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EXAMINING IMPACT OF CASHEW NUT PROCESSING INDUSTRIES ON VILLAGE ECONOMY: EVIDENCE FROM ASSAM OF NORTH EAST INDIA

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Abstract

This research article examines the impact of cashew nut processing industries on village economy of Assam.Dhubri district in Assam of North East India is identified as one of the model districts for commercialisation of cashew sector as sixteen cashew nut processing units are running in the district. An attempt has been made in this article to examine the impact of cashew nut processing industries on village economy of Dhubri District of Assam. It is found from the study that availability of raw materials and availability of cheap labour are the two main reasons for agglomeration of cashew nut processing industries in Mankachar of Dhubri district. Using the methodology of village Social Accounting Matrix it is found that there is sufficient linkage between the cashew nut processing industry and the input supplying neighbouring villages. The input supplying villages has been able to derive benefits from the cashew nut processing industries in terms of output enhancement, income increase and employment generation.

Key Words: Cashew nut processing industries. Social accounting matrix.Village economy. Linkage

JEL Classifcation Code: R11. R15. R19. R34

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Introduction

Food-processing industries industries have strong linkage with other sectors of the economy, both as provider of inputs and as a dependent sector of other industries within and outside the country (FAO, 1997). Agro-food processing industries like Cashew nut factories can generate significant direct employment in production activities and also generate indirect employment through its forward and backward linkages (TIFAC, 2009).

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The theoretical debate is enriched by empirical evidences.There are various literatures regarding the economic and social impact of cashew nut processing industries in international level (Mitcell, 2004; Loan et al., 2006; &Hammed et al., 2008). In the national level there are few studies about the cashew nut industries in different perspectives. Food and Agriculture Organisation of the United Nations published a book on the Integrated Production Practices of Cashew in Asia where Rao (1998) discussed theintegrated production practices of cashew in India. In Tamil Nadu, the impact of cashewnut processing industry on the women labour market in Kanyakumari District was analysed by Srinivasan et al. (2011).In North Eastern India, there are a few studies regarding the cultivation and processing of cashew nut. Government of India (2008) published a report on Development of North-Eastern Region where the emphasis was on the potentiality of cashew nut cultivation and processing.

Assam of North East India, is a backward state compared to other states of India. The per capita income of the state is one of the lowest in the country. In 2013-2014, the per capita Net State Domestic Product (NSDP) of the state at constant prices (2004-2005) was Rs.23, 392 against the per capita Net National Product (NNP) for the country of Rs. 39,904 (Government of Assam, 2014-2015). However, the economic condition of the state was much better at the time of independence. In 1950-51, the per capita income of the state was 4.1 per cent higher than the national average. The per capita income of the state lagged behind the rest of the country by 1960's and since then the economy of the state has remained below all India level.

In case of the economy of Assam, the inter-sectoral interdependence of production is considered to be weak (Government of Assam, 1990). However, agro- processing industry has a potential to develop in the state. The area under horticulture crops in Assam is estimated at 6.11 lakh hectares which annually produced about 20.25 lakh tones of fruits and about 53.30 lakh tones of vegetables in 2013-14 (Government of Assam, 2014-15). However, only 14 per cent of the net cropped area in Assam is being used for cultivating horticulture crops and only 30 per cent of agriculture produce are processed for value addition in the state (Government of Assam, 2010-11). According to Assam Development Report, 2002, development of industries based on locally available resources should naturally get priority in the state. These resources are available mainly in rural areas and the industries located nearby raw-material supplying rural areas may be benefitted through this type of positive agri-industry linkages.

Implementing the scheme of Technology Mission for Integrated Development of Horticulture (TMIDH) in Assam, Dhubri district was identified as one of the model districts for commercialisation of Cashew sector. The area under cashew nut cultivation in the state has increased from a mere 50 hectares in 2001 to 2965 hectares in 2007-08, with Dhubri alone accounting for 520 hectares (Government of Assam, 2009).North Eastern Regional Agricultural

Marketing Corporation Limited (NERAMAC) is a CentralPublic Sector Undertaking under the administrative control of the Ministry of Development ofNorth Eastern Region (DoNER). NERAMAC is going to start the largest cashew nut processing plant at Borkona in Mankachar[2], Dhubri District to meet the growing demand of processed cashew nuts in the region. The adjoining area of Mankachar and the neighbouring state of Meghalaya produce raw cashew nuts. There are about sixteen cashew nut processing units are running in Dhubri district and many villages in Mankachar like KuchnimaraJordanga, Kakripara, Manjuri, Palpara, Pubergram, Bengarvita, Baghapara etc. are linked with those industries. However, most of the raw cashew nuts are going out of Meghalaya through Garobandha outside the region for processing in Orissa and also in Andhra Pradesh.The requirement of processed cashew nut per annum in the region is around 1,700 tonnes and is fast increasing with rapid urbanisation of the region.

Keeping in view the potentiality of the agro-food processing industries in Dhubri district, it can be inferred that agro-based industries might have a strong impact on the local economy in the district. Therefore, a comprehensive study is required on the impact of food-processing industry on village economy. In this study, cashew nut factories have been chosen to examine the impact of cashew nut processing industries on village economy of Mankachar in Dhubri district. To examine the impact of cashew nut factories, one of the input supplying nearby villages, namely, 'Manjuri' of Mankachar is purposively selected.

