

# An Economic Analysis of Cane and Bamboo Works in the Urban Areas of Assam

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## Abstract

*The state of Assam is very famous for cane and bamboo work from the ancient time down to the present day of the society. The cane and bamboo items of Assam have their definite identities due to its social, cultural and economic significance. The cane and bamboo industry is very labour intensive and hence provide more employment opportunities and income distribution in both rural and urban areas in the state. It is generally seen that every family produces at least a part of its requirement of cane and bamboo products, though not always for sale. The cane and bamboo artisans are very important element for the economic development of the state. With the changing situation, the industry is shifting to the urban areas. The cane and bamboo works have great significant for the urban development also. In this work an attempt has been made to analyze the cane and bamboo works in the urban areas of Assam.*

**Key Words:** *Cane and bamboo works, Urban area, Economic development, Employment opportunity, Economy of Assam.*

## Introduction :

Assam is very suitably endowed with resources for cane and bamboo works in terms of men, material and markets. Cane and bamboo works are also recognized for a sustainable development in the economy of Assam. Among the other traditional crafts, the cane and bamboo works are perhaps the most universally practiced by all tribal and non tribal people throughout in Assam (Assam State Gazetteer, 1999). From the very ancient times, cane and bamboo

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works have been recognized as the most important works because of its quality and originality. There were professional cane and bamboo workers in ancient times of Assam (Handique and Borah, 2008). After the thirteenth century, cane and bamboo works had reached a very high point of perfection in the Ahom kings in Assam. The artisan made items for mainly home consumption, but occasionally some surplus products were supplied to the kind's household and some products were exchanged particularly for goods. In the British period, the development of new industries increased the competition between local products and foreign made products and hastened the process of the age old traditional cane and bamboo works artisans closed down their workshops and some artisans continued with their hereditary pursuits to eke out a meager livelihood in the colonial period (Handique, 2010). New process has been started for the development of handicrafts including cane and bamboo works with the launching of the First Five year plan from 1951 in Assam. In order to develop handicrafts, a number of state, regional and central level organizations have been setup in Assam. Some of the organizations have been taken the responsibility of various measures for the growth and development of cane and bamboo works in Assam.

The cane and bamboo crafts constitutes an important sector in the urban areas for the earning of supplementary income of the people. The wide range of utility of cane and bamboo products that are made has the sanction of tradition and culture of the state (Assam Handicraft Survey, 1982). With the changing socio-economic scenario. This crafts is shifting from rural to urban areas in the state. The cane and bamboo units are scattered in different parts of Assam. The urban cane and bamboo units are mostly cane furniture and decorative items units. There are large number of cane and bamboo units in the urban areas engaged in the manufacture of different products like flower vase, fruit tray, tea tray, candle stand, magazine rack, flower basket, tea stainer, beer mug, jewellery box, hanger, baby jhula, garden chair, ladies hand mirrors, dining chair and baby cot. Cane and bamboo works is wide spread in the state, where most forests abound in cane and bamboo (Saraf, 1991). Cane and bamboo are put together in the same category in government terminology in India. However, since the problems of cane are unique in compared to bamboo (An Action Plan Report of

Ministry of Environment and Forest of the Govt. of India, 1999). Assam has been blessed with rich forest association including cane and bamboo. About 18 species of cane and 30 species of bamboo are reported to be available in the state (Technical Report of NEHHDC, 2001). It is to be noted that only a handful and suitable cane and bamboo species are used by the artisans in Assam. The cane and bamboo industry can play a major role to reduce unemployment, poverty and income inequalities problems in Assam. It is to be noted that total urban population in Assam was 14.08% of the total population which is lower in compared to notional average 27.82% in the census of 2011.

**Objectives:**

The present study seeks to modest attempt to examine the following objectives.

1. To study the cost of cane and bamboo units in urban areas of Assam.
2. To study the pattern of production of cane and bamboo units in the urban areas of Assam.
3. To examine the income of cane and bamboo units in the urban areas of Assam.

