



Weaving Futures From Weeds: Women, Water Hyacinth, And Livelihoods On The Edge Of Laokhowa–Burhachapori

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Introduction

The Laokhowa and Burhachapori Wildlife Sanctuaries (LBWLS) are two of the most important sanctuaries in Assam, extending on the southern bank of the Brahmaputra in Nagaon district. They form part of a larger conservation complex together with the Kaziranga, Orang, Laokhowa, and Burhachapori. Laokhowa is 70.1 km² and Burhachapori is originally 44.06 km² (Ojah, 2012; Ojah, 2016), but the First Addition was made in 2019 in order to increase ecological connectivity with Kaziranga (Government of Assam, 2022). It is an ecologically rich land that is a combination of riverine grassland and settlements punctuated by bands of semi-evergreen places and large wetlands, which form this interaction of the Brahmaputra.

In the past, these reserves used to be the flourishing habitat of rhinoceroses. It is on record that, Laokhowa alone harbored at least 45 rhinos up until the early eighties of the twentieth century. But in the political turmoil of that era, poaching reduced the population to zero, and by the late 1980s, rhinos had been exterminated (Talukdar & Sharma, 2003). Overgrazing of grasslands, siltation of wetlands, proliferation of invasive exotic species (such as water hyacinth *Eichhornia crassipes*) in wetlands, locally known as *beels*, etc. However, there have been efforts to bring about the ecological stability of LBWLS through conservation efforts like Indian Rhino Vision 2020 (Ojah, 2012). Rhinos were reported again in 2023 in Laokhowa-Burhachapori, signalling cautious optimism for revival. (Bora, 2023).

The ecological significance of the sanctuaries extends beyond flagship species. Wetland areas such as Kasodhora Beel can serve as essential feeding grounds to migratory birds and fish, and tall grass-dominated *Saccharum spontaneum* could support wild herbivores like the hog deer and wild buffalo. Seasonal floods of the Brahmaputra both revitalize and endanger these landscapes, shifting channels, chars, and agricultural fields every year. To local inhabitants, this ecologically driven dynamism is embedded in the lives of people. The sanctuaries are not far from wildernesses, but lived in environments where forests, grasslands, rivers, and wetlands constantly shape the possibilities of survival.

Communities on the Edge

The sanctuaries are surrounded by over thirty revenue villages, one forest village, and Taungiya settlements. The sanctuaries and these villages, Borunguri, Pochim Salpara, Bongaon, Dhania, Sisupati, and others, share boundaries. Diverse populations include Nepali graziers whose cattle have long influenced Burhachapori's ecology, Bodo villagers with customary rights, and Bengali Muslims (Ojah, 2016).

Survival has always depended heavily on sanctuary resources. More than 43,000 cattle were found to be grazing inside Laokhowa and Burhachapori in 2008, competing with wild ungulates for food (Nagaon Wildlife Division, 2009; Ojah, 2016). Fishing in wetlands, gathering fuelwood, and harvesting fodder were routine activities, and this invisible burden fell primarily on women. They tended livestock, gleaned fish for daily meals, rose before dawn to gather firewood, and carried heavy bundles on their heads. Their work, essential to household survival, remains unrecognised in formal economic accounts.

This gendered division of labour placed women in a paradoxical position. On the one hand, their role remained indispensable for sustaining their households, and on the other hand, they were marginalized in decision-making spaces. However, their intimate interaction with wetlands and forests gave women a profound understanding of ecology. They were the first to recognise the promise of alternatives and feel the pinch of limitations because of their position at the nexus of forest dependency and household survival. Later, when women take centre stage in the water hyacinth craft movement, this close familiarity proves to be vital.

Rethinking Survival: The Need for Alternative Livelihoods

This dependence on sanctuary resources has long been cited as an impediment to conservation efforts. These activities of encroachment, grazing, and collecting fuelwood not only degrade such habitats but also increase conflict between villagers and forest authorities (Choudhury, 2000). It is vital to make alternative livelihoods viable to reduce this kind of pressure in such a way that they align with local skills and constraints.

It is an irrefutable fact that the social fabric of these villages is complex and marked by scarcity. Opportunities are limited by poverty, small landholdings, and frequent floods. The men frequently migrate for wage labour, leaving women to balance household and subsistence duties. This accentuates the burden shouldered by the women of these areas. Thus, the need for alternative livelihoods is particularly acute for women. Despite being hard and unappreciated, their subsistence labour ties households to forest resources. Both gender empowerment and conservation depend on alternatives that let them make money while lessening the pressure from extraction.

