Chapter -2

Review of Literature

Basically India is an agricultural economy and agricultural growth has direct impact on the poverty reduction as well as prosperity of the country. As such India is mainly dependent on integration of its agricultural sector with the industry. The agro-based industries are regarded as an extended arm of agriculture sector. The development of the agro-based industries can help to stabilise and make agriculture more lucrative as well as create more gainful employment opportunities both at the production and marketing stages. Agro-based industries are instrumental in harnessing the potentials of agriculture as well as industry through there mutual integration, they accelerate the rate of rural and economic development.

The broad-based development of the agro-products industries will definitely improve both the social and physical infrastructure. Since it would cause diversification and commercialisation of agriculture, it will thus enhance the incomes of farmers as well as create food surpluses. Agro-based industries help to improve the State income and facilitate the equitable distribution of income among the different sectors, regions and sections of the society. Further, they also help to promote decentralisation of development in the economy. Large scale employment opportunities are generated by these industries on the one hand and contribute enormously to the process of self sustained economic growth on the other.

This chapter deals with the reviews of the studies on agro-based industries conducted at national as well as State levels in order to have an idea about the existing literature. The aspects like role of agro-based industries in employment generation, inter linkages between agriculture and industry, pattern, structure and productivity of agro-based industries, transformation of rural economy into industrialised economy, structure, profitability, export earnings and marketed surplus of agro-processing industries as well as problems and prospects of agro-based industries have been included.

2.1 Agro-based Industries and New Employment Opportunities

This section deals with reviews on the role of agro-based industries in solving the problem of unemployment, poverty and generating more employment opportunities.

Docksen and Schreiner (1971) assessed that industrialisation had frequently been advocated as a means of solving the surplus-labour and low-income problems typifying
many rural areas. The study revealed that regional development in terms of increased incomes and employment opportunities were enhanced if the primary material was carried through additional value addition and/or processing levels before exporting. One of the objectives of the research was to measure the impact of development in a rural State from processing of available agricultural products. The analysis was directed to (1) determine the short-run and long-run employment benefits from private investment in the agricultural processing sector; (2) measuring the short–run and long-run private investment cost per job created by agricultural processing; and (3) evaluating the potential impact on employment in the State due to national growth in agricultural processing.

Kamala and Khot (1972) made an attempt to analyse the agro-processing industries. Processing of agricultural produce at the primary level and with modern methods offered immense benefits both to agriculture and industry. This study attempted to explain the significance of agro-processing industries in the context of economic development and examined the policy lacunae in this regard. It also came out that programme for the development of agro-processing industries was considered as necessary as a lending place for the surplus labour arising in rural sector. Thus, the agro-processing policy could be said to have the employment orientation. The study concluded that for the development of agro-industries and for transforming traditional agriculture into a modernised one, there was necessity of a permanent national commission for agro-industries.

Ahmed (1978) attempted to examine the agro-based industries in Andhra Pradesh. The development of agro-based industries not only stimulates agricultural production but also results in diversification of activities for increased income and new employment opportunities. Andhra Pradesh offered a great scope for the development of agro-based industries in view of the well-developed agricultural base. The analysis revealed that the agro waste could be utilized with the development of agro-based industries in the State. It is concluded that the development of agro-based industries in rural areas may act as frontier check posts to stop the migration of rural labour force to cities and towns and also creates self-generating labour-force in rural areas.

Dave (1985) argued that agricultural growth by itself might not solve the problem of poverty and unemployment. It is necessary to adopt measures combining a mix of
employment generation, diversification of occupations, land reforms, reorientation of credit system and massive public investment in rural infrastructure. The integrated industrialisation through agro-industries would be a self-generating process, as the output of agriculture would serve as input for industry and the output of industry as input for agriculture. This process would create enormous opportunities for employment in rural areas. The main thrust was given to strengthen the traditional village industries including Khadi and Handloom as these industries have many advantages, which include labour intensiveness, a shorter gestation period, offering employment in close proximity of the village and utilizing local raw-material. This sector, therefore, could absorb labour force in non-agricultural activities.

Prasad (1988) made an attempt to examine the development of agro-industries. The development of agro-industries became the source of absorption of surplus-labour in agriculture. Agro-based industries are important to tackle the twin basic economic problems of poverty and unemployment in the rural areas. The study concluded that the establishment of new agro-industries would provide additional source of livelihood, social amenities and effective community organisation. The increasing population can not be engaged in large-scale industries. This can be absorbed by the small-scale agro-based industries.

Gupta (1989) conducted a research to examine the labour-intensity and efficiency in East Champaran which was predominantly an agrarian district of Bihar. The study emphasised on the development of agro-industries because they provided better employment opportunities to the surplus agricultural labour during off-seasons. Agro-industries were more labour-intensive than the non-agro-industries. There should be proper facilities to the entrepreneurs in rural areas so as to give a boost to agro-industries like oil-mills, rice-mills, floor-mills and agricultural implements etc. in raising the socio-economic status of the rural people.

Singh and Vyasulu (1990) attempted to examine the food processing sector of the Punjab, based on secondary data. The study dealt with the period 1979-80 to 1986-87 for purposes of comparison. The study revealed the fact that the food-processing sector in Punjab functions at three levels such as the factory sector, the small scale sector and the unorganised sector. Factory sector played an important role in terms of employment and output, through the number of factories in this sector was just 900 as against 2800 in the
small-scale sector in 1985. The study further revealed that the food-processing sector in Punjab formed a small part of the State’s rural industrial activity. There were many problems that originated in the farming sector. The high degree of relationship between agricultural growth and the growth of food processing pointed out the importance of agricultural development in the process of agro-industrialisation.

Myer (1990) analysed the employment potential of agro-industries during the period 1957 to 1982. The study identified the determinants of employment of agro-industries to locate them with greater and efficient employment potential. It was found that for the last twenty-five years, the small units had been more pronounced in the industrial sector in general as compared to industrial sector in particular. There had been a substantial increase in the number of agro-industrial units during the period 1971-82 as compared to that in the two decades of fifties and sixties. The manufacturing of light agricultural machinery, an input supplying industry was the only industry that offered higher and efficient employment potential in absolute terms as well as in terms of per unit of production and per unit of cost.