**Methodology:**

The study is mainly based on primary data. All total 45 urban cane and bamboo units were randomly selected from seven districts in 2004-05. These districts are Sivasagar, Tinsukia, Nagaon, Nalbari, Sonitpur, Kamrup and Goalpara district. Out of total 45 units, 17 (37.78%) were registered units with District Industrial Centre and Commerce (DICC) in Assam. To supplement the primary data the secondary data for the present study were collected from both government and nongovernment sources. To analyze the efficiency of the survey units the following asset turnover ratio has been estimated.

$$\text{Asset Turnover} = \frac{\text{Revenue}}{\text{Total Asset}}$$

**Results and Discussion:****❖ Cost Analysis:**

Cost of production is the most important factor governing the supply of a product. For the estimation of cost in cane and bamboo works, there are some inherent conceptual and statistical difficulties. The available statistics especially small-scale industries are extremely unreliable and incomplete. This view of the committee is more or less applicable in cane and bamboo enterprise also. Most of the cane and bamboo entrepreneurs, whose relevant data were collected, are mostly unfamiliar with the notions and methods of keeping business records. Moreover most of the sample units are operating under family enterprise system. The cost for cane and bamboo works are divided under two broad heads, i.e., variable cost and fixed cost.

The variable cost of cane and bamboo units are those cost that do vary with the size of its output. We have divided the variable cost into four heads, i.e., manpower cost, raw materials cost, marketing cost including transportation and other costs. Cost on working capital, telephone, electricity, postal, training of workers and some other contingencies are included in other costs head. Human labour consists of wages-paid permanent or temporary hired labour, family labour and own labour engaged in cane and bamboo activities. The amount paid to hired labourers are worked out on the basis of the prevailing wages rate for own labour. The labour cost is estimated on the basis of the number of days devoted to cane and bamboo works. The man day is defined as the 8 hours work in a day. Table-1 show the district wise distribution of variable cost for cane and bamboo units covered by our survey.

It is revealed from the Table-1 that manpower cost occupied the highest (58.73%) among variable costs of the urban units. Another important item of variable cost is raw materials, which has been estimated at 21.66% percent of the total cost for out of the total variable cost 7.63 percent cost is found for other variable items cost. The average annual per unit variable cost is the highest (Rs. 35969.40) in the Nagaon district and lowest (Rs. 27862.65) is found in the Nalbari district of the urban sample units.

The fixed costs of cane and bamboo units are those costs that do not vary

with the size of its output. This includes the costs of fixed plant and equipment used in units. The furniture and instruments, rent on building and other costs are included in fixed cost for cane and bamboo works. The depreciation cost and interest on fixed capital are included in other costs of the sample units. This fixed cost has to be borne by the cane and bamboo units even when it is temporarily shut down and thus produce nothing. The finding of the fixed cost of urban sample units have been summarized in Table-2.

Table-2 reveals that total 78.86 percent cost is estimated for rent on building. The furniture and instruments have accounted for 16.91 percent of urban units. Among other fixed costs, depreciation is one of the important item in the cost of production of the commodity. There is some depreciation of fixed assets in producing items. Every year a cane and bamboo entrepreneur has to bear this loss on account of depreciation. Depreciation cost and interest on fixed capital are included in other heads of costs, because those costs are very nominal for cane and bamboo works. About 4.23 percent cost is occupied in other fixed cost heads in urban units. The average annual per unit fixed cost of the urban units is between Rs. 15767.42 to Rs. 18905.87 for the districts covered by our study.

The total annual production cost of the sample cane and bamboo units is estimated by adding the total annual variable production cost and total annual fixed production cost for cane and bamboo works. The data regarding total cost of production of the sample urban units are presented in Table-3. Table-4 shows percentage distribution of aggregate of different items of cane and bamboo production of the sample units.

The Table-3 reveals that out of average annual production cost about 64.44 percent is found as variable cost and the remaining 35.56 percent is fixed cost for urban sample units. The variable cost is found to be the highest in urban units. It is found to be the highest (66.24%) in the Nagaon district. The variable cost is lowest is 60.61 percent in Nalbari district in urban units. The fixed cost is estimated to be the highest (39.39%) in Nalbari district and Nagaon district is found to be the lowest (33.76%) in the urban units. The average annual per unit cost of production is estimated to be the highest (Rs. 54297.87) in Nagaon district in urban areas. It is lowest (Rs.45971.83) in the Nalbari district for cane and

bamboo works. The percentage distribution of the different items of cost as shown in Table-4 revealed that manpower is found highest among other cost. The rent (house rent) was found second highest.

