

A study on the status of incense stick making in Tripura, Northeast India

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Abstract: Incense stick is a globally traded product and it is mainly used for worship, meditation, and various ceremonies. Bamboo stick making for incense sticks has been an age-old tradition for the rural people in Tripura, largely women are involved in this practice. Tripura used to supply 90 percent of bamboo sticks utilized by the Indian incense stick industry till the situation changed drastically following gregarious flowering (2003-2009) and death of old stock of *Melocanna baccifera* which accounted for 80 per cent of its bamboo resource in the state. This article deals with the present status of incense stick making, its utilization pattern and role in livelihood generation in the state. Harvesting of bark of the small tree such as *Litsea glutinosa* used for making the adhesive for rolling incense sticks is also discussed in detail as it is becoming scarce due to irresponsible harvest. The study also highlighted the problems facing by artisans in incense stick making and its sustainable production.

Key words: Incense stick, Tripura, bamboo, NTFP, rolled sticks, *Litsea glutinosa*

INTRODUCTION

Incense stick, a globally traded product, is burned for fragrance. It is known as *Agarbatti* in India and *Dhup-kathi* locally in Tripura. Incense stick making developed as a cottage industry in Thanjavur district of Tamil Nadu and spread over thereafter to the neighbouring state of Karnataka, which emerged eventually as the largest production centre of incense sticks in the country. Incense sticks are traditionally used for worship, meditation, prayer, ceremonies and ritual purification. These are also used as air fresheners, mosquito repellent and for creation of ambience and aromatherapy. Bamboo is the base material for incense sticks accounting for one-third of its weight (Dutta, 2006). Forests of Tripura were always rich in bamboo resource. Apart from that, a large majority of rural households have at least one or two bamboo clumps in their backyards. Many individual households amongst tribal communities have a tradition of conserving tracts of uplands with naturally growing bamboo either in their own land or in forestland to meet their domestic needs and also for sale for livelihoods. Tripura is thus known as the 'Home of bamboo'; and bamboo stick making is an age-old tradition for rural artisans, mostly women. There was no comprehensive study till then in Tripura on the status of raw materials for incense stick making,

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packaging, marketing as well as livelihood of artisans involved in the process; and hence was this study.

MATERIALS AND METHODS

Study area

Tripura with its geographical area of 10,491 km² is the second smallest amongst the eight northeastern states of India. It lies between 22° 56' to 24° 32' North latitude and 90° 09' to 92° 20' East longitude. It is bounded on the north, west, south and south-east by Bangladesh.

Methodology

The work was carried out during 2013-14. Relevant literature on incense stick in general and with specific to the state of Tripura was referred for an overview of the sector. Secondary information being mostly basic statistics were collected from official records, particularly from the State Forest Department, the Non-Timber Forest Products Centre of Excellence, Tripura JICA project, the Tripura Bamboo Mission, and the Tripura Bamboo and Cane Development Centre. Primary data was gathered from stakeholders through general discussion, structured questionnaire as well as through Participant Rural Appraisal with the stakeholders, *i.e.*, harvesters, processors, traders and consumers during visits to randomly selected rural areas, markets and organizations. Photographs of products and processes were taken for better appreciation of the content and for clarity.

RESULTS AND DISCUSSION

Bamboo stick production

Tripura used to supply about 90 percent of bamboo sticks utilised by the Indian incense stick industry in the recent past. The situation changed drastically as the stock of Muli bamboo (*M. baccifera*) accounting for 80 per cent of the bamboo resource of the state declined steeply due to mortality as a result of gregarious flowering (2003-2009). The Muli bamboo, abundant and cheaply available, was mainly used for incense sticks production in the state, but currently its scarcity has adversely affected the sector. The share of supply from Tripura for the Indian industry came down to 50-60 per cent in 2008, but was still very significant *i.e.*, 25,000 tonnes or 125 billion sticks (Rao *et al.*, 2009).

There was a drastic reduction in import duty on bamboo sticks from 30 to 10 percent in 2011 encouraging imports from China or Vietnam. The imported bamboo sticks on the whole are better with respect to uniformity of dimensions and quality because of large scale mechanization compared to a substantial part of the supply from India which is made manually. In case of Tripura, almost the entire production of bamboo sticks is made manually. Forest transit regulation and checking on this count at numerous Forest Check posts (fallen bamboo being a timber according to the Forest Act) is also

considered to be a major problem in terms of transporting and eventually to the processors/industries. The domestic industry is now importing nearly 70 percent of its bamboo stick needs. Production from Tripura, which caters mainly to the industries outside the state, registered a steep fall (Figure 1). The positive aspect was that the percentage of polished sticks against total production rose steadily from 0.33 in 2006-07 to stabilize at 50 per cent in 2011-12.