Rao (1991) analysed the employment and productivity trends in agro-industries. The study revealed that agro-industries minimised regional imbalances by utilising local resources. The agro-industries need better treatment in terms of capital flows at different levels. Suitable policy measures in terms of availability of working capital, additional capital inputs, integrated market systems etc. need to be augmented for employment generation. It is concluded that rural development in terms of utilisation of agro-resources and rural skills needed agro-industrial development in a much more organised manner.

Srivastava (1991) examined the role of agro-industries as an employment and export generating sector. It arrived at the required organisational form for safeguarding the farmer’s interests in addition to identifying the constraints faced by these units. The study revealed that agro-processing could be viewed in two ways. Firstly, the degree of processing of primary raw materials and secondly, the degree of processing of all by-products under the commodity system. The process of agro-based industrialisation was rapidly spreading in our country in response to increasing demand for various agro-based products for direct consumption, industrial use and exports. In contrast to agro-food processing industries, agro non-food processing industries had experienced much higher value addition. The study emphasised on the vast potential for agro-industries in the
country. These agro-industries were generally labour-intensive and could contribute to the export earnings. A significant progress was taking place in the direction in all the three sectors- cooperatives, joint and private, but more bold policy initiatives as well as development of supporting infrastructure facilities would accelerate the rate of growth in this regard.

Sahaya (1998) analysed the rural agro-based industries as an effective means to absorb rural population that was either unemployed or under-employed and could play the role of a catalytic agent for rural development. It was well known that Indian industry was not in a position to absorb the surplus man-power from agriculture. In this situation, absorption of surplus rural population in agro-industries would be an effective source of their employment and would provide them with subsidiary income. The policy of integrating agriculture and industry was necessary for our economy because large-scale industry could not do without small handicraft workshops. It was clear from the socio-economic development in our country. Thus, agro-industries would reduce dependence of rural population on government and other agencies and would also lead to industrialisation.

Patro and Nayak (2002) conducted a study on the employment implications of agro-based industries in India. The analysis manifested a clear case for agro-based industries as the most suitable strategy to achieve the benefits of favourable terms of trade and increased employment. It made it clear that capital-intensity of the industrialisation of an economy presented a big challenge to the policy-makers in the developing countries. The results of the study revealed that the productive capital investments in agro-based industries constituted 11.4 per cent and 11.1 per cent of the total capital in 1991-92 and 1992-93 respectively. The employment contribution of this sector was 35.1 per cent and 35.6 per cent in the same period. The share of productive capital for agro-based industries had decreased but the employment share has improved with the passage of time. The study suggested that it was necessary to devise suitable programmes to popularise and promote agro-based activities to absorb the growing labour-force in the next millennium.

Sengupta and Debnath (2003) analysed that small scale industries today occupy a pivotal position in the economic development of any less or under-developed country. The study revealed that these industries met the twin needs viz. solution of
unemployment problem and checking the economic concentration in the hands of a few. These industries encourage self-sufficiency and co-ordination. These industries ensure equitable distribution of national income and wealth. It comes out from the analysis that the Government of India had implemented different policies for the growth and development of small-scale industries. Small entrepreneurs should be encouraged to build different co-operatives in terms of product lines among themselves and co-operative form of small-scale ventures, particularly in the rural areas, can be able to achieve the economic objectives of our country in the long run.

Gregory (2007) showed the significance of ‘agro-industry’ for its tremendous employment potentiality and for meeting the development objectives of rural planning. Sericulture, as one of the agro-industries, with its strong labour-intensive and income distribution nature has been an attractive livelihood proposition for a substantial section of rural population, especially for those belonging to the weaker sections. This study was based on the beneficiary assessment undertaken in Tamil Nadu, during the early nineties as part of the National Sericulture Project (NSP). It came out that with proper development of appropriate technological interface and policy interventions, sericulture could not only prove to be a successful enterprise but would also become an effective model for other similar rural enterprises.

Gandhi and Jain (2011) studied that agro-industries had been given significant priority in economic development in India. The analysis found that the agro-industrial sector in India contributed a significant share in the overall employment opportunities in industry, as well as in value addition and income generation. The results revealed that its continued role in promoting development and reducing poverty would depend on its capacity to contribute to small farm income and rural employment, particularly among the landless poor households. The study further suggested that alternative agro-industrial models should be encouraged to emerge and receive strong government backing, especially those models which contributed positively to rural employment, poverty alleviation as well as sustainable development.

2.2 Inter-linkages between Agriculture and Industry

This section deals with the reviews on inter linkages between agriculture and industrial sector because two sectors are complementary and supplementary to each others.
Garg, et al. (1979) examined the development of agriculture and industries and their interdependence for the growth of the country. The dependence of agriculture on industry had increased particularly with the modernisation of agriculture. The economy of the country developed and resulted in increase of income and employment through high productivity of both the agricultural and industrial sectors. The study revealed that the agricultural production in India was materially dependent on the rapid increase in the production of inputs supplying industries. The rapid growth of industries was basically dependent on the development of agricultural production, particularly of the raw material used by the industries.

Namboodiri (1979) attempted an identification of the major industries which consume agricultural output as their inputs and those which supply their output to agriculture as input and their importance in transaction process and the relative strength of their linkages. It was found that the share of agriculture was hardly 13 per cent of the total intermediate inputs used in the inter-industry transactions. Agriculture by itself met about 42 per cent of the total input needs and animal husbandry supplemented about 29 per cent which implied that the primary sector alone met over 70 per cent of the input use in crop production. Fertilizer alone accounted for about 89 per cent of the total input supplied by the manufacturing sector.

Haque and Sirohi (1979) agreed that harmonious growth of inter-sectoral income and trade and income distribution are some of the pre-requisites of accelerated economic development. In the process of growth, agriculture and industry depend on each other, both for raw materials and market. Furthermore, inter-sectoral terms of trade determine the flow of funds from one sector to another, thereby regulating the pattern of inter-sectoral growth. This study examined the effect of inter-sectoral growth of agriculture and manufacturing sector on national income. Secondly, price relative between selected agricultural and industrial commodities were examined for measuring their effect on input use levels and productivity.

