



Reviving the design concepts and material culture of paraphernalia and receptacles used for the traditional toddy tapping in Kalutara, Sri Lanka

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The artificial extraction of sweet sap, or toddy, from the incised young inflorescences of the coconut palm (*Cocos nucifera*) has long been a captivating cottage industry in the coastal region of Kalutara, Sri Lanka. Freshly tapped toddy contains little to no alcohol and is considered a nutritious beverage, though it rapidly ferments into an alcoholic drink. Historical references to toddy and its distillation into arrack date back to the fifth century, yet it is widely believed that the current techniques of toddy tapping were introduced to the Kalutara region by the toddy tappers from the tropical coasts of South India during British colonial rule. Drawing on the author's hands-on experience and interviews with the local community who have been involved in toddy-tapping for generations, this paper reviews the design principles and material culture used in the paraphernalia and receptacles used for Kalutara's traditional toddy-tapping industry. These paraphernalia and receptacles, which have been used for decades, demonstrate the community's capacity to craft their implements from sustainable, locally sourced materials. As this study reveals, these traditional techniques and tools continue to provide practical solutions while preserving the rich history and cultural identity of the toddy-tapping communities in the coastal region of Kalutara. The preservation of this traditional knowledge is essential for safeguarding both the cultural heritage and the economic future of the toddy-tapping industry in Sri Lanka.

Keywords: Coconut (*Cocos nucifera*), Cottage industries, Design concepts, Domestic industry cluster, Toddy-tapping, Traditional paraphernalia and receptacles

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In the current body of literature on the coconut palm and toddy-tapping industry in Sri Lanka, the primary sources of information are the Sessional Papers published by the Coconut Research Institute of Sri Lanka, established in 1929 as the first dedicated research institute for coconut. Among these, the writings of W. R. N. Nathanael in *Ceylon Coconut Planter's Review* and *Ceylon Coconut Quarterly* are especially significant. However, most of these sessional papers focus primarily on agronomy, crop management, plantation practices, plant physiology, nutrition, and the chemistry and yield of toddy and its by-products.

Although there are occasional references to paraphernalia and receptacles used in traditional toddy tapping, a comprehensive analysis of the design concepts, craftsmanship, and sustainable practices behind these tools is notably absent from the literature, leaving room for further exploration into the cultural and artisanal dimensions of toddy tapping tools, which are integral to the sustainability and heritage of the practice. This gap is particularly evident when

considering the specific toddy-tapping practices in the coastal region of Kalutara district, the most significant toddy-tapping belt in Sri Lanka, which supplies a substantial portion of toddy for distillation into arrack. Despite its importance, the traditional techniques and tools used in this region have not been thoroughly examined in the existing literature.

This paper aims to address this gap by exploring the traditional design principles, materials, and sustainable practices associated with the toddy-tapping industry in Kalutara. Through the author's hands-on experience, in-situ surveys and interviews with local toddy-tapping communities and entrepreneurs, the study provides a detailed review of the design principles and materials associated with the paraphernalia and receptacles used in this longstanding cottage industry, contributing to the broader understanding of its cultural, historic and sustainable significance.

Historical background of the toddy tapping industry in Sri Lanka

The diverse ecosystems of Sri Lanka (referred to as Ceylon during the colonial period) support a range of

indigenous practices and vocations, many of which are intricately revolving around nature's bountiful resources. Among these, plant species such as arecanut (*Areca catechu*), bamboo (*Bambusoideae*), coconut (*Cocos nucifera*), palmyra (*Borassus flabellifer*), reed (*Phragmites australis*), rush (*Juncaceae*), and talipot (*Corypha umbraculifera*) play significant roles, particularly in sustaining traditional livelihoods and contributing to cottage industries. Of these, the coconut palm stands out as the most prominent, both in terms of its abundance and its remarkable versatility. Locally referred to as *Kapruka* or "the tree of life," the coconut palm is central to Sri Lankan culture due to the extensive range of applications derived from its various parts. Each tree component—fruit, kernel, copra, water, shell, husk, flower, leaves, trunk, and roots—serves distinct and vital functions, contributing to domestic production and the daily lives of local communities. This widespread utility underscores the coconut palm's vital role in the socioeconomic fabric of Sri Lanka.