Thus, the objectives of the study are to study the location of the cashew nut factories located in Mankachar in Dhubri district of Assam and to analyse the multiplier impact of cashew nut factories on the neighbouring villages in Dhubri district.

Data Source and Methodology

The study is based on both primary and secondary data. The secondary data is collected from published government reports.The primary data are collected from a field study conducted at one of the input supplying villages, Manjuri of Mankachar sub-division, Dhubri District, Assam to study the impact of the Cashew Nut Processing Industries on the village. The fieldwork was conducted between April, 2014 and August, 2014. The data collected in the field work pertains to the previous 12 months' activities i.e for the reference period from June, 2013 to May, 2014. The data for household consumption of food was collected for the month of May, 2014.

Literatures have identified Social Accounting Matrix (SAM) as the appropriate tool to measure the existing linkages and for impact analysis (Lewis &Thorbecke, 1992; Parikh&Thorbecke, 1996; Subramanian, 2007; Agaje, 2008).To investigate the sectoral linkage, a SAM is constructed to examine the impact of the food processing industry on a neighbouring input-supplying village. Its usefulness for impact analysis arises from the fact that SAM is an organized

matrix and is an extension of the Input-Output table to include social effects of production processes along with economic effects.

Village SAM Multiplier Model

Here,the first step of construction of SAM multiplier model is to decide which accounts are considered endogenous and which are to be kept exogenous. The framework is used to measure the impact of changes in the exogenous accounts on the whole system. Endogenous accounts are those for which changes in level of expenditures directly follow any changes in incomes, while exogenous accounts are those for which it is assumed that the expenditures are independent of incomes (Okalang 2008).

The next step for a SAM multiplier analysis is that the village SAM transaction matrix is converted into a matrix of average expenditure propensities by dividing each element in the SAM by its respective column total. Thus, the assumptions of the model are fixed prices, given technology, unitary expenditure elasticties[2], excess capacity in all sectors (i.e. supply is assumed to be perfectly elastic in all sectors and an increase in demand is sufficient to stimulate increases in output and incomes) etc. These assumptions are restrictive, but they are necessary to estimate fixed-priced village SAM multipliers (Taylor and Adelman, 2006).

Dividing each element in the SAM by its respective column total produces a matrix of average shares, S. Let, X denote the exogenous income flows into the rows corresponding to the endogenous accounts of the SAM. Deleting the exogenous rows and columns from S yields a sub matrix of endogenous shares, A. The village SAM multiplier matrix, a square matrix denoted by M, is derived as:

$$M= (I-A)^{-1}$$

Given some exogenous change in X, the effect on endogenous accounts in the village, Y, is determined by this village multiplier matrix:

$$Y= M\times X$$

The matrix M is called the village multiplier matrix because it contains estimated total direct and indirect effects of exogenous income injections on the endogenous accounts in the village SAM. While the diagonal multiplier measures the direct impact of an exogenous expenditure placed on the other sectors, the off-diagonal multipliers measure the indirect impacts of exogenous injections on other sectors (Agaje, 2008).

For this study a village SAM multiplier matrix, a square matrix denoted by M, is derived from a 40×40 SAM. There are 34 endogenous accounts and 6 exogenous accounts in the SAM.

Results and Discussion

Location of Cashew nut processing industries in Mankachar of Dhubri District

The location map of Manjuri village of Dhubri district in Assam is presented in Figure 1. The location of cashew nut processing industries is shown in Figure 2.