Debjani and Gautam (1980) examined some basic aspects of intersectoral linkages between agriculture and industry through supply and demand at macro-level in India. It became clear that the prices of food and raw materials were significantly influenced by their output and by demand originating from the industrial sector. The study highlighted the importance of structural factors in inflationary development and pointed out the need
for an elastic supply of food and agricultural raw materials in the context of a balanced inflation free development strategy for the country.

Arputharaj (1982) made an attempt to analyse the agro-industries. The agro-based industries or agro-allied industries were different because of their terminology. The integration between agriculture and agro-based industries is clear from the analysis. Agro-based industries should not develop at the cost of agriculture or vice-versa. The study revealed that rural agro-industries offered a method of ensuring a more equitable distribution of the national income and also facilitated an effective mobilization of resources. The study Stated that development of agriculture had a close relation with the development of agro-based industries. The study suggested that mutual cooperation is inevitable for the growth of economy.

Verma and Kesavan (1986) looked into a strong linkage between agricultural production and employment in agro-industries. The stabilization and growth of agricultural production had resulted in a rapid increase in output and employment in agriculture sector. The cumulative effect of the growth of agriculture and of agro-industries created greater opportunities for industrial growth and integration of different sectors of the economy. The village industry provided great openings for employment in the rural areas during the off season in agriculture.

Ganguly (1988) analysed the role of agro-based industries in strengthening industrial and agricultural linkages. It emerged from the analysis that agro-based industries transformed a stagnant rural economy into dynamic and industrialized economy. Agricultural surplus would encourage the growth of output and employment in industry. The promotion of agro-based industries restrained mindless migration to urban areas and checked the concentration of economic power through ownership of means of production. The study further revealed that because of technical inter-relationship, that is each sector uses the output or input in course of its own production process, the promotion of agro-based industry should become a necessity for the economic development of the industries separately and their interdependence for the economic growth of the country. The share of agriculture in total national output was maximum i.e. 57 per cent for the period 1925-29. As regards the interdependence between agriculture and industry, it came out that out of the total agricultural production in 1964-65, about 12.5 per cent passed from agriculture to agriculture, nearly 23 per cent was utilised by the
industries and the rest was used directly in the form of consumption. It indicated that the dependence of the industrial sector on agriculture was relatively higher as compared with the agriculture sector’s dependence on industry. The dependence of agriculture on industry had increased substantially particularly with the modernisation of agriculture. The study concluded that the further growth in the agricultural production in India was materially dependent on the rapid increase in the production of inputs supplied by industries. Similarly, the rapid growth of industries was basically dependent on the development of agricultural production, particularly of the materials used by the industries.

Nachane, et al. (1989) examined only two types of linkages: Firstly, agriculture supplied raw materials such as cotton, jute, sugarcane etc. and the production of foodgrains and horticultural crops to a number of agro-based industries; and Secondly, important linkage existed between agricultural and non-agricultural sector was the demand linkage. The study revealed that both the agricultural sector and agro-based industrial sector must be made more cost-efficient to exploit the hitherto untapped potential demand for their products, particularly from the rural masses.

Sethi (1989) observed that new direction for industrialisation was imperative, as the production in the farm sector had reached a plateau. Punjab’s prosperous agriculture should be taken to higher stage of development through linkage with agro-industries. The State had no need to seek raw-material from outside. Industrialisation had to be seen in agricultural perspective. Punjab was a surplus State in agricultural production included both foodgrains and non-food grains. The optimum use of these products was only useful for the State’s economy if these were turned into secondary products with the help of manufacturing processing. The study selected four variables such as number of units, working capital, employment and production to investigate the development of agro-industries based on agricultural produce. It was concluded that Punjab offered the biggest scope and rich promises for development of agro-based and agricultural product processing industries. Therefore, the attention should be centred on such industries and development of infrastructure to promote and sustain them.

Vijayarajan (1992) had examined the interdependence between industrial and agricultural development. As industries provide inputs for agricultural development and take raw-material from agriculture sector, the interdependence between the two sectors is
governed by the backward and forward linkages with each other as well as with the rest of the economy. Agro-based industries have quite high utilization of resources. On the whole, the agro-based industries have higher employment potential than other industries.

Baghel and Pendse (1996) analysed the role of agro-based industries in industrial development in the State of Madhya Pradesh for the period 1973-74 to 1988-89. The economic prosperity of a country depends on the integration of agriculture with industry. The study showed that the national industrial employment had declined from 3.99 per cent to 3.49 per cent over the same period. The total employment provided by agro-based industries in Madhya Pradesh was 0.8, 1.1 and 0.9 lakh persons in the years, 1973-74, 1980-81 and 1988-89, respectively. The agro-industries were considered to be the most suitable agencies for technological breakthrough in agriculture which was the key to increase productivity. The research suggested that the agro-industrial sector had laid more emphasis on employment even at the cost of growth and productivity.

Singh (1999) analysed the role of agro-industries in industrialisation. This study explained that in the short-run, economic role of agriculture was to feed the masses, for whom the basic necessity of life was food. In the long-run, agriculture could be vital force in bringing about a well-balanced rapid growth in the economy for which the developing countries were striving. Without a substantial increase in the production of food and raw-material needed for industry, it would be impossible to sustain a higher tempo of industrial development. Agriculture formed the basis of a number of large and small scale industries by providing the requisite raw-materials for which Punjab Agro Industries Corporation came into existence. It concluded that the fundamental objectives of the corporation were to promote mechanization of agriculture in the State of Punjab by financing agriculture and agriculture based industries in Punjab.

Satayasai and Viswanathan (1999) conducted a research in regard to the relative importance of agriculture and industry. Both agriculture and industry had integral components of the development process due to their mutually reinforcing and symbiotic relationship. During Green Revolution and after, the industry supplied inputs for modern agriculture. The influence of agriculture on industrial sector production measured in terms of elasticity showed the increase over time. The elasticity of real gross domestic product from the industrial sector with respect to the same from agriculture was higher during the 1980’s and early 1990’s than during the pre-1980s.
Henneberry, et al. (2000) looked into the relationship between Pakistan’s industrial and agricultural sectors. Pakistan was chosen because of its status of a semi-industrialised country with heavy dependence on the agricultural sector. The relationship between cotton production and industrial growth was shown. The study indicated that both the sectors were complementary and industry tended to benefit more from agricultural growth than vice-versa. But the reference period of this information was critical. Because policy-makers faced major agricultural policy reforms for continued industrial development.

