

Growth of food processing industries and its future potentialities: a case study on Hooghly district, West Bengal

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Abstract

Food processing industry gradually becomes one of the major industries which play an important role to upgrade the rural economy, it simply takes raw agricultural, horticultural and animal products and transforms them market oriented, more attractive and long lasting food products. Due to favourable climatic condition and fertile landscape India has a potentiality to become the food bucket of the world. After the green revolution, agricultural production was rapidly increased and India got self sufficiency in food production. Though there is a never ending debate between the agriculture and industry about their interdependence but this particular industry linked these two sectors of economy in a chain. The linkage is supply of raw food product like rice, wheat, potato, onion, sugarcane and other vegetable which creates backward demand from farm sector to produce non traditional agro based products in the industrial sector. This paper is mainly concerned about the potentiality of food processing industry in Hooghly district as most of the favourable conditions for the growth of this industry are already present here not only that this industry can become a important weapon to protest against unemployment, which become a major problem all over the India. The paper also takes an initiative to highlighting the problems and prospects of this industry in Hooghly district as the Government also interested to develop the economy by fostering this industry.

Keywords: Value addition, cold storage, chilling plant, employment generation.

Introduction

Generally the term "industry" denotes the transformation of natural material into more useable commodities by processing, so food processing involves a certain type of transformation or value addition to agricultural or horticultural products which enhance the self life of the food products. The food processing industry provides vital linkages between industry and agriculture. In India food processing industry recognised as a 'Sunrise industry' because of its wide potentiality to strengthen the agricultural economy. This industry not only creates a huge amount of processed food, it also associated with large scale employment generation and export earning.

Though the district Hooghly is essentially known for its industrial background but the favourable topographical and climatic set up make the district as one of the most important agricultural district of West Bengal, with an average elevation of about 200 meters, drained by river Hooghly and Damodar offers a favourable landscape for agriculture. It is the district where industry and agriculture blends finely and jointly build up the economic set up of the district. In the past Hooghly district was one of the major industrial hub of Bengal. Though it does not have the past glory, yet, it surely shares a significant position in the industrial panorama of West Bengal. But due to favourable climatic and topographic condition about 70% of the population earn their living from agriculture and therefore the district holds one of the remarkable positions in the agricultural scenario of West Bengal.

Study Area

Hooghly district is located in the southern part of West Bengal and the locational extent of the district is between 23° 01' 20" N to 22° 39' 32" N and 88° 30' 15" E to 87° 30' 20" E. It covers

an area of 3149 sq. km. This district consists of four Subdivisions namely - Chinsurah, Arambag, Serampore and Chandannagar. Though Jute is the predominant cash crop of the district but significant amount of vegetables are also cultivated in some blocks like Haripal, Singur, Chanditala, Polba, Arambag and Dhaniakhali etc.

Objectives

Keeping in view the above problems, this study is proposed to carry on with the following objectives.

- To present a profile of the food-processing industries and its recent trend.
- To study the impact of agro-processing industry on agriculture.
- To study the economics of agro-processing units.
- To identify the potentiality of food diversification on basis of agricultural production of this district.
- To study the employment generation capacity of agro-processing industries.
- To analyse the constraints of this industry in this district.
- To review the export performance of various agro-based commodities and constraints faced in accelerating the growth of export from the sector.

Database and Methodology

The paper is mainly deals with several secondary data. These secondary data has been collected from various offices, E-sources. To enrich the study a number of articles, books on food processing industry were consulted. The related data of this paper mainly sourced by District Census Handbook, Food Processing Industry Survey, District Human Development

Report etc. Then the relevant data and information have been organised, classified, tabulated, analysed by different statistical methods and represented through suitable cartographic techniques.