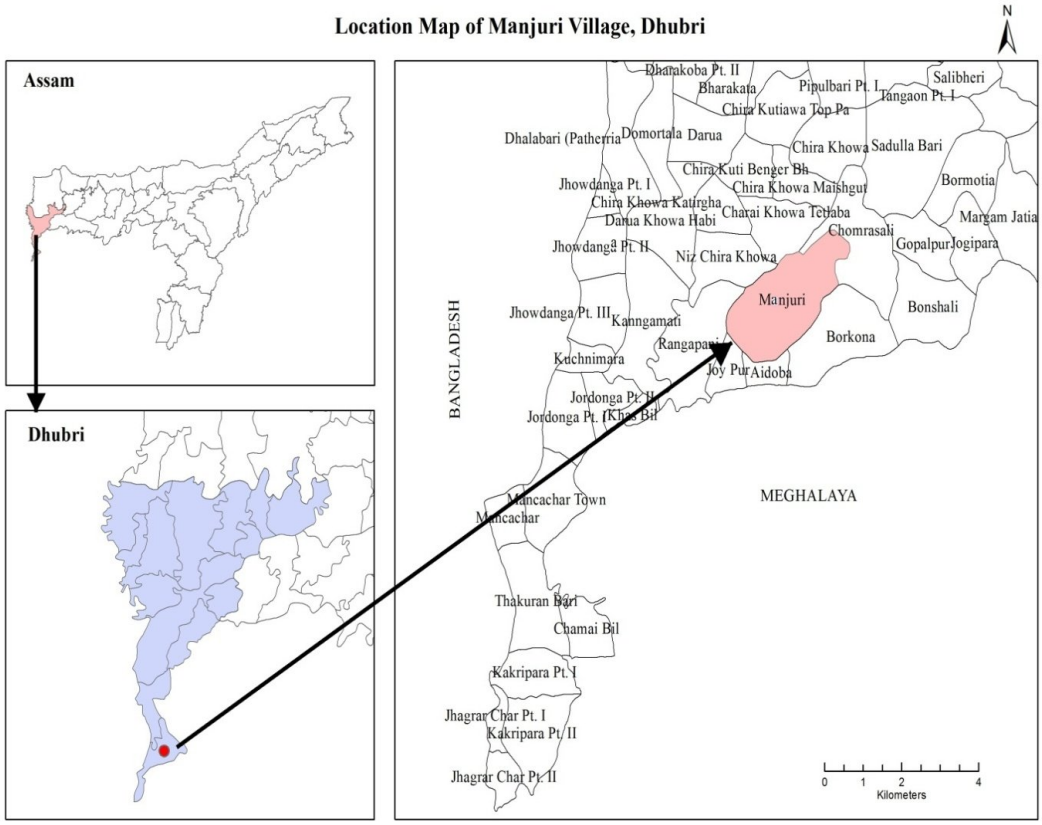
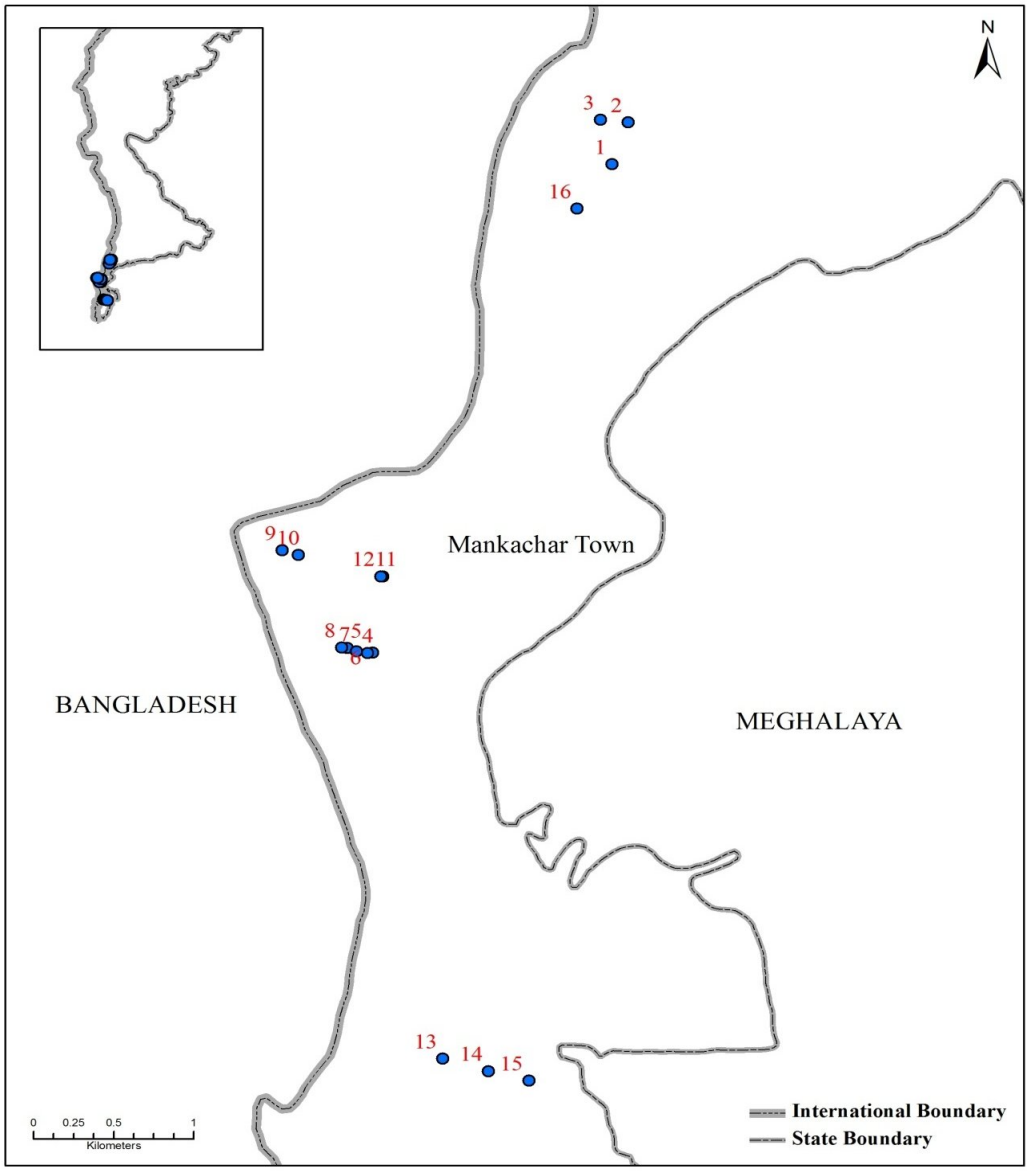


Figure -1

Cashewnut Processing Industries in Mankachar, Dhubri



Industries

- 1, Hassan Agro Industries
- 2, Rose Cashew nut Industries
- 3, Roshan Industries
- 4, Botha Agro Industries
- 5, M.K. Agro Industries
- 6, R.B. Industries
- 7, Sourabh Agro Industries
- 8, Quality Agro Industries
- 9, M.D Industries
- 10, Tirupati Industries
- 11, T.C. Industries
- 12, M.C. Industries
- 13, Taz Industries
- 14, Jaybaba Industries
- 15, Maa Kamakhya Industries
- 16, Khusbhu Industries

Figure -2

There are all total sixteen cashew nut processing industries in Mankachar. The list of the industries is presented in Table 1.