Dilip (2010) made an attempt to examine the trends of interlinkages between the agriculture and industrial sectors from a three sectoral perspectives for the pre- and post-reforms periods in India. The study observed that agriculture-industry linkage had been deteriorating over the years, but it still played an important role in determining the overall growth of the economy. The study revealed that the dimension of the linkages between the two sectors had changed over a time period. Both the production and demand linkages were primarily from the industry to agriculture sector in the pre-reform period whereas it has changed to from agriculture to industry in the post-reform period. The contribution of agriculture sector in generating demand for the other sectors, especially the industrial sector, became more pronounced in recent years. Further, in view of the structural shift from food grain production to commercial crops, fruits and vegetables, flower and horticulture etc., and the increasing consumption preferences for differentiated food products, combined with the development of contract farming and vertical linkages in agri-food supply chains.

### 2.3 Transformation of Rural Economy into Industrialised Economy

This section deals with reviews of studies related with the transformation of rural economy into industrialised economy.

Singh (1978) made an attempt to describe that agro-processing industries ranging from food manufacturing to leather tanning provide an essential link between production and marketing, between rural and urban areas and between capital and labour. Agro-processing industries were in many cases power saving. These industries had a vast role and responsibility to foster an integrated and inter-linked development of agriculture and industry. The study concluded that agro-processing industries promote the rural development opportunities. The benefits from these industries start early and directly. It
helped to open the village economy to the exploitation of its vast potential of growth and development.

Agarwal (1991) made an attempt to examine that agro-based industries would transform a stagnant rural economy into a dynamic industrialised economy. These industries would develop local entrepreneurship. The problems of poverty and unemployment were not solved by the modernisation of agriculture alone. So major emphasis was laid on the agro-based industries. The study concluded that agro-industries served for the promotion of a kind of decentralized economy in which more opportunities for employment were provided to the rural folk at every nook and corner of the economy.

Sethi (1991) observed that a distinction should be made between agro-based industries and agro-based economy as an economic sub-sector. The understanding of the dynamics of the agro-based industry and economy is a must. With the passage of time, agriculture can not absorb the workers. So, for economic prosperity and also for political stability priority should be given to agro-based industries and rural industries.

Shah (1998) emphasised the scope and opportunities of ‘Agro-Industry Development’ for rural upliftment. The need of additional efforts in augmenting scientific and technical inputs from all concerns i.e. research labs of industry and governmental institutes are emphasised. This would accelerate the agro-based industrial growth. Food processing was taken as a theme to elaborate deployment of available knowledge in reducing the wastes, generating the wealth and employment in rural areas. The objective of shifting labour from agriculture to non-farm activities could be met at least in parts, with lesser pains if agro-industrial activities catch up with the desired growth.

Mishra (1999) made an attempt to examine how best agro-industries can play an effective role in promoting rural development of the State of Orissa. The study involved three important issues. It revealed as to what extent agro-industries had performed in respect of generation of output, income and employment, improved profitability of the enterprise, deployed reinvestment surplus for the growth of agriculture and ensured full capacity utilization of the units. The discrepancies in development among agro-industries are due to the problems associated with each of the categories in the course of their operation. The analysis supposed to establish the linkage between the two sectors by confirming the hypothesis that in an agriculturally dominated economy, rural
development was spearheaded largely by the widening and deepening activities of agro-industries.

Sivakumar, et al. (1999) conducted a study to examine the growth linkage effects of agro-industrialisation in Tamil Nadu. It came out that 50 per cent of the working population was engaged in agriculture. The emphasis was given on agro-industrialisation with strong rural-urban growth linkages as this was an important option to absorb surplus-labour. In order to analyse the linkage effects of agro-industrialisation in a general equilibrium framework, Social Accounting Matrix (SAM) was constructed. The regions for agro-industries should had been marked to increase these industries. The efforts to install the optimal number of agro-industries would pave the way for generation of income and enhancement of rural-urban interaction.

Gandhi, et al. (2001) examined the agro-industry for rural development and small farmers’ improvement. The priority has been given to agro-industries in India in the context of their role in rural development and small farmer development. The features and constraints of agro-industry were examined to assess their real and potential contribution. Institutional and organisational models, that had been tried or proposed in India, were evaluated from the point of view of performance and contribution to rural and small farmer development. There is a need of new indigenous models, which receive strong government backing, especially those models that contribute positively to rural employment and poverty alleviation.

Bhatia (2008) made an attempt to study the nature of rural industrialisation in Punjab. The study revealed that rural industries ensured a harmoniously balanced integrated and egalitarian socio-economic order in the country by absorbing the surplus labour in rural areas. Rural industrialisation had been analysed with the help of development of village industries. The analysis indicated that overall growth of rural industries including village industries was inadequate in Punjab. The reason was that urban manufactured products had replaced rural manufactured goods. Although National Programme for Rural Industrialisation was introduced a number of market oriented strategies to promote rural industries, yet the current efforts seemed to be inadequate.

Chadha and Chadha (2008) focused on the growth of rural industrialization in Punjab during the period 1980-2005, in terms of growth of output both in aggregate and the growth of various of rural industries at disaggregated levels in the State economy.
The study revealed that industries showed an impressive growth of production of rural industries at 2 per cent, growth of sales turnover of over 11 per cent, and over 5 per cent annual growth in employment in rural industries in Punjab during the study period. The authors also observed that aggregate value of production of village industries increased from Rs.15.30 crore in 1980 to Rs. 272 crore in 2005 and employment expanded three times during the whole period. Among the rural industries in Punjab, village pottery industry, lime manufacturing, cereals and pulses manufacturing and village leather industry seemed the fastest growing industries and had a promising employment potential. But infrastructure bottlenecks were the major constraints in the growth of rural industries in the State. The study suggested there was an imperative necessity to formulate development policies to forge marketing network for rural entrepreneurs and strengthening rural food points to provide integrated technical and financial services for rural industries.

2.4 Structure and Productivity of Agro-based Industries

This section deals with reviews on the pattern, structure and profitability of agro-based industries.