The venture of adopting new livelihoods is not easy. Such initiatives pose a significant risk for the rural household to invest in. Their products frequently lack branding and reach, and market access is restricted. To add, women's mobility is restricted by social norms, which makes it challenging for them to attend training or go to markets. Seasonal raw material availability, erosion, floods, and ecological variability all cause additional disruptions to consistency.

Earlier attempts at eco-development in the fringe areas envisioned solutions related to tourism. In order to draw tourists, the Nagaon Wildlife Division established the Burhachapori Eco Resort before 2015, managed jointly with local Development Committees, and initiated boat safari experiences. Despite their early promise, these programs eventually fell short because of inadequate infrastructure, irregular visitor numbers, and challenges with management and community involvement (Ojah, 2016).

Similarly, other initiatives like handloom, pig, and poultry projects frequently faltered. (APFBC, 2018). These examples highlight the fact that success requires more than just skill development; it also calls for consistent institutional support, market access, and labour-saving technologies. The water hyacinth craft initiative offers a unique synergy of ecological management and livelihood, converting

weed into wonder. However, its sustainability hinges on how effectively the underlying challenges are resolved in practice.

The Initiative

Water hyacinth (*Eichhornia crassipes*), which was introduced to Assam in the early 20th century, has proliferated throughout the Brahmaputra basin, leading to the obstruction of wetlands and the disruption of fisheries (Barua, 2010). Once seen as a mere nuisance, choking aquatic ecosystems and waterways surrounding the sanctuaries, water hyacinth or *pani meteka*, as is known vernacularly, has proven to be a valuable asset, transforming the lives of rural women. Initiatives by Assam State Rural Livelihood Mission (ASRLM), NEDFi, and local NGOs have played a vital role in leveraging *pani meteka* as a key resource to produce handicrafts, such as bags, mats, baskets, and stationery.

The Assam State Rural Livelihood Mission (ASRLM) initiated the “*Pani meteka*” craft clusters in six districts, providing training for women artisans with the support of NEDFi. Their products, all marketed under the ASOMI brand, generated more than ₹6.45 million in revenue by 2020, with each member earning an average of ₹9,000, and some products successfully listed on the Government e-Marketplace. NABARD Rural Innovation Award bagged by NEDFi in 2012 for its innovative stand on empowering rural artisans through water hyacinth crafts proved to be another milestone in this field. In fact, the *pani meteka* crafts produced at Morigaon’s Borchila village have made their way into markets of Delhi, Mumbai, Bengaluru, and other export destinations, with each woman earning at least ₹ 10000 monthly through their crafts.

Based on these models, several other organizations, such as Aaranyak, the Assam Forest Department, and the Laokhowa–Burhachapori Wildlife Conservation Society, supported by the International Rhino Foundation, began to mobilise women from fringe villages into structured training on water hyacinth craft. The women were taught the process of harvesting, drying, slicing, and weaving hyacinth stalks into usable strands, which were then fashioned into handbags, vanity boxes, purses, pen stands, file covers, and decorative items. An invasive plant finally took the shape of an asset in the hands of these women.

The foundation of an eco-entrepreneurship has thus been laid. The women have learnt to harvest the economic potential of *pani meteka*, and for women, this marked the beginning of visible economic agency. Conservation, too, has gained via this initiative. By generating a new stream of income, it reduced women’s reliance on firewood and grazing, thereby aligning community well-being with ecological restoration.

The LPC has a vital role to play in this regard. It represents one of the most consolidated expressions of this handicraft enterprise. The centre not only provides training and support to the craftswomen, but also creates a space of solidarity, where women form collective weaving circles. With the help of Aaranyak, Forest Department and Laokhowa-Burhachapori Wildlife Conservation Society, LPC was established, and it has drawn women artisans from several villages, viz. Sutirpara, Singimari, Saalpara, Borajaan, and Sitalmari Pothar.

The centre caters to around twenty-five to thirty women at present. Work among them is divided, and there are fluctuations in their presence, yet the centre has provided them a continuity. Their activities at the centre have evolved into a gender-specific, dynamic fabric, making LPC a dedicated space where women gather to work, learn, and support one another. Not to leave behind their role as homemakers and mothers, many women also bring their children to the centre when they’re not at school.

