	OAME	3	3	0	0	0
		(100.00)	(100.00)	(--)	(--)	(--)
	NDME	2	2	2	0	0
		(100.00)	(100.00)	(100.00)	(--)	(--)
	DME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	ALL	5	6	3	1	0
		(83.33)	(100.00)	(50.00)	(16.67)	(--)
Fish	OAME	3	3	0	0	0
		(100.00)	(100.00)	(--)	(--)	(--)
	NDME	2	2	2	0	0
		(100.00)	(100.00)	(100.00)	(--)	(--)
	DME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	ALL	5	6	3	1	0
		(83.33)	(100.00)	(50.00)	(16.67)	(--)
Leather	OAME	0	1	1	0	0
		(--)	(100.00)	(100.00)	(--)	(--)
	NDME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	DME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	ALL	0	3	3	2	0
		(--)	(100.00)	(100.00)	(66.67)	(--)
Paper	OAME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	NDME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	DME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	ALL	0	3	3	3	0
		(--)	(100.00)	(100.00)	(100.00)	(--)

Contd.Table-5.2.2

Contd.Table-5.2.2

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Units Reporting Terminal Markets (Nos.)				
		Market - 1		Market - 2	Market - 3	Market - 4
		Locally	Within district	Other District	Other State	Other Country
Jute	OAME	1	1	1	0	0
		(100.00)	(100.00)	(100.00)	(--)	(--)
	NDME	1	1	1	1	0
		(100.00)	(100.00)	(100.00)	(100.00)	(--)
	DME	1	1	1	1	0
		(100.00)	(100.00)	(100.00)	(100.00)	(--)
	ALL	3	3	3	2	0
		(100.00)	(100.00)	(100.00)	(66.67)	(--)
Wood	OAME	0	1	1	0	0
		(--)	(100.00)	(100.00)	(--)	(--)
	NDME	0	1	1	0	0
		(--)	(100.00)	(100.00)	(--)	(--)
	DME	0	1	1	1	0
		(--)	(100.00)	(100.00)	(100.00)	(--)
	ALL	0	3	3	1	0
		(--)	(100.00)	(100.00)	(33.33)	(--)

Note : Figures in brackets indicate percentages of total reporting units.
Data Source: Primary survey data

compared to those of non-food processing units.

It can be observed that no processing unit in the sample except the fish-processing unit has involvement in the export market. For the fish processing units, 2 units out of the sample of 6 units are found to have participated in the export market, one unit each through domestic based export merchant and domestic based export agent. For the other categories of sample units, no unit in the sample has been found to have the capacity to export the produce and hence the entire output has been sold domestically. Table–5.2.3 presents the quantity and value of output of processed product and volume of output sold in the market. All the units except the DME units of the fish processing activity reported that the entire output of processed product is marketed domestically. In case of DME units of fish processing activity the processed product is seen to be sold in the export market to the tune of about 80 per cent of total processed product.

Table-5.2.4 carries information about the number of channels for procuring raw materials. The table shows that except for the paddy processing and fish processing units, majority of all other units reported to have purchased raw materials through established trade/ market channels. In case of paddy processing and fish processing units, majority of them are found to have purchased raw materials from farmers directly. No unit in the total sample has not reported

Table–5.2.3
Marketing of the Processed Product

Name of the Processing Activity	Type of Enterprises (OAME/NDME/DME)	Total Output of Processed Product (average for all the units in the category)		Output Marketed in (average for all the units in the category) Domestic Market		Total value of Marketed Output	Percent of Output Sold Domestically	Percent of Output Sold in the Export Market
		Unit (Kg.)	Value (Rs.)	Unit (Kg.)	Value (Rs.)			
Fruit	OAME	450	89666.67	450	89666.67	89666.67	100.00	Nil
	NDME	5175	265000	5175	265000	265000	100.00	Nil
	DME	120000	6000000	120000	6000000	6000000	100.00	Nil
	AVERAGE	21950	1133166.67	21950	1133166.7	1133166.67	100.00	Nil
Paddy	OAME	41417	555500	41417	555500	555500	100.00	Nil
	NDME	59174	777500	59174	777500	777500	100.00	Nil
	DME	1925940	26000200	1925940	26000200	26000200	100.00	Nil
	AVERAGE	361423	4870283.33	361423	4870283.3	4870283.33	100.00	Nil
Fish	OAME	992	110633.33	992	110633.33	110633.33	100.00	Nil
	NDME	1263	146200	1263	146200	146200	100.00	Nil
	DME	30000	9000000	6000	1800000	9000000	20.00	80.00
	AVERAGE	5917	2101750	5917	2101750	2101750	100.00	Nil
Leather	OAME	1000 pcs	150000	1000 pcs	150000	150000	100.00	Nil
	NDME	1200 pcs	708000	1200 pcs	708000	708000	100.00	Nil
	DME	10208 pcs	1225000	10208 pcs	1225000	1225000	100.00	Nil
	AVERAGE	4136 pcs	694333.33	4136 pcs	694333.33	694333.33	100.00	Nil
Paper	OAME	3430 boxes	120000	3430 boxes	120000	120000	100.00	Nil
	NDME	15000 boxes	754000	15000 boxes	754000	754000	100.00	Nil
	DME	46000 boxes	2304000	46000 boxes	2304000	2304000	100.00	Nil
	AVERAGE	21477 boxes	1059333.33	21477 boxes	1059333.3	1059333.33	100.00	Nil
Jute	OAME	1625 pcs	65000	1625 pcs	65000	65000	100.00	Nil
	NDME	2040 pcs	102000	2040 pcs	102000	102000	100.00	Nil
	DME	5820 pcs	320000	5820 pcs	320000	320000	100.00	Nil
	AVERAGE	3162 pcs	162333.33	3162 pcs	162333.33	162333.33	100.00	Nil
Wood	OAME	150 pcs	180000	150 pcs	180000	180000	100.00	Nil
	NDME	160 pcs	195000	160 pcs	195000	195000	100.00	Nil
	DME	625 pcs	1025000	625 pcs	1025000	1025000	100.00	Nil
	AVERAGE	312 pcs	466666.67	312 pcs	466666.67	466666.67	100.00	Nil

Data source: Primary survey data

purchases from farmers' co-operative societies. Table-5.2.5 presents the number of channels of marketing for selling the processed product domestically. It can be seen that the food processing units in major cases, have sold their products through market functionaries like middlemen, retailer and wholesalers while the majority of those of non-food processing units have marketed their product directly in the terminal market.

Table – 5.2.4

Marketing Channels for Purchasing the Raw Materials

Channel	Food Processing Units Reporting (Nos.)			Non-Food Processing Units Reporting (Nos.)			
	Processing Activity-I Fruit (mango) processing (6)	Processing Activity-II (Paddy processing) (6)	Processing Activity-III (Fish processing) (6)	Processing Activity-IV (Leather and its products) (3)	Processing Activity-V (Paper and its products) (3)	Processing Activity-VI Textile (Jute) products (3)	Processing Activity-VII (Wood and its products) (3)
1. Purchasing raw materials from farmers directly	2 (33.33)	5 (83.33)	4 (66.67)	0 (--)	0 (--)	0 (--)	1 (33.33)
2. Purchasing raw materials from farmers' Cooperative Societies	0 (--)	0 (--)	0 (--)	0 (--)	0 (--)	0 (--)	0 (--)
3. Purchasing raw materials through established trade channels and market channels	4 (66.67)	1 (16.67)	2 (33.33)	3 (100.00)	3 (100.00)	3 (100.00)	2 (66.67)

Data Source: Primary survey data

Table – 5.2.5

Marketing Channels for Selling the Processed Product Domestically

Channel	Food Processing Units Reporting (Nos.)			Non-Food Processing Units Reporting (Nos.)			
	Processing Activity-I Fruit (mango) processing (6)	Processing Activity-II (Paddy processing) (6)	Processing Activity-III (Fish processing) (6)	Processing Activity-IV (Leather and its products) (3)	Processing Activity-V (Paper and its products) (3)	Processing Activity-VI Textile (Jute) products (3)	Processing Activity-VII (Wood and its products) (3)
1. Selling the processed product directly in the terminal market	3 (50.00)	1 (16.67)	1 (16.67)	2 (33.33)	3 (50.00)	3 (50.00)	3 (50.00)
2. Selling the product through market functionaries							
a) Middlemen	4 (66.67)	1 (16.33)	4 (66.67)	1 (33.33)	1 (33.33)	1 (33.33)	0 (--)
b) Retailer	2 (33.33)	3 (50.00)	0 (--)	0 (--)	0 (--)	1 (33.33)	3 (100.00)
c) Wholesaler	2 (33.33)	2 (33.33)	2 (33.33)	2 (66.67)	2 (66.67)	1 (33.33)	0 (--)

Data Source: Primary survey data

5.3: Cost of Production

Costs involved in the production process consisted of two components viz. recurring fixed costs and recurring variable costs. Recurring fixed costs are those which are occurring at periodic intervals and generally not keeping any correlation with the level of production. Recurring variable costs referred to those costs that vary with level of production, almost proportionately. Items figuring under the head of recurring fixed costs are depreciation of assets, interest payment for loan taken, periodic maintenance cost, insurance premium, tax, salaries, bonus etc. Apart from the interest on bank loan paid by the sample investors, alternative cost of own fund at the prevailing interest rate on deposits was also taken into account. Details of recurring fixed cost, incurred annually by the sample investors, are given in Table – 5.3.1

Table – 5.3.1

Recurring Fixed Costs (Per Unit)

(Rupees/yr.)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Interest on Capital			Depreciation	Other fixed costs	Total
		Own Fund	Bank Loan	Other Loan			
Fruit (Mango) Processing	OAME	464.67 (29.70)	166.67 (10.65)	466.67 (29.82)	466.67 (29.82)	-- (--)	1564.68 (100.00)
	NDME	1750 (4.49)	2500 (6.41)	4500 (11.54)	5500 (14.10)	24750 (63.46)	39000 (100.00)
	DME	200000 (13.23)	-- (--)	-- (--)	200000 (13.23)	1112000 (73.54)	1512000 (100.00)
	AVERAGE	34150 (12.90)	916.67 (0.35)	1733.33 (0.65)	35900 (13.56)	192083.33 (72.54)	264783.33 (100.00)
Paddy Processing	OAME	750 (22.28)	1600 (47.52)	-- (--)	616.67 (18.32)	400 (11.88)	3366.67 (100.00)
	NDME	1900 (6.30)	2750 (9.12)	-- (--)	4500 (14.92)	21000 (69.65)	30150 (100.00
	DME	100000 (4.04)	565000 (22.82)	96000 (3.88)	580540 (23.44)	1134650 (45.82)	2476190 (100.00)
	AVERAGE	1757.5 (0.43)	95883.33 (23.47)	16000 (3.92)	98565 (24.13)	196308.33 (48.05)	408514.16 (100.00)
Fish Processing	OAME	258.33 (46.97)	-- (--)	-- (--)	141.67 (25.76)	150 (27.27)	550 (100.00)
	NDME	1000 (51.28)	-- (--)	-- (--)	650 (33.33)	300 (15.38)	1950 (100.00)
	DME	25000 (2.34)	50000 (4.67)	-- (--)	30000 (2.80)	965000 (90.19)	1070000 (100.00)
	AVERAGE	4629.17 (2.65)	8333.33 (4.77)	-- (--)	528.75 (0.30)	161008.33 (92.27)	174499.58 (100.00)