Using traditional techniques, extracting sweet sap, or toddy, from the young inflorescences or spadices of the coconut palm is a traditional practice in Sri Lanka, forming a longstanding cottage industry. The locals call this natural beverage *Rā*, a cloudy, nectar-like liquid with a distinct and refreshing taste. When freshly tapped, toddy contains little to no alcohol and is regarded as a nutritious drink, though it rapidly ferments into an alcoholic beverage. Although small coconut plantations existed during the era of Sri Lanka's ancient kingdoms, the development of the alcoholic beverage industry received significant impetus during Dutch colonial rule (1658-1796). This expansion was further accelerated under British colonial rule (1796-1948) when the northwestern, western, and southwestern coastal plains became vast coconut plantations. By the early nineteenth century, these developments had contributed to the considerable growth of the island's alcoholic beverage industry¹.

During British colonial rule, efforts to regulate the traditional toddy tapping and distillation industry culminated in the promulgation of the Excise Ordinance of Ceylon in 1834. This legislation introduced stricter controls on the production of arrack, requiring permits for its manufacture. As a result, a licensing system was established, which became a significant source of revenue for the British Ceylon Government, eventually leading to a government monopoly on the sale of arrack. In 1912, the Excise Department of Ceylon was established to formalize the

regulation of alcohol production further. By 1924, the British Ceylon Government introduced a new policy aimed at controlling manufacturing methods and improving the quality of arrack¹. However, this policy, coupled with taxation measures, placed increasing pressure on small-scale producers, gradually forcing many out of business. Before the 1924 reforms, arrack was distilled using primitive copper pot stills, which were locally constructed and operated by local entrepreneurs. It is recorded that some 250-300 distillers existed in the coastal region of Kalutara alone, indicating a thriving cottage industry. These small-scale production units were inadequate to meet the growing demand for arrack, highlighting the limitations of traditional manufacturing practices at that time².

The significance of the coastal region of Kalutara

In 1924, the British Ceylon Government initiated significant changes in the arrack industry by establishing eight large, modern distilleries equipped with up-to-date machinery in the Kalutara district. This move led to the closure of the numerous small cottage distilleries scattered across the island's northwestern, western, and southwestern coastal villages. Three of these new distilleries featured high-specification patent stills designed for continuous distillation, each with the capacity to produce about 4,000 liters of arrack daily. An additional co-operative distillery was opened in the district in 1951. Local enterprises primarily owned these distilleries, and the arrack they produced was supplied to the government under contractual agreements. As a result of these developments, the traditional toddy-tapping vocation in the coastal region of the Kalutara district, stretching through villages from Wadduwa to Beruwala (Fig. 1), became the most essential toddy production belt in Sri Lanka.

It is evident that the current techniques of toddy tapping practiced in this region were introduced by the toddy tappers from the tropical coasts of South India, where the workforce had long been engaged in toddy-based production as an organized industry. During British colonial rule, around 500 skilled workers from Malabar, Kerala, and Tamil Nadu were brought to the Kalutara region in the early twentieth century to develop the toddy industry in Sri Lanka further. These individuals were tasked with training the local community in advanced toddy-tapping methods. To this day, there are notable similarities between the toddy tapping practices in coastal Sri Lanka and those on the Malabar Coast of India, reflecting the enduring influence of this cross-bordering exchange².