Patil (1977) made an attempt to examine the role of agro-based industries in decentralised economy. He said that rapid industrialisation had been a major factor responsible for the concentration of economic power into a few hands and thereby denying even the primary necessities of life to the vast majority living in rural areas. It is said that with the passage of time, a decentralised economy become a centralised economy. But agro-industries offered a decentralised economy. They processed food and other agricultural raw-materials. The study suggested that there was necessity to evolve a suitable small scale technology and State should provide suitable warehouse facilities where entrepreneurs could store their raw-materials and draw them for processing as and when required.

Iqbal and Ghani (1983) conducted a study on the growth pattern of agro-industrial employment in Uttar Pradesh during the period 1956-57 to 1974-75. The study revealed that the total agro-industrial employment in Uttar Pradesh had increased from 0.80 lakh persons to 0.96 lakh persons in 1974-75 over 1956-57 and it showed an increase of 20 per cent. Agro-industries had played a vital role in the proper distribution of national
income. It also came out that human resource was the vital indicator in order to develop the agro-industries, which were labour-intensive.

Shah (1989) studied the spatial pattern of agro-based industries and analyzed the input resource linkages of the selected agro-based industries in 17 major States. The study was based mainly on the output share of the 30-factory sector agro-based industries in all the industries output of the States. The inter-State variations focus on the product composition and the levels of diversification. The input linkage aspect focuses on the location and importance of the selected industries in terms of their share in output in relation to the comparative advantage of the cropping pattern and resource base of the State. This study analysed nine selected agro-based industries. This research work indicated the failure of both the sectors to generate effective impetus for each other. A need for detailed inquiry into the factors influencing the low profile of the agro-based industries in the States was felt.

Sidhu, et al. (1992) tried to analyse the structure of the economy and investments made in industrial and other sectors over the period of time. The present status and future potential of industrial development with particular reference to agro-industries had been examined in relation to ushering in a rapid diversified growth of the economy of Punjab. The economy of Punjab was dominated by the agricultural sector and the industrial sector had not developed to the desired level because of absence of heavy industrial units, and less developed rural industries in the State depending upon agriculture and allied sectors for raw materials. The study looked into the need to start a sectoral performance planning with a series of individual agricultural production and processing projects phased over time. The requirements need the knowledge of existing agricultural production and processing capabilities, future agricultural production possibilities and marketing and so on.

Kathpal (1993) had undertaken a project with a view to study the current practices of capital expenditure decision making in agro-based industries in Punjab. The study attempted to examine the objectives of setting up of an enterprise, period of planning, qualitative and quantitative factors influencing the decision-making of capital-investment etc. An analysis of situations affecting investment decisions revealed that industrial policy of the government, government regulations and control and price control
are significant factors. All the companies responded that their policy towards future investment was to expand their operation.

Gupta (1993) made an attempt to examine the pattern of and trends in growth of agro-industries within the framework of industrial development in the State of Bihar. The degree of industrialization was generally measured in terms of industrial sector’s contribution to the income and employment. The income of Bihar had increased more than nine-fold that is from Rs. 993.07 crores in 1960-61 to Rs.8824.79 crores in 1983-84. The agro-industries accounted for more than two-third of industrial units and more than one-fourth of industrial employment in Bihar. Whereas the share of large and small agro-industries declined, the share of unorganized agro-industries had been increasing. These industries require fast development for generating employment opportunities for the increasing number of workers in the rural areas.

Jain (1995) made an attempt to examine the agro-industries in India. The study revealed that people depend on integrated activity of agricultural and industrial development for occupation. The analysis shows that there should be balanced development of agriculture and industries. It is concluded that agro-industries carry out the processing of farm produce and provide inputs for development of agriculture. So agro-industries have an important role to play in India.

Sidhu (1996) discussed about the instrumental role of agriculture in the process of industrialisation of a predominantly agrarian constrained open economy of Punjab during the period 1960-61 to 1992-93. The study revealed that during 1960-61 and 1992-93, registered sector recorded a rate of growth of 8.61 per cent per annum and unregistered sector grew at a rate of 7.38 per cent per annum. The study stated that with the passage of time, the share of value of output in manufacturing sector increased and the share of unregistered sector declined. Large scale industries become predominant over the cottage and household industries and also small scale industries in some activities. The study further examined the suitability of various alternatives available to the State from the point of view of economic efficiency, technological upgradation, marketability of the product and harmonising relations between the producer and processor and suggested a strategy which can lead Punjab’s predominantly agrarian economy on the road of industrialisation.
Raikhya and Nanda (2000) studied the potential of agro-industries in Punjab. They found that the State of Punjab produced 11.5 per cent of the foodgrains of the country and contributed 64.1 per cent of wheat and 42.4 per cent of rice to the central pool of food reserves in 1997-98. Thus, Punjab represented an ideal case for the development of agro-industries. The agro-industries reduced the rural-urban migration and the agro-based industry accounted for 42.21 per cent of workers, 27.54 per cent of fixed investment and 47.26 per cent of industrial production in 1980-81. In 1996-97, the respective shares were 42.31, 49.47 and 37.45 per cent. The study stated that the development of fruit processing and canning industry in the State could prove instrumental in avoiding fruit juice price collapses in the peak seasons. The authors observed various problems in the development of these industries in the State. The study concluded that policy-makers should concentrate on the removal of these problems.

Khan (2004) examined the investment in agro-based industrial sector using export system’s techniques. The agro-based industrial export system enabled users to determine the proper feasibility assessment for installation of agro-industries. The feasibility assessment of an agro-based industry was not a one-time event, but rather a series of evaluations at each stage of the financing process. The study brought the idea that opportunities and challenges faced by the economies of Asian and Pacific regions and installation of agro-based industries seemed to be the best alternative for faster economic growth and rural poverty alleviation. Agro-based Industrial Export System (AIES) as a precautionary measure had the ability to assess not only numerical data but also the qualitative facts. This system was applied to any type of industry and to any long-term problems. The study clearly shows that the development of agro-based industries would stimulate industrial development and assist the promotion of business.

Gaur and Singh (2008) examined various issues and aspects related to agro-industries in India. The factors responsible for development of agro-industries had been examined intensively. The government did efforts for strengthening agro-industries during five-year plans. Agro-industries had been playing an immense and crucial role in providing agricultural inputs and machines to the agriculture sector. The study also highlighted various yardsticks for further expansion and development of agro-industries.