Cont.Table-5.3.1

Cont.Table-5.3.1

(Rupees/yr.)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Interest on Capital			Depreciation	Other fixed costs	Total
Leather and its product	OAME	500 (13.89)	1100 (30.55)	-- (--)	1500 (41.67)	500 (13.89)	3600 (100.00)
	NDME	1000 (7.69)	5000 (38.46)	-- (--)	5000 (38.46)	2000 (15.38)	13000 (100.00)
	DME	10000 (3.30)	30000 (9.90)	10000 (3.30)	25000 (8.25)	228000 (75.25)	303000 (100.00)
	AVERAGE	3833.33 (3.70)	12033.33 (11.62)	333.33 (0.32)	10500 (10.14)	76833.33 (74.21)	103533.32 (100.00)
Paper and its product	OAME	500 (6.67)	2000 (26.67)	-- (--)	3000 (40.00)	2000 (26.67)	7500 (100.00)
	NDME	10000 (5.40)	30000 (16.22)	-- (--)	40000 (21.62)	105000 (56.76)	185000 (100.00)
	DME	30000 (5.55)	100000 (18.52)	-- (--)	125000 (23.15)	285000 (52.78)	540000 (100.00)
	AVERAGE	13500 (5.53)	44000 (18.02)	-- (--)	56000 (22.93)	130666.67 (53.52)	244166.67 (100.00)
Textile Products (Jute)	OAME	1000 (66.67)	-- (--)	-- (--)	500 (33.33)	-- (--)	1500 (100.00)
	NDME	2000 (71.43)	-- (--)	-- (--)	600 (21.43)	200 (7.14)	2800 (100.00)
	DME	4000 (44.44)	2500 (27.78)	-- (--)	2000 (22.22)	500 (5.56)	9000 (100.00)
	AVERAGE	2333.33 (52.63)	833.33 (18.80)	-- (--)	1033.33 (23.31)	233.33 (5.26)	4433.32 (100.00)
Wood and its Products	OAME	500 (52.63)	-- (--)	200 (21.05)	250 (26.31)	-- (--)	950 (100.00)
	NDME	250 (25.00)	-- (--)	500 (50.00)	250 (25.00)	-- (--)	1000 (100.00)
	DME	20000 (10.05)	10000 (5.03)	10000 (5.03)	50000 (25.12)	109000 (54.77)	199000 (100.00)
	AVERAGE	6916.67 (10.33)	3333.33 (4.98)	3566.67 (5.32)	16833.33 (25.13)	36333.33 (54.24)	66983.33 (100.00)

Note : Figures in brackets indicate percentages of total recurring fixed costs.
Data Source : Primary survey data

As may be noticed from table – 5.3.1, all the activities incurred some recurring fixed costs. Within the group of food processing units, investment in paddy processing unit has a very high fixed cost of Rs.424331.67 followed by fruit processing activity at Rs.264283.33 and fish processing unit at Rs.175091.67 per year. For the non-food processing units, annual recurring fixed cost was very minimum at Rs.4433.33 in case of units manufacturing textile (jute) products, followed by manufacturing units of

wood-based products at Rs.66916.67, leather based products at Rs.106533.33 and paper-based products at Rs.244166.67. Heavy fixed cost incurred by the units manufacturing paper-based products was mainly on account of higher depreciation charges (due to higher investment in machinery), higher interest payment for the bank loan and other annual costs like insurance and tax payments. On the other, low depreciation cost due to capital saving nature of the investment, relatively lower loan amount and thereby interest payments, had contributed to keep the recurring fixed cost at very low level in the case of manufacturing units of textile (jute) products covered under the study.

Variable Cost of Production

Recurring variable cost of all the activities were calculated to arrive at net income of the activity. Annual average recurring variable cost of the investments included cost on raw materials (including transportations), wages, marketing charges (including transportation), electricity charge, interest on working capital, repair and replacement on machinery etc. In order to work out the realistic economics of the activity, efforts put in by the family labour involved in activity have been assigned value at par with the outside labour wage (ruling wage) prevailing in the local area. Table 5.3.2 shows details of variable cost of the investment covered under the study.

Table – 5.3.2

Recurring Variable Costs of the Investment (Per Unit)

(Rupees/yr.)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Repair & Replacement on Machinery	Cost on Raw Materials	Wages	Marketing Cost	Electricity Charges	Interest on Working Capital	Total
Fruit (Mango) Processing	OAME	-- (--)	33666.67 (84.31)	-- (--)	500.00 (1.25)	-- (--)	5766.67 (14.44)	39933.34 (100.00)
	NDME	1250.00 (0.75)	124250.00 (74.96)	21000.00 (12.67)	5750.00 (3.47)	7500.00 (4.52)	6000.00 (3.62)	165750.00 (100.00)
	DME	50000.00 (1.29)	2050000.00 (52.73)	630000.00 (16.20)	1040000.00 (26.75)	48000.00 (1.23)	70000.00 (1.80)	3888000.00 (100.00)
	AVERAGE	8750.00 (1.21)	399916.67 (55.30)	112000.00 (15.49)	175500.00 (24.27)	10500.00 (1.45)	16550.00 (2.28)	723216.67 (100.00)
Paddy Processing	OAME	-- (--)	489166.67 (98.76)	-- (--)	3333.33 (0.67)	-- (--)	2800.00 (0.56)	495300.00 (100.00)
	NDME	2500.00 (0.37)	626600.00 (93.61)	10250.00 (1.53)	5000.00 (0.75)	21000.00 (3.14)	4000.00 (0.60)	669350.00 (100.00)
	DME	125000.00 (0.58)	20679300.00 (96.37)	150000.00 (0.70)	342000.00 (1.59)	115000.00 (0.53)	50000.00 (0.23)	21461300.00 (100.00)
	AVERAGE	21666.67 (0.53)	3900000.00 (94.59)	28416.70 (0.69)	60500.00 (1.47)	26166.70 (0.63)	86066.67 (2.09)	4122816.68 (100.00)

Contd.Table-5.3.2

Contd.Table-5.3.2

(Rupees/yr.)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Repair & Replacement on Machinery	Cost on Raw Materials	Wages	Marketing Cost	Electricity Charges	Interest on Working Capital	Total
Fish Processing	OAME	-- (--)	63666.67 (98.84)	-- (--)	-- (--)	-- (--)	750.00 (1.16)	64416.67 (100.00)
	NDME	-- (--)	73250.00 (83.24)	13500.00 (15.34)	-- (--)	-- (--)	1250.00 (1.42)	88000.00 (100.00)
	DME	50000.00 (0.72)	4520000.00 (64.71)	1995000.00 (28.56)	200000.00 (2.86)	120000.00 (1.72)	100000.00 (1.43)	6985000.00 (100.00)
	AVERAGE	8333.33 (0.68)	809583.33 (66.06)	337000.00 (27.49)	33333.33 (2.72)	20000.00 (1.63)	17458.33 (1.42)	1225708.30 (100.00)
Leather and its product	OAME	500.00 (0.51)	91200.00 (93.06)	-- (--)	2200.00 (2.25)	3600.00 (3.67)	500.00 (0.51)	98000.00 (100.00)
	NDME	2000.00 (0.31)	537600.00 (83.87)	87000.00 (13.57)	7400.00 (1.16)	4000.00 (0.62)	3000.00 (0.47)	641000.00 (100.00)
	DME	20000.00 (2.47)	510000.00 (62.89)	147000.00 (18.12)	99000.00 (12.21)	25000.00 (3.08)	10000.00 (1.23)	811000.00 (100.00)
	AVERAGE	7500.00 (1.46)	379600.00 (73.90)	78000.00 (15.19)	33200.00 (6.46)	10866.70 (2.11)	4500.00 (0.88)	513666.67 (100.00)
Paper and its product	OAME	500.00 (0.80)	55400.00 (88.64)	-- (--)	1500.00 (2.40)	3600.00 (5.76)	1500.00 (2.40)	62500.00 (100.00)
	NDME	5000.00 (0.94)	450000.00 (84.42)	30000.00 (5.63)	5000.00 (0.94)	33000.00 (6.19)	10000.00 (1.88)	533000.00 (100.00)
	DME	10000.00 (0.60)	1440000.00 (86.54)	130000.00 (7.81)	16000.00 (0.96)	48000.00 (2.88)	20000.00 (1.20)	1664000.00 (100.00)
	AVERAGE	5166.67 (1.61)	216466.67 (67.40)	53333.30 (16.61)	7500.00 (2.33)	28200.00 (8.78)	10500.00 (3.27)	321166.67 (100.00)
Textile Products (Jute)	OAME	-- (--)	25300.00 (86.94)	-- (--)	1600.00 (5.50)	1200.00 (4.12)	1000.00 (3.44)	29100.00 (100.00)
	NDME	700.00 (1.17)	42100.00 (70.17)	10800.00 (18.00)	2500.00 (4.17)	2400.00 (4.00)	1500.00 (2.50)	60000.00 (100.00)
	DME	2000.00 (1.11)	128000.00 (70.80)	33000.00 (18.25)	8000.00 (4.42)	4800.00 (2.65)	5000.00 (2.77)	180800.00 (100.00)
	AVERAGE	900.00 (1.00)	65133.33 (72.40)	14600.00 (16.23)	4033.33 (4.48)	2800.00 (3.11)	2500.00 (2.78)	89966.66 (100.00)
Wood and its Products	OAME	500.00 (0.38)	124000.00 (95.02)	-- (--)	-- (--)	3000.00 (2.30)	3000.00 (2.30)	130500.00 (100.00)
	NDME	750.00 (0.50)	129150.00 (86.68)	12000.00 (8.05)	-- (--)	3600.00 (2.42)	3500.00 (2.35)	149000.00 (100.00)
	DME	2000.00 (0.31)	377000.00 (57.91)	230000.00 (35.33)	2000.00 (0.31)	30000.00 (4.60)	10000.00 (1.54)	651000.00 (100.00)
	AVERAGE	1083.33 (0.35)	210050.00 (67.72)	80666.70 (26.01)	666.67 (0.22)	12200.00 (3.93)	5500.00 (1.77)	310166.67 (100.00)

Note : Figures in brackets indicate percentages of total recurring variable cost.
Data Source: Primary survey data

As far as recurring variable cost is concerned, it can be seen that spending on raw materials is the major component of variable cost of the investment for all the processing activities. Notably, the share of this component is found to be relatively higher for the food processing industries. The percentage share varied from 55 per cent to 95 per cent in case of food processing industries while the same varied from 67 per cent to 74 per cent in case of non-food processing industries. Within the group of food processing units, the proportion of cost on raw materials topped the list for the paddy-processing unit followed by the fish processing and fruit processing activities respectively. In general for all the processing units, proportion of cost on raw material is found to have declined with the increase in the size of the unit in the category.

5.4: Net Income of the Investment

Net income from the investment was worked out as the difference between gross income (gross value of output) from the investment and cost of production. Details are given in table – 5.4.1. Gross income earned from the investment indicate that in the food processing segment, the same is maximum in paddy processing unit at Rs. 48,70,283 per year followed by fish processing unit at Rs. 21,01,750 and fruit processing at Rs. 11,33,167. For non-food processing units, paper-based processing units gave maximum gross income of Rs.10,59,333 followed by leather-based processing units at Rs.6,94,333, wood-based processing units at Russ.4,66,666 and jute-based textile units at Rs.1,62,333. Thus, for all the processing units, gross income was maximum in the case of paddy processing unit.

With regard to net income received from the investment, it may be observed that all the activities gave positive net income being varied among the activities depending upon the size of the investment. This is uniformly observable in the case of food processing units. It may be seen that within the group of food processing units, paddy processing activity gave maximum net income at Rs.1,85,718 per year followed by fish processing activity at Rs.1,61,583 and fruit processing activity at Rs.1,45,666. Small investment in units like fruit processing yielded net income of smaller amount in comparison with other units in the food-processing category. For the group of non-food processing units, this particular pattern is not uniformly observed, although, paper-based processing units with maximum investment among non-food processing units accrued maximum net income of Rs.1,15,333 followed by wood-based processing units at Rs.89,583, leather-based processing units at Rs.74,133 and jute-based textile units at Rs.68,800. For all the processing activities (food and non-food), net income increased with the size of the unit.