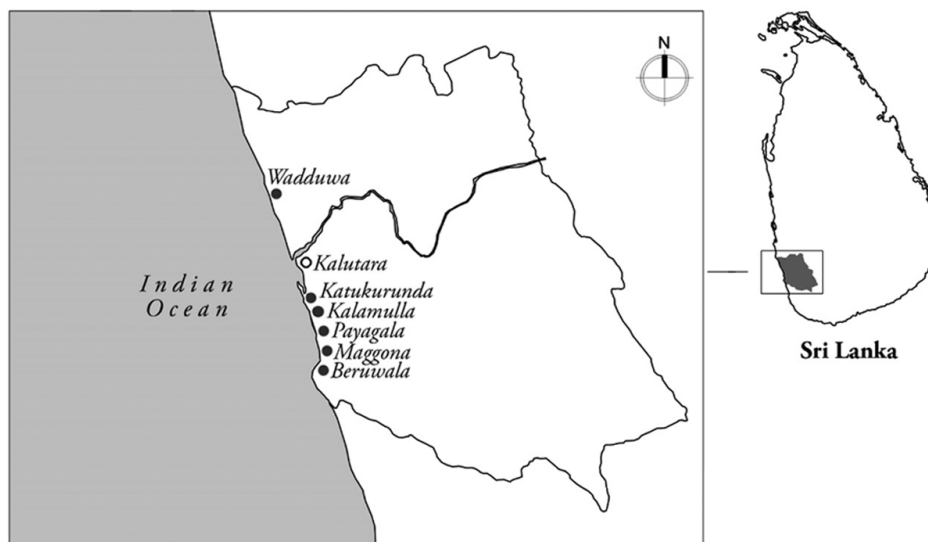


Fig. 1 — Map of the Kalutara district showing the villages covered under this study (Source: Author)

Given the historical significance of this region, this study was conducted in the toddy tapping belt of Kalutra, which covers the coastal region of the Assistant Government Agents' Divisions of Panadura, Kalutara, and Beruwala of the Kalutara district. The toddy tapping belt of Kalutra is approximately 20 kilometers covering the villages of Wadduwa, Katukurunda, Kalamulla, Payagala, Maggona, and Beruwala (Fig. 1). Notably, the author of this article was born in the village of Katukurunda and has spent decades in the region, gaining substantial hands-on experience and first-hand knowledge of the design principles and material culture associated with the paraphernalia and receptacles used in the traditional toddy-tapping industry.

Moreover, during recent field visits, interviews were conducted with 2-3 experienced toddy tappers who have been involved in this vocation for the last 10 years or more in the villages of Wadduwa, Kalamulla, Payagala and Maggona and at least one entrepreneur from each village, many of whom have been involved in the toddy-tapping industry for generations and are highly knowledgeable in the vocation. These interviews served to update and verify the author's cognition of the subject. Informants provided comprehensive explanations and willingly engaged in discussions after fully understanding the purpose of this study. They also granted the author permission to measure and document traditional paraphernalia and receptacles, most of which have fallen out of use due to the introduction of modern receptacles made from plastic and fiber.

To ensure a uniform and effective graphical presentation of the items reviewed in this study, all old and current paraphernalia and receptacles were illustrated through hand-drawn sketches to a comparative scale. These illustrations are crucial in preserving and analyzing the material culture associated with the traditional toddy-tapping industry in this region. In addition, these measurements and records form an essential part of the study, contributing to the preservation of traditional knowledge and sustainable practices once central to Kalutara's traditional toddy-tapping industry.

The process of toddy-tapping and associated paraphernalia and receptacles

Like other indigenous industries revolving around nature's abundant resources, the extraction process of toddy from the coconut palms is an art essentially contingent on the skill and knowledge of the people engaged. The toddy tapper, locally known as *Rā Madinnā*, is considered the master craftsman of this captivating operation of extraction of the toddy. However, the whole process essentially operates in pairs, *i.e.*, the tapper who goes to work on the palms and the co-tapper or assistant who helps the tapper from the ground. The co-tapper is sometimes a youngster learning the vocation or a retired tapper who has lost his head for heights.

The toddy tapper typically wears a dark blue cotton linen cloth wrapped around his waist and carries essential paraphernalia. This includes a wooden toolbox and a gourd-shaped bucket hanging lower on

one side, along with a coir rope and a wooden pulley hook slung on the opposite side (Fig. 2). Meanwhile, the co-tapper is responsible for managing the ground operations, receiving the collected toddy as it is lowered from the palm top and preparing it for transport to the nearby gathering depot. The key receptacles required for the co-tapper's duties include wooden buckets, funnels, and barrels made in small local workshops. These receptacles are essential for handling and storing the toddy until it is deported to the distillery (Fig. 3).