Present cultivation pattern of Hooghly district

The cultivation pattern of the district is prominently divided into two categories: i) crop cultivation and ii) plantation. According to table:1 Arambag is the leading sub-division in terms of percentage of area under crop cultivation and Goghat I, Goghat II, Khanakul II are the blocks where maximum area is used for crop cultivation but this sub-division is ranked 4th in terms percentage of area under plantation. The similar pattern may found in the blocks of north western part of Hooghly district like Dhaniakhali, Pandua, Balagarh, Tarakeswar, Haripal also. Though Serampore-uttarpara is the most urbanised sub-division of Hooghly district but the block under this sub-division namely Chanditala I, has a good percentage shared in crop cultivated area. On the other hand Singur is the block under Chandannagar sub-division which has 52.59% of area under crop cultivation and ranked 15th in the district but ranked 1st by sharing 10.67% of area under plantation.

Table 1

Subdivision/ C.D Block	% used for crop cultivation	Rank	% used for plantation	Rank
Sadar Subdivision	72.31	2nd	7.12	1st
Dhaniakhali	82.92	2	8.78	3
Pandua	82.34	3	9.3	2
Balagarh	79.15	5	6.43	4
Chinsurah- Mogra	44.43	17	4.89	6
Polba-Dadpur	72.73	10	6.2	5
Chandannagar Subdivision	64.99	3rd	5.28	2nd
Tarakeswar	63.85	13	2.75	10
Haripal	78.52	7	2.42	11
Singur	52.59	15	10.67	1
Serampore Subdivision	64.03	4th	2.55	3rd
Jangipara	75.85	8	1.86	14
Chanditala I	79.84	4	2.14	12
Chanditala II	55.87	14	2.84	9
Serampore- Uttarpara	44.53	16	3.35	8
Arambag Subdivision	77.8	1st	1.24	4th
Goghat I	93.26	1	1.88	13
Goghat II	93.26	1	1.88	13
Arambag	78.72	6	0.004	17
Khanakul I	71.79	11	0.77	15
Khanakul II	75.52	9	0.15	16
Pursurah	69.71	12	3.39	
District Total	69.78		4.05	

Source: District Authority, Hooghly, District Human Development Report Hooghly, 2011

Agriculture, Horticulture and Livestock production of Hooghly District

Agro-processing involves transformation of the raw materials into final consumer goods or intermediate goods and thus results in increase in value addition. The value adding processes ranges from simple preservation to production of high valued

products. On the other side, the demand for processed food is increasing in recent few years with the growth of population, rapid urbanization and changing life styles. Agro-processing industries thus offer enormous potential to boost the economy. Food processing industry is a industry which linked the primary and secondary sector of economy, and according to the Food Processing Industries Survey, there are huge potentiality of this particular industry in Hooghly district because as the main ingredients of this industry that is agricultural, horticultural and livestock products are frequently available in this district.

Table 2

Hooghly	Crop/ Vegetable, Fruit, Livestock	Rank in state	production, 000' MT	% to state production
Agricultural produce	Potato	1st	3434.46	24.82
	Til (Sesame)	2nd	21.7	14.17
	Groundnut	3rd	17.88	15.82
Vegetables	Onion	1st	57.21	19.2
	Beans	4th	3.47	9
Fruits	Banana	3rd	101.75	10.07
	Mango	5th	39	6.29
Livestock products	Bovine milk	3rd	461.55	10.65
	Duck	5th	890064 (No)	7.39

Source: Evaluation Wing, Directorate of Agriculture GOVT of WB 2009-10, Bureau of Applied Economics & Statistics, Livestock Population Handbook 2009.

In table 2 it can be found that this district is ranked first in potato and onion production and shared 24.82% and 19.2% of accordingly to the state production. Pandua, Dhaniakhali, Arambag, Goghat, Polba-Dadpur are the major potato producing blocks of Hooghly District. Onion is largely supplied from Balagarh, Singur, Haripal and Goghat. Banana and mangoes are the major fruit products of Hooghly district, the district shares 10.07% and 6.29% of state's production respectively. The district ranked third in Bovine milk production and Dankuni is the main centre of this particular product.

Causes for development of food processing industry in Hooghly district

So many important geographical factors involved in the location of individual industries are of relative significance, e.g., availability of raw materials, power resource, water, labour, market and transport facilities. But besides such purely geographical conditions there are some other non geographical factors are also playing the effective role in determining the industrial location.