#### ❖ **Production Analysis:**

The supply of goods and services come out of production. The value of production refers to the value of the total items produced in a given time period. It is to be noted that the estimation of the income of the sample cane and bamboo units is subject to various conceptual and practical difficulties. The most of the sample entrepreneurs are still carrying on production at a family level or are running household enterprise on a small scale. Some of the sample entrepreneurs have no idea of maintaining accounts and do not feel it necessary to maintain regular accounts as well. They also do not disclose their income easily and correctly. Under such a situation it is really a difficult task to collect the adequate data in this respect, the National Income Committee of India mentioned that an element of guess-work, therefore, invariably enters into the assessment of output, especially in the large sector of the economy which are dominated by the small producer or the household enterprise. However, effort are being made in the field survey to solve these difficulties so as to find out correct estimates of production, sale and income of the sample entrepreneurs. In this analysis, the total production and sale, total income, net income, income per unit urban cane and bamboo units are included.

The production of cane and bamboo items were influenced by its selling pattern. On the other hand, selling pattern of cane and bamboo items is determined by the entrepreneurs' financial strength. The information of production and sale of the rural and urban sample units are shown in Table-5.

It is seen from the Table-5 that as high as 96.75 percent products is sold and rest 3.25 percent is kept as inventory in urban areas. Kamrup district was found the highest for the per unit production in urban (Rs. 59169.00) units. The average annual per unit production reveals lowest in Goalpara district for urban (Rs. 51029.10) units. It is observed that less inventory is left in urban units. It is because of that low capacity to holding the products for future favorable price.

❖ **Income Analysis:**

In our analysis income was taken as the value of production of the units. The gross income represents the value of total sale of production and the inventories of the units. The net income per unit is found out by deducting total production cost of cane and bamboo works from gross annual income of the sample units. The average total annual income per unit is found out by adding net income and average family labour cost per unit plus rental value of the own establishment. It is to be noted that for calculation of total income of an unit the rental value of the owned building is also included, because while calculating the cost of production this amount is added.

Tables-6 represent the district wise gross income, net income, annual average income per unit and income per family workers separately for urban areas. It is seen that from cane and bamboo the average annual net income as well as average total income per unit (including family income and rental value of building) urban areas are found the highest in Kamrup district. So, far as average family workers engaged in cane and bamboo units is concerned, less number is found in urban areas. It is because of the fact that urban units are more organized and operated under commercial line. The average annual income to family workers working in the craft units for urban areas is Rs. 6439.94 for all the districts taken together. Thus, we observe that inter-district inequalities are there in respect of average annual income per unit from cane and bamboo works of the sample districts. A summary finding of the urban income from cane and bamboo works is shown in Table-7.

We have estimated asset turnover ratio to know the efficiency of the cane and bamboo works of the survey units in sample districts. In the estimation of asset turnover ratio we have included fixed cost (Furniture, instrument, rent etc) as a value of total assets and the revenue is included the income from cane and bamboo works of the survey units. It is seen (Table-8) that the asset turnover ratio is highest (1.95) in Goalpara district and the lowest (1.77) in Sivasagar district. The Sivasagar and Nalbari district asset turnover ratio is lower in compared to average asset turnover ratio (1.84) of the surveyed districts. From the analysis we observed that all surveyed cane and bamboo units in the urban

areas of Assam are found remunerative as the asset turnover ratios have been found greater than one.

**Conclusion:**

It is quite clear from the above analysis that the future development of cane and bamboo works will be governed by the extent of basic infrastructural facilities, appropriate government policy and entrepreneurial motivation of the young generation Assam has a rich diversity in cane and bamboo resources to develop the cane and bamboo enterprises. The local youth must come forward with their active initiative for the establishment of cane and bamboo units. It is hope that positive steps will be taken by governments and handicraft organizations to introduce better processing techniques to artisans and entrepreneurs for all round economic development in Assam.

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**Table -1**  
**Distribution of Variable Cost Per Unit of Cane and Bamboo Units**  
**in Different Districts, 2002-03 (In Rs.)**

Sl. No.	Districts	Number of Total Urban Units	Variable Cost of Various Heads				Total
			Manpower	Raw Materials	Marketing	Others	
			Urban Units	Urban Units	Urban Units	Urban Units	Urban Units
1	Sivasagar	9	17622.11 (58.11)	6092.67 (20.09)	3809.56 (12.56)	2800.42 (9.24)	30324.76
2	Tinsukia	4	19824.75 (58.85)	8480.00 (25.17)	3540.00 (10.51)	1845.23 (5.47)	33689.98
3	Nagaon	7	22657.00 (62.99)	6485.86 (18.03)	4261.57 (11.85)	2564.97 (7.13)	35969.40
4	Nalbari	4	13216.50 (47.43)	8670.00 (31.12)	3646.00 (13.09)	2330.15 (8.36)	27862.65
5	Sonitpur	5	18503.20 (58.05)	7578.00 (23.77)	3664.00 (11.50)	2130.11 (6.68)	31875.31
6	Kamrup	6	19824.83 (58.67)	7530.00 (22.29)	4133.33 (12.23)	2302.14 (6.81)	33790.31
7	Goalpara	10	18503.30 (60.23)	6003.00 (19.54)	3656.00 (11.90)	2558.01 (8.33)	30720.31
Total	-	45	18796.91 (58.73)	6931.89 (21.66)	3834.24 (11.98)	2442.30 (7.63)	32005.34

