

# Jute Stick Management in Assam: Unveiling Traditional Knowledge Systems for Sustainable Development

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## ABSTRACT

Self-dependent India or Atmanivar Bharat is one the most upcoming policies to sketch India's future. Most of the traditional knowledge followed by the rural people are becoming very relevant nowadays. Such ITK (Indigenous Traditional Knowledge) can shape a new nation from different angles like economic, environmental, social and cultural. The Assam by its favourable climatic conditions with abundant annual rainfall and a good amount of alluvial soil in the riverine tracts offers excellent scope for cultivation of jute. The area under jute during 1951-52 was 1.23 lakh has which was only 4 per cent of the gross sown area of Assam. After extraction of fibre, the left over is called jute stick which have multipurpose use. The main objectives of this paper are to examine the traditional use of jute stick) in their day-to-day life. The information regarding jute stick management was collected from different jute growing zones of Assam through personnel interview etc. jute crop is mostly grown in Brahmaputra valley of Assam. Farmers use the sticks as staking material in vegetable field, as fencing, as a wall in houses, as ceiling material and most importantly as fuel wood. It is estimated that about 4 to 5 tons of jute sticks per hectare is produced from jute cultivation. There is also a scope of innovative use of jute sticks such as bricks, crockery, cutlery and dinnerware. In addition, jute sticks are potential raw materials for production of particle board, and paper boards. However, in Assam this process is not adopted commercially. There is a scope for commercial use of jute sticks with innovative ideas. This will create diversified demand for raw jute and enable farmers to earn extra income.

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**KEYWORDS:** Ceiling, Diversified, Eco-friendly, ITK, Livelihood, Self-reliance

In India, cotton, jute and mesta are the major fibre crops grown extensively traditionally as well as commercially. Jute is also an important cash crop grown extensively in various parts of the country. India is the largest producer of jute in the world, followed by Bangladesh. However, Bangladesh produces better quality raw jute and is a bigger player than India in the export market of jute and jute products. According to Ministry of Agriculture and Farmers Welfare, principal species of jute cultivated in India are tossa (*Corchorus olitorius*) around 94 per cent, white jute (*Corchorus capsularis*) only 3 per cent and mesta accounts for around 3-4 per cent of production. Jute is a crop of hot and humid climate. It requires high temperature varying from 24°C to 35°C and heavy rainfall of 120 to 150 cm for proper growth of the plant till the arrival of the proper monsoon. The

jute industry occupies an important place in India's national economy. It is one of the major industries in the eastern region, particularly in West Bengal. Jute, the golden fibre, meets all the standards for 'safe' packaging given being a natural, renewable, bio-degradable and eco-friendly product. In recent days, due to bio-degradable and eco-friendly nature of jute fibre products, people have shifted their alertness from plastic products to jute fibre products. Now a day's plastic products are becoming a great threat to the environment. In the context of global awareness for environmental concerns, as an eco-friendly packaging materials jute and allied fibres, are in the centre stage as against synthetic fibres, which are pollutant by nature. Although, the topography of Assam and its climate is favourable mostly for paddy cultivation, the farmers also give emphasis in cultivating other food

crops like pulses, oilseed, horticultural crops and non-food crops like jute in different parts of the state in a scattered manner. Although, the topography of Assam and its climate is favourable mostly for paddy cultivation, the farmers also give emphasis in cultivating other food crops like pulses, oilseed, horticultural crops and non-food crops like jute in different parts of the state in a scattered manner. Jute stands on a unique position as an important commercial crop of Assam. In Assam, the main concentration of cultivation of jute is confined to Brahmaputra valleys covering the districts of Dhubri, Goalpara, Kamrup, Barpeta, Udalguri, Nagaon, Morigaon, Darrang, Bongaigaon, Sonitpur and some parts of Jorhat district. The area under jute during 1951-52 was 1.23 lakh has which was only 4 per cent of the gross sown area of Assam. This area was gradually increasing to 1.30 lakh has during 1964-65. In 1951-52 the total jute production was 0.74 million bales with an average yield of 1084 kg per ha. From 1951-52 to 1961-62 the area under jute increased by 9.03 per cent with production increased by 41.21 per cent. After that the area decreased by 0.47 per cent in 1971-72 from 1961-62. As a result, a very minimal increase in production was observed in 1971-72 to that of 1961-62 *i.e.* 1.35 per cent. From 1971-72 the area under jute cultivation showed a negative growth with gradual decrease in production till 2012-13. Due to this negative growth, the production of jute had also shown negative growth till 2012-13. In 2013-14 the area under jute had increased to 69822 has (6.50 %) from 65560 has in 2011-12. During that time the production increased by three times of the area increase *i.e.* 17.97 per cent. In 2015-16, Assam occupied the third position in Jute production with an area of 0.08 million has following West Bengal and Bihar. Assam had shared 9.74 per cent of total jute area in India after West Bengal (71.03 %) and Bihar (14.62%). During (2017-18), jute production in Assam has reached 0.84 million bales (8.26 per cent to total) following West Bengal with 7.64 million bales (75.35 per cent to total) and Bihar with 1.45 million bales (14.32 per cent to total) to contribute to 10.14 million bales of total jute production in India. However, in 2019-20, Assam became the second largest cultivator and producer of jute in the country after West Bengal with 64.25 thousand hectares area and 791.67 thousand bales of production of jute in the country. Based on the raw material, it is estimated that Assam can alone run about 10-15 jute mills in the state.