Power: Uninterrupted and regular supply of power is one of the important pre-requisite for the location of the industry. Most of the industries tend to concentrate at the source of power. Table 3 shows the various power providers of Hooghly district, and it can be easily said that almost the total area of this district is under electrified area. Food processing industry is a kind of industry which demands highly modern technology to complete utilisation of natural resources coming from primary sector. It ranges from simple preservation to production of highly valued product generation which needs smooth supply of power.

Table 3

Name of Power Providers	Areas Served
Bandel Thermal Power Station in Tribeni under Calcutta Electricity Supply Corporation [CESC]	Serampore, Sheoraphuli, Uttarpara, Baidyabati, Mankundu, Bhadreswar and some part of Rishra
D.V.C [Under State Elec. Board] Area	Area of Haripal and Singur Thana
Singur-Haripal Electricity Co-operative Area	Dhaniakhali and its surrounding areas
West Bengal State Electricity Board [WBSEB] Area	Total area of Hooghly District except above areas.

Source: Food Processing Industry Survey, Hooghly.

Transport: transport by land or water is necessary to assemble the raw materials and for the marketing of final products. By connecting the district with other part of the state and the country also, the state highways and the national highways create a great potentiality for expansion of the food processing industry, because this particular industry is associated with track farming which demands highly efficient transport facility of the region.

Table 4: National Highway: NH 2

Lane	4
Length of NH within the district	55 KM
Connected other states	The highway touches the cities of Faridabad in Haryana, Mathura, Agra, Etawah, Bhognipur, Kanpur, Allahabad, Varanasi, Mughalsarai in Uttar Pradesh, Mohania, Sasaram, Dehri-on-sona, and Aurangabad in Bihar, Barhi, Dhanbad in Jharkhand and Asansol, Durgapur, Burdwan, Kolkata in West Bengal.
Connected other districts	Howrah, Burdwan, N-24 Parganas
Blocks on the NH	Chanditala-I, Chanditala-II, Singur, Mogra-Chinsurah, Pandua,
Connecting with other major settlements like	Burdwan, Durgapur, Raniganj, Asansol, Barakar

Source: West Bengal Public Works' Department

Table 5: State Highway (SH)

SH-2	connecting North 24 Parganas and Bankura
SH-6	connecting Burdwan and Birbhum
SH-7	connecting Burdwan, Birbhum, Murshidabad and West Medinipur
SH-13	connecting Burdwan
SH-15	connecting Howrah & Burdwan

Source: West Bengal Public Works' Department

Rail way: There are mainly four rail routes which connect 69 stations of all over Hooghly district and this local railway networks play an important role for transportation the fresh vegetable, fruits, milk to the market and to the processing area also.

- Eastern Railway Howrah-Burdwan main line
- Howrah-Burdwan cord line
- Howrah-Tarakeswar main line
- Howrah-Katwa main line

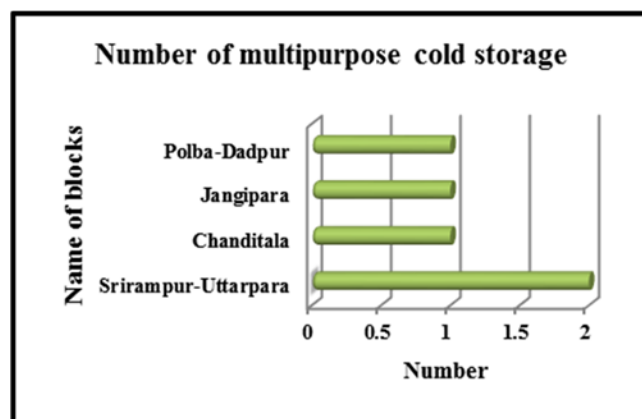
Water way: Water is another important requirement for establishment of industries. The Hooghly river is flowing along the right side of this district, it not only supply sufficient amount of water to this industry but provides transportation facility also. The main routs of ferry service are:

- Chinsurah – Naihati
- Chandannagar – Jagaddal
- Bhadreswar – Shyamnagar
- Serampore – Barrackpore

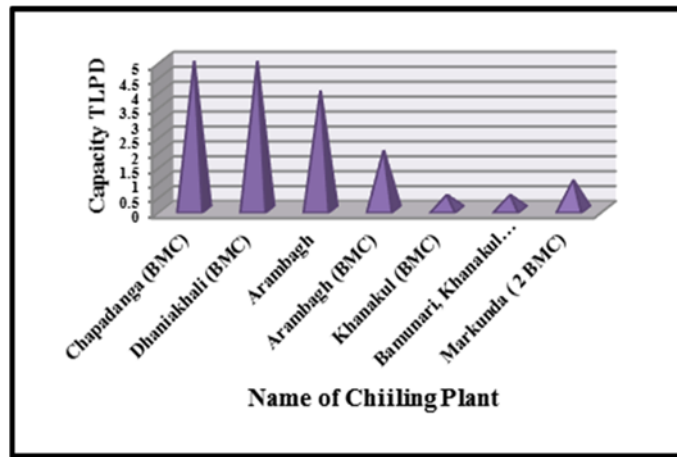
Storage facilities: Storage facility is the most important and probably inseparable factor in food processing industry, as this industry deals with fresh organic putrescent products, so smooth transport facilities is needed to assemble the raw material as well as sufficient amount of cold storages are also require to preserve this organic products. There are nearly 130 potato storages in the north western blocks of Hooghly district and the onion storages are mainly found in Balagarh and its surrounding areas. Table 6 shows the number of multipurpose cold storage of this district. There are also 7 chilling plants to preserve and process the milk products in Hooghly district according to West Bengal Co-operative Milk Producers' Federation Limited, 2011, this plants are located in chanpadanga, Dhaniakhli, Khanakul, Markunda, Arambag, Bamunari

Table 6

Block	No.	Total capacity (qt)
Srirampur-Uttarpara	2	51415
Chanditala	1	200000 (Lt)
Jangipara	1	22000
Polba-Dadpur	1	459472

**Chart 1****Table 7**

Name of Chilling plant	Capacity (TLPD)
Champadanga (BMC)	5.0
Dhaniakhali (BMC)	5.0
Arambagh	4.0
Arambagh (BMC)	2.0
Khanakul (BMC)	0.5
Bamunari, Khanakul (BMC)	0.5
Markunda (2 BMC)	1.0



Source: Directorate of Agricultural Marketing

Chart 2

Other non geographical infrastructures: The non geographical factors are those including economic, political, historical and social factors. These factors influence the modern industry to great extent. Food processing industry is a kind of industry which requires modern technology for expansion. In Hooghly district there are number of technical education centres, health centres and financial institution to support the industry. Though UCO bank is the leading bank but there are many other banks of this district.