According to the Planning Commission of India Assessment, the size of market of the incense stick industry in 2001 was Rs.1800 crores (USD 291.17 million, 1 USD = 61.8194 INR) of which the cost of bamboo was 135 crores (Sharma, 2010). India is the largest producer of incense sticks in the world with an estimated annual production of 208 billion sticks, and its market value in 2008 was Rs.41.63 billion (USD 926 million). This amounts to more than 42,000 tonnes of sticks made from nearly 80,000 tonnes of bamboo; and the estimated growth of the sector in value was 20 per cent annually (Rao *et al.*, 2009).

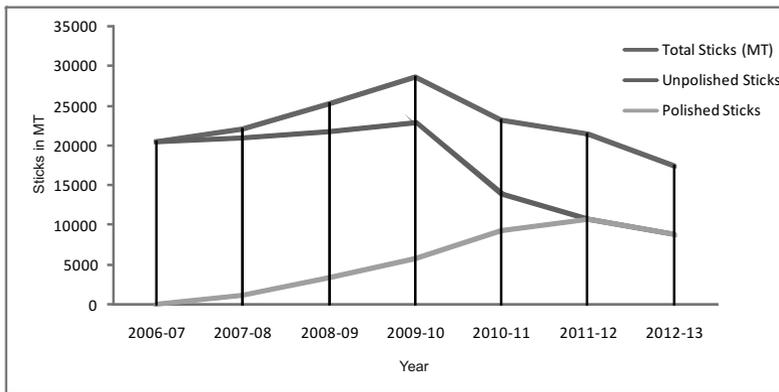


Figure 1: Bamboo Stick Production Trend in Tripura from 2006-2013

Raw Material for Incense Sticks

The key raw materials used for making incense sticks in Tripura are bamboo, *Jiggat* and charcoal. *Jiggat* is pulverized bark of some tree species like *Litsea glutinosa* (locally, Mendhi), *Microcos paniculata* (locally, Pichla) and *Holarrhena antidysenterica* (locally, Kurcha), which acts as an adhesive used to make the ignitable coat on the incense stick. Perfumes and packaging materials are also required and this stage of processing involves the highest value addition which is done usually by the large entrepreneurs in urban areas.

Despite availability of a large number of species of bamboo, the commonly used species are *M. baccifera* (Muli), *Bambusa vulgaris* (Bari), *Bambusa tulda* (Mritinga), *Bambusa balcooa* (Barak) and *Dendrocalamus longispathus* (Rupai). *Melocanna* was abundant and widespread prior to its latest gregarious flowering (2003-2008) and used to be the primary species of choice for incense sticks making on two counts. Firstly, because it could be harvested largely without payment of forest royalty (Rs.15 per

hundred) from adjoining forests; and secondly for the ease of harvesting and working. Being available in nearby forests *Melocanna* was mostly carried by shoulder loads by men folk for their women to work on. The scenario however changed drastically after gregarious flowering of *Melocanna* and there was scarcity of bamboo in the state. In most cases entrepreneurs organised harvest or procurement of bamboo in bulk for supply to women artisans at their door steps with arrangements for buy back of sticks adjusting cost of bamboo. As a result of the general scarcity, juvenile bamboo of the previous year's regeneration was also used leading to brittle sticks.

Incense stick making

Bamboo stick making is almost the exclusive preserve of the women of Bengali households in Tripura. It is a household based part time work for them. The length of majority of incense sticks (70 to 80%) is 8 inches (20.32 cm). Sticks of 9 inches (22.86 cm) length are also in the market usually for premium brands. Thickness of the sticks varies from 1.5 mm to 2.7 mm (Banik, 2006). The process of making bamboo sticks involves the following steps (Reza, 2006):

Clean the culms → Cut to length the portion between nodes according to the size → Halving → Slating → Re-slating → Slivering → Stick making → Polishing → Sun drying → Bundling

Four grades of bamboo sticks are made as per market demand based on thickness of bamboo sticks (1.55–2.7 mm). Specification wise current rates of the different grades of sticks at which the entrepreneurs or their agents finally procure bamboo sticks is shown in Table 1. There will be some difference in the number of sticks per unit of weight depending on the species of bamboo. The entire process by the home-based part time women workers is executed by the large majority manually using a sharp *dao* or billhook and a small handsaw for cross cutting. In absence of any mechanical device, this is a slow and tedious job. This often leads to low productivity and lack of uniformity in dimensions as per set norms resulting in large-scale rejection of product by the entrepreneurs.