Table 1 : Location of the cashew nut processing industries in Mankachar

Sl. No.	Name of the Industries	Location
1	Hassan Agro Industries	Jordonga, P.O Mankachar
2	Rose Cashew Industries	Jordonga, P.O Mankachar
3	Roshan Industries	Santipur, P.O Mankachar
4	Bothra Agro Industries	Kaloghat, P.O Mankachar
5	M.K Agro Products	Kaloghat, P.O Mankachar
6	R. B. Industries	Kaloghat, P.O Mankachar
7	Sourabh Agro Industries	Kaloghat, P.O Mankachar
8	Quality Agro Industries	Kaloghat, P.O Mankachar
9	M. D Industries	Paulpara, P.O Mankachar
10	Tirupati Industries	Bormanpara, P.O Mankachar
11	T.C. Industries	Chowk Bazar, P.O Mankachar
12	M.C Industries	Chowk Bazar, P.O Mankachar
13	Taz Industries	Kakripara, P.O Mankachar
14	Jaybaba Industries	Kakripara, P.O Mankachar
15	MaaKamakhya Industries	Baghapara, P.O Kalapani
16	Khusbu Industries	Jordonga, P.O Mankachar

Source: Information provided by Dilip Kumar Patowari, President of Mankachar Cashew Nut Factory Owners' Association, 2014.

From Table 1 and Figure 2, it is seen that there are agglomeration of cashew nut processing industries in Mankachar in five selected areas. It is seen that out of the sixteen cashew nut processing industries, five industries (Nos. 4,5, 6,7 and 8) are located in Kaloghat area, near the Bangladesh border; four industries (Nos.1,2,3 and 16) are located in Jordonga area; three industries (Nos. 13,14 and 15) are located in Kakripara area and its nearby Baghapara area; two industries (Nos.11 and 12) are in Chowk Bazar and the remaining two industries are in Paulpara and its nearby Bormanpara (Nos.9 and 10). The study village 'Manjuri' is located nearby Jordonga where there are agglomeration of four industries (Nos.1, 2, 3 and 16).

Impact of Cashew nut Processing Industries on Village Economy in Dhubri district

Construction of the Village SAM for Manjuri

On the basis of the collected data, a village Social Accounting Matrix (SAM) is constructed to examine the impact of Cashew nut processing industries on the neighbouringManjuri village withsectoral linkages of the village economy.

The village SAM presents collected data as a set of consistent accounts in the form of a

square matrix. Each row contains receipts coming to that account and the corresponding column shows how that account's total receipts are spent on or distributed to other accounts. For any account, total receipts and total expenditure must tally and so each account's row and column totals are the same. A schematic aggregate SAM of the village Manjuri is presented in Table 2. The calculated aggregate SAM of Manjuri Village for 2014 is presented in Table 3.

Table 2 : A Schematic Representation of the Village SAM for Manjuri

Income		Expenditure										
		Endogenous					Exogenous					
		Production Activities(1)	Commodities(2)	Factors of Production(3)	Households(4)	Government(5)	ROV-market etc.(6)	ROV-Cashew Nut Processing Industries(7)	Capital(8)	Maintenance(9)	Stocks(10)	Row Total
	Production Activities(1)		Domestic commodity and service supply(1,2)									Total Output
Endogenous	Commodities (2)	Intermediate Inputs(2,1)	Composite Commodity (2,2)		Consumption demand (2,4)		Exports(sale to market)(2,6)	sale to industries/ Industries' consumption from village(2,7)	Investment demand (2,8)	Maintenance on durables(2,9)	Stock changes(2,10)	Total Demand
	Factors of Production (3)	Value-added(wages, interest, salaries, rent) (3,1)					Factor income earnings-payments on Govt. and private job(3,6)	Payments to labour(salary)(3,7)	Payments to labour(3,8)	Maintenance on durables(payments to inside village labour)(3,9)	-	Total receipts from factor income
	Households (4)	Profits(4,1)		Factor income-payment to hhs.forlabour and capital used in production (4,3)	Inter household transfer(4,4)	Government transfers to households(4,5)	Transfer income (remittances from outside village) (4,6)					Total income
	Government (5)	Taxes on production including subsidies as a ve tax(5,1)			Any Tax on households income and property, land revenue etc. (5,4)							Total income of the village government
Exogenous	ROV-market etc.(6)	Imports of agricultural inputs(6,1)	Imports of consumer goods(6,2)	Factor payments to outside village labourers etc.(6,3)	Remittances to outside villager(6,4)				Net Capital outflow-imports of investment goods (6,8)	Maintenance on durables(payments to outside village labourers)(6,9)		Total imports

