Study No. 164

UNDERSTANDING THE GROWTH AND PROSPECTS OF AGRO-PROCESSING INDUSTRIES (CONSOLIDATED REPORT FOR WEST BENGAL, BIHAR AND MAHARASHTRA)

EXECUTIVE SUMMARY

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Understanding the Growth and Prospects of Agro-Processing Industries (Consolidated Report)*

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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. It is thus being increasingly realized now a days 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 underscore the need for alternative avenues for employment generation. This brings the development of agro-based industries into sharp focus. 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' 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. However such potential is hardly exploited. This underscores the need for undertaking the study.

1.2: Need for the Present Study

Agro-processing 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. More importantly, 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. As a whole, the strength of agro-based industry is comparatively less than

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

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 study the economics of agro-processing units.
3. To analyse the marketing behavior of agro-processed products.
4. To study the employment potential from agro-processing industries.
5. To analyse the constraints on acceleration of production.
6. 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. For secondary data the study draws upon the sources like quinquennial National Sample Survey data for unorganized manufacturing and Annual Survey of Industries data for the organized manufacturing. Secondary data relates to the select years viz. 1994-95 and 2000-01. In India, bulk of the units in the agro-processing sector are 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 policy recommendation could be made for the promotion of agro-based industries.

1.5: Sampling Design, Methodology and Coverage of the Study

The study has been carried out in three selected states viz.; West Bengal, Bihar and Maharashtra. Primary data was collected from the selected agro-processing units in each selected state. 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, primary data are collected from the selected processing units chosen from both agro-food industries and agro-non-food industries. Altogether, 30 sample processing units are studied in each state. In Bihar, however, the study is based on 27 sample processing units. The sample units are selected at random proportionately spread over food and non-food processing segments of agro-based enterprises. Considering the dominance of food processing industries 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. In case of Bihar however 9 units from non-food processing segment are selected. In selecting processing units, 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. For each category of enterprise, the dominant processing activity was selected consulting available secondary data. Sample districts are identified on the basis of the concentration of units of activities. In the case of food-processing 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. The units in the suggested proportion could not be selected in Maharashtra due to non-availability of entrepreneurs of a particular category at the time of survey. Primary data from the selected processing units are collected through canvassing structured schedule and questionnaire prepared for the purpose of the study. Data are analyzed through simple tabular analysis.

1.6: Major Findings

1.6.1: Status of Agro-based Industry

West Bengal:

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. As evidenced by Annual Survey of Industries data, 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. In the un-organised segment of manufacturing enterprises, 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.

Bihar:

In Bihar, the unorganized manufacturing sector is characterized by the dominance of agro-based industries (including agro food and agro non-food) sharing 53.00 per cent in the number of total working units in 1994-95. Among the agro-based industries, the share of agro food processing industries was estimated to be higher (28.45 percent) than agro non-food processing industries (24.55 percent).

Data for the year 2000-01 be taken significant decline in the number of working units under the groups of 'agro food,' 'agro non-food' and 'non-agro based industries' as compared to that of 1994-95. Decline in the number of working units based on agro-food and agro non-food based processing activities, suggest a state of uncertainty in the field of unorganized manufacturing industries based on processing of agro food and agro non-food commodities (particularly OAMEs) during the period 1994-95 to 2000-01.

Maharashtra:

In Maharashtra, the unorganised sector clearly dominates the organised sector as far as the number of the units is concerned in both the years viz. 1994-95 and 2000-01. In the organized sector, non agro-based industries are dominating with their share being around 70 percent. However, in the unorganised sector, the agro-based industries are seen to be dominating the non agro-based industries and their number has greatly increased (92.87 percent) over the concerned period whereas that of non agro-based industries has fallen (the percentage change being –19.98 over the period). Further, in the organised sector, the share of food processing industries in total agro-based enterprises has increased in the reference period while in the un-organised sector their share has declined.

