



Utilisation of bio-diversity product (*Areca leaves*) for preparation of utensils.

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Abstract

With the ever-expanding awareness of biodegradable tableware, exporting Areca leaf plates to build an eco-friendly environment is our primary initiative. These plates are excellent substitutes for glassware or plastic ware. The present study makes an effort to understand and know the process of preparation of utensils from the sheath of areca nut tree and to identify the advantages of areca leaf made utensils compared to plastic made plates. Further, an assessment of the recent trend of export of areca leaf-made utensils along with related aspects and benefits associated with encouragement of areca industry has been done as part of the study. Findings indicate that Areca leaf made utensils have very high environmental and aesthetic value. However, in spite of having multiple benefits of areca leaf made utensils it does not occupy a satisfying market position. Promotion of areca industry can help to create employment opportunities for the local people and it indirectly helps to develop craft skills of the local people. Therefore, the present study will help support further research studies and policymaking in this sector that combines both environmental sustainability and rural economy.

Keywords: Areca leaf; Environmental sustainability; Areca industry; Green Utensils

1. Introduction

Sometimes, some works give us a lasting impact. This impact does not fade away with the time. Probably the rock garden in Chandigarh created by Nek Chand was among that genre. The way Nek Chand used the waste materials influenced many of us.

Apart from polluting, plastic waste is dangerous to the environment and can cause adverse health issues. It is also clear that the plastic waste patch in the middle of the ocean is posing a big threat to us in terms of ecosystem and micro plastics accumulation (Fowler and Marsden, 1924). It is estimated that billions of Styrofoam coffee cups are thrown away every year (Marsden, 1987). The huge issue facing us is recyclability. It is estimated that close to 40 billion individual plastic utensils are produced every year. About 64 billion paper and 73 billion Styrofoam & plastic cups and plates were thrown away in 2003 in the USA, single-use food/drink containers disposal is at about 140,000 each second (Heuer, et. al., 2015). These end up in the oceans and landfills/dumping sites.

Per a 2009 survey conducted by IPSOS (Gourvill, 2006), 79% of consumers would rather buy from companies doing their best to reduce their impact on the environment with a competitive price (Moore, 1999). It is evident that a rising number of consumers judge a business based on how green they feel it is. This presents a huge opportunity for establishing a sustainable solution (Hart and Christensen, 2002). This work will focus on using the knowledge of sustainable product design and raw material usage from the Indian subcontinent and other Asian countries (Andrew and Serkin, 2003).

Moving on the track of utilizing waste materials an NGO named *Dhriti* in the North east India inspired the rural mass to utilize the sheath of the areca nut tree to make utensils of various kinds under the company named Tamul Plates Marketing private limited based in Barpeta district of Assam. However, the present study has been made by mainly focusing on the areca leaf industry located in Baradi in the Barpeta District.

Baradi based industry in the Barpeta district is a micro-based enterprise which is just about 20 steps from the national highway. It mainly uses the sheath of the areca tree to produce utensils of various kinds and forms. The industry employees only 30 to 40 employees to run the industry. This unit uses small machines to perform various functions.

The present study makes an effort to understand and know the process of preparation of utensils from the sheath of areca nut tree and to identify the advantages of areca leaf made utensils compared to plastic made plates. Further, an assessment of the recent trend of export of areca leaf-made utensils along with related aspects and benefits associated with encouragement of areca industry has been done as part of the study.

2. Materials and method

2.1 Study area

For the present study, a field visit was made to the Baradi factory site, located in Barpeta district, Assam. Information pertaining to various aspects like process of manufacturing plates, acquisition of raw materials, production cost, packaging, financing, marketing was gathered with a suitably designed questionnaire. Besides this, various matters regarding the areca industry were discussed with the employees of the industry.

2.2 Data collection

The data is basically primary in nature as it has been collected with the help of questionnaire. Besides this the data on production trend of the areca leaf made utensils were taken from the records maintained in the factory site. Some data were also collected from the NGO named *Dhriti* and the company *Tamul Plates Marketing Private Limited*. Internet sources have also been used to furnish the latest data. Data were also being collected from the common people regarding the use of areca leaf made utensils by oral discussion.

3. Findings and discussion

3.1 Process of manufacturing utensils out of areca tree

With regard to collection of raw materials, this industry only needs the dry sheath or leaves of the areca tree for the preparation of utensils as raw material. The dry sheath is locally known as 'dhakuna'. Baradi based industry obtains the raw materials from the dense forest of the B.T.A.D area. Trucks are employed to go to the raw material site to collect the

raw material. The raw material site is within the distance of 100 to 150 km from the factory site. After collecting the raw material, the dry sheath is tied up in bundles of 10 or 15 sheath. They are piled up and kept in the store room. They are tied up so that it does not cause chaos and it does not get damaged. These raw materials are taken out from the store room as and when it is needed.