Table 3 : The Aggregate SAM of the Village Manjuri, 2014

	Production Activities(1)	Commodities(2)	Factors of Production(3)	Households(4)	Government(5)	ROW-market etc.(6)	ROW-Cashew Nut Processing Industries(7)	Capital(8)	Maintenance (9)	Stocks(10)	Row Total
Production Activities(1)		10247264									10247264
Commodities(2)	459500	129784		6424171		3000232.5	1384200	2520439	114820	858871.5	14892018
Factors of Production(3)	3449018					1410980	162000	4880	1472		5028350
Households(4)	5473528		5072980	558444	509404	6630					11620986
Government(5)	47091			14924							62015
ROW-market etc.(6)	273385	2935320.5	121370	1456788				46900	12970		4846734
ROW-Cashew Nut Processing Industries(7)	0			720							720
Capital(8)	522000			3028906	244						3551150
Maintenance(9)	22742			28560							51302
Stocks(10)	0	734031.5		124840							858871.5
Column Total	10247264	14046400	5194350	11637353	509648	4417842.5	1546200	2572219	129262	858871.5	51159410

Source: Own Calculation

Results of Output, Income and Employment Multipliers

The impact of Cashew Nut Processing industries on the village is shown with the help of different types of multipliers calculated from the village SAM for Manjuri. With the help of the constructed SAM matrix of the village Manjuri, the entire village economy for one year is captured.

The three most frequently used multipliers derived from the SAM are - output, income and employment multipliers which estimate the effect of change in the demand for outputs on: (1) outputs of the sectors; (2) income earned by households because of new outputs; and (3) employment generated because of the new outputs. The multiplier effects work in the following way.

If the demand for cashew nut of the village increases due to the cashew nut processing industries then there will be increased output/production in the village. This is output multiplier. The increase in output tends to increase income of the villagers which is captured by income multiplier. This will also create employment opportunities locally and opportunities created by the industry. This is employment multiplier.

The constructed multiplier matrix of the village Manjuri is presented in Table 4 and output and income multipliers for the sectors of the village are calculated from the table. The table shows that the activity that induces highest output in the economy is miscellaneous if it receives economic stimulations, such as an increase in export demand. The activity yields the maximum total output multiplier (1.63) in Manjuri, followed by allied agricultural activities (1.62), agriculture (1.61), Cashew Nut (1.59) and government services (1.58) indicating their high integration with other sectors. SAM output multipliers at a local or regional scale are usually lower, and have values between 1.3 and 2.3 (Psaltopoulos et al., 2006). The persons employed at Cashew Nut Processing factories contribute only 0.58 as the output multiplier because only a few workers in the village are working in cashew nut industries.

On the other hand, the households' income multipliers are generally lower compared with output multipliers. This is due to various leakages from the circular flow of income (for instance, import and tax leakages) (Breisinger et al., 2009). At a local scale, the income multiplier values typically range between 1.2 and 1.6 (Leeuwen&Nijkamp, 2002). In this study, the highest income multipliers among the production activities are given by miscellaneous activities (1.52) followed by Government services (1.50), allied agricultural activities (1.49), transportation (1.47), trade and petty services (1.45) , agriculture (1.38) and Cashew Nut (1.37). Low income multiplier in agriculture is mainly due to the fact that the farmers who mortgage in land, they spend money in a huge amount however they get returned only a smaller amount in that year. Actually they invest that amount of money not for one year but for 3, 5 or more than 5 years which is not specified in the survey information. In long run, their

return is obviously more which cannot be realised in that survey period. This is the reason why income earned from agricultural activities may be even negative for the survey period. As for example, any farmer can invest Rs. 5, 00, 000 for mortgage in land but the output for that period cannot give him Rs. 5, 00, 000.00 as return.

On the basis of Table 4, employment multipliers are obtained by multiplying the output multiplier of each sector with the relevant direct employment coefficient. Direct employment coefficients are defined as employment per unit of output. Thus, direct employment coefficient of each sector is calculated as the ratio between the wages and salaries generated by the production activities and the total outputs of the activities. The estimated employment multipliers are presented in Table 5. According to Leeuwen&Nijkamp (2002), the employment multiplier values are more homogeneous compared with the output and household income multipliers: they range between 1.10 and 1.36. In this study, the employment multiplier is found to be the highest for agriculture (0.85) followed by village production (0.66), allied agricultural activities (0.43) and trade and petty services (0.16). The employment multiplier for all the activities in the village is low. The sectors do not have high employment multipliers, possibly because these sectors are already labour intensive (as expressed by Leeuwen&Nijkamp (2002) in a different study).

As the study is intended to examine the impact of cashew nut processing industries on the village, the output, income, employment multipliers have been computed. These show that if demand for cashew nuts by the cashew nut processing industries is increased by Re.1 in the village then the production/output in the agriculture sector will be increased by Rs.1.61 (i.e. Re.1×1.61); income increases by Rs.1.39 (i.e. Re.1×1.39) and employment increases by 0.85 units (i.e. 1×0.85) in the village.

The output, income and employment multipliers are shown in Table 4 and Table 5 respectively.