1.6.2: Profile of Sample Entrepreneurs of Agro-Processing Activities

West Bengal:

The socio-economic profile of the sample entrepreneurs is analyzed by using the variables like social group, age, education, land-holding and previous experience. In West Bengal, the processing units are mainly owned by those belonging to the category of 'others' i.e. other than SC, ST 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 needs technical know-how are better educated beyond the level of 10^{th} standard. All the sample processing units being existing ones, 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. As far as land holding is concerned, majority of sample entrepreneurs engaged in food processing activities possessed some amount of land (less than 1ha) while entrepreneurs engaged in non-food processing activities mostly do not possess land. 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 in non-food processing activities, reported higher profit margin as the major factor that has induced the entrepreneurs to take up the business activity.

Bihar:

In Bihar, entrepreneurs who belong to the category of 'others' in the social group is reported in the case of food processing units while in the non-food processing segment, majority of the entrepreneurs reported to be SC and ST. As far as education is concerned, it is observed that majority of entrepreneurs are literates. Many of them have taken education above 10^{th} standard in case of food processing units while majority of entrepreneurs have been educated upto the 10^{th} standard in case of non-food processing units. As far as land holding is concerned, it can be observed that entrepreneurs engaged in non-food processing agro-based activities possess relatively smaller amount of land between 1-2ha as compared to those of households engaged in food processing activities. The entrepreneurs engaged in food processing activities mostly possess land 2ha and above those who are dependent upon agriculture for their survival. Further, majority of units are existing ones and the entrepreneurs have experience of more than 10 years. This is particularly observed in the case of dairy related processing units where the business is carried on traditionally and members of household have learnt business traditionally. Non-food processing units are relatively new units although there are some instances of learning business activity traditionally.

Maharashtra:

In Maharashtra, most of the entrepreneurs belong to the category 'others' in the social group which also includes people from other religions (e.g. Muslims which are involved in fish processing). Majority of the leather entrepreneurs (67 per cent) belong to the SC/ST category as tanning of the animal skin has been the traditional business of this community. This indicates lower occupational mobility in this particular community. As far as education is concerned, it can be observed that majority of the entrepreneurs are educated. Majority of them have been educated upto the 10^{th} standard. It can also be observed that the entrepreneurs possessing cashew-processing units, rice mills and paper-based (binding) units have taken education above 10^{th} standard. Thus, the entrepreneurs engaged in activities which need technical know-how, relatively heavy investments in terms of machinery are seen to be better educated. As far as land holding size is concerned, it can be seen that urban-based households engaged in non-food processing agro-based activities do not possess land. It is only the households in rural areas of a Konkan engaged in cashew processing and rice milling possess land. These households depend upon agriculture and agro-based activities for their survival and hence possesses land. Families engaged in fish processing also do not possess land. It is also observed that majority of the units are existing units and have experience of more than 5 to 10 years back. This is specifically true in case of fish and leather units as the business is carried on traditionally and hence the household members have learnt the business traditionally. It can be noted that the cashew units are the newly established units and all the entrepreneurs have been trained as running the business needs technical training and knowledge about the machinery.

1.6.3: Cost of Investment and Its Financing

1.6.3.1: Status of the Sample Units

West Bengal:

Status of the units were ascertained in terms of year of existence, average age of the units and registration status. In West Bengal, 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. Average area of working

place occupied by the DME units of manufacturing activity is seen to be more than the other category of manufacturing enterprises.

Bihar:

In Bihar, most of the units are existing ones. Further, most of the surveyed processing units have been working in the unorganized sector tiny, small and artisan based enterprises and so they are mostly unregistered. Average age of the sample processing units ranged between 08 to 35 years. DMEs under cereal based processing activity occupied largest area followed by DMEs of horticultural product based activity, wood based processing activity and livestock based processing activity.

Maharashtra:

In Maharashtra, majority of the units are the existing ones. It is the cashew processing units and the rice mills which are seen to be the new units. In the state, most of the units are registered. Four fish processing units and one OAME each from leather, textile and wood category are the unregistered units. The fish units carry out their activity outside the house near the beach. The area covered by the units using machinery – cashew units, rice mills and binding units is seen to be more than the other business units.

