Water Hyacinth (*Eichhornia crassipes*) : A Potential Raw Material for Developing Handicraft Sector in Assam

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Water hyacinth (*Eichhornia crassipes*) known as *Pani meteka* is a free-floating aquatic plant or hydrophyte, native to tropical and sub-tropical South America. It is native to Brazil and has been introduced in India as an ornamental plant by a British lady for beautification in West Bengal in early 20\textsuperscript{th} Century. In India water hyacinth is a very common water weed found in almost every state including Assam with vast water bodies where in it causes havoc especially in the fisheries, choke lakes and provide a breeding ground for mosquitoes. Water hyacinth reproduces primarily by way of runners or stolen, which eventually form daughter plants. Each plant can produce thousands of seeds each year, and these seeds can remain viable for more than 28 years.

Apart from various uses like compost and mulch; animal feed as hay and silage; bio- fuel etc., a number of value added decorative products can be made from water hyacinth. Decorative water hyacinth products have already gained popularity amongst people globally and have profitable market. The stem of water hyacinth is the raw material for making the most important value added products which include items like ladies hand bags, purse, mobile covers, file covers, hand fans, sofa set, pencil stand, dustbin, lamp stand, wall hanging, jewellery, show pieces like tortoise, teddy bear, Rhinoceros, model of Eiffel tower etc. It is observed that presently only a handful of artisans in Assam are practicing this art of making handicrafts with water hyacinth though the industry has immense potentiality in the region. Such ventures will not only boost up the handicraft sector and the artisans but also create employment avenues.

Making crafts from water hyacinth involves various steps which are as follows:

- Selection of a region with mature plants of about 15- 30 inches long stem with a thick diameter of 0.5- 1.2 inches.
- Collection of raw water hyacinth in bulk.
- Chopping off leaves and roots with a sharp knife.
- Sun drying of the collected raw materials (split stem) and cleaning them up.
- Collection of the sun dried materials before sunset to avoid moisture absorption.
- The dried material will turn brown and will make a cracking sound when crumpled.
- Dyeing of the stems as per choice of the product.
- Giving the stems proper shape as per the final product to make.
- Making frames and weaving as per requirement of the targeted product.
- Varnishing the product for a glossy look.

The products derived from water hyacinth plants have good market potential. They not only have domestic market in the region but also can fetch good foreign exchange. Developing and encouraging such ventures also aids in reducing unemployment. The products have good popularity in exhibition stalls. Moreover, the economics of the products can be increased as these can be produced by the unemployed women folk of the family in their leisure time. In the
present day context, when the agricultural community at large is facing the challenges of climate change and global warming, such eco-friendly and bio-degradable products can contribute to sustainable agriculture. They can also play a significant role in utilization of natural and human resources for a better and safer tomorrow.

**MATERIALS AND METHODS**

Product preparation from water hyacinth is popular only in few districts of Assam viz., Darrang, Kamrup, Nalbari and Morigaon. For sighting the potential of value addition in water hyacinth, Krishi Vigyan Kendra, Darrang in Assam started developing artisans by means of hands on training at different parts of the district which resulted in horizontal spread within a short span of time. The effort also helped in formation of several self help groups dealing with water hyacinth products.

**RESULTS AND DISCUSSION**

Maximum groups have 10 -15 members. All these groups involved in water hyacinth products making, earned an average annual income generated through the enterprise is Rs-66,000/- as net profit. Table below shows that average production, cost, price of product, income and cost, benefit ratio of per self help group/ unit. A self help group unit consisted of 10 group members.

<table>
<thead>
<tr>
<th>Average production per SHG unit</th>
<th>Average production cost/SHG unit (in Rs.)</th>
<th>Average price of the Product in the market where sold (Rs.)</th>
<th>Average income /SHG unit</th>
<th>C:B ratio</th>
<th>Average net profit generated through the enterprise (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100-130 Product / Month</td>
<td>Rs-1200/- per month</td>
<td>Rs 150/- product</td>
<td>Rs-17,500/- per month</td>
<td>1:1.46</td>
<td>Rs-66,000/-</td>
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</tbody>
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The KVK recognized the immense potential of a group led by Ms. Minuma Devi engaged in converting water hyacinth, an aquatic weed into attractive interior home decors. The KVK also identified the crucial need for imparting proper value addition skills among the group members for improving the products and fetching much more profit. Accordingly, the KVK arranged a number of hands on training courses for the group led by Ms Minuma Devi for upgrading their skills in improving the product quality. Mrs. Devi was even nominated for getting a practical exposure by participating in the exhibition organized at the Global Conference on Women held at New Delhi during 13th to 15th of March, 2012 who reportedly gained vast experience and further entrepreneurial motivation to enlarge her enterprise.

Mrs. Devi and her group could able to earn a good amount of money from their craft works. The group earned Rs. 3,000/- to 10,000/- per month as net profit. As the cost of raw material had been very meagre the percentage of return was more. The household decorative products namely tortoise, lamp stand, bag, dustbin, tub stand etc. made from water hyacinth gained popularity among the customers.

It has been noted that the water hyacinth products suffer from a major shortcoming, i.e., once it comes in contact with water for a longer period of time, the chances of fungus attack become higher for which the quality of the products get deteriorated.

Handicrafts have a deep significance in day to day life of our society. They form the base in developing entrepreneurs and setting up of small- scale cottage industries leading to boosting up the economy of a particular region. Value addition of water hyacinth products, which are bio-degradable and eco-friendly, have an immense role to play in minimizing the
environmental pollution. Planned production with good market linkage of products will decide the popularization of such commodities and will definitely help in controlling the noxious aquatic weed to a great extent. The Government organizations, reputed non-government organizations, financial institutions have a great role to play in motivating especially the rural masses and paving a better economy.

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