Sidhu (2008) studied the food processing industries with context of liberalisation, privatisation and globalisation in India. A strong and dynamic food processing sector
played a significant role in diversification of agricultural activities, improving value addition opportunities and creating surplus for export of agro-food products. The study showed that better standards of living and the convenience needs of dual income families pointed to major market potentialities in the food processing and marketing sectors. The study stated that with the expected withdrawal of agricultural subsidies by developed countries to the signing of the GATT agreement, India would have the opportunity to increase its trade in agriculture especially in processed agricultural commodities. Domestic consumption of value added fruits and vegetable products were low as compared to primary processed food in general and fresh fruits and vegetables in particular. The study concluded that smallness of units and their inability for market promotion was the reason for inadequate expansion of the domestic market.

Ravita and Singh (2009) examined the role and pattern of agro-based industries in Punjab during the period 1980-81 to 2005-06. The study showed that during 1980-81 to 2005-06, the growth rate of primary sector was negative that is -1.59 per cent per annum and the compound growth rate of secondary and tertiary sector was positive. The number of units of small scale of industries had increased from 43338 in 1980-81 to 204522 in 2005-06 with an overall growth rate of 6.40 per cent per annum. The overall growth rate of large-scale industries was 3.39 per cent during this period. The output elasticity of employment of agro-based industries was negative that is –0.69 for the period 1985-86 to 1990-91, increased to 0.54 for the period 2000-01 to 2005-06. The elasticity was found to be 1.13 for the period as a whole 1985-86 to 2005-06.

2.5 Structure, Profitability, Export Earnings and Marketed Surplus of Agro-based Industries

This section deals with reviews on the structure, profitability, export earnings and marketed surplus of agro-based industries.

Minden (1970) emphasised on those phenomena which were common to most of the markets in the farm inputs industry, including the manufactured feed, agricultural seed, petroleum, fertilizer, agricultural chemical and farm machinery. Specific mention had been made of markets where the commonality was less clear. The discussion proceeded from a definitional Statement of the current environment to a consideration of some economic stimuli, which had precipitated the observed situation. The current
economic environment was then contrasted with that from which the present situation had derived in. The study indicated specific separation of organisation, scale and ownership.

Gupta (1971) conducted a study to examine the structural growth of agro-based industries. The study concluded that the achievements of agro-based industries in India were not as much spectacular as it ought to have been. They had actually lagged behind the other industries in their pace of economic advancement. The production of these industries was found to be subject to volatile fluctuations which could have been avoided by implementing some appropriate production, marketing and price policies. The author suggested that in India, an appropriate adjustment policy work as supplement to and not as substitute for large-scale industries.

Jain (1976) examined the role of small scale industries in terms of creation of employment opportunities, introduction of new product and diversification of the existing production lines, facilitating import substitution, assisting the development of new technical skills, contributing to the export promotion of manufactured products, offering potentials to save and form capital. These industries promote entrepreneurship and strengthen the democratic base of a country through the creation and sustenance of middle classes of the society.

Iqbal (1976) analysed that agro-based industries constituted the backbone of a developed economy like India and provided a good proportion of foreign exchange to the country’s export trade. The study Stated that the share of agro-based industries in India’s exports declined from 79 per cent in 1950-51 to 77 per cent in 1960-61, 61 per cent in 1965-66 and 51 per cent in 1974-75. It was analysed from the study that low level of farm technology and dependence on monsoon were the two major constraints that depressed the growth of agro-industrial products. So the study suggested the adoption of new technology for sustaining production at increased levels over a large part of the country. The author suggested that positive efforts should be made to stimulate export of agro-industrial products through various incentive schemes.

Singh (1988) discussed the role of agro-food industry in India. The author observed that the positive or negative impact of imported technology on self reliant agro-food industry development would depend on the circumstances and conditions of its assessment, selection and acquisition, application and diffusion etc. Food industry was not listed separately but foreign collaborations were dispersed under chemicals,
engineering and other industries. The study concluded that the imports of technology in the field of agro-based industries did not appear to be substantial.

Mohanty and Ali (1993) examined the relative share of various cost items in the production of agro-based industries and also examined the feedback effects of agro-based industrial production on the agriculture. In order to determine the feedback effects of agro-based industry, a jute industry in the Cuttack district of Orissa was selected for the study. The study revealed that the share of raw-material in the total cost has decreased in 1986 to 1989 whereas the share of wages and salaries and stores slightly has declined during the same period. The share of fuel had also increased the total cost. The study concluded that land resources had been shifted from low-value-yielding crops to high-value-yielding crops. Land productivity had increased in the case of both traditional crops (low-value-yielding) and commercial crops (high-value-yielding). The modern agriculture practices contributed significantly to the rise in land productivity.

Sekaran (1997) attempted to analyse the behaviour of marketed surplus of different categories of farmers in diverse agro-climatic situations. The nexus between the theoretical and empirical aspects of the marketed surplus of food crops was examined. This study was organised in five sections. Marketed surplus differed from one category to another irrespective of the climatic condition. Though the size of land holding of the tenant-cultivators, the marketable surplus of the former was lower than that of the owner-cultivators due to the rent he had to pay. It was clear that the fixed cash needs of subsistence farmers were not a reality at present in rural areas.

Singh (1999) made an attempt to understand the process of agro-industrialisation in the Indian Punjab with a case study of small scale primary food processing industries. He attempted to analyse the study with the help of a sample of two locally predominant primary food processing industries namely paddy milling and oilseeds milling. The study revealed that primary processing industries were based on agricultural output, the cropping pattern had a direct bearing on their emergence and growth. It analysed that 15 per cent of the total number of units as well as employment was accounted in the registered factory sector. The unregistered sector accounted 70 per cent of total industrial workforce of the State in the mid 1980’s. So small scale food processing industry was dominated by unregistered units in the eighties. He discussed that there had been significant production and consumption linkage effect of agro-expansion in general, the
employment linkage of primary food industries were weak in terms of nature of employment and sources of labour. The study suggested that there was need to re-look at the structure as well as organization of food processing industries in the State and performance of such operations dependent on the nature of ownership, organizational structure and scale of operators which in turn affect technology choice and business strategy. The study concluded that there was need to think in terms of organizational alternatives and policy thrust where primary producers can also participate in the process of value addition.