1.6.3.2: Cost of Investment

West Bengal:

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. 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.

Bihar:

In Bihar, generally within a particular group of processing activity, investment increased with the size of the unit. OAMEs showed lower size of

investments in comparison to those of NDMEs and DMEs. It is also suggested that size of the investments were higher in case of DMEs meant for primary food based processing unit i.e., rice mill (Rs.77,96,000/-), litchi based processing activity (Rs.1,59,60,000/-), livestock based processing activity (Rs.10,50,000) wood based and leather based DMEs (RS.16,00000/-) and (RS. 9,00000/-) respectively. The percentage shares of block capital have remained much higher as compared to working capital, in case of both agro-food processing activities and agro non-food processing enterprises except NDME and DME of wood–based processing activities. It varied from 57.15 per cent to 86.96 per cent in regard to agro-food processing activities and from 39.66 per cent to 72.23 per cent in case of agro non-food processing activities.

Maharashtra:

In Maharashtra, within a category, investment is increasing with the size of the unit. The size of the working capital is seen to be lower for the OAME units as these units do not have to incur expenditure on wages/ salaries. It can also be seen that size of the investment is higher in case of rice mills and paper-based activity of binding which depend upon costly machinery for processing. Size of the investment is seen to be lower for fish processing OAMEs and NDMEs. The fish units need more working capital than fixed capital. The activity of drying and salting of fish does not require any heavy initial investment. However, due to the high value of the raw material i.e. fish, proportion of working capital is seen to be higher than the block capital. For other units, the share of block capital is seen to be very high which varies from 64 percent to 99 percent for food units. For non-food units, it ranges from as low as 27 percent to a high of 97 percent. Since the non-food section consists of units carrying out various activities with different requirements, share of block capital in each activity is seen to be different.

1.6.3.3: Financing of the Investment

West Bengal:

In West Bengal, 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.

Bihar:

In Bihar, the NDME and DME under cereal based processing activity and DMEs of horticultural crop based, wood based and leather based processing activities were found to have taken institutional loans in varying degrees. As the larger processing activities, particularly DMEs under both agro-food and agro-non–food categories are registered ones, they could have received institutional loans under DIC/KVI or other schemes. Except DMEs of Cereal based and wood based processing activities and OAMEs of livestock based activity, all other sample entrepreneurs had taken loans from non-institutional sources for meeting their investment costs. In all cases, however, the share of own funds were quite higher than that of institutional and non-institutional finances. It ranged from a minimum of 60.00 per cent in case of DME of textiles products to a maximum of 100 percent in case of OAMEs of livestock products–based processing activity.

Maharashtra:

In Maharashtra, all the units engaged in cashew processing, rice milling and one (DME) each in book binding and leather have taken loan to finance their own investments. The share of loan ranges from 37 percent to 80 percent. The food processing units like cashew units and the rice mills have been registered under the DIC or KVIC and they have received loan as well as subsidy. On an average 18 per cent of the investment has been funded by the subsidy for the 12 units covered under these food-processing activities. The subsidy received by these units under the schemes has helped them to finance the investment needed thereby reducing their reliance on other sources like loan/own fund. Only two units out of the sample of 30 units have taken non-institutional loan.

1.6.4: Economics of Investment in Agro-Processing Units

1.6.4.1: Production and Operation Cycle of the Activities

West Bengal:

In West Bengal, 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. 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. The level of working days per year for food processing units are 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.

Bihar:

In Bihar, number of working days per month as well as working hours per day were seen uniform in most of the cases, except in horticultural crop (litchi) based, dairy products' based and textile products' based processing activities. As litchi based processing activity is run hardly for 22 days to one month, so, in case of DME of this, double shift work is undertaken. In regard to textile processing activity also, two production activities in two shifts, or more than 08 hours are undertaken. So, in these cases, working hours per day is longer. Livestock based processing activity is everyday business without fail on priority basis; however, its working hours is shorter (05 hours). The number of production cycles, which the unit completes in a year, also differs with the type and size of the processing unit. It was quite higher in cases of livestock (300) and leather based processing activity (ranging from 312 to 355). In all other activities, number of production cycles were quite lower depending upon the availability of raw materials, time taken for processing the same and scale of operation.

