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Role of investment and employment in cereals and pulses processing sectors in Karnataka state

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Abstract
The cereals and pulses Processing industries in India were plays a vital role in the national economic development and has potential to meet the local needs and export requirements. These agro-processing sectors can be grouped as cereals and pulses processing, fruits & vegetables processing units and commercial crops processing units. It is found that 48 per cent of the household expenditure in India is on food items and the demand for processed/convenience food is constantly increasing. A well-developed Agribusiness and Food Processing sector with higher level of processing and value addition helps in the reduction of wastage, promotes crop diversification, ensures better return to the farmers, promotes employment as well as increases export earnings. This sector is also capable of addressing critical issues of food security, food inflation and providing wholesome and nutritious food to the masses.
In this context there is a need for improving the capacity of the cereals and pulses processing units to harness backward linkages allied activities in order to efficiently convert part of the output to value added products acceptable to the domestic and international markets. This would generate employment opportunities for different types of skills through food processing, packaging, grading and distribution. Keeping the above aspects in consideration the study was carried out in the state of Karnataka. Cereals and pulses processing industries has got a considerable growth which signified the importance of agro processing industries. Therefore it has great scope for development in the state. Hence, it must be promoted extensively. Existing investment in this sector are found facing many problems which affect their operation.

Keywords: Industries, compound annual growth rate, capital formation

Introduction
The agro based industries in the State are spread across all the districts. Currently, there are about 54,905 agro processing units with an investment of Rs.4,42,879 Lakhs have employed 3,24,148 manpower as on 31.03.2015. These are mainly in MSME sector.
A well-developed Agribusiness and Food Processing sector with higher level of processing and value addition helps in the reduction of wastage, promotes crop diversification, ensures better return to the farmers, promotes employment as well as increases export earnings. This sector is also capable of addressing critical issues of food security, food inflation and providing wholesome and nutritious food to the masses.
Agro processing include, but not limited to washing, waxing, grading, grinding, cutting, cubing, dicing, sorting, packing (dehydrated packing, vacuum packing, nitrogen sachet packing, tetra packing, canning, bottling), drying (spray drying, dehydration), fermented, Individual Quick Freezing (IQF), irradiation and any value add activity to the agriculture, horticulture and forest produce. The State is home to big players such as ITC, Nestle, Gujarat Ambuja, Brittania, Parle, Cargill India etc., in the agribusiness and food processing sector. Most of the processing industries reported that non-availability of suitable varieties of raw materials for processing was one of the major problems. Thus, there is a need to address this issue by the Agricultural Universities and Research & Development institutions.
Agro-processing and agribusiness, being emerging areas with a vast growth potential. The State Government would consider, on priority, providing road links for horticulture industries clusters and agro-processing units through the Marketing Development Fund (MDF) or other Schemes/Programmes.
Agribusiness sector still dominates the India's economic scene by providing livelihood to majority of the population. In most of the developing countries including India, horticultural development is a precondition for economic development. Karnataka, India's seventh largest State in terms of geographical area (1, 91,791 sq.km) is home to 6.11 crore people (2011 Census) accounting for 5.05 per cent of India's population. During 2017-18 the State has produced 281.32 MT of Cereals, 24.02 MT of Pulses.
Karnataka with its diversified agro climatic conditions is home for the production of variety of agriculture crops such as Sunflower, Maize, Tur, Jowar, Sugarcane, Bengalgram, Soyabean,

Groundnut, Greengram, Blackgram, Safflower, Paddy, Cotton etc. The State also grows variety of small and minor millets such as Foxtail Millet (Navane), Little Millet (Sawe), Finger Millet (Ragi), Bajra (Sajje), Haraka etc.

Development of agri-business processing sectors influences the development of the whole economy. In this context, capital formation has taken place in different fruits and vegetable sectors of economy, *viz.*, public and private sectors. Capital formation will be divided into three stages *viz*., saving process, Fund available for investment and Acquisition of new capital assets. The scope of the fruits and vegetable processing industry encompasses all operations from the stage of harvest till the material reaches the end users in the desired form, packaging, quantity, quality and price.

Methodology

The study is based entirely on the secondary data which is collected from Directorate of Economics and Statistics, Bengaluru. The data is obtained for the study is from 1991 to 2018. In order to arrive with the meaningful results compound annual growth rate analysis was adopted for the study. Growth rate in Horticulture processing industries in Karnataka was done. Different functional forms were tried in the past for working out of growth rates in agro-processing industries. Some of the important forms tried were the linear growth model ($Y = a+ bt$), exponential function ($Y = ab^t$) and quadratic function ($Y = a+bt+ct^2$). However, it was found that the exponential form of the function $Y_t = ab^t$ is the better and most fitted one.