Table 4: Multiplier Matrix for Manjuri, 2014

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1	Agriculture	1.24	0.22	0.17	0.16	0.17	0.16	0.03	0.20	0.43	1.22	0.44	0.02	0.93	0.33	0.83	0.81	0.64	0.20	0.00	0.31	0.85
2	Allied agricultural activities-livestock etc	0.08	1.10	0.08	0.06	0.09	0.05	0.01	0.08	0.08	0.08	0.03	0.01	0.06	0.02	0.06	0.06	0.19	0.89	0.00	0.02	0.06
3	Village Production	0.03	0.03	1.03	0.04	0.04	0.04	0.01	0.04	0.02	0.03	0.01	0.00	0.03	0.01	0.02	0.02	0.02	0.03	0.00	0.01	0.02
4	Trade and Petty Services	0.09	0.10	0.08	1.11	0.10	0.11	0.02	0.11	0.05	0.09	0.03	0.01	0.07	0.02	0.06	0.06	0.06	0.08	0.00	0.02	0.06
5	Government services	0.05	0.05	0.04	0.05	1.05	0.06	0.01	0.05	0.03	0.04	0.02	0.00	0.03	0.01	0.03	0.03	0.03	0.04	0.00	0.01	0.03
6	Transportation	0.01	0.01	0.01	0.01	0.01	1.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
7	Construction	0.05	0.05	0.04	0.06	0.06	0.06	1.01	0.06	0.03	0.05	0.02	0.00	0.04	0.01	0.03	0.03	0.03	0.04	0.00	0.01	0.03
8	Miscellaneous activities	0.06	0.07	0.06	0.07	0.07	0.08	0.01	1.08	0.04	0.07	0.02	0.08	0.05	0.02	0.04	0.04	0.04	0.05	0.00	0.02	0.04
	Production multiplier	**1.61**	**1.62**	**1.51**	**1.56**	**1.58**	**1.56**	**1.10**	**1.63**	**0.67**	**1.59**	**0.57**	**0.13**	**1.21**	**0.43**	**1.08**	**1.06**	**1.01**	**1.35**	**0.00**	**0.41**	**1.11**
9	Social expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Cashew Nut	0.01	0.01	0.01	0.01	0.02	0.01	0.00	0.01	0.01	1.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
11	Rice	0.15	0.16	0.13	0.16	0.13	0.18	0.03	0.17	0.41	0.15	1.05	0.01	0.12	0.04	0.10	0.10	0.10	0.13	0.00	0.04	0.11
12	Jute	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Vegetables	0.08	0.09	0.07	0.06	0.07	0.05	0.01	0.08	0.18	0.08	0.03	0.01	1.06	0.02	0.05	0.05	0.05	0.08	0.00	0.02	0.05
14	Spices	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.05	0.01	0.00	0.00	0.01	1.00	0.01	0.01	0.01	0.01	0.00	0.00	0.01
15	Fruits	0.03	0.03	0.03	0.02	0.03	0.02	0.00	0.02	0.06	0.03	0.01	0.00	0.02	0.01	1.02	0.02	0.02	0.03	0.00	0.01	0.02
16	Other Crops	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.01	0.06	0.01	0.00	0.00	0.01	0.00	0.01	1.01	0.01	0.01	0.00	0.00	0.01
17	Agricultural inputs	0.08	0.04	0.03	0.02	0.02	0.01	0.00	0.02	0.03	0.07	0.03	0.00	0.06	0.02	0.05	0.05	1.04	0.04	0.00	0.02	0.05

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
18	Livestock products	0.09	0.11	0.09	0.07	0.11	0.06	0.01	0.10	0.09	0.09	0.03	0.01	0.07	0.02	0.06	0.06	0.06	1.09	0.00	0.02	0.06
19	Durables	0.06	0.08	0.07	0.05	0.06	0.04	0.01	0.05	0.23	0.06	0.02	0.00	0.05	0.02	0.04	0.04	0.04	0.07	1.00	0.02	0.04
20	Other Consumer goods	0.04	0.04	0.04	0.05	0.06	0.05	0.01	0.05	0.08	0.04	0.01	0.00	0.03	0.01	0.03	0.03	0.02	0.03	0.00	1.01	0.03
21	Fodder	0.06	0.03	0.02	0.01	0.02	0.01	0.00	0.02	0.02	0.06	0.02	0.00	0.05	0.02	0.04	0.04	0.03	0.02	0.00	0.02	1.04
22	Services	0.30	0.31	0.26	0.34	0.32	0.36	0.06	0.36	0.17	0.29	0.11	0.03	0.22	0.08	0.20	0.20	0.19	0.26	0.00	0.07	0.20
23	Land (Rent)	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.00	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.01
24	Family labour(M+F)	0.38	0.31	0.47	0.12	0.09	0.08	0.01	0.12	0.15	0.37	0.13	0.01	0.28	0.10	0.25	0.25	0.23	0.26	0.00	0.10	0.26
25	Hired labour(M+F)	0.29	0.13	0.11	0.04	0.05	0.05	0.01	0.05	0.11	0.29	0.10	0.00	0.22	0.08	0.20	0.19	0.16	0.11	0.00	0.07	0.20
26	Credit	0.04	0.01	0.01	0.07	0.01	0.01	0.00	0.01	0.02	0.04	0.01	0.00	0.03	0.01	0.03	0.03	0.02	0.01	0.00	0.01	0.03
27	Salaried persons	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.08	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Employed at Cashew Processing Industries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Agriculture landless workers	0.50	0.34	0.30	0.78	0.18	1.08	0.14	0.65	0.20	0.49	0.18	0.05	0.37	0.13	0.33	0.33	0.29	0.29	0.00	0.13	0.34
30	Small Farmers	0.25	0.28	0.17	0.12	0.09	0.07	0.01	0.39	0.10	0.25	0.09	0.03	0.19	0.07	0.17	0.16	0.16	0.23	0.00	0.06	0.17
31	Medium Farmers	0.17	0.31	0.24	0.11	0.24	0.06	0.04	0.15	0.08	0.17	0.06	0.01	0.13	0.05	0.12	0.11	0.13	0.25	0.00	0.04	0.12
32	Large Farmers	0.26	0.37	0.29	0.10	0.07	0.06	0.03	0.11	0.11	0.26	0.09	0.01	0.20	0.07	0.18	0.17	0.18	0.31	0.00	0.07	0.18
33	Self-employed in non-agriculture	0.02	0.01	0.01	0.04	0.01	0.11	0.00	0.02	0.01	0.02	0.01	0.00	0.02	0.01	0.02	0.02	0.01	0.01	0.00	0.01	0.02
34	Services holders	0.18	0.17	0.24	0.30	0.91	0.10	0.02	0.20	0.08	0.18	0.06	0.02	0.13	0.05	0.12	0.12	0.11	0.14	0.00	0.05	0.12
	Household Income Multiplier	**1.39**	**1.48**	**1.26**	**1.45**	**1.50**	**1.47**	**0.24**	**1.52**	**0.58**	**1.37**	**0.49**	**0.12**	**1.04**	**0.37**	**0.93**	**0.91**	**0.88**	**1.23**	**0.00**	**0.35**	**0.95**