Maharashtra:

In Maharashtra, the number of working days per month as well as working hours per day are seen to be uniform for all the units. The difference is noted as far as working days per year are concerned. As the food processing units are located in the costal district of Ratnagiri, all the activities come to a halt because of heavy rains during June – September. Therefore, working days per year for these units are less than the non-food processing units in Pune and Mumbai. Depending upon the nature of activity, number of days required for other components of the operation cycle (stocking period, marketing and credit realization period) are seen to be different for different activities. The number of production cycles which a unit completes in a year also differs with the type and size of activity. Normally within a category, the number of cycles completed increases with the size of the unit. Depending upon the time taken for processing of the unit, the number of production cycles each unit completes is seen to be different.

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

West Bengal:

In West Bengal, 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 (72.22 per cent). Non-food processing units however directly

came in contact with the input-market through established trade/ market channel for procuring raw materials. 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 marketing of the produce, 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.

Bihar:

In Bihar, livestock based activity procured raw materials mainly from farmers directly (05). Other two types of agro-food based processing activities' used all the three channels for purchasing raw materials although in the major, the units are found to have purchased the same from farmers directly. Among non-food agro processing activities, raw materials, were wholly purchased through established trade channels and market channels. As far as marketing of the product is concerned, it was observed that half of the total sample entrepreneurs for 'cereal based activity' sold their processed product (rice) directly in the terminal markets. Channel of middlemen came next followed by wholesaler. Entrepreneurs of horticulture based activity mainly marketed their produce in the terminal market. Sample entrepreneurs of livestock based and textile based activities were seen to have sold their products through wholesalers and middlemen. It was interesting to note that under agro non-food processing activities cent percent of the entrepreneurs of wood based and leather based activities sold their produce in the terminal market.

Maharashtra:

As far as the procurement of raw material and marketing of the produce in Maharashtra is concerned, it was observed that as the units are small units, often working with only family labour, the capacity of the units to reach out to various markets is limited and they work through agents. Hence, the unit owners directly do not come in contact with the terminal markets. Units like rice mills, leather units, textile mills and furniture units which process only the raw material provided to them by the customers at their doorstep do not have strong linkages with either input or output markets. All the units except the cashew units have reported that they have only one source (market) for procuring raw material as well as selling their product. Cashew units purchased raw materials both from farmers and established trade channels and have sold their product to the agents,

wholesalers (i.e. market functionaries) and also to the small consumers in the same market (i.e. directly to the consumers in the terminal market). The units in all the categories cater only to the domestic demand and do not export any of their products.

1.6.4.3: Cost of Production

West Bengal:

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 per year followed by fruit processing activity and fish processing unit. For the non-food processing units, annual recurring fixed cost was very minimum in case of units manufacturing textile (jute) products, followed by manufacturing units of wood-based products, leather based products and paper-based products. 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. 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.

Bihar:

In Bihar, within each category, the quantum of fixed costs is seen to be increasing with the size of the unit. As most of the small enterprises belonging to various food and non-food processing activities have been working under unorganized sectors, they are not registered and feel difficulty in achieving bank loans. Therefore, for these units, interest did not figure as part of fixed capital. Other items of fixed costs namely periodic maintenance, rent, insurance premium, taxes and salaries, bonus and depreciation constituted the main components of the recurring fixed costs. Major part of recurring fixed costs is however shared by own fund ranging between 61.70 per cent to 85.15 per cent for agro-food processing activities' and from 64.51 per cent to 82.19per cent in case of agro non-food processing activities. As far as recurring variable cost is concerned, it is seen

that cost on raw materials is the major component of the variable cost for most of the activities, except DME of horticultural products (36.89 per cent) and NDME, (31.90 per cent), DMEs of textile (29.91 per cent) and NDMEs and DMEs of wood and leather based processing activities (18.61 per cent, 43.50 per cent, 21.52 per cent and 20.04 per cent) respectively. In all these cases, share of wages dominated the variable cost component.