The first round of the daily routine of toddy tapping begins shortly after daybreak. During this round, the tapper visits all the trees of the cluster (perhaps from 50 to 100), and the toddy accumulated overnight is collected. First, the tapper climbs up the tree with a small wooden toolbox known as the *Manna Pettiya* (Fig. 4), a gourd-shaped bucket called *Labu Gediya* or sometimes *Rā Labba*, and a skein of coir rope called *Yotha* with a wooden pulley hook called *Ukunilla* (Fig. 5). All these implements are tightly secured to the tapper's waist by a broad leather belt, freeing his hands to climb and move. The wooden toolbox - *Manna Pettiya* usually bears the special knives and cleavers used for different stages

of preparing the inflorescences or spadices of the palms. Generally, a week before extracting the toddy, the tappers prepares the spadices (about 1-1.2 metres long) by a specific sequence of beating and pounding the unopened sheaths and binding them firmly using the leaves from the coconut tree to prevent the sheaths from opening up. After that, the tapper beats the spadices daily for about 10 min with his wooden mallet named *Mal Theluma* (Fig. 4) until they slump downwards.

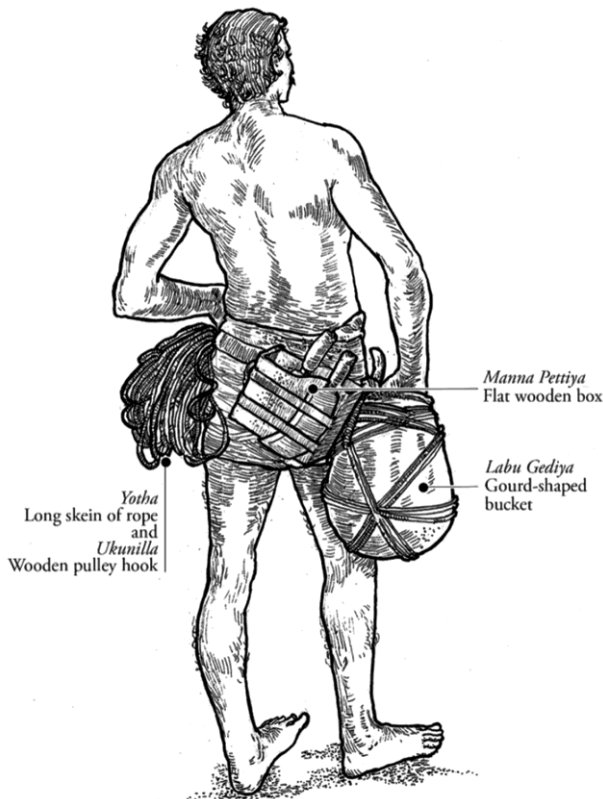


Fig. 2 — Toddy tapper and associated paraphernalia and receptacles



Fig. 3 — Co-tapper and associated wooden receptacles

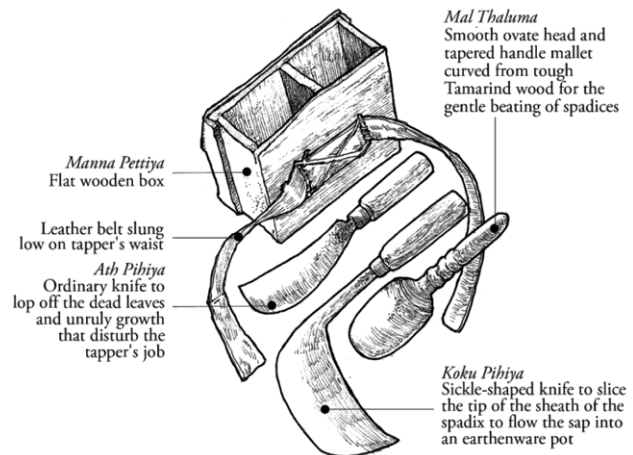


Fig.4 — Wooden toolbox - *Manna Pettiya*

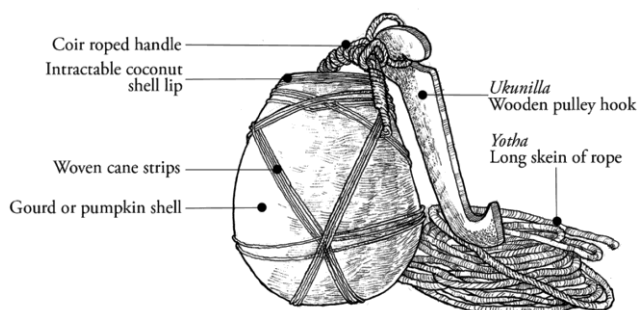


Fig. 5 — Gourd-shaped bucket - *Labu Gediya*

The wooden toolbox or *Manna Pettiya* is a flat, lightweight wooden box strapped to a belt carried around the waist level of the tapper and contains a tool used to prepare the inflorescences, or spadices, at different stages of the toddy tapping process. The paraphernalia contains a wooden mallet, a pair of broad-bladed steel knives, a tapping bone and sometimes, a herbal paste. The knives are sharpened daily with quarts of powder on a piece of wood from a cashew tree.