Table – 5.4.1
Per Unit Net Income from the Investment

(Rupees/yr.)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Gross Value of Output of the Processed Product	Expenditure			Net Income
			Fixed	Variable	Total	
Fruit (Mango) Processing	OAME	89666.67	1566.67	39933.34	41500.00	48166.67
	NDME	265000.00	34500.00	165750.00	200250.00	64750.00
	DME	6000000.00	1512000.00	3888000.00	5400000.00	600000.00
	AVERAGE	1133166.67	264283.33	723216.67	987500.00	145666.67
Paddy Processing	OAME	555500.00	3166.67	495300.00	498466.67	57033.33
	NDME	777500.00	30150.00	669350.00	699500.00	78000.00
	DME	26000200.00	2476190.00	22736800.00	25212990.00	787210.00
	AVERAGE	4870283.33	424331.67	4260733.33	4684565.00	185718.33
Fish Processing	OAME	110633.33	550.00	64416.67	64966.67	45666.67
	NDME	146200.00	1950.00	88000.00	89950.00	56250.00
	DME	9000000.00	1045000.00	7275000.00	8280000.00	720000.00
	AVERAGE	2101750.00	175091.67	1267375.00	1442466.67	161583.33
Leather and its product	OAME	150000.00	3600.00	98000.00	101600.00	48400.00
	NDME	708000.00	13000.00	641000.00	654000.00	54000.00
	DME	1225000.00	303000.00	802000.00	1105000.00	120000.00
	AVERAGE	694333.33	106533.33	513666.67	620200.00	74133.33
Paper and its product	OAME	120000.00	7500.00	62500.00	70000.00	50000.00
	NDME	754000.00	185000.00	533000.00	688000.00	66000.00
	DME	2304000.00	540000.00	1664000.00	2074000.00	230000.00
	AVERAGE	1059333.33	244166.67	753166.67	944000.00	115333.33
Textile Products (Jute)	OAME	65000.00	1500.00	29100.00	30600.00	34400.00
	NDME	102000.00	2800.00	57200.00	60000.00	42000.00
	DME	320000.00	9000.00	181000.00	190000.00	130000.00
	AVERAGE	162333.33	4433.33	90033.33	93533.33	68800.00
Wood and its Products	OAME	180000.00	750.00	130500.00	131250.00	48750.00
	NDME	195000.00	1000.00	149000.00	150000.00	45000.00
	DME	1025000.00	199000.00	6510000.00	850000.00	175000.00
	AVERAGE	466666.67	66916.67	310166.67	377083.33	89583.33

Data source : Primary survey data

5.5: Employment Generation

Creation of sustainable employment throughout the year is one of the objectives of promoting agro-based industries in the country. Thus recurring employment created out of the investment was assessed during the study which is presented in table – 5.5.1.

Table – 5.5.1
Employment Generation under the Activity

(Per unit per year in standard mandays of 8hrs.)

Name of the Processing Activity	Type of enterprise (OAME/ NDME/ DME)	Family Labour		Hired Labour		Total Labour	Employment creation per investment for Rs.1000/-
		Male	Female	Male	Female		
Fruit	OAME	240	200	0	0	440	11.33
(Mango)	NDME	360	360	255	150	1125	5.65
Processing	DME	360	240	9000	12000	21600	31.81
	AVERAGE	300	260	1585	2050	4195	3.44
Paddy	OAME	230	300	0	0	530	1.06
Processing	NDME	450	0	300	210	960	1.36
	DME	360	0	3600	2400	6360	0.64
	AVERAGE	330	50	700	470	1550	0.34
Fish	OAME	815	500	0	0	1315	20.2
Processing	NDME	675	300	480	300	1755	18.87
	DME	0	0	22500	16500	39000	4.67
	AVERAGE	632	350	3830	2850	7662	5.32
Leather and its product	OAME	600	600	0	0	1200	11.07
	NDME	240	240	960	240	1680	2.46
	DME	300	0	1500	600	2400	2.02
	AVERAGE	380	280	820	280	1760	2.82
Paper and its product	OAME	300	600	0	0	900	10.18
	NDME	300	0	600	300	1200	1.26
	DME	600	300	2400	900	4200	1.42
	AVERAGE	400	300	1000	400	2100	1.58
Textile Products (Jute)	OAME	350	700	0	0	1050	32.92
	NDME	340	350	300	600	1590	25.9
	DME	320	330	0	1800	2450	13.12
	AVERAGE	370	460	100	800	1730	18.38
Wood and its Products	OAME	1050	0	0	0	1050	8.3
	NDME	600	0	600	0	1200	8.31
	DME	600	0	3600	0	4200	3.76
	AVERAGE	750	0	1400	0	2150	4.65

Data source: Primary survey data

Employment generation by the activity would depend on various factors like technology used, level of mechanization, size of the investment, level of utilization of the unit etc. Accordingly, employment generation by the processing units covered under the study showed wide variation. Table – 5.5.1 gives the details of the

employment generation in the processing activities. In the food-processing category of enterprises, maximum employment generation from the investment was observed in the case of fish-processing unit with 7,662 man-days per unit per year followed by fruit-processing (4,195 man-days) and paddy-processing (1,550 man-days). Among the non-food processing units, maximum employment generation by the activity was observed in the case of wood-based product manufacturing unit (2,150 man-days) followed by paper-based unit (2,100 man-days), leather-based unit (1,760 man-days) and jute-based textile product unit (1,730 man-days). OAME units are entirely family-labour based and other units namely NDMEs and DMEs, employed outside labour over and above the contribution made by the family labour. As expected, labour employment in the units increased with the increase in the size of the unit. With regard to employment across sexes, fruit-processing units in the food-processing sector and jute-based textile units in the non-food sector are seen to be female-dominated ones. There is no one-to-one correspondence between size of investment and employment. As table-5.5.1 shows, fish processing units in the food-processing sector generated maximum employment (5.32 days) per investment for Rs.1000 holding the second position in terms of the size of investment. As against this, in the non-food sector, the maximum employment of 18.38 days per thousand rupees of investment was generated by the units manufacturing textile products while in terms of size of investment the units ranked the lowest position among the non-food units.

To sum up this chapter discusses the economics of agro-processing activities based on primary data collected from the sample processing units. In order to examine the economics of investment in agro-processing units, the level of operation of the units considering the details on level of working, production cycle, operation cycle and number of production cycles per year were examined.

The level of working of the units varied from activity to activity depending on the availability of working capital and seasonality of the activity in terms of input availability and demand for output. The level of working days per year for food processing units is observed to be relatively less than those of non-food processing units. Depending on the time taken for processing of the unit, the number of production cycles each unit completes is seen to be different being varied according to the type and size of the activity. Notably, within the category of food-processing enterprises, the number cycles completed in a year increased with the size of the unit which is not observable uniformly across the category of enterprises in the non-food processing segment.

Sample food-processing units being relatively smaller units have the limited capacity to reach out to various markets. They do not have strong linkages with input-

market, rather they have obtained raw materials from the producers directly. Non-food processing units however directly come in contact with the input-market through established trade/ market channel for procuring raw materials. As far as marketing of the produce is concerned, the unit owners (both food and non-food) are found to have linkage with various domestic markets stretching from the home district to various places all over the country apart from having their linkage with the local output-market. As far as involvement in the export market is concerned, no processing unit in the sample except the DME units of fish processing activity has involvement in the export market.

With regard to the net income derived from the investment, it is observed that all the processing activities gave positive net income. The net income is found to have increased with the size of the investment in units. This particular pattern is uniformly observed in the case of food processing units. Within the group of food processing, paddy-processing activity gave maximum net income while among non-food units, paper-based activity gave the maximum net income. Maximum employment generation from the investment was observed in the case of fish processing units in the food processing segment while for the group of non-food processing enterprises, maximum employment generation by the activity was observed in the case units manufacturing wood-based products. With regard to employment across sexes, it is observed that fruit processing in the food processing segment and textile units within the group of non-food category are female dominated ones.

Chapter-VI

Problems and Prospects of Agro-processing Industries

In the earlier chapter, it was observed that all the sample-processing units have generated positive net income. However, the units have faced problems of various kinds varying according to the category and type of the unit. This chapter provides an analysis of the problems faced by the agro-based manufacturing enterprises in the state. At the very outset, it highlights the problems faced by un-organised sector manufacturing enterprises as a whole depending on data furnished by NSS and then proceeds to analyse the primary level data collected in course of the study.

6.1: Problems Faced by Manufacturing Enterprises: Analysis based on NSS data

Given the dominance of un-organised sector in total agro-based enterprises, this section intends to examine the problems faced by the un-organised sector manufacturing enterprises as a whole. NSS data provides information on different types of problems faced by the un-organised sector manufacturing enterprises. The responses regarding problems of enterprises are categorized into specific/ common problems and other problems faced. The specific/ common problems are related to problems faced in specific areas. Table – 6.1.1 depicts the common problems faced by the entrepreneurs of manufacturing enterprises in their day-to-day

Table – 6.1.1
Manufacturing Enterprises Reporting Some Common Problems by type of Enterprise Across the Selected States (Rural and Urban Combined)

State	Percentage of manufacturing enterprises reporting problems						
	Non-availability of electricity connection	Power cut	Shortage of capital	Non-availability of raw materials	Marketing of products	Any other problems	Proportion of enterprises not reporting any problem
OAME							
West Bengal	16.9	11.1	65.6	18.9	25.6	40.1	13.9
All India	11.5	12.5	48.9	15.9	18.9	33.9	27.7
NDME							
West Bengal	11.1	37.3	82.1	11.5	33.3	50.5	4.6
All India	6.0	32.7	52.9	8.7	17.4	39.1	20.7
DME							
West Bengal	16.4	42.1	72.0	14.0	37.8	50.5	5.9
All India	5.4	37.7	48.1	13.3	22.8	41.5	19.6
ALL							
West Bengal	16.4	13.9	67.0	18.2	26.5	41.1	13.0
All India	10.8	15.5	49.2	15.1	18.9	34.7	26.7

Note : Percentages may not add up to 100 because single enterprise reported more than one Problem.
Data Source: National Sample Survey (NSS) 56th round July 2000 – June 2001, Report no. 478(56/2.2/2), Ministry of Statistics and Programme Implementation, Government of India, 2002

operation. It clearly brings out that at the all-India level, 26.7 percent of the total enterprises had not faced any specific problem in their day-to-day operation. The proportion of such enterprises reporting no problem accounted for 13 percent in West Bengal. In the state of West Bengal, the shortage of capital is reported to be the major problem faced by the highest proportion of enterprises (67 percent) followed by other non-specified problems (41.1 percent) inclusive of technological and institutional handicaps.

Apart from some specific problems as mentioned above, there are some other problems faced by the enterprises in their day-to-day operations. Among other problems reported by the enterprises (Table – 6.1.2), competition from larger units accounted for the major one (29.3 percent of enterprises) at the all-India level followed by some local problems (17.8 percent). Similar to all India feature, competition from larger units appeared to be the major problem faced by the highest proportion of enterprises (32.8 percent) in the state of West Bengal.

Table – 6.1.2

Manufacturing Enterprises Reporting Problems Other than the Common Problems (covered in the preceding table) by type of Enterprise (Rural and Urban combined)

State	Percentage of manufacturing enterprises reporting other problems								
	Lack of infrastructure facility	Local problems	Harassment	Competition from larger units	Non-availability of labour	Labour problem	Fuel not available or very costly	Non recovery of service charges/ fees/ credit	Others
OAME									
West Bengal	8.8	8.8	3.5	31.1	0.2	3.5	4.9	14.4	22.7
All India	7.4	19.3	4.3	27.0	0.7	1.7	3.7	16.6	18.9
NDME									
West Bengal	8.9	9.5	1.4	44.8	2.7	4.3	0.4	7.9	19.2
All India	4.1	10.9	0.9	42.3	4.7	5.1	0.7	15.1	15.8
DME									
West Bengal	11.2	6.0	1.5	43.9	6.7	9.0	0.3	7.0	12.9
All India	3.9	7.2	1.4	41.1	7.2	10.6	3.4	10.0	15.0
ALL									
West Bengal	8.9	8.8	3.3	32.8	0.7	3.8	4.3	13.5	22.1
All India	6.9	17.8	3.8	29.3	1.4	2.5	3.4	16.1	18.3

Note : Percentages may not add up to 100 because single enterprise reported more than one Problem.

Data Source: National Sample Survey (NSS) 56th round July 2000 – June 2001, Report no. 478(56/2.2/2), Ministry of Statistics and Programme Implementation, Government of India, 2002

6.2: Problems Faced by Manufacturing Enterprises: Analysis based on Primary Level Data

Given the dominance of the unorganized sector in the state, agro-based enterprises are mostly tiny and small household based enterprises. Such enterprises are usually characterized by backward production technologies, limited market out-reach and diseconomies of scale. Those apart, they may face more difficult problems that

need to be hardly emphasized. Thus the responses regarding problems faced by enterprises in procuring raw materials as well as marketing the processed product are summarized in the following paragraphs.