Maharashtra:

In Maharashtra, within each category, the quantum of the fixed cost is seen to be increasing with the size of the unit. On an average, only 13 to 14 percent of the total costs have been contributed by own fund in case of food as well as non-food processing units. Out of the 30 units, bank loan has been taken only by 12 units and therefore, interest forms a part of fixed capital only for these units. These are basically the food processing units registered under DIC or KVIC and covered under their schemes. Other fixed costs (periodic maintenance, rent, insurance premium, taxes and salaries, bonus and depreciation) are the main components of the recurring fixed costs. As far as recurring variable cost is concerned, it is observed that cost on raw materials is the major component of the variable cost for most of the activities. However, notably the share of this component is higher for the food processing units i.e. cashew and fish processing units. This cost is lower for the non-food units as for many non-food activities like tailoring, leather processing, the units do not have to buy the basic raw material that is to be processed. The units are provided with the raw material for processing by the customers who take back the processed product. Costs on repair and replacements are higher for the rice mills as these use heavy machinery.

1.6.4.4: Net Income from Investments

West Bengal:

In West Bengal, 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. 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.

Bihar:

In Bihar, out of the total 18 food processing activities (06 each under three types of agro food based activities) and 09 non-food processing activities (03 each under agro non-food processing activities) surveyed, all the activities and units yielded positive net returns. Data reveal that except DME category of livestock based processing activity, in all other cases under agro food processing activities net returns increased with the size of the unit. In the non-food processing segment, similar pattern is observed except in case of net income earned by DME of textile based processing activity (Rs. 46,600/-), which is a bit lower than its NDME (Rs. 51850/-). It thus simply indicates the efficiency of the investments in bigger units.

Maharashtra:

In Maharashtra, all the activities and units show a positive net return. For the food processing activities, the net return increases with the size of the unit. Among these activities, the highest net income is earned by the cashew processing unit (DME) followed by fish processing (DME). Among non-food processing units, this particular pattern i.e. increasing income with increasing size is not observed. This might be because of the heterogeneous nature of these non-food processing activities. Even within the categories, in some cases, the products of these units are differing slightly from the other units.

1.6.4.5: Employment Generation

West Bengal:

Employment generation by the processing units covered in West Bengal 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 1000 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.

Bihar:

With regard to employment opportunities created by the sample processing units in Bihar, it is observed that the number of total labour days engaged in the units increased with the size. The highest number of total man days employed was seen in case of DME of horticultural products based activity figured at 24,200. It was followed by DMEs of cereal based, wood based, textile based, leather based and livestock based processing activities at 7796, 4050, 3000, 2700 and 2000 respectively. It could also be observed that only OAMEs of cereal based, horticulture and textile based processing activities engaged female family labourers. In regard to employment of hired female workers, it is found that only DME and NDME categories of two agro food processing activities viz., cereal and horticultural products based activities employed female workers on hiring basis. It is however revealing that most of the processing activities (under both agro-food and agro non-food categories) did not prefer to employ female workers.

Maharashtra:

In Maharashtra, the number of total labour employment in the units is increasing with the size as is expected. The highest number of workers (9) is found in cashew processing DME unit. It is also observable that all the categories in the food-processing sector except one have engaged female family labourers. Thus, food processing (which can be carried out along with the domestic chores) is seen to be a female dominated activity. As against this, in all, only three categories in the non-food sector (wherein work is carried out within the household) have engaged female family labourers. Similar pattern is found as far as hired female labourers are concerned. Leather as well as wood processing units are seen to be basically male dominated units. Employment creation per 1000 rupees of investment however does not indicate any important pattern.

1.6.5: Problems Faced by Manufacturing Enterprises

West Bengal:

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 sample processing units in West Bengal. 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). The next important problem faced by the non-food units reported to be absence of information network (50 per cent) to keep track of raw materials prices and availability. Thus, both food and non-food units being faced the variability of prices of raw materials in procuring the same 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. For non-food processing units, the major problems reported to be 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.