Labu Gediya is the unique receptacle in the toddy tapping industry in Kalutara, finished from a combination of different materials. The container's shell is made of a hollowed pumpkin with a coconut shell lip and is used to empty the toddy, which oozed into the earthenware pots and then lower the collection from the palm top to the co-tapper on the ground. The entire body of the shell is woven with diagonal pattern cane strips to strengthen the hollowed pumpkin and fix the coir-roped handle.

After completing the first course of preparation of the spadices for some days, using the sickle-shaped knife known as *Koku Pihiya* (Fig. 4), the tapper gently slices away the tip of the sheath to run out the toddy into the earthenware pot called *Gus Muttiya* (Fig. 6) fastened on the end of the beaten spadix, which remains supported by its weight. Every day, he cuts a fresh, thin slice off the end of the sheath to extract more and more toddy. When the tapper finds a short toddy, a unique herbal paste is applied to the wounded spadix so that more toddy can ooze. It is usual to tap two or more spadices on a tree at once, and every coconut spadix has the potential to produce toddy for about 30-90 days, depending on the skilfulness of the tapper. In this manner, the tapper, with his experience, would have prepared another set of spadices for tapping continuously within the entire season. During this first session of the tapping process, the milky white toddy collected over the night in all the

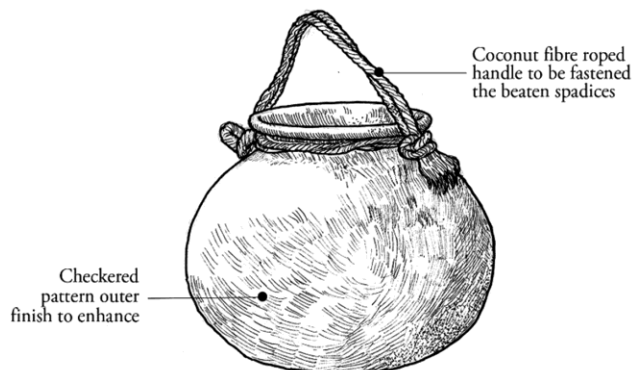


Fig.6 — Earthenware pot - *Gus Muttiya*

earthenware pots is emptied into the *Labu Gediya*. Then he pares a thin slice off the end of the spathe, taps it with his mallet and places the collecting earthenware pot again over a freshly sliced spadix.