(Figures within parenthesis indicate percentage of row total)

**Table-2**  
**Distribution of Fixed Cost Per Unit of Cane and Bamboo Units**  
**in Different Districts, 2002-03 (In Rs.)**

Sl. No.	Districts	Number of Total Urban Units	Fixed Cost of Various Heads			Total
			Furniture and Instruments	Rent on Building (Rental + Own)	Others	
			Urban Units	Urban Units	Urban Units	Urban Units
1	Sivasagar	9	3357.89 (18.80)	13667.92 (76.50)	839.48 (4.70)	17865.29
2	Tinsukia	4	3161.25 (17.58)	14034.63 (78.03)	790.31 (4.39)	17986.19
3	Nagaon	7	3099.14 (16.91)	14454.54 (78.86)	774.79 (4.23)	18328.47
4	Nalbari	4	3085.00 (17.04)	14252.93 (78.71)	771.25 (4.25)	18109.18
5	Sonitpur	5	3212.40 (17.84)	13993.00 (77.70)	803.10 (4.46)	18008.50
6	Kamrup	6	3469.17 (18.35)	14569.46 (77.06)	867.29 (4.59)	18905.87
7	Goalpara	10	2060.00 (13.06)	13192.42 (83.67)	515.00 (3.27)	15767.42
Total	-	45	2986.16 (16.91)	13925.54 (78.86)	746.54 (4.23)	17658.23

(Figures within parenthesis indicate percentage of row total)

**Table - 3**  
**Distribution of Total Cost Per Unit of Cane and Bamboo Units**  
**in Different Districts, 2002-03 (In Rs.)**

Sl. No.	Districts	Number of Total Urban Units	Variable Cost	Fixed Cost	Total Cost
			Urban Units	Urban Units	Urban Units
1	Sivasagar	9	303224.76 (62.93)	17865.29 (37.07)	48190.05
2	Tinsukia	4	33689.98 (65.19)	17986.19 (34.81)	51676.17
3	Nagaon	7	35969.40 (66.24)	18328.47 (33.76)	54297.87
4	Nalbari	4	27862.65 (60.61)	18109.18 (39.39)	45971.83
5	Sonitpur	5	31875.31 (63.90)	18008.50 (36.10)	49883.81)
6	Kamrup	6	33790.31 (64.12)	18905.87 (35.88)	52696.18
7	Goalpara	10	30720.31 (66.08)	15767.42 (33.92)	46487.73
<b>Total</b>	<b>-</b>	<b>45</b>	<b>32005.34</b> <b>(64.44)</b>	<b>17658.24</b> <b>(35.56)</b>	<b>49663.58</b>

(Figures within parenthesis indicate percentage of row total)

**Table - 4**  
**Distribution of Share of the Different Cost of Production of Per Unit in**  
**Different Districts, 2002-03 (In Percentage)**

Item of variable cost	Sivasagar	Tinsukia	Nagaon	Nalbari	Sonitpur	Kamrup	Goalpara
	Urban Units	Urban Units	Urban Units	Urban Units	Urban Units	Urban Units	Urban Units
Manpower	36.57	38.36	41.73	28.75	37.09	37.62	39.80
Raw materials	12.64	16.41	11.94	18.86	15.19	14.29	12.91
Marketing	7.91	6.85	7.85	7.93	7.35	7.84	7.87
Others	5.81	3.57	4.72	5.07	4.27	4.37	5.50
Sub Total	62.93	65.19	66.24	60.61	63.90	64.12	66.08
Item of fixed cost	-	-	-	-	-	-	-
Furnisher and instruments	6.97	6.12	5.71	6.71	6.44	6.58	4.43
Rent on building	28.36	27.16	26.61	31.00	28.06	27.65	28.38
Others	1.74	1.53	1.43	1.68	1.61	1.65	1.11
Sub Total	37.07	34.81	33.76	39.39	36.10	35.88	33.92
<b>Total Production cost</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