Bihar:

In Bihar, problems of non-availability of adequate raw materials due to lack of capital, supporting machines/equipments, and absence of required infrastructural facilities were reported by majority of the food processing units. Fluctuations in prices of raw materials, absence of information network and circumstantial purchase of raw materials from middlemen at higher rates were also prominently reported by the sample food processing units. Non-availability of skilled labourers, availability of raw materials (litchi) for a very short period and difficulty in determining prices of value added products were specifically felt by

DMEs of agro-food processing activities. As far as agro non-food processing activities are concerned, lack of capital, poor quality of raw materials and no easy availability of bank credit were reported to have been faced by OAMEs. Like agro food processing activities, NDMEs of agro non-food processing activities did come across the problems of poor electricity supply position, variability of prices of raw materials and purchasing of raw materials from distant market (Kolkata in case of leather). Procurement of raw materials sometimes from informal trade channel, non-availability of strong supporting infrastructure and raw materials (in case of leather), were the main constraints faced by DMEs of agro non-food processing activities.

With regard to the marketing of processed products in the domestic market, long market channel causing lower net income, non-existing support by NGOs/Co-operative marketing societies and selling the value added products to local middlemen at lower prices were found to have been faced by entrepreneurs of small units in case of agro food processing activities. Seasonality of demand for the products, lack of mutual understanding among enterprises for preparing common marketing strategy and quality consciousness of consumers compelling the entrepreneurs to sell their products in distant markets for higher prices were experienced by all NDMEs. Existence of tough competition, absence of widespread network for marketing the products in the State (particularly litchi juice, syrup and pulp) and transport related problems in taking the value added products to terminal markets were the constraints faced mainly by DMEs of agro food processing activities. Regarding constraints faced by sample entrepreneurs of agro non-food processing activities, it is revealing that determination of the price of the products by middlemen or big traders, no option to choose profitable markets but to market the product mainly in the local market preferred generally by low income group of people yielding lower returns were reported to be the main problems faced by OAMEs. Marketing through middlemen resulting in lower net profit, demand for quality product based on design-oriented preferences by the consumers were felt by NDMEs. Lower returns as a result of scattered markets, existence of tough competition and uncertainty of ready demand were reported to be the main problems faced by DMEs of agro non-food processing category of enterprises.

Maharashtra:

In Maharashtra, within the food-processing segment, majority of the cashew and fish units have reported non-availability of raw materials throughout the year. As far as the cashew units are concerned, non-availability of good quality cashews is mainly due to inability of the small units to find agents or seller supplying good

quality raw material. In the absence of information/ resources to find the same, these units are often at a disadvantage if the cashews supplied are not of good quality. The units have also reported non-availability of labourers during the peak season and variability of prices. The fish units also face this problem, as during the months of monsoon, fishing does not take place. It was reported by these units that over a period of time, the supply of good quality fish has been reducing due to various reasons such as entry of large firms. Another major problem faced by the fish units is the absence of any government schemes/ promotional agencies (unlike in case of cashew units covered under DIC/KVIC) which would provide support to these units. In case of the rice mills, the main problem reported was irregularity in the electricity supply. They have also reported that there is a tough competition from other rice mills as due to the liberal policy of the government regarding licensing, many new rice mills are being established.

As far as the non-food processing units are concerned, majority of the units reported non-availability of cheap labour as one of the important problems. Similarly absence of any promotional agencies is another problem reported by the units.

1.6.6: Prospects of the Units

West Bengal:

As revealed by primary data, within the group of food-processing industries, paddy-processing activity gave maximum net return in West Bengal. 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 processing 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.