The main objectives of this paper are to examine the traditional use of jute stick (the leftover stick after extraction of jute fibre) in their day-to-day life.

## Methodology

The state of Assam has a total cropped area of around 4.08 million hectares and total population around 31 million (as per 2011 census). The state is situated in the high rainfall zone with average rainfall of 2297.4 mm. The climate is humid with a sub-tropical nature having warm humid summers and cool dry winters. Agriculture is mainly confined to Brahmaputra valley of Assam. More than 85 per cent of total cropped area of Assam is contributed by Brahmaputra valley of Assam.

The information regarding jute stick management was collected from different jute growing zones of Assam through personnel interview etc. jute crop is mostly grown in Brahmaputra valley of Assam. For collecting information regarding the jute stick management, three agro climatic zones from Brahmaputra Valley namely Lower Brahmaputra Valley Zone, Central Brahmaputra Valley Zone and North Bank Plain Zone were purposively selected. From each zone two major jute growing districts were selected for the study. Likewise, Dhubri and Barpeta districts from Lower Brahmaputra Valley Zone, Nagaon and Morigaon Districts from Central Brahmaputra Valley Zone and Darrang and Udalguri from North Bank Plain Zone were selected for the purpose. From each district fifty jute growing farmers were selected for the study. A total of 300 sample farmers were selected for collecting information from the study area. The information received from the farmers were categorised in different sub headings and reported in this article. The collection of information was mainly focussed on the traditional knowledge of jute stick management so that researchers can find the scientific exploration for further application of jute stick in commercial use.

## Results and Discussion

The information collected from farmers as well as from various literatures on Traditional methods of management of jute stick in Assam is presented in different headings.

After extraction of fibre, the left over is called jute stick which have multipurpose use. Farmers use these sticks as staking material in vegetable field, as fencing, as a wall in houses, as ceiling material and most importantly as fuel wood. It is estimated that about 4 to 5 tons of jute sticks per hectare is produced from jute cultivation.

## As fuel wood

The most common and popular use of jute stick is as fuel wood material. Dried jute sticks catch fire very easily, because of which jute sticks are widely used in households as fuel wood for cooking food. It is also used as supporting material with other fuel wood

because of its high fire catching capacity. The jute sticks are used as fuel wood in two ways. It is used either in raw form or is covered with a layer of cow dung and sundried. The earlier one is mostly used as supporting material with other fuel wood and the later one is used as fuel wood alone. The layer of cow dung helps the jute sticks to burn for longer time (Fig. 1). But the process generates lots of smoke while burning not only creating environment pollution but also health hazards.



**Fig.1 A farmer storing jute sticks for fuel purpose**

#### Wall construction material

Two types of wall are made using jute stick. First one is made of jute sticks, mud, cow- dung and bamboo splits. The first layer is made with jute stick tied with cane or jute threads and is supported with bamboo splits. The wall is plastered with mud and cow dung mix from the outside. After drying the first layer, the second layer is applied. The process is repeated 2 to 3 times until a smooth wall is made. The wall stands with the support of bamboo post. (Fig 3b). The second type of wall is made only with jute stick and bamboo sticks. Traditional cane rope or jute threads are used as tying material. Jute sticks are tied in such a manner that they make a thick wall supported with bamboo sticks from both the side and tied tightly. The wall stands with the support of bamboo post. (Fig. 3a) This type of wall provides low cost structure to the rural houses, however there is a chance of infestation by rodents and mites.