Gus Muttiya is an earthenware wide-mouthed unglazed pot of about two liters to be hung on the palm top to collect the toddy ooze from the beaten spadix. The toddy is usually collected into the same pot day after day, and it is never brought down and washed or substituted during the eight-month tapping season unless it breaks. The outer surface of the pot is textured with a checkered pattern to enhance the grip, and the inner surface is always smooth in finish to minimize the sedimentation of the toddy. The pungency in flavor and smell associated with toddy, which makes it repulsive to most people, is due to putrefactive organisms that collect in the sediments after the pots have been used continuously. These pots are specially made in the outside pottery and transported to the coastal villages at the beginning of the season.

When *Labu Gediya* is filled to its brim, the tapper gently lowers the container with the help of the coir rope or *Yotha* and wooden pulley or *Ukunilla* fastened to his waist to be received by the co-tapper on the ground. Next, the co-tapper pours the lowered toddy into a wooden bucket called *Ath Heliya* (Fig. 7), and the emptied container is pulled back by the tapper on the palm top. Next, the tapper swiftly moves along the aerial ropewalk known as *Athura* to collect the toddy from the other trees of the cluster. In the intervening time, the toddy, which is collected into wooden buckets down on the ground, is carried to a heavy wooden barrel or collecting vat called *Peppaya* (Fig. 8) placed nearby, and there, the raw toddy is transferred into the barrel through another wooden utensil called *Puneelaya* or strainer (Fig. 9).

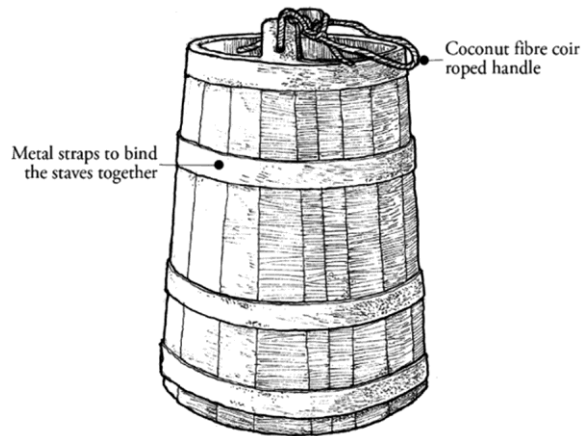


Fig. 7 — Wooden bucket - *Athheliya*

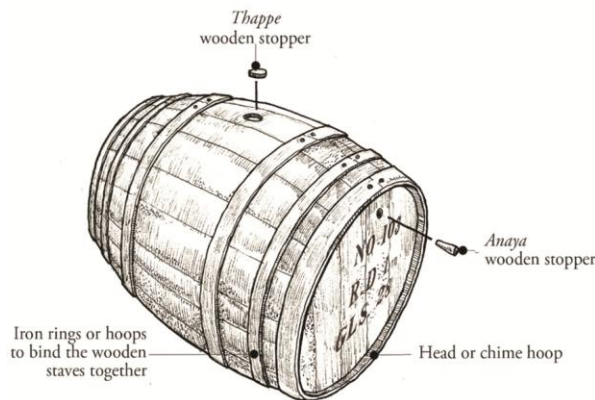


Fig. 8 — Wooden barrel - *Peeppaya*

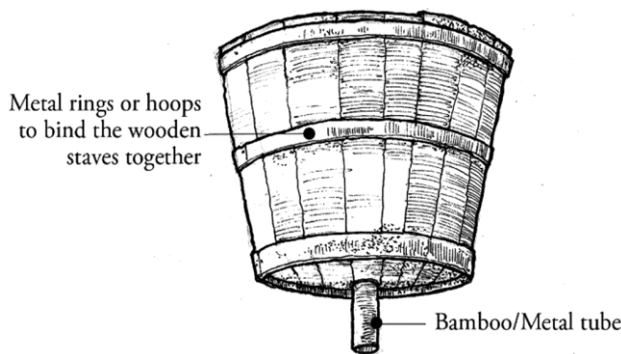


Fig. 9 — Wooden funnel - *Puneelaya*

Ath Heliya is a simple wooden bucket that serves as a receptacle to collect the toddy lowered from the palm top. Sometimes, several wooden buckets are used to transport the toddy from the palm grove to the nearby heavy wooden barrels. Usually, the bucket has a broader bottom than the top and is made out of either *Halmilla* (*Berrya cordifolia*) or *Teak* (*Tectona grandis*) with a coir-roped handle.