Bonilla and Reca (2000) conducted a study to examine the changes in the international trade of processed and high value added food products from developing countries over the past several decades. The key trends and explored possible reasons for the trends focused on trade policies in less developed countries and developed countries. The national trade and economic policies appeared to have been relatively supportive of agro-industrial production and exports in Asia. The performance of agro-industrial production and exports from less developed countries might be more dependent than ever on the completion of reforms in the agricultural trade policies of developed countries. The study further revealed that for the process of development of agro-industrial sector of Africa, military confrontations must be stopped.

Chadha and Sahu (2003) referred the agro-based industry as the subset of manufacturing that process raw materials obtained from agriculture and its associated sectors. The agro-industry had a strong presence in the industrial sector of the Indian economy. The number of agro-based production units was remarkably higher during the post-reform years, compared with the pre-reform decade. The study analysed that the productivity levels for all sectors of agro-based manufacturing were much higher in the organised, compared with the unorganised segments. The productivity levels among their urban counterparts, for all types of agro-industrial activities, both within agro food-processing segments. But in the post-reform years, the productivity handicaps of the rural units had tended to widen. The study concluded that the agro-industry in India continued to suffer substantial productivity losses in comparison to non agro-based industry.

Sekhon, et al. (2003) conducted a study on rice-processing industry in Punjab. The rice processing industry was the biggest industry in India because India was the second largest rice producer of the world. The rice-processing industry in the country had
been the largest agro-based industry with about 138000 units consisting of about 91.28 thousand hullers, 4.54 thousand shellers, 8.38 thousand hullers-cum-shellers and 35.08 thousand modern rice mills. The study attempted to examine the growth of rice processing industry in India and the State of Punjab. It revealed that during the seventies and eighties, rice-milling industry flourished at much higher rate in the State, but it slowed down during nineties due to stagnation in the production of rice. The problems faced by the rice-mills were of poor quality of raw materials and delay in announcing levy prices by the central government. The study suggests that farmers should be encouraged to undertake processing of paddy at their farms with the help of mini rice mills, because these mills create both backward and forward linkages.

Reddy (2003) examined thirty villages of three blocks of Ludhiana district namely Ludhiana I, Ludhiana II and Dehlon in regard to agro-processing. In these villages, 80 agro-processing units were studied. It was found that majority of the entrepreneurs engaged in agro-processing were middle aged persons and they themselves established the units. Most of the entrepreneurs (65 per cent) had income in the range of Rs. 6000 to Rs.12000 per month. Unskilled labourers employed dominated in these units. Major problems faced by the agro-processing units were lack of capital, inadequate power supply, non-availability of raw-material, etc. The promotion of agro-processing units required modernization of older units, shift from rice-wheat to cotton and oil seed crops, discourage mushrooming of similar units in local areas and regular power-supply in rural areas, etc.

Singh and Grover (2003) made an attempt to examine the profitability of agro-processing industries, especially the cotton, rapeseed and mustard and dal mills in Haryana. The processor had earned good profit margins in all processing units. The average profit margin earned per quintal in cotton ginning was Rs. 212.90. The oil mill owners earned profit margins of Rs. 108.59 in rapeseed and mustard. The dal mill owners earned a profit margin of Rs. 36.52 per quintal in gram. It was observed that the processing cost depends on the capacity utilization of the processing units. The agro-processing units can further increase their returns by increasing the quantity processed by them.

Kumar and Kumar (2005) conducted a study on agro-processing sector and its performance in the post liberalisation period. Agro-processing was the significant part of
the group called agro-industries. The study showed that the growth of the food processing industry would bring immense benefits to the economy raising the agricultural yields, meeting productivity, creating employment and raising the standard of living of the large number of people throughout the country, especially in the rural areas. Liberalisation of world trade would open up new ideas for growth of industries. The increasing share of processed items in total agricultural exports was a sign of boom. The availability of quality raw material for agro-processing industries was one of the major issues affecting the performance and viability of processing industries. It was concluded that there were diversified food processing industries due to production of almost all type of agricultural crops.

Sidhu (2005) conducted a study the fruit and vegetable processing industry in India. Though India was the second largest producer of fruits and vegetables in the world, but the commercial processing of these commodities was less than 2 per cent of production. The capacity utilization of the food processing industry remained below 50 per cent. And the industry faced the problem of meager demand due to economic reasons and existing food habits. The increasing value addition activities and processing would require huge investments. As long as there was an endemic poverty and low purchasing power, it was difficult to build a heavyweight fruit and vegetable processing industry in the country.

Randhawa (2008) studied the agro-processing complexes with the aim to study the technical as well as economic details of agro-processing complex. The study was conducted in an agro-processing complex situated in village Dehlon on Ludhiana-Malerkotla road and was about 19 kilometres from Ludhiana. The study highlighted the advantages of farm processing over commercial methods. The main cause of shifting of processing industry to commercial level was the tardy nature of the traditional methods and drudgery involved therein. The reason for adopting ‘on the farm processing’ was the quality of the product that can be assured. The study revealed that in commercial methods the quality assurance was very difficult. The farmers would be able to raise their income by selling the processed produce. It would also tackle the national problem of unemployment.

Sharma, et al. (2008) examined the growth and performance of agro-processing industries alongwith pertinent strategies to promote faster development of processing
sector in the State. The study was based upon the secondary and primary data collected from different sources in Himachal Pradesh. The analysis shows that there were certain impediments and constraints in the way of promoting small-scale agro-processing industries in Himachal Pradesh. The study concluded that there was need to popularise contract farming marketing system wherein the groups of produces were directly linked with processing units. This would not only provide assured market and better prices to farmers but also regular supply of raw material to processing units.

Khosla and Sharma (2009) made an attempt to examine the scope of agro-processing industries in Haryana. The study related with the profit oriented and cost-efficient agro-processing of the State vis-a-vis other leading Indian States. The result showed that in three industries i.e. manufacturing of dyeing and fur, manufacturing of footwear, manufacturing of other food products industries and sawing and planning of wood, Haryana topped in terms of both net value added per unit of invested capital. In case of spinning, weaving and finishing of textiles industry net value added stands at first rank in terms of profit per unit of invested capital and total input cost as a per cent age of total output.