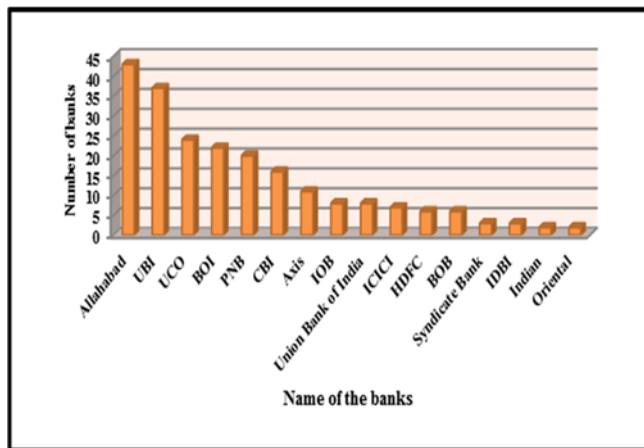


Chart 3

Food processing industry and employment generation potentiality

It is quite an obvious matter that India is an agriculture based country, but the over dependence on the agricultural sector is leading to widespread unemployment in all over the country. The agricultural pattern of the Indian sub-continent is characterised by small and fragmented land holdings, gradual decline of man-land ratio, too much use of man power which not only resulted into huge pseudo unemployment but also decreased the per capita income of the country. Being an over populated country it can be easily realised that the very capacity of the agricultural sector is not enough to absorb the growing labour force. Therefore by simple value addition, food processing industry can play an important role to alternate the economy of rural population. From the various agricultural data acquired from official sources, it is proved that Hooghly district has a huge resource of food products in terms of agricultural, vegetable, horticultural and livestock products, that's why there is a great employment opportunity based on food processing industry to transform the rural economy from an agro-based sector to a manufacturing sector. The status of agro-processing industry in this district is still dominated by the unorganised sector but the government also encourages to stimulate this non-farm based agro processing sector by promoting various laws. Table 8 shows the incremental manpower requirement in the district of Hooghly.

Table 8

Sector	2012-17				2017-22				2012-22
	Unskilled Category	Semi-Skilled Category	Skilled Category	Total	Unskilled Category	Semi-Skilled Category	Skilled Category	Total	Total
Animal Husbandry	38077	NA	NA	38077	31731	NA	NA	31731	69808
Pisciculture	4595	NA	NA	4595	2626	NA	NA	2626	7221
Agro based & Food Processing	2834	2267	567	5669	2320	1856	464	4641	10310

Source: National Skill Development Corporation, District wise skill gap study for the state West Bengal (2012-2017, 2017-2022)

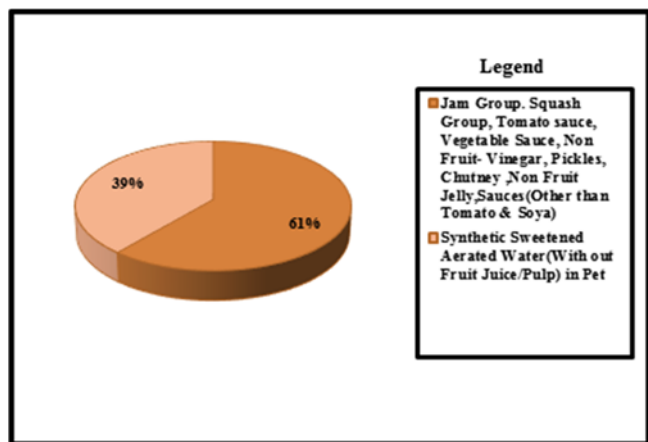
Present status of food processing industry in Hooghly district

Though there is a huge opportunity of food processing industry in this district but the number of units present concerning this sector is not satisfactory till now. By analysing the collected data from Food Safety and Standards Authority of India Office, the percentage of fruit based processing industry like jam, jelly,

pickle, tomato sauce, chutney, squash, non fruit jelly, is more than Synthetic Sweetened Aerated Water (with out Fruit Juice/Pulp) in Pet, chart 3 shows the percentage of these two products. According to Food Processing Industry Survey of Hooghly district the name and product of different companies are given below in table 8.

Table 9

Group Name	Percentage of Units
Jam Group, Squash Group, Tomato sauce, Vegetable Sauce, Non Fruit- Vinegar, Pickles, Chutney, Non Fruit Jelly, Sauces(Other than Tomato & Soya)	61%
Synthetic Sweetened Aerated Water (With out Fruit Juice/Pulp) in Pet	39%