Peeppaya is a standard-sized (usually between 150-180 liters) heavy wooden barrel used to transport the raw toddy to the distilleries. These barrels are made from either *Halmilla* (*Berrya cordifolia*) or *Teak* (*Tectona grandis*) wood. Two different types of bung holes are placed to pour the raw toddy; one is at a head surface, and the other is at the bulging center of the convex surface. The wooden stopper or the bung used to seal the small hole at the head surface is called *Anaya*, and the wooden stopper used for the larger hole at the convex surface is called *Thappe*. The flat or head surfaces are generally branded with different colors for easy identification and with details such as the monograms of the distillery and plantation owner and the barrel's capacity.

Puneelaya is a sizeable wooden funnel used to pour the sap from the wooden buckets into the heavy barrels, which toddy is ultimately collected. Usually, the freshly collected toddy is strained through a gunny cloth to remove the grosser foreign matter and the frothy scum on its surface.

After finishing the tapper's palm-top operations of the whole cluster, the co-tapper rolls these heavy wooden barrels full of today along the sandy walkways to the roadside barrel-gathering depot. Finally, the filled-up wooden barrels are trundled from the gathering depots to the nearby distillery by bullock cart or lorry on modern days to be fermented and distilled into Sri Lanka's famous alcoholic beverage - Arrack. In the late afternoon, the second round of the toddy-tapping process starts. During this shorter session, the tapper massages the spadices again with a few beats from the wooden mallet to stimulate the toddy flow. Then, he sometimes empties the earthenware pots again and returns them to receive fresh toddy overnight. The evening round continues until each tree is visited and finishes the tapper's day's work before the sun disappears.

Discussion

The tapping process, paraphernalia, and receptacles discussed in this article have been integral to the toddy-tapping industry of the coastal region of Kalutara district for generations. The traditional tools and containers recorded in this study, once widely used in the past, offer compelling evidence of the community's skill and knowledge in crafting their own implements from locally sourced, eco-friendly materials. Despite modernization, design principles of traditional paraphernalia and receptacles remain in

use, preserving the distinctive character of the local toddy-tapping industry.

The paraphernalia used by toddy tappers for palm-top operations, such as the *Manna Pettiya*, *Labu Gediya*, *Yotha* and *Ukunilla*, are designed with an emphasis on being lightweight- an essential design feature given the hazardous nature of working atop palm trees. These tools and receptacles are often fastened securely to the tapper's waist, leaving his hands free for climbing and moving from tree to tree, thus enhancing both safety and efficiency. In contrast, the receptacles used for ground operations, including the *Athheliya*, *Puneelaya*, and *Peppaya*, are typically made from durable wooden materials. Though heavier and more robust, these receptacles protect the raw toddy from environmental factors like light, heat, and rain, which can affect its quality. They also support heavy operations of transporting the raw toddy from one place to another. These design considerations balance tradition and practicality, ensuring the industry remains sustainable while maintaining its regional identity.

Conclusion

In conclusion, this study highlights the enduring significance of traditional toddy-tapping practice and paraphernalia in the coastal region of the Kalutara district of Sri Lanka. Despite technological advancements and shifts in industry practices, many tools and methods passed down through generations remain integral to the local toddy-tapping vocation. The craftsmanship and ingenuity involved in creating lightweight, functional paraphernalia for palm-top operations and durable receptacles for ground-level activities demonstrate the community's deep understanding of the natural environment and the

requirements of their craft. The continued use of traditional design concepts not only preserves a unique cultural heritage but also demonstrates the adaptability of these practices to modern challenges.

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Conflict of Interest

The author has no conflict of interest to disclose.

Informed Consent

Informed consent was obtained from all knowledge holders, granting permission to share their data as needed.

Data Availability

The data are exclusively retained by the author and will be available by the author upon reasonable request.

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