Table 1: Different grades of incense sticks available in Tripura

Grade	Specification	Number per kg	Cost per kg/ Rs.
Special (SP)	Thin, clean and light	8000 and above	24.00
Super Medium (SM)	Slightly thicker than SP	6500-7000	18.00
Fine Medium (FM)	Slightly thicker than SM	5000-6000	15.00
Medium (MD)	Slightly thicker than FM	4000-4500	12.00

Coating of Incense sticks

The bark of *L. glutinosa* is the major source of adhesive material in Tripura. This is a small evergreen tree found in mixed forests. The bark was mostly transported outside the state and even smuggled to Bangladesh both for incense stick making and also for medicinal use. The bark is dried thoroughly in the sun, pulverized in a grinder to obtain adhesive powder and sieved. Remnants of the bark on the sieve are added to the next consignment of bark for pulverization. Similarly, charcoal is also dried in the sun and pulverized in a grinder. Equal amounts of adhesive powder and charcoal powder are then thoroughly mixed in the dry stage. The mixing proportion is not rigid; and will depend on the nature and quality of the product. Required quantity of water is added to the mixture and it is kneaded into a dough or paste; and that is known as the '*masala*' or coating material for incense sticks. The quality of coating material determines how long and how evenly the stick will burn. The quality also depends on proper pulverization, uneven coating on sticks or incomplete drying of rolled sticks before marketing or storage.

Rolling a dollop of the coating material onto a bamboo stick results in “non-scented incense sticks” or 'raw stick' which are then sun dried and dispatched to the market. An estimated 300 MT of bamboo sticks are converted into rolled sticks in the state; and thus, at the level of production of bamboo sticks in 2012-13 (17490 MT); the percentage of bamboo sticks converted into rolled sticks or *batti* with somewhat substantial value addition within the state is less than 1 and is actually 0.57 per cent.

Non-scented rolled sticks are sold in bundles of 1 kg or 1500 sticks to companies that scent the sticks by dipping in perfume to produce the final incense stick (Motukuri *et al.*, 2008). Scenting and packaging constitute the highest stages in the value chain in production of incense sticks. Scenting is a highly specialized function as the quality and class of the brand depends largely on superior fragrance experience suited to different moods and situations that varies from country to country, region to region, community to community and person to person. Non-scented incense sticks are dipped in chosen perfumes and then packed with the respective brand names for sale in the market. The quantity of scented agarbatti produced within the state is negligible.

Packaging & Marketing

Packaging is another stage of high value addition like scenting. But this is not very common practice in Tripura. Procurement of raw bamboo sticks and non-scented agarbatti sticks is organised by the entrepreneurs mostly through their agents. This would be a prospective business for the state because a large share of the bamboo sticks for the incense sticks sector in the country is provided by this state even after the recent decline. Marketing of finished incense sticks is for all purposes, the business of big entrepreneurs outside this state. The entrepreneurs at times entrust marketing responsibility to specialist agencies as per their market reach in each specific region or country. Only few non-profit making Non Governmental Organisations and companies are involved in this activity. But most of the artisans in Tripura are involved with bamboo stick making at the lowest level only. The value addition at different

stages of processing for manufacture of incense sticks is shown in Table 2. The primary stage wherein most of the rural artisans in Tripura are engaged adds only 1 per cent value and their earnings obviously are the lowest.

Table 2: Value Addition Chain in Incense Stick making

Stage	By	Value addition
1. Primary processing: Slivering (Culm to Stick)	Artisan/ Entrepreneur	1%
2. Secondary processing: Rolling (Bamboo Stick to Coated stick)	Artisan/ Entrepreneur	9%
3. Tertiary processing: Scenting (Coated stick to Scented stick)	Entrepreneur	30%
4. Tertiary processing: Packaging (with text and design)	Entrepreneur	30%
5. Marketing: Branded incense sticks (Entrepreneur to Retailer to Consumer)	Retailer	30%

Economy of incense stick making

The actual earning by the home-based rural artisan, mostly women, from raw stick making is very low. The field assessment in different blocks of Tripura showed the net earnings for a typical 4 hours part time involvement as Rs.60 as shown below:

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| 1. Bamboo sticks made out of 1 bamboo culm for agarbatti making: | 3 kg |
| 2. Sale price of bamboo sticks – 3 kg @ Rs. 26: | Rs.78 |
| 3. Less cost of 1 culm of bamboo @ Rs.40 each: | Rs.40 |
| 4. Earning for 4 hours of part-time work by an artisan: | Rs.38 |
| 5. Earning per hour of engagement: | Rs.9.50 |