Descriptive Statistics: Descriptive statistics was used in order to calculate

a) Mean: Average amount lent towards the priority sector was calculated

b) Standard Deviation: A quantity expressing by how much the members of a group differ from the mean value of the group

c) Coefficient of Variation: It tells how much per cent the data deviates from the mean values. Indicating lower the CV more precise is the data, higher the coefficient of variation the data is spread out.

d) Frequency and Percentage: In order to analyze the constraints faced by the bankers and borrowers, frequency was drawn first, there after percentage was calculated subsequently ranks were given. A percentage frequency distribution is a display of data that specifies the percentage of observations that exist for each data point or grouping of data points. It is a particularly useful method of expressing the relative frequency of survey responses and other data. Many times, percentage frequency distributions are displayed as Tables or as Bar Graphs or Pie Charts. The process of creating a percentage frequency distribution involves first identifying the total number of observations to be represented; then counting the total number of observations within each data point or grouping of data points; and then dividing the number of observations within each data point.

Results and Discussions

Table 1. Depicts the district wise per cent share of number of cereals and pulses processing units among total agro-processing units in Karnataka till the year 1991-2018. It was observed from the table that, total number of agro-processing industries in the state was around 46,836 units in which cereal and pulses based agro-processing units consists about 13,965 (39.82%). Further among cereals and pulses, major processing units were located in Koppal district accounted for 91.48 per cent to the total agro-processing units followed by Kalaburagi about 64.21 per cent, Bellary about 63.79 per cent, Yadgiri about 53.13 per cent, Raichur 58.90 per cent and Bidar 51.96 per cent were major in Hyderabad Karnataka region districts. However, in Southern region, Bengaluru rural consists of 20.17 per cent, Bengaluru urban consists of 10.27 per cent, Mysore 35.02 and Hassan only 3.05 per cent in Karnataka.

Table 2 presents district wise per cent share of total investment of cereals and pulses processing units among total agro-processing units in Karnataka during 1991 to 2018. The overall investment made was Rs. 2,81,15,904 lakhs during the period. The share of cereal and pulses based agro-processing units which consists about Rs. 26,13,793 (9.30%) in Karnataka. Highest per cent share of investment was made in case of cereals and pulses processing units for Shivamogga district was 84.12 per cent, followed by 76.78 per cent in Koppal, 57.98 per cent in Raichur, 50.98 per cent Bellary and 38.45 per cent in Tumkur. Further, less than 1 per cent was observed in Bagalkot (0.01%), Yadgiri (0.21%) and Uttara Kannada (0.39%) were three districts found in least contribution to the share of cereals and pulses processing units to agro-processing units in Karnataka.

Table 3 district wise per cent of share of employment generated of cereal and pulses processing units among total agro-processing units in Karnataka during 1991 to 2018. The total number of employment by the agro-processing industries accounted for 31,50,411. Highest per cent of share of employment generated was made in case of cereals and pulses processing units for Koppal 81.41 followed by Shivamogga district 47.35 per cent, 40.35 per cent in Raichur, 36.35 per cent in Bellary. Further, least per cent was observed in Bagalkot (0.40%), Hassan (0.98%) and Kodagu (0.69%) were three districts found in least contribution to the share of cereals and pulses processing units to agro-processing units in Karnataka.

Table 1: District wise percent of share of number of cereal and pulses processing units in total agro processing units in Karnataka 1991 to 2018

Districts	Total no. Agro processing units in Karnataka	No. of cereals and pulses processing units	% share of cereal and pulses processing units
Bagalkot	299	12	4.01
Bangalore Rural	1,133	229	20.17
Bangalore Urban	10,031	1030	10.27
Belguam/Belagavi	3,181	330	10.39
Bellary	3,094	1974	63.79
Bidar	592	308	51.96
Bijapur/Vijayapura	1,407	92	6.54
Chamarajnagar	68	22	32.23
Chikkaballapura	28	12	43.08
Chikmagalur	428	39	9.09

Chitradurga	2,603	867	33.32
Dakshinna Kannada	3,558	381	10.70
Davanageri	1,334	1105	82.83
Dharwad	3,208	740	23.08
Gadag	364	71	19.53
Gulbarga/Kalaburagi	1,456	935	64.21
Hassan	364	11	3.05
Haveri	296	114	38.44
Kodagu	470	13	2.82
Kolar	430	164	38.14
Koppal	1,374	1257	91.52
Mandya	240	41	17.06
Mysore	2,201	771	35.02
Raichur	3,295	1941	58.90
Ramanagar	35	10	28.57
Shivamoga	551	335	60.73
Tumkur	1,514	831	54.90
Udupi	2,883	299	10.36
Uttara Kannada	365	15	4.06
Yadagiri	32	17	53.13
Total	46,836	13,965	29.82

Source: Various Annual Surveys of Industries of Karnataka, DES, Bangalore

Table 2: District wise percent of share of total investment of cereal and pulses, processing units in total agro processing units in Karnataka 1991 to 2018