**Fig.2 Jute sticks used as stacking material in vegetables**

#### As fencing material

Jute sticks are commonly used as fencing material to protect their houses and animal sheds. The sticks are tied with the support of bamboo splits and bamboo or wooden posts are used to support the wall (Fig. 4). But this kind of fencing is not much protective and long lasting as the jute sticks are easily broken in nature.



**Fig.3a. Jute sticks used as wall**

#### As stacking material in vegetables

One of the most interesting and common use of jute sticks is as stacking material in vegetables. The technique was found mostly in BARPETA and DHUBRI district. Farmers use the jute sticks as stacking material in vegetables like cucumber, ridge gourd, beans etc. this technique reduces the cost of stacking material in vegetable cultivation. After using as stacking material, farmers reuse the jute sticks as fuel wood for cooking and other purposes. (Fig. 2)





**Fig.3b. Jute sticks used as wall with mud and cow dung**

#### As thatching material

Farmers of the study area use jute sticks as thatching material too. The economically weak farmers from the study area were found to use the jute sticks as thatching material for their houses as well as for animal shelter along with paddy straw. Jute sticks are thickly layered approx. 4 to 5 cm covering from both the side (inner and outer) with bamboo splits and fastened with jute cane or steel strips to make a thick wall. This wall is then fixed with the support of bamboo splits from below on top of the huts to make a roof. Below the jute sticks plastic sheet is spread to make a layer of roof. This thatched roof is replaced once in 5 to 6 years depending upon the nature and thickness of the thatch (Fig.6).



**Fig.4 Jute sticks used as fencing material**



**Fig.6 Jute sticks used as thatching material**

#### As ceiling material

Jute sticks are commonly used as ceiling material in many parts of the study area. It is believed that this kind of ceiling provides a warm environment in winter and a cooling environment in hot summer due to low thermal conductivity of the ceiling material. It is a common ceiling material in tin shed houses of the study area. This type of ceiling material provides low cost structure to the rural houses, however there is a chance of infestation by rodents and mites. (Fig.5)



**Fig.5 Jute sticks used as ceiling material**

The advantages and disadvantages of traditional use of jute stick are presented in Table 1. It is observed from the table that although jute sticks are utilized by farmers using their ITK, but there involved lots of disadvantages. Jute sticks burnt with cow dung generate lots of smoke and carbon di oxide that not only pollute environment but also increases health hazards. Moreover, jute sticks catch fire easily which a great threat of using this as construction material. Moreover, there is a problem of pest infestation too. As fencing material, jute sticks are not much protective as it breaks easily.

#### Conclusion

After extraction of fiber, the left over is called jute stick which have multipurpose use. Jute farmers manages the jute straw in a traditional manner. It is obvious from the fact that the farmers are rich in traditional knowledge in utilizing the jute sticks which in turn reduces the cost in many ways. It is estimated that about 4 to 5 tons of jute sticks per hectare is produced from jute cultivation every year. There is a scope for innovative use of jute sticks such as bricks, crockery, cutlery and dinnerware. In addition, jute sticks are potential raw materials for production of particle board, and paper boards. However, in study area as well as in Assam this process is not adopted commercially. There is a good opportunity for commercial use of jute sticks with innovative ideas. This will create diversified demand for eco-friendly jute stick product whilst enabling farmers to earn extra income. Moreover, jute diversified product has a

greater demand now a day. Thus, a further in-depth study based on scientific knowledge and innovation is required which may able to prove the actual potentialities of use of jute stick. A big-push is necessary in terms of investment, research and extension so that the constraints could be removed.

### Conflict of Interest

The authors have no conflict of interest.

### Author's contribution

The authors have contributed equally in every aspect of manuscript.

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**Table1. Advantages and disadvantages of traditional use of jute sticks\**

	Application	Advantages	Disadvantages
1.	Fuel wood	Alternate source of fuelwood in rural areas	Generates lots smoke and Carbon di oxide. environment pollution and health hazards
2.	Wall construction material	Low cost. Easy to made by local artisans, balanced temperature	Can be easily damaged by rain due to higher water absorption capacity. Threat of fire due to high fire catching capacity. Can be easily infested by rodents and mites
3.	As fencing material	Low cost	Not much protective and long lasting as the jute sticks are easily broken in nature.
4.	As stacking material in vegetables	Low cost and easy to use	Cannot be used for heavy vegetables such as pumpkin, bottle gourds, ash gourds etc.
5.	As thatching material	Low cost structure and can be made easily by local artisans, temperature stability	Not long lasting and need frequent replacement
6.	As ceiling material	Low cost and balance temperature both in summer and winter	Can be easily infested by rodents and mites