An interesting thing to note is that the weaving of *pani meteka* craft has not limited itself to women of a single generation. Rather, the training period saw participation from young girls of classes five, nine, and ten, all actively learning and pursuing the craft commercially. They even wish to continue this journey of being an artisan in the future. This inter-generational blend in the weaving circles is an assurance that their skills will be handed down to the next generation of young weavers.

At LPC, training was systematic. Women acquired the skills to prepare stalks, stitch products into shape, and weave strands into patterns. At first, they made basic products like bags, mobile purses, and pen stands. They eventually advanced to vanity boxes, small decorative *jaapi*, and embroidered bags. The centre at Laokhowa now boasts of two steel looms and a portable roller press. This has not only reduced labour cost and increased production, but also enabled the artisans to weave bigger products, such as yoga mats, file covers, and with a better and enduring quality.

At places such as Dhania village, a weaving circle consisting of eleven women, too, has been pursuing this craft as a livelihood. All women gather at one's house and weave together. With no access to machines, they are left at the mercy of their own manual labour completely, flattening the stalks of hyacinth with their bare hands. Although the task is tiresome and laborious, with many women complaining of muscle soreness, they have still managed to produce quite a good stock of products. Their products have been marketed by the Forest Department, and at several village *haats* and festivals.

The training period at some villages reportedly lasted for ten to fifteen days only. There, women have argued for twenty-one days of weaving practice because they felt that the customary ten-fifteen-day training was inadequate. Their adamance demonstrated a significant change: they no longer saw craft as a pastime but rather as a serious ability requiring practice and patience.

Both promise and fragility were evident in the economics of production. About half a kilogramme of dried hyacinth, which cost Rs. 150, was needed for a handbag that sold for Rs. 300–400. The profit averaged Rs. 100 after deducting incidental and transportation expenses. Pen stands were made for Rs. 30 and sold for Rs. 100 at retail, but they only brought in Rs. 50–60 at wholesale. The file cost Rs. 150 and was sold for Rs. 200, with a profit margin of Rs. 50. Despite being modest, these earnings had a significant impact on low-income households. Receiving Rs. 100 for a bag was a sign of both recognition and income for women who used to make invisible contributions by gathering fuelwood.

Product	Raw Material Cost (Rs.)	Selling Price (Retail, Rs.)	Selling Price (Wholesale, Rs.)	Estimated Profit per Unit (Rs.)
Handbag	150	300	300	100
File Cover	150	200	150	50
Pen Stand	30	100	50	50
Vanity Box	200	450	350	150
Basket	120	250	180	80

Table 1: Cost and Profit Margins of Water Hyacinth Products at Laokhowa Production Centre
(Source: Fieldwork)

Table 1 reflects the core range of water hyacinth crafts produced at the Laokhowa Production Centre. File covers and pen stands remain foundational items for training new entrants, but their limited margins of only ₹50 per unit reveal their role more as entry-level products rather than sustainable income generators. Handbags represent a higher-value option, with profits of about ₹100, and their popularity in both local and urban markets makes them a central product line. Baskets, with moderate profits of ₹80, occupy a middle ground, balancing affordability with consistent demand in rural households. Vanity boxes stand out as the most profitable among the five, with returns of ₹150 per piece, and they also appeal to urban buyers due to their decorative utility. Overall, the analysis indicates that while small products sustain skill practice, profitability and long-term sustainability will depend on scaling sales of higher-value items like handbags and vanity boxes.

The women, however, are well aware of the limitations. The Forest Department and Aaranyak organised bulk orders, which accounted for the majority of sales. Occasional outlets were offered by festivals such as the *Simalu Fest*, an annual festival organised jointly by the Kaziranga Tiger Reserve authorities and local voluntary organisations, but sustained market access remains out of reach. The necessity of catalogues, branding, and stalls at urban *haats* has been emphasised by women on multiple occasions. Hyacinth and jute hybridisation has also been proposed by some as a way to lower costs and appeal to urban consumers. Others have envisioned creating cooperatives to handle marketing as a group. Despite being a far-fetched possibility, they carry goals of their crafts being exhibited in Guwahati and on online platforms.