Table 4: Multiplier Matrix for Manjuri, 2014(Contd.)

		22	23	24	25	26	27	28	29	30	31	32	33	34
1	Agriculture	0.15	0.22	0.23	0.15	0.11	0.15	0.15	0.15	0.25	0.31	0.21	0.22	0.15
2	Allied agricultural activities-livestock etc	0.07	0.09	0.10	0.05	0.05	0.08	0.05	0.05	0.12	0.16	0.08	0.08	0.08
3	Village Production	0.14	0.02	0.04	0.04	0.02	0.03	0.04	0.04	0.03	0.05	0.02	0.02	0.03
4	Trade and Petty Services	0.39	0.05	0.10	0.12	0.05	0.09	0.12	0.12	0.09	0.12	0.07	0.04	0.09
5	Government services	0.20	0.03	0.05	0.06	0.02	0.05	0.06	0.06	0.05	0.06	0.03	0.02	0.05
6	Transportation	0.03	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.01
7	Construction	0.22	0.03	0.06	0.07	0.03	0.05	0.07	0.07	0.05	0.07	0.04	0.02	0.05
8	Miscellaneous activities	0.27	0.04	0.07	0.08	0.03	0.06	0.08	0.08	0.06	0.09	0.05	0.03	0.07
	Production multiplier	**1.46**	**0.48**	**0.64**	**0.57**	**0.30**	**0.52**	**0.58**	**0.58**	**0.66**	**0.87**	**0.50**	**0.44**	**0.52**
9	Social expenditure	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Cashew Nut	0.01	0.04	0.01	0.00	0.00	0.02	0.00	0.00	0.01	0.00	0.00	0.06	0.02
11	Rice	0.13	0.16	0.17	0.18	0.08	0.11	0.18	0.18	0.16	0.23	0.13	0.17	0.11
12	Jute	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00
13	Vegetables	0.06	0.07	0.10	0.05	0.05	0.05	0.05	0.05	0.12	0.13	0.09	0.06	0.05
14	Spices	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01
15	Fruits	0.02	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.05	0.04	0.02	0.02
16	Other Crops	0.01	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.02	0.02	0.01	0.00	0.00
17	Agricultural inputs	0.02	0.02	0.04	0.01	0.02	0.01	0.01	0.01	0.03	0.06	0.04	0.02	0.01

		22	23	24	25	26	27	28	29	30	31	32	33	34
18	Livestock products	0.07	0.10	0.12	0.05	0.05	0.09	0.05	0.05	0.13	0.19	0.09	0.10	0.09
19	Durables	0.05	0.09	0.08	0.04	0.05	0.05	0.04	0.04	0.04	0.14	0.12	0.07	0.05
20	Other Consumer goods	0.04	0.06	0.04	0.05	0.02	0.06	0.05	0.05	0.05	0.05	0.02	0.08	0.06
21	Fodder	0.01	0.02	0.03	0.01	0.02	0.01	0.01	0.01	0.03	0.04	0.04	0.01	0.01
22	Services	1.28	0.18	0.32	0.39	0.15	0.30	0.39	0.39	0.30	0.40	0.22	0.14	0.31
23	Land (Rent)	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	Family labour(M+F)	0.13	0.09	1.10	0.07	0.05	0.08	0.08	0.08	0.11	0.14	0.09	0.09	0.08
25	ed labour(M+F)	0.05	0.06	0.06	1.04	0.03	0.04	0.04	0.04	0.07	0.08	0.06	0.06	0.04
26	Credit	0.03	0.01	0.01	0.01	1.01	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01
27	Salaried persons	0.02	0.00	0.00	0.01	0.00	1.00	0.01	0.01	0.00	0.01	0.00	0.00	0.00
28	Employed at Cashew Processing Industries	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Agriculture landless workers	0.49	0.14	0.41	1.17	0.20	0.16	1.18	1.18	0.20	0.26	0.15	0.13	0.16
30	Small Farmers	0.16	0.08	0.30	0.07	0.07	0.07	0.07	0.07	1.09	0.12	0.07	0.07	0.07
31	Medium Farmers	0.14	0.11	0.33	0.06	0.09	0.06	0.06	0.06	0.08	1.11	0.06	0.05	0.06
32	Large Farmers	0.11	0.36	0.35	0.06	0.40	0.14	0.06	0.06	0.09	0.13	1.08	0.07	0.06
33	Self-employed in non-agriculture	0.02	0.67	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01	1.01	0.01
34	Services holders	0.31	0.07	0.16	0.10	0.05	1.01	0.10	0.10	0.10	0.13	0.07	0.06	1.09
	Household Income Multiplier	**1.22**	**1.42**	**1.56**	**1.47**	**0.81**	**1.45**	**1.49**	**1.49**	**1.57**	**1.76**	**1.44**	**1.39**	**1.45**