The current daily wages in Tripura is Rs.135 which works out to Rs.18 per hour taking 7.5 hours of actual work hours per day. Thus, an artisan involved in bamboo stick making gets barely Rs.71.25 per day (7.5 hours of work) that is 53 per cent of normal wages. The home-based women artisans earn generally around Rs.38 for a typical 4 hours a day from bamboo stick making. Rejection of incense sticks due to non-conformity with standard specifications was also observed during field visits. The artisans, mostly rural women, continue with this job as they can do this at their home at their convenience while attending to other household chores. With limited earning options for the housewives in rural households, easy availability of bamboo in rural areas and assured earning from stick making; and the advantage of working in their home environment attracted thousands of women and even men to taking on the job of stick making during leisure hours despite a low level of earning. According to an assessment based on discussion with the stakeholders, around 40,000 women in rural households are involved in bamboo stick making as a part-time home-based activity in Tripura.

Ergonomics and Health Hazards

The production continues nevertheless as rural women can take up this activity, as already mentioned, in the convenience of their home environment between bringing up their children and attending to sundry household works. Apart from the low earning, the actual job of cutting bamboo, taking out slivers and making thin sticks manually, squatting on the ground is extremely tedious and the artisans almost always develop severe backache that ultimately makes their life miserable. Rolling coating material onto the sticks provides them an extra income but a very few artisans get this job due to scarcity of adhesive materials. Moreover rolling on a low desk squatting on the ground is also equally stressful. Apart from the problem arising from awkward postures inevitable in such manual working without the aid of machines, the inhalation of charcoal and adhesive powder used for making the coating material is a health hazard.

Sustainable harvest of bark from *L. glutinosa*

There is no standard protocol in Tripura for harvest of bark from *L. glutinosa* leading to its unsustainable harvest. Pandey and Mandal (2012) worked on sustainable harvesting of *Terminalia arjuna* (Arjuna) and *L. glutinosa* Bark in Central India and reported that regeneration of bark is faster in young trees in comparison to old trees. Bark regeneration took two years in case of Arjuna but for *Litsea* it took one year. Bark recovery varied from tree to tree, age of tree, harvesting technique, factors like temperature, relative humidity and time of stripping influenced wound healing. They recommended that for sustainable harvest, only one-fourth or one-third of the mature bark of total girth of the tree should be stripped by removing only outer and middle bark leaving the inner bark for regeneration from opposite quarters of the trunk. Thus, sustainable harvest can be done after one year by removing bark on the opposite quarters of the trunk of *L. glutinosa*. So, it is important to develop appropriate protocol for sustainable harvest of barks of *L. glutinosa* and to incorporate the same in the Management Plans of Forest Divisions. It is also required to develop appropriate mechanism for involving Joint Forest Management Committees in sustainable and responsible management and harvest and sale of barks of *L. glutinosa* to units involved in manufacture of rolled sticks for incense sticks.

Policy Initiative

Government intervention in the form of policy and other supports is essential to ensure enhanced production and improved quality finished products. This will include promotion of bamboo plantation in a large scale in forest land as well as in private lands with provision of subsidy against cost of raising such plantations. The requirements of transit pass for transport and movement of bamboo and incense sticks under the Indian Forest Act, 1972 may be withdrawn to facilitate free movement. Large-scale planting of *L. glutinosa*, the source of essential adhesive for making of finished incense sticks, should be encouraged with primary focus on private lands; and the owners should be supported and trained by the state forest department by providing saplings as well as about sustainable harvest of *Litsea* bark. Finally, the government may promote Cluster-based Semi-Mechanisation in stick making already

demonstrated by the Tripura Bamboo Mission; and such clusters may be multiplied. Further leading industries may be invited to determine how they could participate in the process for mutual benefit.

CONCLUSION

The study concludes that the incense stick making is one of the most important sources of livelihood for the rural people of Tripura and different non timber forest products are used during this production. Though the artisans are not getting enough income but it is a part and parcel of their life and most of the female members are involved in this activity. However, the production of incense stick till date is marginal despite apparently high prospects. Production of finished scented sticks is also negligible due to poor infrastructure and communication facilities. It is also observed that the production of adhesive material is minimal and utilization pattern is not sustainable. Thus, the government should take proper initiatives for raw material production and technology development for sustainable livelihood generation through this activity in the state.

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