

Kouna for Climate Resilience and Rural Livelihoods in Northeast India

Golmei Langangmeilu¹, Shishir Rizal¹ and ¹Moirangthem Monalisa Devi

¹School of Agriculture, GIET University, Odisha, Gunupur

Corresponding author Email: golmei@gietu.edu

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Introduction

Northeast India is becoming increasingly susceptible to climate extremes, including frequent flooding and extended waterlogging, which collectively reduce land productivity and endanger rural livelihoods. In this context, nature-based solutions provide sustainable approaches to climate adaptation, and Kouna has emerged as a promising yet underutilised resource for enhancing both climate resilience and livelihood opportunities. Club rush or water rush, is locally called Kauna in Manipur and belongs to the family Cyperaceae, genus *Schoenoplectus*, with the species *Schoenoplectus lacustris* (Linn.) Palla. It is an aquatic, terete herb that thrives in wetlands and waterlogged environments, and is valued for its strong, flexible stems, which are traditionally used in weaving and handicraft production. Kauna is a native, eco-friendly reed of Manipur, widely utilised to craft durable mats, baskets, and furniture, contributing to both income generation and cultural preservation. The species is particularly appreciated for its moisture resistance and long service life (Monsang and Meeyo, 2023). Although Kouna is locally abundant and holds considerable ecological and livelihood potential, its applications remain largely confined to traditional uses, indicating a need for greater exploration and value addition (Sougajjam et al., 2025).

Kouna, often considered weeds in wetlands, represent a **hidden green economy** for Northeast India. Their ability to thrive in extreme hydrological conditions makes them ideal for reclaiming degraded floodplains and drought-stressed lowlands. When integrated with community enterprises—such as fibre crafts, biochar production, and organic soil amendments—Kouna converts ecological restoration into **sustainable income streams**. This approach supports rural livelihoods while preserving wetland biodiversity, offering a scalable model for climate adaptation and rural entrepreneurship.



Fig. 1: Kouna (*Schoenoplectus lacustris*) products

Uses and Benefits of Water Rush (Kouna)

Water rush, locally known as Kouna or Kauna in Manipur, is a multipurpose wetland plant that offers significant ecological, economic, and socio-cultural benefits. Its utilisation is closely linked with nature-based solutions, especially in flood- and waterlogging-prone regions of Northeast India.

Uses

1. **Handicrafts and Weaving:** The most prominent use of Kouna is in traditional weaving. Its long, soft, and flexible yet strong stems are used to produce mats, baskets, bags, cushions, furniture, window blinds, and other utility and decorative items. Indigenous communities, such as the Meitei, have refined these skills over generations, making Kouna weaving a vital traditional craft (Monsang and Meeyo, 2023).
2. **Eco-friendly Interior and Lifestyle Products:** Kouna-based products are increasingly recognised as sustainable alternatives to plastic and synthetic materials in home decor and lifestyle applications. Their natural appearance, durability, and moisture resistance make them suitable for nature-friendly interior design and sustainable living products (Sougajam et al., 2025).
3. **Livelihood and Income Generation:** Cultivation, harvesting, processing, and weaving of Kouna provide employment opportunities, particularly for rural and wetland-dependent communities. The plant requires minimal investment for cultivation and for setting up infrastructure to manufacture its diverse artistic products, yet it offers high profitability. Once established, it can remain productive for over 30–35 years with proper maintenance and can be harvested three times a year (Singh, 2016). Women

artisans play a central role in Kouna-based enterprises, making it an important resource for gender-inclusive livelihood development (Monsang and Meeyo, 2023).

4. **Utilisation of Marginal and Wetland Areas:** Kouna grows well in wetlands, marshes, and waterlogged fields where conventional crops cannot be cultivated. Its use enables productive utilisation of such marginal lands, converting climate-stressed ecosystems into income-generating landscapes.
5. **Cultural and Traditional Significance:** Beyond economic value, Kouna holds cultural importance in Manipur. Traditional weaving patterns, community knowledge, and craft practices linked to Kouna contribute to the preservation of indigenous heritage and identity, utilising traditional weave patterns such as Nga Maku, Jali, Lei Mayek, Chuthek Mayek, Binni Mayek, Chumsha Mayek, and Faklong (Param Mayek) (Sougajjam et al., 2025). Kouna grass products are increasingly popular due to their eco-friendly nature, unique aesthetics, and durability. Crafted through a traditional, labour-intensive weaving process passed down through generations, their production involves harvesting, cleaning, drying, and skilful weaving of locally sourced, renewable grass.