Table 5 : Employment Multipliers for Manjuri, 2014

Sectors	Wages and salaries	Total Output	Output multiplier	Direct Employment coefficients	Employment multiplier	Position
1. Agriculture	2503040	4589506	1.551088046	0.5453833	0.84593754	1
2.Agriculture and allied activities	551438	1963819	1.557013551	0.2807988	0.43720752	3
3.Village Production	194000	424500	1.451153102	0.4570082	0.66318893	2
4.Trade and petty services	119840	1135500	1.487052109	0.1055394	0.1569426	4
5.Government services	0	576000	1.51529619	0	0	7
6.Transportation	700	90000	1.483705243	0.0077778	0.01153993	5
7.Construction	0	640572	1.08393182	0	0	7
8.Miscellaneous activities	8000	827367	0.550950345	0.0096692	0.00532726	6
Total	**3377018**	**10247264**	**10.68019041**	**1.4061768**	**2.12014379**	

Source: Calculation from the SAM

Conclusion and Policy Suggestions

It can be inferred from the foregoing analysis that there are some specific locations where the industries are agglomerated. Availability of raw materials and availability of cheap labour are the two main reasons for location of cashew nut processing industries in Mankachar of Dhubri district in Assam.

It is clear from above SAM analysis that thereare sufficient linkages between the cashew nut processing industries and the input supplying neighboring villages. It has also been found from the study that abundant raw materials are available in the neighboring villages. Thus, there exists huge potential and scope for setting up of more food-processing industries in that locality for stabilization of income of the villagers. The input supplying village has been able to derive benefits from the food processing industries in many forms, namely in output enhancement, income increase and employment generation. If demand for cashew nut by the industry is increased by Re.1 in the village then the production/output in the agriculture sector increases by Rs.1.61; income increases by Rs.1.39 and employment increases by 0.85 units.

In line with the emphasis given by the Government of India on food-processing industries, New Industrial and Investment Promotion Policy of Assam, 2014 has also focused on food-processing industries for over all industrial development of the state. The New Industrial Policy of the state announced some incentives for setting up the necessary infrastructure for

food-processing industries in the state. Thus, establishment of food processing industries in the state should be promoted. The congenial agro-climatic and soil conditions offer a vast scope for development of food processing industry in the state. Agro-industries, mostly being a labour-intensive industry can engage a good number of both male and female workers. Thus, development of agro-industries would increase the job opportunities for huge number of unemployed in the State.

Keeping in view the positive economic as well as social impact of the food-processing industry on the input supplying village and the potentiality of the locality in terms of abundant production of raw-materials, more such cashew nut processing industries can be set up in that locality. Thus, setting up of food-processing industry may help to improve village life and economy in Dhubri district of Assam to a considerable extent. If due attention is paid to the issues of marketing, infrastructure (road connectivity, power supply etc.) etc., then food processing industry like cashew nut processing industries can bring positive changes in the economy of the state with its sufficient linkages with the rural economy.

Notes

1. Mankachar is one of the sub-divisions of the three subdivisions of Dhubri district of Assam. Recently the Chief Minister of Assam announces five new districts in Assam which includes Mankachar as new district.

2. When SAM is converted into a matrix of average expenditure propensities by dividing each endogenous element in the transaction matrix by its respective column totals, the matrix is known as accounting multiplier matrix. However, the accounting multiplier matrix assumes that average expenditure propensities are same as marginal expenditure propensities, that is, that all income elasticity of demand is unitary. To make the analysis more realistic, the average expenditure propensities for the household groups are replaced with marginal expenditure propensities. Substituting average expenditure propensities with marginal expenditure propensities would not violate the consistency of the underlying SAM, because, while calculating the multiplier, only the endogenous accounts are considered. As long as the sums of the column totals of endogenous marginal expenditure propensities and exogenous propensities add up to unity, consistency is maintained (Parikh &Thorbecke, 1996). Moreover, theoretically, if expenditure elasticity and average expenditure propensities are known, then marginal expenditure propensities can easily be obtained. Let E, Z and Z^* be, respectively elasticity, average and marginal expenditure propensities, then we have

$$E = \frac{Z^*}{Z} \Rightarrow Z^* = EZ$$

If E=1 is assumed, then obviously Z^* becomes Z i.e. average propensities are same as

marginal propensities of expenditure (Agaje, 2008).

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