**Table - 5**  
**Per Unit Total Production and Sale of the Cane and Bamboo**  
**Units in Different Districts, 2002-03 (In Rs.)**

Sl. No.	Districts	Number of Total Urban Units	Sale		Inventory		Production	
			Total Sale	Sale	Total Inventory	Inventory	Total Production	Per Unit Production
1	Sivasagar	9	466922.00 (97.04)	51880.22	14250.00 (2.96)	1583.33	481172.00	53436.55
2	Tinsukia	4	220659.00 (97.28)	55164.75	6164.00 (2.72)	1541.00	226823.00	56705.75
3	Nagaon	7	407225.00 (97.16)	58175.00	11885.00 (2.84)	1697.86	419110.00	59872.86
4	Nalbari	4	197999.00 (95.61)	49499.75	9095.00 (4.39)	2273.75	207094.00	51773.50
5	Sonitpur	5	267010.00 (96.76)	53402.00	8930.00 (3.24)	1786.00	275940.00	55188.00
6	Kamrup	6	341386.00 (96.16)	56897.67	13628.00 (3.84)	2271.33	355014.00	59169.00
7	Goalpara	10	493768.00 (96.76)	49376.80	16523.00 (3.24)	1652.30	510291.00	51029.10
<b>Total</b>	-	<b>45</b>	<b>2394969.00</b> <b>(96.75)</b>	<b>53221.53</b>	<b>80475.00</b> <b>(3.25)</b>	<b>1788.33</b>	<b>2475444.00</b>	<b>55009.87</b>

(Figures within parenthesis indicate percentage of row total)

Table - 6

Per Unit Gross Income, Net Income and Income of the Cane and Bamboo  
Units in Different Districts, 2002-03 (In Rs.)

Sl. No.	Districts	Number of Total Urban Units	Gross Income	Production Cost	Family Labour Cost	Rental Value (Own Building)	Net Income	Total Income Per Unit	Average Number of Family Workers	Average Income to Family Workers Per Unit
1	Sivasagar	9	53463.55	48190.05	13760.11	12676.90	5273.50	31710.51	1.56	8820.58
2	Tinsukia	4	56705.75	51676.17	13846.25	15025.65	5029.58	33901.48	2.25	6153.89
3	Nagaon	7	59872.86	54297.87	12900.14	15354.51	5574.99	33829.64	2.00	6450.07
4	Nalbari	4	51773.50	45971.83	12685.00	14352.96	5801.67	32839.63	3.25	3903.08
5	Sonitpur	5	55188.00	49883.81	13330.40	14514.22	5304.19	33148.81	2.20	6059.27
6	Kamrup	6	59169.00	52696.18	13545.00	15090.63	6472.82	35108.45	1.67	8110.78
7	Goalpara	10	51029.10	46487.73	12900.30	13290.24	4541.37	30731.31	2.80	4607.25
<b>Total</b>	<b>-</b>	<b>45</b>	<b>55009.87</b>	<b>49663.58</b>	<b>13270.93</b>	<b>13941.87</b>	<b>5346.29</b>	<b>32559.09</b>	<b>2.20</b>	<b>6439.94</b>

Table - 7

**Per Unit Income of the Urban Cane and Bamboo Units from Cane and Bamboo Works in Different Districts, 2002-03 (In Rs.)**

Sl. No.	Districts	Number Urban Units	Income from Cane and Bamboo Works
1	Sivasagar	9	31710.51
2	Tinsukia	4	33901.48
3	Nagaon	7	33829.64
4	Nalbari	4	32839.63
5	Sonitpur	5	33148.81
6	Kamrup	6	35108.45
7	Goalpara	10	30731.91
<b>Total</b>	<b>-</b>	<b>45</b>	<b>32559.09</b>

Table- 8

**Asset Turnover Ratio in the Cane and Bamboo Units in Different Districts, 2002-03**

Sl. No.	Districts	Number of Total Urban Units	Asset Turnover Ratio
1	Sivasagar	9	1.77
2	Tinsukia	4	1.88
3	Nagaon	7	1.84
4	Nalbari	4	1.81
5	Sonitpur	5	1.84
6	Kamrup	6	1.85
7	Goalpara	10	1.95
<b>Total</b>	<b>-</b>	<b>45</b>	<b>1.84</b>