Reportedly the problem of non-availability of raw materials throughout the year, variability of prices of raw materials and absence of information network to keep track of raw materials prices and availability came to be featured prominently in the array of problems faced by the entrepreneurs of OAME units of food processing industries (table-6.2.1A). The major problem faced by the NDME units of food processing enterprises reported to be variability of prices of raw materials causing difficulties in fixing prices of product followed by the problem of absence of information network to keep track of raw materials prices. As far as DME units are concerned, only 1 unit each in fruit processing, paddy processing and fish

Table-6.2.1A
Constraints Faced by the Food Processing Units in Procuring Raw Materials

Sl. No	Type of constraints	Fruit (mango) processing			Paddy processing			Fish Processing		
		OAME	NDME	DME	OAME	NDME	DME	OAME	NDME	DME
1.	Non-availability of raw materials throughout the year	3	0	0	3	1	0	3	2	0
2.	Variability of prices of raw materials and difficult to fix prices of product	3	2	1	3	2	1	3	2	1
3.	Absence of information network to keep track of raw materials prices and availability	3	1	0	3	1	0	3	2	0

Data source: Primary survey data

Table-6.2.1B
Constraints Faced by the Non-Food Processing Units in Procuring Raw Materials

Sl.No.	Type of constraints	Leather and its products			Paper and its products			Textile products (jute)			Wood and its products		
		OAME	NDME	DME	OAME	NDME	DME	OAME	NDME	DME	OAME	NDME	DME
1.	Non-availability of raw materials throughout the year	1	0	0	1	0	0	0	0	0	1	0	0
2.	Variability of prices of raw materials and difficult to fix prices of product	1	1	1	1	1	1	1	1	1	1	1	1
3.	Absence of information network to keep track of raw materials prices and availability	1	1	0	1	0	0	1	0	0	1	1	0

Data source: Primary survey data

processing category reported the single problem of variability of prices of raw materials during the seasons. In short, the major problem faced by the food processing units in procuring raw materials reported to be variability of prices of raw materials (cent per cent) followed by absence of information network (72.22 per cent) and non-availability of raw materials (66.67 per cent) throughout the year (table – 6.2.1A).

As far as the non-food processing units are concerned, the specific problem faced by the enterprises in procuring raw materials reported to be variability of prices of raw materials (cent per cent) similar to those of food-processing units. Notably, the problem is reported uniformly by all categories of enterprises. For these units, the problem of non-availability of raw materials did not stand in the way of functioning of the unit. Rather, the next important problem faced by the enterprises reported to be absence of information network (50 per cent) to keep track of raw materials prices and availability (table – 6.2.1B).

In food processing industries, raw materials from agriculture and allied sectors constitute the major component of cost of production. Cost on raw materials further increases in the face of variability of prices of raw materials during the seasons. Moreover, on account of variability of prices of raw materials, it is difficult for the processing units to fix prices of the processed product well in advance which has a direct bearing on the marketing of the product. Further, in the absence of information network, the entrepreneurs of the units are left unaware about the raw materials prices and availability. For non-food processing units, availability of raw materials is not the major problem, rather, they face one major problem of variability of prices of raw materials occurring during the year. Similar to food-processing units, they also face difficulties in fixing prices of products, having bearing on the marketability of their products.

Tables – 6.2.2A and 6.2.2B present the problems faced by the enterprises in marketing of processed products. In the case of food-processing units, the main problem reported was lack of proper domestic market of processed products (72.22 per cent) followed by absence of good network purveying market information (66.67 per cent) and dependence on middleman for marketing the processed products (66.67 per cent). Notably, all the OAME units in the food-processing segment reported these three problems uniformly across the category of enterprises. Reportedly, for non-food processing units, the major problem was absence of strong network for obtaining market information (58.33 per cent) followed by lack of proper market of processed products (50 per cent) in domestic market and dependence on middleman for marketing the processed products (41.67 per cent). Here again, OAME units in all

categories of enterprises reported the above three problems in the sphere of marketing of their products.

Table-6.2.2A
Constraints Faced by the Food Processing Units in Marketing of Processed Products in Domestic Market

Sl. No	Type of constraints	Fruit (mango) processing			Paddy processing			Fish Processing		
		OAME	NDME	DME	OAME	NDME	DME	OAME	NDME	DME
1.	Lack of proper market of processed product in domestic market	3	2	0	3	0	0	3	2	0
2.	Absence of strong network for marketing the product	3	1	0	3	0	0	3	2	0
3.	Dependence on middleman for marketing the processed product	3	0	0	3	1	0	3	2	0

Data source: Primary survey data

Table-6.2.2B
Constraints Faced by the Non-Food Processing Units in Marketing of Processed Products in Domestic Market

Sl.No.	Type of constraints	Leather and its products			Paper and its products			Textile products (jute)			Wood and its products		
		OAME	NDME	DME	OAME	NDME	DME	OAME	NDME		OAME	NDME	DME
1.	Lack of proper market of processed product in domestic market	1	0	1	1	0	0	1	1	0	1	0	0
2.	Absence of strong network for marketing the product	1	1	1	1	0	0	1	1	0	1	0	0
3.	Dependence on middleman for marketing the processed product	1	0	1	1	0	0	1	1	0	0	0	0

Data source: Primary survey data

6.3: Prospects of the Units

The state of West Bengal is a significant producer of many horticultural and agricultural crops. Besides, West Bengal being the largest producer of freshwater fish and second largest producer of shrimps offers extensive scope for investment in the area of processing of fish. Processed fish are in great demand in international markets. All these give it a natural advantage to invest in grain processing, fruit processing and fish processing. The growth potential of these sectors are enormous and it is expected

that food processing industries will increase substantially in the coming decades with the growing demand for the processed food products emanating from rapid increase in the consumption of value added items of food products.

Grain processing is the biggest component in the food-processing sector. Grains produced in the state include cereals like rice, wheat, maize, barley and a variety of pulses like arahar, masur, moong, gram and khesari. In rice, the state produces wide range of varieties, both scented and non-scented. The state is a largest producer of rice offers scope for investing in paddy processing industry, particularly, rice milling. There already exists a large number of rice processing units in the state which produce mainly Indian snacks like puffed rice (moori), flattened rice(chira) and Indian rye (khoi). Most of these units are small-scale units and fall under the unorganized sector.

On the basis of analysis of secondary data, the present study reveals that food-processing sector as a whole witnessed higher growth rate as compared to the non-food sector both in the organised and unorganised segments. As revealed by primary data, within the group of food processing industries, paddy-processing units gave maximum net return. Paddy processing is a traditional agro-based activity in the state. However, the activity faces problems in its day-to-day operations. As revealed by primary data, the major problem encountered by the paddy processing enterprises is the variability of prices of raw materials followed by the absence of information network. Paddy is the raw material for the paddy processing units. In West Bengal, total rice production (husked-paddy) was the order of 147.45 lakh tonnes in 2006-07 as against the figure of 19.67 lakh tones in the sample district of Burdwan. The sample district thus contribute around 13.34 per cent of total paddy production in the state. Although the State of West Bengal is the significant producer of paddy, rice milling processing units face the seasonal problem of non-availability of paddy as raw material for the paddy-processing units. In the absence of information network, the processing units have become subject to paying variable prices of raw materials at different points of time during the year, the second major problem faced by the paddy-processing enterprise. However, the state of West Bengal being blessed with largest production of paddy has the potentials for investing in paddy processing industry. The industrial units in future can take advantage of the growing demand for the value added processed product in India as well as abroad. This would be possible if the units have access to information network to keep track of raw materials prices and availability.

Apart from rice milling, the potential areas of investment in this sector are commercial processing of rice which includes products like pre and semi-cooked rice, rice powder, puffed rice, chira (flattened rice) and rice crispies. Commercial

utilization of by-products of rice milling such as processing of rice bran for oil and processing of paddy husk are also important sectors of investment (Source: Department of Food Processing Industries and Horticulture, Government of West Bengal).

The state is a significant producer of fruits especially mango, pineapple, lychee and enjoys comparative advantage for setting up fruit processing units. The processed products of this sector include Jam, Jelly, Juice, Squash, Slice, chutneys etc. Apart from domestic demand, fruit processed products have a very good export market. The state produces different varieties of mangoes like Langra, Himsagor, Bombai, Amrapalli, Mallika, Golapkhas, Gopal Bhog, Lakhna, Moha Bhog, Rani Pas and recently, the West Bengal State Food Processing and Horticulture Development Corporation Limited has started exporting mangoes to Malaysia and Singapore. Among fruits, mango is the major one in West Bengal, the produce being 5,13,339 thousand tonnes in the state as recorded in 2005 – 06. The sample district of Malda selected for the study has the largest share in mango production, which produces 150.00 thousand tonnes. (Source: Department of Food Processing Industries and Horticulture, Government of West Bengal).

Among the food processing units selected for the study, fruit (mango) processing activity yielded net income of smaller amount in comparison with other units in the food-processing segment. All the sample units belong to the un-organized sector with small size of the investment. The processed products of the selected units included Jam, Jelly, Sauce, Slice, Pickles/ Anchar. Due to having demand for the fruit-based processed products in the domestic as well as international market, mango-processing units have the good potential for expansion. However, the major problem faced by these units is the non-availability of raw materials throughout the year, the same being encountered particularly by the OAME units of enterprises and accordingly facing the problem of variability of prices in procuring raw materials for the product. Further, in the wake of lack of proper market for the processed product and absence of marketing information network, the units have to compromise in availing reasonable prices for their products. In view of production and availability of mango as raw materials of the processing units, their exists potentials for setting up mango processing units in the fruit processing sector. They are however provided with proper infra-structural support for preservation of mango fruit as well as in getting remunerative prices for their product.

Apart from the above, the state has the comparative advantage in fishery and thus it is in one of the most important sectors for investment in the state. The state's fishery resources potential include inland water inclusive of fresh water and brackish water resource and the marine resources. Natural resource of freshwater as well as

brackish water aquaculture together accounted for 60.84 per cent of total inland resource potential of the state. West Bengal being the country leader in producing freshwater fish and shrimps/ prawns offers extensive investment opportunities in the area of processing of fish. The range of processed fish products include processed shrimps/ prawns and sea water fish. Unlike other agribusiness areas, the export market for processed fish particularly shrimps/ prawns is well established.

Traditionally fishing communities preserved fish by salt curing and drying them out in the sun. The nature of the fish processing industry has undergone changes with large-scale export of prawns and shrimps etc. Today the industry is modern and mechanically sophisticated. In the present study, sample fish processing units consisted of two types of fish processing units. The first category of the fish processing activity involves curing and drying sea fishes in the sun. The other category of units included processing of prawns and belong to the rank of factory. The nature of works in prawns processing activity are divided into two parts, the semi-processing part that involves doing headless, cutting and cleaning and the next stage consist of the works like peeling off the shell, washing, grading, icing and finally packing of the product for making the product marketable domestically as well as in the export market. Our sample processing units belonging to the DME category procures semi-processed prawns from aratdar cum bhery owners and after performing the works of peeling, grading, icing and packing the product in hygienic conditions make the product marketable to the consumers.

As observed from the study of sample fish processing units, traditional sun-drying fish processing units belonging to OAME and NDME categories faced the problem of non-availability of raw materials throughout the year. They also equally face the problem of marketing of their products. Processed products of the units involved in sun-drying of fishes are marketed domestically through wholesaler /middleman who passes the product to the retailer from whom consumers procure. The prawn processing units belonging to DME category faces the problem at the stage of procuring raw materials who purchase the same mainly through agents. However, marketing is no problem for prawn processing unit, where the unit having link with the export market used to market their product to the consumers through the wholesaler. The constraint / problem common to the OAME and NDME units of fish processing enterprises is the absence of information network both in the sphere of availing raw materials and marketing of the product. Therefore fish processing units having their large potential in the state could enhance their efficiency if they are provided with assistance in terms of creating access to information network.

With the growth in urbanization, rising economic well being and spread of education, there has been a shift in the pattern consumption expenditure away from

food items towards non-food items such as those based on textiles, wood, paper and leather. As revealed form the analysis of secondary data, although there has been an expansion in the number of non-food processing units both in the organized and un-organized segments of agro-based industry, the rate of expansion is lower as compared to food processing units. Within the group of non-food industries, textile and leather units have shown relatively better performance in terms of their numerical strength. The analysis of primary data collected from the sample processing units however clearly revealed that textile and leather units generated relatively lower net income. Amongst non-food processing enterprises, paper-based manufacturing units gave highest net return and thus there exists good opportunities for investment in units manufacturing paper-based products.