Bihar:

The development of agro-based industry in the state is largely dependent on the importance attached to fruits and vegetables vis-à-vis other crops. In Bihar, significantly large areas are under different top qualities of fruits viz. mango, banana, litchi, guava, lemon and pineapple. Quantum of production of these fruits is quite larger. However, in the absence of required storage, preservation and proper marketing facilities within and outside the state, good quantum of these fruits are wasted and sometimes sold at unremunerative prices. Hence, there is great potential for installation of agro processing industries based on these fruits in areas/regions with their production in abundance. Among cereal based processing activities, apart from paddy and wheat, there is high prospect for agro-processing industries based on maize in Bihar. With regard to livestock based processing activity, dairy industry in the co-operative sector under the brand name Sudha has achieved marked success in Bihar. In unorganized sector, also there is great potential and bright prospect for processing of milk into khowa, ghee, butter, cream, paneer, lassi, etc.

As far as non-food processing units are concerned, it is revealing that leather and leather products in Bihar has a small share (0.56 per cent) in total production of agro based industries. However, considering the magnitude and quality of livestock wealth and traditional expertise of leather men in Bihar, there appears to be a good potential for industries relating to leather and leather products in the state. Similarly, if the traditional expertise of weavers are utilized properly by providing them necessary inputs and infrastructure then the prospects of textile based processing industries in Bihar is undoubtedly bright. Wood based processing activities have also great potential in Bihar as demand for value added products based on wood is on the increase with the growth of urbanization in the state. As far as the sample units of agro non-food category are concerned, these are located in comparatively developed districts of Patna and Bhagalpur. If the problems/constraints faced by sample non-food processing units at different stages of production process are suitably addressed, the prospects of agro non-food based processing industries in Bihar are sure to be very bright.

Maharashtra:

The analysis of the data collected from the sample processing units in Maharashtra shows that cashew unit (DME) has earned highest net income followed by fish unit (DME). The cashew units are newly established units under DIC/KVIC schemes. Due to the increasing demand for the cashew nuts in the domestic as well as international markets and due to the existence of huge untapped potential for processing of the fruit, the units can in future also, take

advantage of the expanding markets. Fish processing units are existing units working since 10-20 years. Most of these have their business on the beaches under unhygienic conditions. The major problem faced by these units is the irregular supply of good quality fish. Similarly, these units are not covered under any scheme as they do not require heavy capital investments. Assistance to these units in terms of market information and value addition techniques would increase their earning capacity. The major problem for the rice mills is the contraction of the business due to opening up of many rice mills in the vicinity under the regime of liberal licensing policy of the government. The mills thus need to be more competitive and modernized.

With regard to non-food sector, the secondary data shows that there has been a contraction in the number of non-food units (except the leather units) in the organized sector. As against this, the unorganized sector shows a better performance, the textile units are seen to be the units registering growth. However, overall, there has been a contraction in the non-food agro-based sector. As far as the sample units are concerned, these are located in the developed districts of Pune and Mumbai. The units do not exhibit uniformly increasing net income with size within a category. Thus, the DME units are not necessarily the units with highest net income. This may be indicative of efficiency of small units which depend mainly on family labour. The units mainly have reported non-availability of labour, absence of governmental support, existence of rivalry as the main problems. The units would expand their earning capacity and be more competitive if they are provided information regarding market conditions and various existing schemes and extension services.

1.7 Policy Implications

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

West Bengal:

* Adequate infrastructure like marketing infrastructure, storehouse, cold storage facility assume great significance in the context of growth of agro-based enterprises. This is particularly evidenced by primary level data analysis of sample food processing units. Thus public investment in developing the required infrastructure 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).**

* 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).**

*For the food processing units except the paddy processing activity, the share of institutional loan varied from less than 1 per cent in case of fruit processing units to 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).**

Bihar:

Keeping in view the prevailing problems and existing potentials of sample 'agro-processing units, following action points could be suggested for the expansion of agro-processing activities in Bihar:

*Arrangement should be made for making capital available to the potential entrepreneurs engaged in agro-processing activities **(Attn: NABARD, State Co-operative Banks, Commercial Banks and RRBs).**