1991 to 2018	Total Investment on Agro-processing units (Rs. lakh)	Total Investment on cereals and pulses processing units (Rs. lakh)	% share of cereal and pulses processing units
Bagalkot	14,58,909	159	0.01
Bangalore Rural	12,58,222	1,33,377	10.60
Bangalore Urban	47,49,976	3,73,396	7.86
Belguam/Belagavi	76,09,756	4,22,716	5.55
Bellary	5,61,628	2,86,318	50.98
Bidar	4,68,606	78,975	16.85
Bijapur/Vijayapura	5,42,917	5,878	1.08
Chamarajnagar	82,236	337	0.41
Chikkaballapura	25,653	1,206	4.70
Chikmagalur	1,25,551	34,114	27.17
Chitradurga	2,31,778	30,851	13.31
Dakshinna kannada	11,46,625	52,246	4.56
Davanageri	9,11,629	74,710	8.20
Dharwad	4,64,280	44,703	9.63
Gadag	84,930	4,350	5.12
Gulbarga/Kalaburagi	7,83,574	57,039	7.28
Hassan	6,76,894	3,817	0.56
Haveri	2,66,956	61,415	23.01
Kodagu	1,36,931	287	0.21
Kolar	82,057	5,107	6.22
Koppal	1,12,046	86,029	76.78
Mandya	13,63,367	1,09,954	8.06
Mysore	2,852,013	1,93,789	6.79
Raichur	521,139	3,02,172	57.98
Ramanagar	60,290	620	1.03
Shivamoga	67,237	56,556	84.12
Tumkur	3,82,106	1,46,935	38.45
Udupi	5,46,689	45,048	8.24
Uttara Kannada	2,99,679	1,175	0.39
Yadagiri	2,42,230	515	0.21
Total	2,81,15,904	26,13,793	9.30

Source: Various Annual Surveys of Industries of Karnataka, DES, Bangalore

Table 3: District wise percent of share of employment generated of cereal and pulses, processing units among total agro processing units in Karnataka 1991 to 2018

Districts	No. of employment generated in Agro processing units (No's)	No. of employment generated from cereals and pulses processing units (No's)	% share of cereals and pulses processing units
Bagalkot	42,394	170	0.40
Bangalore Rural	99,473	10,624	10.68
Bangalore Urban	8,49,730	48,466	5.70
Belguam/Belagavi	73,9518	22,975	3.11
Bellary	76,145	27,675	36.35
Bidar	52,509	13,025	24.80

Bijapur/Vijayapura	49,685	912	1.84
Chamarajnagar	3,097	149	4.82
Chikkaballapura	1130	191	16.94
Chikmagalur	21,302	3344	15.70
Chitradurga	81,852	12881	15.74
Dakshinna kannada	2,24,948	5265	2.34
Davanageri	37,120	11,376	30.65
Dharwad	1,22,067	13,492	11.05
Gadag	22,081	1,336	6.05
Gulbarga	38,201	11,763	30.79
Hassan	60,060	588	0.98
Haveri	23,969	6,671	27.83
Kodagu	26,573	184	0.69
Kolar	19,728	1280	6.49
Koppal	13,326	10,850	81.41
Mandya	63,680	6342	9.96
Mysore	1,85,241	12,618	6.81
Raichur	55,659	22,458	40.35
Ramanagar	2,490	50	2.01
Shivamoga	6,363	3013	47.35
Tumkur	48,719	15,901	32.64
Udupi	1,67,522	6,262	3.74
Uttara Kannada	13,814	456	3.30
Yadagiri	2,014	140	6.95
Total	31,50,411	27,0459	8.58

Source: Various Annual Surveys of Industries of Karnataka, DES, Bangalore

Conclusion

India has witnessed increase in horticulture production over the last few years. Significant progress has been made in area expansion resulting in higher production. Agriculture provides excellent opportunities in raising the income of the farmers even in the dry tracts. A significant shift towards agriculture is evident in the state with an increase an area and production. For instance, thousands of hectares has been brought under agricultural crops through the watershed programmes.

Cereal and Pulses processing units among total Agro Processing units in Karnataka in case of cereal and Pulses Koppal district was highest and lowest was Kodagu, Uttara Kannada. In case of total Investment was highest in case of cereals and pulses processing units in Shivamogga followed by Koppal, Raichur, Bellary and Tumkur. The lowest share of investment *i.e* was observed in Bagalkot, Yadgiri and Uttara Kannada. In case of employment generated in case of cereals and pulses processing units for Koppal followed by Shivamogga, Raichur, Bellary. Further, least per cent was observed in Bagalkot, Hassan and Koadagu. There is a need to integrate and promote the activities involved in the field of Agriculture, Horticulture, Animal Husbandry, Fisheries, Food Processing, Agribusiness, Warehousing & Logistics sectors under a unified policy by giving focused attention for the overall development of Agribusiness & Food Processing sector to give value addition to farm produce for the benefit of farmers and other stakeholders.

Cereals and pulses processing sector brings immense benefits to the people, to the economy and speed up industrialization process. However it has an insignificant place in Karnataka in relation to agriculture production. Therefore it has great scope for development in the state. Hence, it must be promoted extensively. Existing units in this sector are found facing many problems which affect their operation. In this context the recommendations made by the researcher can be of much help to the policy makers of the state who are engaged in framing agro-processing industrial policies and also to the ago-processing entrepreneurs who are confronting many problems.

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