At the macro-level for the state as a whole, the production in the jute industry increased marginally from 1385.8 thousand tonnes in 2000 to 1391 thousand tonnes in 2001 which has been stagnating in recent years (Economic Review 2002-03, Government of West Bengal). As raw materials, production of jute which was around 74 – 75 lakh bales in the late nineties remained stationary at 74.28 lakh bales in 2000 – 01. Overall, the textile industry is faced with a slow moving internal market because of the low purchasing power of the people and unequal competition from the decentralized sector specially the powerloom sector. In the face of low internal demand with export demand showing no signs of rapid growth, the production record of jute industry is stagnating (source: Economic Review, Government of West Bengal). Analysis of primary data in the present study also revealed the basic constraint of low internal market demand for the products of jute-based textile units. Lack of internal market and low net income generated by the units are the main hindrances that stand in the way of growth of these units.

Leather, a natural raw material, lends itself to a variety of conversions. Hide-based leather particularly bovine is used to make shoes, soles and variety of footwear. Goat and sheep leathers go into making excellent dress shoes for ladies and gents. Other important leather-based products are luggage-ware, travel-ware, handbags, belts and fashion accessories etc. In our sample processing units, leather based activities included items viz. manufacturing of ladies purses, shoes, lather jackets and bags. Similar to textile units, they also face the problem of marketing of their products. Thus the common problem faced by the entrepreneurs of leather and textile units reported to be the absence of network for the marketing of their products. Obviously, the units could enhance their numerical strength if they are provided with better infrastructure purveying marketing information for their processed product.

To sum up, analysis of NSS data reveals that shortage of capital is the major problem faced by the unorganised sector manufacturing enterprises followed by other

non-specified problems inclusive of technological and institutional handicaps. Among other problems, one major problem faced by the enterprises, was tough competition from the larger units.

As revealed from the analysis of primary level survey data, processing units face problems in procurement of raw materials and in marketing of the processed products. Reportedly, agro-food processing units in general have faced problems of inadequacy of raw materials throughout the year. As reported by the sample food processing units, the major problem faced by the enterprises is the variability of prices of raw materials. Raw materials prices vary significantly across the seasons. Hence, the processing units used to pay variable prices for the purchase of raw materials. For the same reason, it is very difficult for the processing units to fix the prices of their processed products with the customers in advance, while the setting up appropriate price is important for every processing unit in the context of marketing of the products. Reportedly, the food processing units also do not have strong information network to keep track of raw materials prices and availability.

Problems faced by the food-processing enterprises in marketing their processed products in the domestic market consisted of lack of proper market for the product and dependence on middleman for marketing the products. As raw materials for food processing enterprises are perishable and seasonal, marketing of agro-food industrial products is of crucial importance in the interest of growth of agro-food processing enterprises. The agro-food processing units also do not have strong information network for understanding the market conditions of the processed products.

As for the non-food units, availability of raw materials is not the major problem rather the specific problem faced in procurement of raw material is variability of prices of raw materials during the seasons causing difficulties to fix the prices of their products. In the field of marketing, reportedly, the major problem was the absence of information network for getting market conditions about the product.

Within the group of non-food industries, textile and leather units have shown relatively better performance in terms of their numerical strength. However, both of these units suffer from marketing handicaps. The entrepreneurs of these units do not have strong network for the marketing of their products.

The state of West Bengal is a significant producer of many horticultural and agricultural crops. Besides, West Bengal being the largest producer of freshwater fish and second largest producer of shrimps offers extensive scope for investment in the area of processing of fish. Processed fish are in great demand in international markets. All these give it a natural advantage to invest in grain processing, fruit processing and fish processing. Thus very good investment opportunities exist in the areas of food-

processing industries, the important ones being paddy grain processing, fruit processing and fish processing.

As revealed by primary data, within the group of food-processing industries, paddy-processing activity gave maximum net return. The state of West Bengal being blessed with largest production of paddy has the potentials for investing in paddy processing industry. The industrial units in future can take advantage of the growing demand for the value added processed product in India as well as abroad. However, as observed in the study, this would be possible if the units have access to information network to keep track of raw materials prices and availability.

Within the group of non-food industries, textile and leather units yielded lower net income, although, they have shown relatively better performance in terms of growth in number of units. The common problem faced by the entrepreneurs of these units reported to be the absence of network for the marketing of their products. Obviously, these units could enhance their earning capacity if they are provided with better infrastructure purveying market information for their processed products. Paper-based manufacturing units gave highest net return amongst the non-food processing units and thus offer scope for investing in units manufacturing paper-based products.

Chapter-VII

Summary and Policy Conclusions

7.1: Background

It is being increasingly realized nowadays that the very capacity of the agricultural sector is not enough to absorb the growing labour force. On the other, the organized industry sector, due to its capital-intensive nature cannot offer much scope for absorption of additional labour force. Further, the environment of liberalization, privatization and globalization has thrown up newer challenges for employment. Obviously, all these have aggravated the un-employment and under-employment situation in India which underscores the need for alternative avenues for employment generation. This brings the development of agro-based industries into sharp focus.

In the process of industrialization, the major role is ascribed to manufacturing activity, agro-processing being one of them. Agro-processing is necessarily a process of value adding activity to agricultural production and thus makes agriculture a more effective contributor to industrial growth establishing agriculture-industry linkages. The linkages between agriculture and industry have always been a subject of economic theorizing, keeping in view the issue of resource transfer across sectors in the context of overall economic development. India being an agrarian economy, development of agro-based industries that make use of produces of agriculture become imperative for sustained economic development.

In agro-based industries, the basic elements are inputs drawn from agriculture and their processing to suit the requirement of the consumers. The agro-based industries thus provide the crucial farm-industry linkage which help accelerate agricultural development by creating backward and forward linkages. The growth in agro-based industries has a big potential to trigger development through adding value to the farmers' produce, generating employment opportunities and increasing farmers' net income. This in turn motivates the farmers for better productivity and opens up possibilities of industrial development. The processed products also have a large export potential.

7.2: Need for the Study

Agro-processing involves transformation of the raw materials into final consumer goods or intermediate goods and thus results in increase in value addition. The value adding processes range from simple preservation to production of high value products. On the other side, the demand for processed food is increasing in recent years with the growth of population, rapid urbanization and changing life styles. Agro-processing industries thus offer enormous potential to boost an economy.

The agro-processing sector has the vast potential in the development of an economy through its multiplier effect. The potential becomes manifold when the processing possibilities of the entire commodity system are taken into account. For example a farmer cultivates paddy on his farm and the paddy plants produce paddy, straw, husk, bran, and rice kernel. Thus with an initial investment for growing paddy, produce of paddy has a potential of supporting a complex of processing industries (rice mills, solvent extraction plant for rice bran oil, processing of husk for variety of products and straw paper/ board mills). Similarly, in animal-based products we get the raw materials like meat, bones, hides, skins, wools, etc. and thus, the processing of these raw materials opens up large value addition possibilities. In India, the processing units based on grains, horticultural products, livestock products, fish have ample opportunities. However such potential is hardly exploited. This underscores the need for undertaking the study.

Agro-based industry in India is largely a house of small-scale enterprises. They are highly heterogeneous in terms of capital investment, technology in use, scale of operation, quality and quantum of output, composition and level of employment. Distressingly, levels of productivity among tiny and small enterprises are also low. There must be a host of institutional, technological and marketing constraints that are holding up productivity of the agro-industry units to low levels. There is therefore need to address these constraints so that productivity of the agro-industry sector may be improved through adopting suitable policies. Moreover, the growth profile of the number of agro-based enterprises is uneven across the regions of India. In the state of West Bengal, the rapidly increasing production of vegetables and foods has created a vast potential for food processing industries. In terms of investment potential, West Bengal has been ranked third after Maharashtra and Tamil Nadu (NABARD, 2000-01). The state government of West Bengal has also been developing infrastructure for tapping the potential for food processing industries in the state. Despite all these, when we look at the Annual Survey of Industries data, agro-industry does not appear to be the dominant constituent of the industrial sector of West Bengal. The strength of agro-based industry in West Bengal is comparatively less than those of non-agro-based industries. This can be gauged through their 42.99 per cent share in the total number of manufacturing industrial units covered by the Annual Survey of Industries data in 2001. However, within the group of agro-based industries, food-processing industries predominate with their share being 57.62 per cent in total number of agro-based industrial enterprises. In terms of share in investment, non-agro-based industries rank much ahead of agro-based industries. As a whole, the strength of agro-based industry in the state of West Bengal is comparatively less than those of non-agro based industries. The observed trend relates to the organized segment of

manufacturing enterprises. It is this trend in the growth of agro-based manufacturing enterprises calls for undertaking the study in West Bengal with the broad objective of studying the problems and prospects of agro-processing industries in the state.

7.3: Objectives of the Study

The present study has been taken up keeping up the following objectives in mind.

1. To present a profile of the agro-processing industries and the recent trend.
2. To examine the existing location pattern of selected agro-industries.
3. To study the impact of agro-processing industry on agriculture.
4. To study the economics of agro-processing units.
5. To analyse the marketing behavior of agro-processed products.
6. To study the employment potential from agro-processing industries.
7. To analyse the constraints on acceleration of production.
8. To review the export performance of various agro-based commodities and constraints faced in accelerating the growth of export from the sector.

7.4: Data Base

The study is based on both secondary and primary data. In order to gain a comprehensive view of the agro-processing sector, the study makes use of secondary data such as the quinquennial National Sample Survey data on unorganized manufacturing and Annual Survey of Industries data for the organized segment.

In India, bulk of the units in agro-processing sector are small and unregistered. Considering this, primary level data from the selected agro-processing units are collected in order to capture the problems at the grass root level so that recommendation for policy formulation can be made for the promotion of agro-based industries. Since tiny and small-scale agro-based industrial enterprises are highly heterogeneous, the study intends to look into each of the three layers namely OAMEs, NDMEs and DMEs. The primary data was collected from the selected processing units through canvassing structured schedule and questionnaire prepared for the purpose of the study

7.5: Sampling Design, Methodology and Coverage of the Study

As the products of agro-industries are both edible and non-edible, the agro-based industries are classified into agro-food industries (or food-processing industries) and agro non-food industries. Thus, in order to have a comprehensive and total view of agro-processing sector, primary data are collected from the selected processing units chosen from both agro-food industries and agro-non-food industries. All together, 30 sample processing units are studied selecting at random proportionately spread over food and non-food processing segment of agro-based enterprises. Considering the dominance of food processing activity in the total number of agro-

based industries, 18 processing units are selected within the group of food processing and the rest 12 are from non-food processing segment of agro-based enterprises. Again, the food-processing activities are broadly divided into three categories viz. primary food processing units mainly grain processing units; spice and horticultural products and livestock based processing units including fish processing. Similarly, non-food processing units are broadly divided into four categories namely, textile products, wood and its products, paper and its products, leather and its products. Primarily, for the selection of units, sample districts by industry groups are identified on the basis of the annual survey of industries data considering the concentration of units of activities. Finally, the dominant processing unit in the district is selected consulting data from District Industries Centre (DIC), which is the nodal agency in each district. In selecting sample food processing units, apart from the annual survey of industries data, source like State Department of Food Processing Industries and Horticulture (DFPI & H), is also consulted. In the case of food-processing component of agro-based enterprises, for each selected processing enterprise, six units of different sizes namely OAMEs, NDMEs and DMEs with their distribution as 3:2:1 are covered. Within non-food processing segment of agro-based industry, for each selected processing unit, three units of different sizes namely OAMEs, NDMEs and DMEs in the ratio of 1:1:1 are selected.

7.6: Major Findings

7.6.1: Nature, Composition and Trend in Agro-based Industry in the State

Given the structure of the Indian Economy, especially in view of the importance of agriculture in the national economy, agro-industry is expected to continue to be the dominant constituent of its industrial sector. The state of West Bengal however revealed an exception to this when we look at the Annual Survey of Industries data. In the state, dominance of non-agro based manufacturing enterprises stands out clearly as follows from Annual Survey of Industries data. In the year 2000-01, the year for which the latest data are available, organised segment of agro-based industries shared 42.99 percent in terms of units of enterprises. For their non-agro based industries counterpart, the figure stood at 57.01 percent. The strength of agro-based industry is thus comparatively less than those of non-agro-based industries in West Bengal as evidenced by Annual Survey of Industries data.