Challenges

The water hyacinth craft that has promised an alternative source of livelihood to these women does not come without challenges. Its sustainability can be debated. Unlike at the LPC, the weavers at Dhania village have limited access to mechanical support. Their initial enthusiasm did not last. Out of the thirty participants present at the training, the number was reduced to seventeen and later to only eleven who are currently pursuing the craft. Cumulatively, these cases bring to the surface the ever-shifting existence between prosperity and stagnation.

The supply of raw material is a primary point of concern. Only stalks that are harvested (between November and February) are sturdy and can be used in weaving. On other occasions, stems turn too brittle and spotty. Women participants in Dhania used to have trouble getting quality material; they even bought dried stalks of others at a price between Rs. 80-100 per kilo, which increased the cost and decreased profits. There would be flooding sometimes, and all the drying stalks could be devastated. In such an ecological seasonality, production is unpredictable.

The preparation required is another barrier and is labour-intensive. In centres without mechanisation, such as at Dhania village, the work of cutting, drying, and flattening turned out to be extremely tiresome and painful. The result was the decreasing number of weavers.

Social restrictions make these struggles more difficult. Women have little time to engage in craft as their time is filled with household chores, looking after livestock, and children. Women continued to participate in collective spaces such as LPC, but in Dhania, women worked at home, so the demands of domesticity came first. With time, membership has diminished in number, with active members reducing to eleven as opposed to around thirty. Health, marriage, and migration depleted the group even more.

Market linkages remain another significant challenge. Products sold in bulk to the Forest Department or NGOs command lower prices than those sold individually at retail fairs. In bulk, a handbag that retails for Rs. 450 might be purchased for Rs. 300. A pen stand that could fetch Rs. 100 is purchased for Rs. 50–60. This distinction is crucial for women who operate with margins of between Rs. 50 and Rs. 100 per item. Due to limited marketing opportunities, Dhania's women saw a backlog of unsold products. Even LPC women complain about the lack of catalogues, branding, and urban outlets, even though they have at least received recognition at local festivals. Thus, institutional support remains crucial. Integration with cooperative structures, credit availability, and state livelihood missions is necessary for sustainability. Without these, the project runs the risk of stalling when outside interest fades.

Climate variability is another factor that increases the uncertainty of the craft. Hyacinth availability and quality are impacted by floods, siltation, and shifting water regimes. Although eliminating the weed promotes the health of the wetland, consistent production is made more difficult by reliance on its seasonal supply. Thus, the future of *pani meteka* craft sustainability is promising but precarious, given that the production centres and women receive sufficient institutional and timely support. Livelihoods linked to conservation require ecosystems of support in order to thrive. If supported, these initiatives could grow from pilot projects into long-lasting resilience models that integrate ecological stewardship and community dignity.

Conclusion

The *pani meteka* craft initiative in Laokhowa-Burhachapori is not just a livelihood project, but a transformative endeavour to weed out the aquatic nuisance and provide an alternative livelihood to women. In a world characterised by the fragility of ecology and the marginalisation of some of the social categories, making a purse or file cover out of *pani meteka* represents an action with symbolic significance. The previously invisible work of fringe women rose collectively and has resulted in income and a new sense of identity, especially to those who have endured years of socio-economic hurdles, with limited prospects such as livestock and fuel wood gathering.

For decades, sanctuaries like Laokhowa and Burhachapori were managed through restrictions, often alienating villagers. This project has led to a systematic inclusion of the fringe women, proving that inclusion and not exclusion is the key to achieving conservation goals through community stewardship. It is because ecological pressure is reduced when women's reliance on forest extraction declines as they earn money through crafts. They also contribute to the restoration of wetlands by harvesting hyacinth, demonstrating the mutually reinforcing nature of livelihoods and conservation. The symbolic change is remarkable: women who were once labelled as "encroachers" have now become partners in stewardship, and a weed that was once hated as a scourge becomes a resource. This dual reimagining of people and plants shows that conservation and development are not mutually exclusive but can be matched with creativity and cooperation.

In the future, the challenge is to scale and sustain such work. It will be crucial to integrate with cooperatives, branding, rural livelihood missions, and climate variability adaptation. If these are protected, Laokhowa's weaving circles will transform from flimsy experiments into long-lasting businesses that weave ecological stewardship, resilience, and dignity into the lives of people living near the forest's edge.

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