Fig. 1: Storage of areca nut sheaths or leaves

Before processing, the collected dried leaves are washed properly. About 10 to 15 women are employed in the Baradi based factory to wash the leaves. Small tanks have been installed at the factory site for washing of dry sheaths. Women stand near by tanks and they dip in the dried leaves in the water. They rub the leaves properly so that the dirt is completely removed.



Figure2: Women are washing the sheaths of areca nut tree

After washing the leaves becomes wet, hence, they are placed above fire so that it gets dried soon. Unless it has been dried completely it cannot be entered

inside the machines to operate. It is because it is not possible to give the desired shape when the sheath is not dry.



Fig (s) 3a and 3b: The leaves after dried completely

The washed areca leaves are now processed with the help of machines. In the Baradi factory site, most of the machines run by gas burners. They are not electrified. About 40 machines are employed in the Baradi factory site. About 10,000 pieces are produced every day in the Baradi based factory. The leaves are

inserted inside the machines which in turn get cut into various forms (plates, tray, etc) under pressure and heat provided by the gas burners. Sometimes, some leaves show poor finishing and they are given finishing touch by cutting down the unwanted portion of the plates.



Fig. 4: Workers are giving shape to dried sheath

This is the final stage of the manufacturing process. Plates are carefully wrapped and packed and they are dispatched as per the demand.



Fig. 5: Packed items as per order

3.2 Advantages of Areca leaf made utensils over plastic made plates

There are several advantages as such with regard to commercial and artificially made plates. Firstly, they are bio degradable in nature and are highly eco-friendly.

They have elegant natural colour which makes it unique and attractive. These plates do not contain any artificial colour. Further, they are oil resistant and can handle both hot and cold substance. They are lightweight. Finally, less capital is needed for its manufacturing.



Figure 6: Finished Areca leaf made plates

3.3 Export of areca leaf made utensils and related problems

On account of low acceptability of Areca leaf made utensils in the local market it is mostly exported

to other areas of the country like Delhi, Mumbai and even to outside world. Unlike the local market, the export market of this industry is however not discouraging.

Table 1: Export of areca leaf made utensils

Years	Export quantity (in lakhs)
2013-14	20
2014-15	35
2015-16	60
2016-17	17
2017-18	1.8

Source: Primary data

The problems faced by this industry and especially Baradi based factory are on several ends. The industry needs to procure their raw material from distant areas which increases the transportation cost very much. Moreover, the roads leading to the raw material site is in rudimentary state. As a result, transportation becomes further difficult. Further, lack of raw material is other problem- Though the areca tree is very common in the north east. But people do not grow it for commercial purpose so it creates shortage for industries. Moreover, industries need to wait till the dry leaves falls down. Storage problem- the dries sheath is stored in the store room which counts up to 20 to 40 thousand. Lack of proper storage facilities leads to damage to leaves. They are often attacked by insects and dirt which further decreases the stock of raw materials.

Further, inspite of having multiple benefits of areca leaf made utensils it does not occupy a satisfying market position. It is because the utensils made out of areca leaves are little expensive compared to the plastic made plates. It is because of the high transport cost which it has to incur for the acquisition of the material. As a result, the local people of the Barpeta district are not attracted towards it and they prefer to use plastic made disposable plates. Moreover, the industry needs financial assistance but it has not been able to get

suitable financial help. Except the NGO *Dhriti* there is no other institution which helps them out.

4. Conclusion

Areca leaf is a commonly found plant in the North east. People can plant areca plant in their backyard especially in the rural areas. Generally, in rural areas people own huge amount of land but mostly it remains as wasteland because of poor planning. if areca plant is grown in a planned way it can serve the raw materials required by industries to produce utensils. It will bring down the transportation cost as they will get it in nearby areas. Awareness should be spread among the local people about the multiple advantage of areca leaf made utensils. it will help to boost up the market of such utensils. Storage facilities of areca leaves should be improved. adequate cleaners and lockers should be provided which will help the leaves from getting damaged. Electrified machinery should be installed so that production can be faster. Promotion of areca industry can help to create employment opportunities for the local people and it indirectly helps to develop craft skills of the local people. Therefore, the present study will help support further research studies and policymaking in this sector that combines both environmental sustainability and rural economy.

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