Within the group of agro-based industries, food-processing industries predominate with their relative share being 57.62 percent in the total number of agro-based enterprises. During the concerned period between 1994-95 and 2000-01, food processing units in number increased by 38.57 per cent while in the corresponding period, the number of non-food processing industries grew at the rate of 10.78 per

cent. Thus in terms of growth of enterprises, non-food processing industries, lagged behind food processing industries.

A close look at the compositional change of organised segment of manufacturing enterprises reveals that within the group of food-processing industries, manufacture of beverages, tobacco, and tobacco products increased at a fairly high rate, the percentage increase being 271.77 percent during the period under study. In the non-food processing segment, manufacturing of leather and its products recorded highest increase of 65.44 per cent followed by manufacture of textile products (8.70 per cent). Manufacture of paper and its products has recorded a decline in the number of enterprises by 4.94 per cent. Thus in the organised segment of agro-based manufacturing enterprises, food-processing and non food-processing units witnessed varying degree of increase during the 7 year period between 1994-95 and 2000-01. Clearly, beverages and tobacco have been surging ahead under the organised food processing component. Among the non-food processing enterprises, the number of units manufacturing leather products increased phenomenally during the reference period, although, the number of units manufacturing textile products increased their numerical strength during the same period.

With relatively greater share of non-agro based manufacturing units, the organised segment of manufacturing witnessed a decline of 0.83 per cent in the number of non-agro based enterprises during the period between 1994-95 and 2000-01. In other words, the organised segment housing relatively larger sized enterprises is now tending to concentrate more and more on agro-based industrial enterprises witnessing varying degree of increase in the selected groups of enterprises during the concerned period.

Under the unorganised segment of manufacturing enterprises, the dominance of agro-based industries is featured prominently. In 2000-01, as many as 86.30 per cent of the total manufacturing units in the unorganized segment is contributed by agro-based manufacturing enterprises. Moreover, unorganized sector is in the main represented by food-processing industries with their relative share in units being 59.37 per cent in the total agro-based industries.

The growth profile of the manufacturing enterprises in the unorganized segment during the reference period between 1994-95 and 2000-01 reveals that while the number of agro-based industries increased at a fairly high rate with the percentage increase of 54.20 per cent, their non-agro based counterpart witnessed very small increase (percentage increase of 1.16 per cent) in the number of units. Within the group of agro-based manufacturing enterprises, food-processing and non-food processing enterprises recorded the varying degree of increase, the percentage increase being 56.07 per cent for food-processing industries and 51.53 per cent for

non-food industries. Clearly, food-processing industries have grown faster than the non-food processing industries in the unorganized segment of manufacturing enterprises. It follows that the unorganized sector is now tending to concentrate more and more on food-processing industries with 40.63 per cent share in units of its non-food processing counterpart.

Under the unorganized manufacturing, changes in the number of enterprises engaged in the manufacture of beverages-tobacco during 1994-95/2000-01 was as high as 140.68 per cent against only 2.15 per cent for those engaged in manufacture of food-products. Within the group of non-food processing unorganized agro-based enterprises, the number of units manufacturing textile products increased appreciably with the percentage change being 113.83 per cent during the period under study. The other segment of the non-food processing agro-based enterprises namely wood-based manufacturing units also recorded improvement in the number of units by 12.83 per cent during the post 1994-95 years. Unlike other components of non-food processing enterprises in the unorganized segment, number of units engaged in manufacture of paper and its products and those engaged in manufacturing leather and leather products declined by 21.47 per cent and 1.55 per cent respectively. The total effect of all these changing trends is that under the unorganized segment, agro-based industrial enterprises increased at a much faster rate than those of non-agro based industrial units. Within the group of agro-based enterprises, food-processing units increased their numerical strength appreciably. It was thus very similar to that observed in the organised segment in respect of compositional change of manufacturing enterprises during the reference period.

7.6.2: Structure of Agro-based Industries

Going by the distribution of enterprises as rural and urban in the un-organised segment it is apparent that unorganised sector manufacturing enterprises are mostly located in rural areas. Considering all the manufacturing units together, the share of rural units accounted for 77.33 per cent in West Bengal as recorded in the year 2000-01 which was 80.21 per cent in the year 1994-95. As between agro-based and non-agro based manufacturing enterprises, a greater proportion of units (79.70 per cent) are located in rural areas in the case of agro-based industries as compared to non-agro based industries (62.39 per cent). Within the group of agro-based manufacturing units, the number of enterprises engaged in food-processing activities are located more (83.86 per cent) in rural areas as compared to their non-food processing counterpart (73.63 per cent). Among the non-food processing enterprises, units manufacturing wood-based products are extraordinarily located in rural areas (91.80 per cent) as compared to other components of non-food processing segment. In sum, given the

dominance of agro-industrial enterprises in the unorganized sector, agro-based industry in the segment has a strong presence in the rural sector.

Evidently, the un-organised segment of manufacturing enterprises is preponderantly a house of small and tiny enterprises. For the whole of unorganized sector manufacturing enterprises, the proportion of OAMEs is much higher (89.59 per cent) as compared to NDMEs (7.78 per cent) and DMEs (2.63 per cent). Agro-based industries as a whole have as many as 92.57 per cent of the units working as OAMEs. Further, within the group of agro-based industries, the share of OAMEs in the case of food processing sector units is seen to be 95.24 per cent as against the figure of 88.66 per cent for the non-food processing component. This clearly testifies that within the unorganized agro-industrial segment, agro industry in general and its food processing component in particular are dominated by OAMEs representing the house of household-based tiny and small enterprises.

Looking at the economic structure of manufacturing enterprises in terms of their share in units, investment, employment, gross output and net value added, it is observed that organised manufacturing sector in the state is still dominated by non-agro based manufacturing enterprises with their share in number of units, investment, employment, output and net value added being 57.01 per cent, 74.62 per cent, 41.13 per cent, 64.99 per cent and 55.83 per cent respectively. Notably however, the share of agro-based industries (both food and non-food) increased during the concerned period between 1994-95 and 2000-01, the figures corresponding to its share in the number of units, investment, employment, output and net value added in the year 2000-01 being 42.99 per cent, 25.38 per cent, 58.87 per cent, 35.01 per cent and 44.17 per cent respectively. Correspondingly, the share of the domineering non-agro based manufacturing enterprises decreased during the concerned period between 1994-95 and 2000-01.

As recorded in the year 2001, the un-organised segment of manufacturing enterprises is dominated by agro-based enterprises through their 86.30 per cent share in the number of un-organised manufacturing units, 81.54 per cent share in workers employed by them and 69.09 per cent share in gross value added. In the case of agro-based enterprises (both food and non-food) the number of units increased during the concerned period between 1994-95 and 2000-01 leading to an increase in their share in terms of number of units from 80.51 per cent in 1994-95 to 86.30 per cent in 2000-01. The main driving force in the growth of agro-based enterprises has been the phenomenal growth of manufacturing units of tobacco products in the food processing segment and sizable improvement in the number of units manufacturing textile products in its non-food processing component.

In as much as tiny and small enterprises (OAMEs) in the unorganised sector suffer from productivity handicaps emanating from low capital investment, backward technology in use, the present study estimates the productivity levels of un-organised manufacturing enterprises in the state. A close look at the data clearly reveals that labour productivity in agro-based industries (Rs.10,611) is significantly lower than that in non-agro-based industries (Rs.20,966). Evidently, productivity level of agro-based industries is no higher than 50 per cent of the productivity level achieved by the non-agro-based industries. Again the productivity gaps between food and non-food processing components of agro-based enterprises is sharply observed. Labour productivity in agro-based industry in its food processing component is of the order of Rs.9,972 as against the corresponding figure of Rs.11,417 for its non-food processing counterpart. Distressingly, low levels of productivity among agro-based enterprises immediately throws light on the low productivity problem of un-organised agro-based manufacturing enterprises. Evidently productivity levels among OAMEs (the tiniest among the unorganised manufacturing units) are much lower than those among other type of enterprises viz. NDMEs and DMEs.

When we compare productivity levels of the lowest strata (OAMEs) with those of the highest (DMEs) strata, the state of West Bengal witnessed productivity levels of OAMEs no higher than 31 percent. In rural units, the position is markedly similar to those of their urban counterparts. The fact that in 2000-01, within the unorganised manufacturing sector, 89.59 percent and among the two components of agro-based industry, 92.57 per cent were of the OAME type tended to illustrate the fact that the tiniest group of manufacturing enterprises are operating under diseconomies of scale.

7.6.3: Linkage between Agriculture and Growth of Agro-based Industries

Structurally, the state of West Bengal witnessed the trend of transition from agriculture to non-agriculture. As between 1999-2000 and 2004-05 the share of agriculture in the net state domestic product has dropped to 25.35 per cent in 2004-05 from 31.81 per cent in 1999-2000. The reduction in the share of agricultural activities is accompanied by the corresponding increase in the share of non-agricultural activities. Turning to the pattern of non-agricultural activities, manufacturing is the second major activity after trade, hotels and restaurant. However, manufacturing being the second largest activity among non-agricultural enterprises grew marginally by 1.11 percentage points, it's share being increased from 8.56 per cent in 1999-2000 to 9.67 per cent in 2004-05, as against decline in the share of agriculture by 6.46 percentage points during the concerned period.

In fact there is a strong linkage between the development of agriculture and the growth of agro-based industries. Agro-based industry draws raw material inputs from agriculture and processes agricultural raw materials adding value to the farmers'

produce. Agro-based industry thus provides agriculture-industry linkage which help accelerate agricultural development. In the present study we have taken recourse to both regression and correlation exercises for drawing inference about the linkage between agricultural development and the growth of agro based industry in the state.

Evidently a comparison of results of regression exercises and the estimates of rank correlation coefficient establishes a sort of inter-dependence between the location of units and agricultural production in a district rather than showing one way causal relationship between agricultural production and the locational concentration of the processing units. This gives us the confidence to say that growth of agriculture is dependent on and also determine the growth in agro-based industry.

7.6.4: Profile of Sample Entrepreneurs of Agro-Processing Activities

The socio-economic profile of the sample entrepreneurs is analyzed by using the variables like social group, age, education, land-holding and previous experience. It can be seen that majority of the sample entrepreneurs belong to the category "others" i.e. other than SC & ST and OBC. It is only in the case of fish processing activity, majority of the entrepreneurs belong to SC & ST category. Entrepreneurs mostly belong to the middle age group of 25-45 years age, here again, with the exception of fish processing units where sample entrepreneurs belong to the age group of 45-60 years. Notably, none of the sample entrepreneurs was below 25 years.

The education of the entrepreneurs leaves a lot to be desired. The majority of the entrepreneurs have studied only up to middle level i.e. up to 10^{th} standard. However, most of the entrepreneurs engaged in jute-based textile units are better educated having studied beyond 10^{th} standard. Average education level of the entrepreneurs of food processing units is observed to be relatively low and they have learnt the processing activity traditionally.

As far as land holding is concerned, majority of the sample entrepreneurs engaged in food processing activity possessed some amount of land (less than 1ha) while entrepreneurs engaged in non-food processing activities, mostly do not possess land. Entrepreneurial households engaged in food processing activities have rural base and possess land combining both farm and non-farm activities. On the other hand, entrepreneurial households engaged in non-food processing activities are urban-based and do not possess land having the processing activity as the main occupation.

All the sample processing units covered under the study were existing ones. Thus it is found that all the sample entrepreneurs had previous experience/ knowledge ranging between 5 to 20 years. While majority of the entrepreneurs of the sample food processing units have learnt and followed the activity traditionally, majority of the

entrepreneurs of non-food processing units was found received institutionalised training and gained working experience in carrying out the activity.

Getting employment is the major motivating factor behind choosing the food processing activity (83.33 per cent). The other equally important factor emerged was previous experience in the business activity which has motivated to carry on the activity traditionally (83.33 per cent). For non- food processing activities, the major factor which influenced the entrepreneurs to take up the activity was higher profit margin accruable from the activity (83.33 per cent).

The average size of the family of the sample entrepreneurs ranged between 4 and 5 for food processing enterprises while the same varied between 3 and 5 for non-food processing units. The average dependency ratio ranged between 30.00 per cent and 50.00 per cent for food processing industries. Dependency ratio is smaller for fish processing activity which indicates greater participation of the household members in the business activity. For non-food processing enterprises, dependency ratio varied between 17.00 per cent in the case of textile units and 61.00 per cent in the case of paper-based units. The average dependency ratio is found to be higher for non-food processing units (43.40 per cent) as compared to those of food processing units (38.88 per cent). Greater engagement of family labour in the food processing activity reduced the dependency level for the entrepreneurs of the food processing units. In majority of cases women are also the earning members in the entrepreneurs family of the food processing units.