Ravita and Singh (2010) examined the scope of agro-based industries in Punjab for the period 2004-05 to 2005-06. The results of the study reveals that through backward and forward linkages, agro-sector added value to farmers’ produce, increased their net income, and motivated them for better productivity and diversifying the crop-mix. Labour productivity in all the industries in Punjab was higher than the capital productivity. The number of factories of manufacturing of food products and beverages industry was 1626 in 2004-05, which increased to 1704 in the year 2005-06. As the number of factories had increased; the working capital, fixed capital, total input and total output, net value added and profit also showed continuous increase in its value, except the number of employees. The study concluded that in Punjab, the highest net value added per unit of fixed capital was in the manufacturing of tobacco products industry and manufacturing of furniture industry in the year 2004-05, but in the year 2005-06 both of these industries had lost their identity. In production, manufacturing of food products industry topped the list in the year 2004-05, but in the year 2005-06, manufacturing of textile industry leads in production and food products industry occupied the second
position. The study suggested that Punjab should establish more agro-industries in order to solve the various economic problems.

2.6 Problems and Prospects of Agro-based Industries

This section deals with the reviews on various problems and prospects related to agro based industries.

Dhawan (1969) viewed the problem of locational choice of agro-industries from the view point of entrepreneurs. The principal argument for moving agriculture-based industries near to their basic raw materials was that there would be substantial reduction in weight or bulk transportation of the basic-materials. Weber’s transport-oriented locational framework was used in this paper. The author has attempted to assess the location pattern of the industry according to size of town for the year 1958. The study concluded that the Indian fruit and vegetable processing industry, which is prominently recommended for location in fruit/vegetable growing centres has mainly a city-oriented location disposition.

Srivastava and Seetharaman (1989) conducted a research on the role of agro-industries in the development of agriculture. This research analysed the experience of existing units, reviewed the constraints in accelerating agro-processing activities and indicated the areas of policy action. The various factors like production, backward linkages, processing and marketing were influenced in the analysis. In production, the need for increasing productivity and stabilising supplies is highlighted. In processing, the issues related to the need for technological upgrading, utilisation of capacity and efficiency in processing were taken up. In marketing, the role of channels and the performance of various farm organisations have been studied. The problems relating to export marketing, mostly due to poor quality of raw materials were discussed.

Singh and Mann (1989) made an attempt to analyse the problems of important agro-based industries in Punjab. The low output in rice milling was attributed to the lack of modernisation. It was found that the capacity of these units was mostly under-utilised. The export of fully processed rice and modernization of rice-mills was suggested for speedy development of rice-milling industry.

Bandarla (1991) studied the problems of agro-based industries. The study showed that problems of agro-based industries can be divided into two groups: internal and external. Internal problems were those which are not influenced by external forces. These
related to organisation structure, production and distribution channels, technical know-how, training, industrial relations and inadequacy of management. The external problems were those that result from factors beyond the control of the entrepreneurs for example the availability of power. The study concluded that these two kinds of problems were correlated.

Arya and Kashyap (1997) reviewed the problems and prospects of agro-processing industries in India. The analysis showed that food-processing lacks diversification mainly because of lack of diversification in agriculture and partly due to factors like lack of urbanisation and technological sluggishness. It is concluded that in India agro-processing industries provided consumer goods. This industry provided 19 per cent employment to total industrial labour and 20 per cent output of total industrial output. There had been many new industries which came in existence such as extraction of oil fields, bottle milk, production of paper and board from paddy straw, water contrail and deep water fishing, fish and meat production and man made fibre industries. A rapid increase in value added of tobacco, raw products, natural silk and wool and woollen textiles industries was also found. This showed that there had been increasing trend in development of agro-based or linked industries.

Lambert (2001) revealed that agro-industrial development could make a significant contribution to the transformation of agriculture. Agro-industrial development could expand the markets for primary agricultural products and increase the profitability of production systems through their impact on increasing farm incomes. Besides this, agro-industrial development faces some of the problems. The problems in the path of industrial development were insufficient supply of raw-material, poor and inconsistent quality of processed products, a lack of technical support for the agro-industrial sector and absence of good management of the processing facility etc. The study indicates that there is requirement of stronger linkages between the farming community and the government institutions.

Joshi (2002) made an attempt to examine the problems and prospects of agro-based industries. The development of agro-based industries helped to realise the various linkages or inter-relationships between industry and agriculture. The ninth five-year plan aimed at the objective of attaining rural development. The study revealed that agro-based industries would reduce regional imbalances and generated employment opportunities on
a large scale for the weaker sections of the rural society. The problems faced by agro-based industries in the study region reflected the problems of the agricultural sector in general. The agro-based industries were not able to progress due to a variety of reasons. The modernisation of agro-based industries was necessary to make them competitive.

Khosla, et al. (2009) studied the growth of agro-based industries in Punjab for the period from 1976-77 to 1997-98. They dealt with the development of agro-based industries in the context of a fast growing predominantly agrarian, constrained open economy of Punjab. A set of agro-based industries had been identified on the basis of pattern, performance and scope of the industry within the State and comparative advantage in relation to other States of India that could become future of Punjab’s future industrialisation strategy. The study revealed that during 1976-77 to 1997-98, cotton spinning and weaving in handlooms industry had been the fastest growing agro-industry in Punjab with 34.56 per cent per annum growth rate. Animal feed industry that grew at a rate of 9.85 per cent per annum for the whole time period was recorded as the largest industry in terms of number of units in Punjab. The authors suggested that government should take initiatives in exploring the possibilities of local firms with Indian as well as foreign agro-based firms for establishing modern agro plants in the State. This would improve the quality of agricultural raw material being produced in the State of Punjab.

It is clear from the above analysis that various studies have conducted on agro-based industries at national as well as State levels. These industries are playing very important role in terms of employment, output, profitability and scope of development. Agriculture and industry both are subordinate to each other. Punjab is an agricultural surplus State and the diversification has to be met by substituting this surplus with other value added crops coupled with establishing agro-based industries on a large scale. To sum up, agricultural development leads the development of agro-based industries.
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