*Information Centres should be established. These can give information relating not only to market prices, availability of raw materials, technical know- how in connection with concerned activities, but also about various government schemes meant for promoting agro processing activities. **(Attn: Department of Industries, Govt. of Bihar & State Department of Food Processing & Horticulture).**

*Deficiency of supporting infrastructure should be removed by ensuring quality all weather roads both in rural and urban areas, regular power supply, means of communication and strengthening formal credit institutions. **(Attn: Road Commissioner, Govt. of Bihar, Bihar State Electricity Board, NABARD, Department of Institutional Finance, Govt. of Bihar).**

*With a view to ensure the supply of raw materials at reasonable prices and in time, and marketing of the produces, Co-operatives be made instrumental and strengthened. **(Attn: Department of Co-operation, Govt. of Bihar).**

*Processing units based on locally available raw materials related to fruits and vegetables have to be encouraged**. (Attn: Directorate of Horticulture, Directorate of Industries & Department of Agriculture, Govt. of Bihar and Ministry of Food Processing, Govt. of India).**

*There exists large scope for expanding livestock based processing activity (milk processing). It will, however, require proper input supply, free marketing mechanism, scientific preservation facilities, milk chilling plants at different places in the private sector, infrastructural facilities, marketing intelligence and information system, packaging facilities at producers' level and skill development training programmes for the entrepreneurs and workers of such processing units. **(Attn: Department of Animal Husbandry, Govt. of Bihar).**

*For the development of textile based processing enterprises, handloom parks should be established in and around potential districts. In view of larger concentration of tasar and silk units in and around Bhagalpur, expansionary measures by the District Industries Centre should be undertaken. **(Attn: Department of Industries, Govt. of Bihar).**

Maharashtra:

Considering the existing problems and prospects of the sample agro-processing units in Maharashtra, following policy suggestions could be made in the interest of development of agro-based industries in the state.

*It is important that the information is accessible and reaches various regions. For easy accessibility of this information, information centers should be established. These can give information relating not only about various government schemes but also markets, prices and the technical know how relating to the concerned activities. This should guide the entrepreneurs in adding value to their products and in reducing costs. **(Attn: Industrial Development Coorporation, Govt. of Maharashtra)**

*Establishment of co-operative marketing for cashews and fish units can be promoted. This is important as the units mainly rely on agents for marketing of the produce as well as for procuring raw material. In case of lack of information regarding the market functionaries, the units may have to compromise as far as the quality of the raw material and price of the produce is concerned. **(Attn: Registrar, Co-operatives Societies, Govt. of Maharashtra)**

*In the wake of non-availability of fish throughout the year and reduction in the supply over the years, aquaculture should be promoted in the state. **(Attn: Dept. of Fisheries, Govt. of Maharashtra, Dept. of Agriculture, Govt. of Maharashtra)**

*The sample non-food processing units reported absence of any promotional agency or government help in running the activity. Hence, it is felt that efforts should be made to encourage establishment of self-help groups or co-operative production/ marketing units which would also act as information centers for the units. **(Attn: NABARD, State Co-operative Bank, Govt. of Maharashtra)**

*Like in case of food processing units, information regarding various government schemes (giving loans/ subsidies) should be made easily accessible to the public so that the entrepreneurs take advantage of it. **(Attn: District Industries Centre (DIC), Industrial Development Corporation, Govt. of Maharashtra)**

*The potential of Small-scale agro-based industries to expand can be improved if they are provided with good quality infrastructure, information about the market and prices and the technical know-how. Establishment of institutions for procuring raw material and marketing of produce will help them in taking advantage of the scale economies and getting directly in touch with the terminal market and getting a better price for their products. **(Attn: Dept. of Cottage and Small Scale Industries, Govt. of Maharashtra)**

Of course, tasks are many to perform for reducing uneven growth of agro-processing industries across the regions of India. Apart from easing of infra-structural bottlenecks in the form of developing market infrastructure, roads communication, storehouse and cold storage facility what is important is that the information is accessible and reaches to the entrepreneurs of processing units. This calls for creating infrastructure in the form of developing network linkages. However, 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.