7.6.5: Cost of Investment and Its Financing

7.6.5.1: Status of the Sample Units

Status of the units were ascertained in terms of year of existence, average age of the units and registration status. It was observed that all the sample-processing units covered under the study were existing ones and none of the sample units was set up new. As the proportion of existing units was high, the average age of the sample units was also high. Age of the investment unit was the highest in fish processing units at 17.5 years followed by paddy processing 15.5 years, wood and its products 14.67 years, fruit processing 13.67 years, paper and its products 10.67years. The age of the units manufacturing jute-based textile products was lowest at 8.33years.

It was observed that investors are not keen on registering their units with DIC. As observed about 50 per cent of the total sample processing units was registered. Further, it was observed that within the group of food processing units, 50 per cent of the paddy processing units were registered as against the corresponding proportion of 17 per cent in case of fish processing units. Fruit processing units were found to have registered in about 33 per cent cases. Notably, it can also be seen that OAME units are

entirely unregistered. In the non-food-processing segment, 67 per cent each from leather, textile and wood category are the registered units, and here again OAME units are entirely unregistered. Exceptionally, paper-based processing units are entirely registered.

The concerned activity is the main activity for all the non-food-processing units with only exception of OAME units manufacturing jute-based textile products. In the food-processing segment, for all the processing units other than OAME units of fruit processing, the concerned activity is seen to be the main activity. The average area of working place varied depending upon the requirement of the activity. The area of operation covered by the DME units of manufacturing enterprises is seen to be more than the other category of manufacturing units. Further, a relatively lesser work area is covered by OAME units of manufacturing enterprises.

7.6.5.2: Cost of Investment

The size of investment in units varies across the food and non-food processing segments of manufacturing enterprises. It is relatively higher in non-food processing segment as compared to its counter part. Within the group of food-processing units, the size of the investment is higher in case of paddy processing activity while it is found to be lower for the OAME and NDME units of fish processing activity. On the other hand, among the non-food processing units, size of the investment is seen to be higher in paper-based activity followed by leather-based activity. In general, within a category, size of the investment made by the entrepreneurs varies increasingly with the size of the unit. That is, investment made by OAME unit is lower than that of NDME unit which is again lower than that of DME unit. The size of the working capital got relatively larger share in investment for all the processing units. The share of block capital in the case of food processing units is seen to have varied from 6.50 per cent in fish-processing units to 46.16 per cent in paddy-processing units. For the segment of non-food processing units, it ranged from 10.98 per cent in case of textile products to 41.40 per cent for paper-based activity.

7.6.5.3: Financing of the Investment

The sources used for financing the investment are categorized as own fund, institutional and non-institutional loans. On an average, food-processing industries met their investment requirement from own fund except the paddy processing activity. The similar is the case for non-food processing industries where it may be observed that only the paper-based processing units resorted to outside borrowing to bridge the gap between own contribution and actual cost of investment. The share of institutional loan ranged from 8.89 per cent to 33.02 per cent for non-food industries. For the units engaged in food-processing activity, the share of institutional loan was of the order of less than 1 per cent in the case of fruit processing units while it was 2.86 per cent in

case of fish processing units. The pattern of financing the investment is observed to be markedly opposite in the case of paddy processing units where institutional loan contributed 52.22 per cent of total investment. Units engaged in fish processing have taken loan from non-institutional sources to the tune of 48 per cent of their total investment in the activity.

7.6.6: Economics of Investment in Agro-Processing Units

7.6.6.1: Production and Operation Cycle of the Activities

The level of operation of the sample units varied from activity to activity. The level of utilization of the unit was assessed in terms of number of days worked in a month and that of number hours per day. As observed, the level of utilization/working of the units was influenced by availability of working capital and seasonality of the activity in terms of input availability and demand for output. For all the activities, it is seen that monthly working days ranged between 26 to 30 days. The difference is noted in the case of per year working days. Working days per year for food processing units are relatively less than those of non-food processing units. Low level of demand for the product and non-availability of raw materials adversely affected the number of working days in a year for the food-processing industries.

Depending on the time taken for processing of the input, the number of production cycles each unit completes is seen to be different. The normal feature, which has been observed is that the number of production cycles which a unit completes in a year differs with the type and size of activity. Notably within the category of food processing units, the number of cycles completed in a year increased with the size of the unit. Under the segment of food processing, paddy processing has the highest number of production cycles per year as its cycle is of 2–3 days. Relatively, longer duration of operation cycles was observed in the case of OAME units of fruit processing activity resulting in lower number of production cycles in a year. Within the fruit processing category, the number of production cycles completed in a year is relatively more in NDME and DME units as each cycle comprised of 2–3 days. For food processing units, longer duration of production cycle was observed in the case of fish processing units resulting in lower number of production cycles completed in a year. Among the non-food processing activities covered under the study, all the activities have low duration of production cycles and thus the number of production cycles completed in a year is comparatively high for them as compared to their food-processing counterpart.

7.6.6.2: Sources of Raw Materials and Marketing Linkages of the Processed Product

The sample food processing units being relatively smaller units have the limited capacity to reach out to various markets. As observed, the food processing units as a whole have obtained raw materials from farmers directly (72.22 per cent) and they do not have strong linkages with input market. Non-food processing units however directly come in contact with the market through established trade/ market channel, having obtained raw materials from the input market. Further, it is observed that some of the units have reportedly procured raw materials from more than one source, the proportion of such units being 22 per cent for food processing units and 50 per cent for non-food processing units.

With regard to the produce sold by the processing units, the sample processing units are found to have linkage with various domestic markets stretching from the home district to various places all over India. It can be noticed that the unit owners (both food and non-food) come in contact with the terminal markets located in other districts even in other states of India apart from having their linkage with the local output market. In case of food processing units, the participation of the units in the local product market is relatively more as compared to those of non-food processing units.

It can be observed that no processing unit in the sample except the fish-processing unit has involvement in the export market. For the fish processing units, 2 units out of the sample of 6 units are found to have participated in the export market, one unit each through domestic based export merchant and domestic based export agent. For the other categories of sample units, no unit in the sample has been found to have the capacity to export the produce and hence the entire output has been sold domestically. DME units of fish processing activity reported to have sold in the export market to the tune of about 80 per cent of their processed product.

Except for the paddy processing and fish processing units, majority of all other units reported to have purchased raw materials through established trade/ market channels. In case of paddy processing and fish processing units, majority of them are found to have purchased raw materials from farmers directly. No unit in the total sample has not reported purchases from farmers' co-operative societies. With regard to marketing of the processed product domestically, it can be seen that the food processing units in major cases, have sold their products through market functionaries like middlemen, retailer and wholesalers while the majority of those of non-food processing units have marketed their product directly in the terminal market.

7.6.6.3: Cost of Production

Costs involved in the production process consisted of two components viz. recurring fixed costs and recurring variable costs. Evidently, all the activities incurred some recurring fixed costs. Within the group of food processing units, investment in

paddy processing unit has a very high fixed cost of Rs.424331.67 followed by fruit processing activity at Rs.264283.33 and fish processing unit at Rs.175091.67 per year. For the non-food processing units, annual recurring fixed cost was very minimum at Rs.4433.33 in case of units manufacturing textile (jute) products, followed by manufacturing units of wood-based products at Rs.66916.67, leather based products at Rs.106533.33 and paper-based products at Rs.244166.67. Heavy fixed cost incurred by the units manufacturing paper-based products was mainly on account of higher depreciation charges (due to higher investment in machinery), higher interest payment for the bank loan and other annual costs like insurance and tax payments. On the other, low depreciation cost due to capital saving nature of the investment, relatively lower loan amount and thereby interest payments, had contributed to keep the recurring fixed cost at very low level in the case of manufacturing units of textile (jute) products covered under the study.

As far as recurring variable cost is concerned, it can be seen that spending on raw materials is the major component of variable cost of the investment for all the processing activities. Notably, the share of this component is found to be relatively higher for the food processing industries. The percentage share varied from 55 per cent to 95 per cent in case of food processing industries while the same varied from 67 per cent to 74 per cent in case of non-food processing industries. Within the group of food processing units, the proportion of cost on raw materials topped the list for the paddy-processing unit followed by the fish processing and fruit processing activities respectively. In general for all the processing units, proportion of cost on raw material is found to have declined with the increase in the size of the unit in the category.

7.6.6.4: Net Income from Investments

With regard to net income derived from the investment, it may be noted that all the activities gave positive net income being varied among the activities depending upon the size of the investment. This is uniformly observable in the case of food processing units. It may be seen that within the group of food processing units, paddy processing activity gave maximum net income at Rs.1,85,718 per year followed by fish processing activity at Rs.1,61,583 and fruit processing activity at Rs.1,45,666. Small investment in units like fruit processing yielded net income of smaller amount in comparison with other units in the food-processing category. For the group of non-food processing units, this particular pattern is not uniformly observed, although, paper-based processing units with maximum investment among non-food processing units accrued maximum net income of Rs.1,15,333 followed by wood-based processing units at Rs.89,583, leather-based processing units at Rs.74,133 and jute-based textile units at Rs.68,800. For all the processing activities (food and non-food), net income increased with the size of the unit.

7.6.6.5: Employment Generation

Employment generation by the processing units covered under the study showed wide variation. In the food-processing category of enterprises, maximum employment generation from the investment was observed in the case of fish-processing unit with 7,662 man-days per unit per year followed by fruit-processing (4,195 man-days) and paddy-processing (1,550 man-days). Among the non-food processing units, maximum employment generation by the activity was observed in the case of wood-based product manufacturing unit (2,150 man-days) followed by paper-based unit (2,100 man-days), leather-based unit (1,760 man-days) and jute-based textile product unit (1,730 man-days). OAME units are entirely family-labour based and other units namely NDMEs and DMEs, employed outside labour over and above the contribution made by the family labour. As expected, labour employment in the units increased with the increase in the size of the unit. With regard to employment across sexes, fruit-processing units in the food-processing sector and jute-based textile units in the non-food sector are seen to be female-dominated ones. There is no one-to-one correspondence between size of investment and employment. As observed, fish processing units in the food-processing sector generated maximum employment (5.32 days) per investment for Rs.1000 holding the second position in terms of the size of investment. As against this, in the non-food sector, the maximum employment of 18.38 days per thousand rupees of investment was generated by the units manufacturing textile products while in terms of size of investment the units ranked the lowest position among the non-food units.

7.6.7: Problems and Prospects of Agro-processing Industries

7.6.7.1: Problems Faced by Manufacturing Enterprises

Given the dominance of the unorganised sector in the state, agro-based enterprises are mostly tiny and small household based enterprises. Such enterprises are usually characterized by backward production technologies, limited market out-reach and diseconomies of scale. Those apart, they may face more difficult problems that need to be hardly emphasized. Thus the responses regarding problems faced by enterprises in procuring raw materials as well as marketing the processed product are summarized in the following paragraphs.

Reportedly the problem of non-availability of raw materials throughout the year, variability of prices of raw materials and absence of information network to keep track of raw materials prices and availability came to be featured prominently in the array of problems faced by the entrepreneurs. For food processing units the major problem in procuring raw materials reported to be variability of prices of raw materials (cent per cent) followed by absence of information network (72.22 per cent) and non-availability of raw materials (66.67 per cent) throughout the year. As far as

the non-food processing units are concerned, the specific problem faced by the enterprises in procuring raw materials reported to be variability of prices of raw materials (cent per cent) similar to those of food-processing units. Notably, the problem is reported uniformly by all categories of enterprises. For these units, the problem of non-availability of raw materials did not stand in the way of functioning of the unit, rather, the next important problem faced by the enterprises reported to be absence of information network (50 per cent) to keep track of raw materials prices and availability.

In food processing industries, raw materials from agriculture and allied sectors constitute the major component of cost of production. Cost on raw materials further increases in the face of variability of prices of raw materials during the seasons. Moreover, on account of variability of prices of raw materials, it is difficult for the processing units to fix prices of the processed product well in advance which has a direct bearing on the marketing of the product. Further, in the absence of information network, the entrepreneurs of the units are left unaware about the raw materials prices and availability. For non-food processing units, availability of raw materials is not the major problem, rather, they face one major problem of variability of prices of raw materials occurring during the year. Similar to food-processing units, they also face difficulties in fixing prices of products, having bearing on the marketability of their products.