Source: Food Safety and Standards Authority of India Office

Chart 4

Table 10

Name of the company	Product
Gee Pee Foods Pvt. Ltd, Dankuni	Potato Chips
Ascon Agro Food Products,	Potato flake
Ashirbad Biscuits Pvt. Ltd,	Biscuits
Anmol Snacks Ltd., Chanditala	Biscuits
Mother Dairy, Kolkata, Dankuni	Pasteurized Milk
India Dairy products Ltd (Prepare milk products for Amul)	Pasteurized Milk
Dollon’s Food Products, Polba	Milk products
Hooghly Dairy Pvt. Ltd	Pasteurized Milk
Morton Dairy, Chandannagar	Ghee
R.R Proteins & Agro Ltd, Baidyabati	Refined vegetable oil
Purti Vanaspati, Srirampur	Processed oil
Elmac Agro Manufacturing (P) Ltd,	Chutney, Pickle, Sauce, Candy
Mukund Foods Pvt.Ltd.	Biscuits
J.P. Flour Mills Pvt. Ltd	Wheat product (atta, suji, maida, bran)
Beekay Fresh Agro Pvt. Ltd.	Potatoes
Bengal Beverages Private Ltd	Aerated Water containing added sugar or other sweetening matter or flavour Fruits and vegetable preservations

Source: Food Processing Industry Survey, Hooghly.

Problems of food processing industry in Hooghly District

Food processing industry is a kind of secondary sector which bridge the gap between agriculture and industry and it’s a well known matter that district Hooghly is situated beside the bank of River Hooghly. The fertile soil of this district makes the area one of the most important food bucket of the state as well as the country. But the unfortunate matter is that this industry can’t reach the optimum potentiality level due to certain social, economic and technological problems such as,

- It is obvious that sufficient number of cold storage facility is very much needed to ensure the growth of this industry but the fact is that this facility till not up to desirable limit.
- The value addition process of agricultural and horticultural products require efficient and skilled labours but it is very misfortunate matter that most of the workers are unskilled and semiskilled.
- Presence of middle man in the agricultural sector is one of the most important hindering factor of this industry, as the try to black marketing the agricultural products.
- Safe and attractive packaging system is not satisfactory level in this district.
- Technological Institution only for learning about this food processing industry is still unavailable.
- The district population don’t have proper idea about this particular industry. They don’t even know the employment generation opportunity of this industry. So most of the farmers and agricultural labourer try to produce food mainly for local consumption.

Prospects of food processing industry in Hooghly District

Food processing industry has a huge potentiality for growth and thus now a day this industry considered to a sunrise industry all over the world, not only that this industry has a great socio economic impact in transformation the rural economy. On the other hand this industry leads to employment generation and helps in reduction of wastage, value addition, and foreign exchange earnings and enhancing manufacturing competitiveness.

- Hooghly district is ranked first in potato production, so other than potato chips and flake, various small and medium scale industry can be established to diversify potato products like potato powder.
- Not only potato this district has a huge potentiality to introduce various diversified products from onion like paste, fry other than supply of raw onion in market.
- The district Hooghly is also has other important organic production, they are groundnut, sesame, bovine milk and fresh water fish mainly Tilapia. Diversified products from groundnut and sesame like butter, oil, cheese, yogurt, paste can also strengthen the foot of this particular industry in this district. Apart from agricultural products live stock production of this district is very impressive, district economy and percentage of unemployed population can be positively changed by using proper technology and skill.
- Government of West Bengal is now quite interested to establish a food park near Sougandha of Chinsurah near NH 2 to ensure full fledged production and employment generation.
- It can be seen in different data acquired form various sources that the district produced mainly fruit based product like jam, jelly, sauce etc. but the demand of non fruit synthetic pulp water like fruit juice is very high, therefore this industry can also take into account this matter.
- Attractive and safe packaging system can also stimulate the expansion of this industry. There is a huge difference in the mental set up and also the life style of the people between urban and rural area, the speed of life is gradually

increasing in the city life so the demand of processed food is quite high.

- Food safety and good quality of food is a great concern of people as well as the Government, so this industry has huge opportunity to grow in this context.

Conclusion

From last few years, changing demographics, socio-economic conditions, rapid urbanisation create a new trend which demand more processed food, so food processing industry has a great future potentiality to grow. Government also give special emphasis on economic development based on this processed food industry. As the district Hooghly has almost all the favourable conditions for this industry, so an intense care is needed from Government and private sector to expand the industry, because not only this particular industry able to satisfy the changing demand of consumer but also takes an initiative to absorb the extra pressure on agriculture.

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