Benefits

1. **Climate Resilience and Adaptation:** As an aquatic plant, Kouna thrives under flooded and waterlogged conditions, making it highly suitable for regions increasingly affected by floods and erratic rainfall (Singh, 2016). Its cultivation supports climate-resilient livelihoods by providing an adaptive crop option in vulnerable ecosystems. In flood-affected areas, it can reclaim waterlogged lands by gradually improving soil structure and organic matter content. Their biomass contributes to carbon sequestration and enhances soil fertility when managed properly. Over time, it can transform unproductive wetlands into ecologically functional landscapes, suitable for integrated farming or agro-ecological interventions.
2. **Environmental and Ecosystem Benefits:** Kouna contributes to wetland ecosystem health by stabilising soil, reducing erosion, and supporting aquatic biodiversity. Wetlands dominated by Cyperaceae species play an important role in nutrient cycling and water purification, thereby enhancing ecosystem services. They act as natural biofilters, absorbing excess nutrients and pollutants, thereby improving water quality

in flood-prone landscapes. In drought-prone lowlands, it can help retain moisture and restore degraded soils.

- 6. Sustainability and Low Environmental Footprint:** Kouna is a renewable, biodegradable, and low-input resource. Its production requires minimal external inputs such as fertilisers or pesticides, aligning well with sustainable and nature-based development approaches. These products are sustainable, generate no waste, and have a minimal carbon footprint, making them an environmentally responsible and long-lasting choice.
- 3. Economic Empowerment and Rural Development:** It offers a wide range of livelihood opportunities for rural and tribal communities through its multipurpose use. The leaves and stems are traditionally used for handicrafts and mat weaving, providing a steady source of income for local artisans. Dried cattail biomass can be utilised for bioenergy and biochar production, supporting waste-to-wealth initiatives and renewable energy generation. Additionally, it can serve as an effective animal bedding material and can be converted into compost to enhance soil fertility. The fibrous nature of the plant also makes it suitable for paper pulp and other fibre-based products. Collectively, these activities are well suited to women-led enterprises, self-help groups, and community-based micro-industries, promoting inclusive, sustainable, and locally driven economic development. Value addition through handicraft production enhances income levels and strengthens local value chains (Sougaijam et al., 2025).
- 4. Durability and Functional Advantages:** Kouna products are naturally moisture-resistant, lightweight, and long-lasting. These properties make them suitable for daily household use, especially in humid and flood-prone regions where synthetic materials often degrade quickly.



Fig 2: Kouna basket in the market (Source: <https://www.makonhome.com/shop>)

- 5. Climate Resilience and SDG Linkages:** Kouna-based systems strengthen the adaptive capacity of communities facing climate risks such as flooding and land degradation, while simultaneously contributing to multiple Sustainable Development Goals. By generating income and diversifying livelihoods, they help alleviate poverty (SDG 1: No Poverty) and promote inclusive, community-based employment opportunities (SDG 8: Decent Work and Economic Growth). Their role as nature-based solutions enhances resilience to climate variability and supports mitigation and adaptation efforts (SDG 13: Climate Action). In addition, Kouna cultivation and utilisation aid in wetland conservation, biodiversity support, and sustainable land use, thereby contributing to ecosystem protection and restoration (SDG 15: Life on Land).

Conclusion

Kouna offer a range of benefits that make it a valuable resource for sustainable living, income generation, and climate adaptation. From food to biofuel to water purification, these versatile plants have much to offer in terms of environmental and economic sustainability. By harnessing the potential of Kouna, people can improve their livelihoods while also promoting the health of wetland ecosystems and the circular green economy.

Reference

1. Chandrashekhar, M. (2023). From Grass to Masterpiece: The Intricacy and Resilience of Manipur's Kouna Grass Handicrafts. *The Cultural Heritage of India*.
2. Kerketta, S. R., & Chabungbam, S. (2022). A Study of "Kouna" Products in Manipur and Their Marketability. *International Journal of Applied Social Science*, 9, 70–78.
3. Monsang, S.D. and Meeyo, H. (2023). Kouna Craft: A Unique Reed Craft from Manipur. *Agri Articles*. 3 (4) 309-311.
4. Rohandinda. (2020). Kouna Craft – A Sustainable Step in the Indian Handicraft Sector. *Textile Value Chain*. <https://textilevaluechain.in/news-insights/industry-cluster-news/kouna-craft-a-sustainable-step-in-the-indian-handicraft-sector>
5. Singh, K.J. (2016). Kouna Cultivation in Manipur *Schoenoplectus lacustris* (Linn.) Palla. Rajesh Publications, 300p.
6. Sougajjam, H., Bains, S., Grewal, S., M, P., & Devi, K. D. (2025). Kouna (*Schoenoplectus lacustris*): Documentation and Development of Sustainable Handicraft from Manipur. *TEXTILE*, 23(3–4), 971–982.