In the field of marketing of processed products, reportedly for food-processing units, the main problem was lack of proper domestic market of processed products (72.22 per cent) followed by absence of good network purveying market information (66.67 per cent) and dependence on middleman for marketing the processed products (66.67 per cent). Notably, all the OAME units in the food-processing segment reported these three problems uniformly across the category of enterprises. Reportedly, for non-food processing units, the major problem was absence of strong network for obtaining market information (58.33 per cent) followed by lack of proper market of processed products (50 per cent) in domestic market and dependence on middleman for marketing the processed products (41.67 per cent). Here again, OAME units in all categories of enterprises reported the above three problems in the sphere of marketing of their products.

7.6.7.2: Prospects of the Units

The state of West Bengal is a significant producer of many horticultural and agricultural crops. Besides, West Bengal being the largest producer of freshwater fish and second largest producer of shrimps offers extensive scope for investment in the area of processing of fish. Processed fish are in great demand in international markets. All these give it a natural advantage to invest in grain processing, fruit processing and

fish processing. In general, the state has a comparative advantage to invest in food processing industry.

On the basis of analysis of secondary data, the present study reveals that food-processing sector as a whole witnessed higher growth rate as compared to the non-food sector both in the organised and unorganised segments. As revealed by primary data, within the group of food processing industries, paddy-processing units gave maximum net return. However, the activity faces problems in its day-to-day operations. As revealed by primary data, the major problem encountered by the paddy processing enterprises is the variability of prices of raw materials followed by the absence of information network. Paddy is the raw material for the paddy processing units. Although the State of West Bengal is the significant producer of paddy, rice milling processing units face the seasonal problem of non-availability of paddy as raw material for the paddy-processing units. In the absence of information network, the processing units have become subject to paying variable prices of raw materials at different points of time during the year, the second major problem faced by the paddy-processing enterprise. However, the state of West Bengal being blessed with largest production of paddy has the potentials for investing in paddy processing industry. The industrial units in future can take advantage of the growing demand for the value added processed product in India as well as abroad. This would be possible if the units have access to information network to keep track of raw materials prices and availability.

Among the food processing units selected for the study, fruit (mango) processing activity yielded net income of smaller amount in comparison with other units in the food-processing segment. All the sample units belong to the un-organized sector with small size of the investment. The processed products of the selected units included Jam, Jelly, Sauce, Slice, Pickles/ Anchar. Due to having demand for the fruit-based processed products in the domestic as well as international market, mango-processing units have the good potential for expansion. However, the major problem faced by these units is the non-availability of raw materials throughout the year, the same being encountered particularly by the OAME units of enterprises and accordingly facing the problem of variability of prices in procuring raw materials for the product. Further, in the wake of lack of proper market for the processed product and absence of marketing information network, the units have to compromise in availing reasonable prices for their products. In view of production and availability of mango as raw materials of the processing units, their exists potentials for setting up mango processing units in the fruit processing sector. They are however provided with proper infra-structural support for preservation of mango fruit as well as in getting remunerative prices for their product.

Apart from the above, the state has the comparative advantage in fishery and thus it is in one of the most important sectors for investment in the state. The state's fishery resources potential include inland water inclusive of fresh water and brackish water resource and the marine resources. Natural resource of freshwater as well as brackish water aquaculture together accounted for 60.84 per cent of total inland resource potential of the state. West Bengal being the country leader in producing freshwater fish and shrimps/ prawns offers extensive investment opportunities in the area of processing of fish. The range of processed fish products include processed shrimps/ prawns and sea water fish. Unlike other agribusiness areas, the export market for processed fish particularly shrimps/ prawns is well established.

Traditionally fishing communities preserved fish by salt curing and drying them out in the sun. The nature of the fish processing industry has undergone changes with large-scale export of prawns and shrimps etc. Today the industry is modern and mechanically sophisticated.

As observed from the study of sample fish processing units, traditional sun-drying fish processing units belonging to OAME and NDME categories faced the problem of non-availability of raw materials throughout the year. They also equally face the problem of marketing of their products. Processed products of the units involved in sun-drying of fishes are marketed domestically through wholesaler /middleman who passes the product to the retailer from whom consumers procure. The prawn processing units belonging to DME category faces the problem at the stage of procuring raw materials who purchase the same mainly through agents. However, marketing is no problem for prawn processing unit, where the unit having link with the export market used to market their product to the consumers through the wholesaler. The constraint / problem common to the OAME and NDME units of fish processing enterprises is the absence of information network both in the sphere of availing raw materials and marketing of the product. Therefore fish processing units having their large potential in the state could enhance their efficiency if they are provided with assistance in terms of creating access to information network.

With the growth in urbanization, rising economic well being and spread of education, there has been a shift in the pattern consumption expenditure away from food items towards non-food items such as those based on textiles, wood, paper and leather. As revealed form the analysis of secondary data, although there has been an expansion in the number of non-food processing units both in the organized and un-organized segments of agro-based industry, the rate of expansion is lower as compared to food processing units. Within the group of non-food industries, textile and leather units have shown relatively better performance in terms of their numerical strength. The analysis of primary data collected from the sample processing units

however clearly revealed that textile and leather units generated relatively lower net income. Amongst non-food processing enterprises, paper-based manufacturing units gave highest net return and thus there exists good opportunities for investment in units manufacturing paper-based products.

As revealed from the analysis of primary data, the textile units have faced the basic problem of low market demand for the products. Lack of internal market and low income generated by the units are the main hindrances that stand in the way of growth of textile units. In our sample processing units, leather based activities included items viz. manufacturing of ladies purses, shoes, leather jackets and bags. Similar to textile units, they also face the problem of marketing of their products. The common problem faced by the entrepreneurs of leather and textile units reported to be the absence of network for the marketing of their products. Obviously, these units could enhance their numerical strength if they are supported by better infrastructure providing market information for their processed product.

7.7 Policy Implications

The following are the major policy recommendations emerged from the study.

* The present study stressed the importance of growth of agriculture in fostering growth in agro-based industries. Raw materials for agro-based industries come from agriculture and allied sectors (horticulture, livestock, fisheries, forestry. Ideally, thus agro-food and non-food processing units are expected to grow near the source of raw materials. In the present study, using the district level data, the linkage between the level of agricultural production and the concentration of agro-processing units is clearly established on the basis of the estimates of rank correlation coefficients. Agro-based industries are thus expected to grow in regions where agriculture is growing. Thus for the promotion of agro-based industries in the state, there is a need for larger public investment in agriculture involving suitable policies for balanced development of agriculture across the regions of the state. Notably, the expenditure on agriculture constituted about 2.57 per cent of total budgetary expenditure in the state **(Attn: State Department of Agriculture, Government of West Bengal).**

* One of the problems faced by the agro-processing units is the non-availability of raw materials throughout the year. They are also confronted with variable prices differing according to seasons. In the present study, except for the paddy processing and fish processing units, majority of all other units reported to have purchased raw materials through established trade/ market channel. Thus, in the context of ensuring the availability of raw materials, there is need for establishing the linkage with farmer producers. Hence, processing industries should be encouraged to strengthen the process of linkage with farmers. In the process, apart from the enhancement of

profitability of the processing units, it would be possible to accelerate farmer's income **(Attn: Department of Food Processing Industry and Horticulture, Government of West Bengal).**

* Lack of adequate infrastructure like marketing infrastructure, store house, cold storage facility seems to be the greatest impediment to the growth of agro-based enterprises. This is clearly evidenced in primary data analysis of sample processing units. Agricultural development alone can not take care of the desired growth in agro-based manufacturing enterprises unless it is backed by easing of infra-structural bottlenecks. While agricultural development would act as a prime mover in initiating the process of growth of agro-based enterprises, the development of infra-structure would facilitate the process of expansion of agro-based enterprises making it possible to realise scale and transaction cost advantage. Thus public investment in developing the required infra-structure needs to be stepped up for the growth of agro-based enterprises **(Attn: West Bengal Industrial Development Corporation (WBIDC), Government of West Bengal).**

* Pricing of products is an important element of marketing of agro-based products. In the present study, sample-processing units experienced one major problem of variable prices of raw materials varying over the seasons. In the face of variable prices of raw materials, the processing units find difficult in fixing prices of their products in advance. This has deterred these units from entering into forward contract with the customers who can purchase their products at reasonable prices and thus ensuring the marketability of the products. Moreover, for want of information network infrastructure, the processing units are unable to assess the supply demand conditions of raw materials and thus prices of raw materials. They are also unable to forecast market demand for the product. This calls for creating infrastructure in the form of developing network linkages **(Attn: 1. Directorate of Agriculture, Government of West Bengal, 2. Department of food processing industry and horticulture, Govt. of West Bengal).**

* At the disaggregated level, the district of Malda selected for studying fruit (mango) processing units is primarily agrarian and the industry developed so far in the district is mainly traditional agro-based industry including fruit processing. In the district, fruit processing units, developed so far mostly belong to the un-organised sector. Amongst horticultural crops, mango fruit is worth mentioning in the district. In view of the resource endowments of horticultural crops, the district enjoys key advantage for developing resource based fruit processing industry based on mango fruit. For the purpose, the state government has to take a number of steps, particularly, offering financial incentives along with providing entrepreneurship development training. In

this context, small industries cluster development programme aiming at development of small industries through cluster approach would be of great help in providing common facilities for the development of mango processing units in the district. **(Attn: Department of food processing industry and horticulture, Govt. of West Bengal)**

* As observed from the study of sample fish processing units in district of 24-parganas, traditional sun-drying fish processing units belonging to OAME and NDME categories faced the problem of non-availability of raw materials throughout the year. They also equally face the problem of marketing of their products. Processed products of the units involved in sun-drying of fishes are marketed domestically through wholesaler /middleman who passes the product to the retailer from whom consumers procure. The prawn processing units belonging to DME category faces the problem of procuring raw materials who purchase the same mainly through agents. However, marketing is no the problem for prawn processing unit, where the unit having link with the export market used to market their product to the consumers through the wholesaler. The constraint / problem common to the OAME and NDME categories of fish processing enterprises is the absence of information network both in the sphere of availing raw materials and marketing of the product. Therefore assistance to these units in terms creating access to information network would enhance the efficiency of these units **(Attn: Department of Fisheries, Government of West Bengal).**

* As for the non-food processing units, the textile units have faced the basic problem of low market demand for the products. Similar to textile units, leather based activities also face the problem of marketing of their products. However, the common problem faced by the entrepreneurs of leather and textile units reported to be the absence of network for the marketing of their products. Obviously, these units could enhance their numerical strength if they are backed by better infrastructural support providing market information for their processed product. **(Attn: West Bengal Industrial Development Corporation (WBIDC), Government of West Bengal).**

* In our sample, for the food processing units except the paddy processing activity, the share of institutional loan was of the order of less than 1 per cent in case of fruit processing units while it was 2.86 per cent in case of fish processing units. For the units engaged non-food processing activity, the share of institutional loan ranged from 8.89 per cent to 33.02 per cent. Thus for the promotion of agro-based industries, the banks should come forward in providing credit to them, In the sphere of credit, priority sector lending should not be discouraged, rather, more credit to priority sectors like the small-scale units of manufacturing enterprises should be provided. In the era of liberalization, under low interest rate regime, greater size of credit at market

interest rate would be attractive to the investors to make investment in small-scale manufacturing units **(Attn: RBI, NABARD).**

* Of course, tasks are many and performing of tasks enumerated above would require coordinated efforts among different departments of the government as well as amongst government and non-government agencies. There is now widespread recognition that agro-processing industries can play active role in generating income and employment. Equally, there is vast export market potential for agro-based processed products in earning foreign exchange. On the demand side, changing consumption habits have opened up new domestic market possibilities for the value added processed products. Government policy environment has also created favorable investment climate in recent years. The overall effect of all these is that there exists large potential for the development of agro-processing industries. However, So far, there is no separate agency either at the central or at the state level exclusively for focusing on the problems of agro-based industries. Today, when agro-processing sector has started gaining strength, the establishment of a separate agency for the agro-industrial sector at the centre and state levels would help a lot in realizing the problems peculiar to the agro-based activities and in overall development of the economy and employment generation.

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