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MULTIFARIOUSNESS IN THE STRUCTURE AND FABRICATION OF 'KOODU'- A TRADITIONAL FISH TRAP OF KERALA

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Abstract: Fish basket or 'Koodu' is one of the traditional and most commonly used traps in Kerala. As part of a study on the monsoon fisheries in the state, information on traditional fishing methods were gathered. There is a considerable variation in the fabrication of the Koodu and is found to be under modification.

Key words: Koodu, floodplain fishery, thonnikkoodu, thallakkoodu, indigenous communities, traditional Knowledge

INTRODUCTION

Comprehensive and authoritative allusion are available to conclude that fishing had been an important activity in India since pre-historic times and fish hooks were found in pre-historic artefacts (Sarkar, 1954; Allchin, 1982; Reeves, 2003). In order to synchronize the needs with availability of resources, the indigenous communities developed unique methods for harvesting. Many of the traditional technologies for fishing are still in use among the indigenous communities in different parts of the country and are still being reported (Srivas tava *et al.,* 2002; Rathakrishnan *et al.,* 2009; Adikant *et al.,* 2011). An assessment of the indigenous fishing techniques explicitly reveals the technological skill, environmental consciousness and the adroitness of local communities. The other dimensions attached to these traps are the instinct of the indigenous communities to cobble the traps, the judiciousness while harvesting the resources, and proclivity to minimise the pressure on the ecosystem (Badola and Singh, 1977). Most of the indigenous fishing crafts and gears are eco-friendly and ensure sustainability of bio-resources.

While documenting the monsoon fishery of Kerala, and the various methods employed for fishing, it was observed that the most commonly used traditional gear is theKoodu(Fish basket). Koodu is one among the diverse traps reported by various researchers and can be considered as a common trap. The fish basket has also been reported from various parts of India (Lalthanzara and Lalthanpuii, 2009; Remesan, 2006) and a study on the Kooduin different parts of the state revealed that there is a considerable difference in figuration, fabrication, materials used, mode of operation, etc. This paper deals with the multifariousness of Koodu observed in different parts of Kerala.

STUDY AREA AND METHODS

Kerala state is located between 8° 17' 30" N and 12°47' 40" N, and 74° 24' 47" and 74° 51' E in the southern tip of the Indian peninsula. The state has an area of 38,863 km^2, which is about 1.18% of the total area of India. Kerala is endowed with 2,26,275 ha of inland freshwater resources comprising 44 rivers, 49

interconnected backwaters, 53 reservoirs and innumerable irrigation tanks, streams and ponds (Anonymous, 2010). The inland fish resources of Kerala consist of 207 freshwater fish species (Gopi, 2000) which provides ample support to the livelihood of the rural population and play pivotal role in the economy of the state.

As a part of a study on the monsoon floodplain fishery in Kerala, a survey was conducted indifferent parts of the state to gather information on the traditional methods of fishing. The traditional traps were photographed and the information regarding the fabrication of the traps were collected through informal/semi-structured interviews. The mode of operation of the Koodu has been conceived by empirical observation.

RESULTS

Basic Structure

The fabrication of Koodu requires a considerable skill. It is usually made of bamboo, reed sticks, midrib from the rachis of the coconut palm *(eerkkil* in Malayalam) or Palmyra. The Koodu consists of two parts; the main body (Thallakkoodu; Thalla-mother, Koodu-trap) and the mouth (Pillakkoodu; Pilla-young, son) both of which are braided separately, and assembled later. The main body is made of 100 sticks, which are intertwined together by coir rope at an interval of 10-15 cm. As a rule, 7-9 intertwines are required to make it intact and strong (Figs. 1 a-e). The mat like body is made circular by joining the free horizontal ends. The circular trunk is distended maximum by fitting a ring (usually of Pullani, woody climber, *Calycopteris floribunda*) with an appropriate gauge. The tail portion of main body, called Peele in local parlance (due to it's similarity to a bird tail), is tied/closed when the Koodu is in operation.

Thepillakkoodu (also called thonnikkoodu) is made of 110 sticks/eerkils (the formula is number of sticks used in the main body +10) and these sticks are held together by five interknits at a gap of 15 cm (Figs. 2a-d). The meshed body is then curved in a semicircular mode leaving a wide gap anteriorly. The free posterior ends of the sticks criss-crossed each other leaving a circular or oval path below. A bamboo pole of appropriate length is split up to ¾ its length in to four and this fork is inserted through the four corners of the interlaced sticks and tied strongly. This pillakkoodu is then attached to the main body perfectly leaving no gaps.

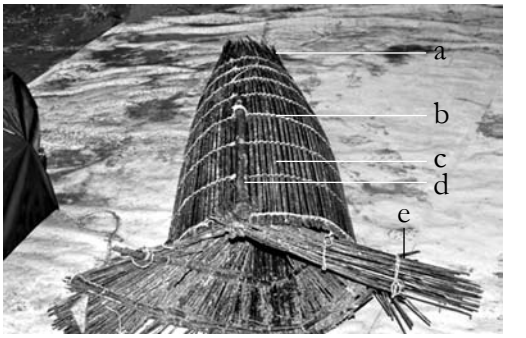

Fig.1. Parts of the Koodu. a-peele (tail); b-Intertwines; c-main body (thallakoodu), d-handle; e-thonnikoodu

Modified and diversified fish baskets

In Wayanad District of Kerala, the Kooduis mostly made of reed *(Ochlandra sp)*. The sticks are not rounded but flat in shape (Fig. 3). The ring inserted into the main body is usually of cane (*Calamus* sp.) or tender reed poles (which tends easily). These reeds are cured by water treatment

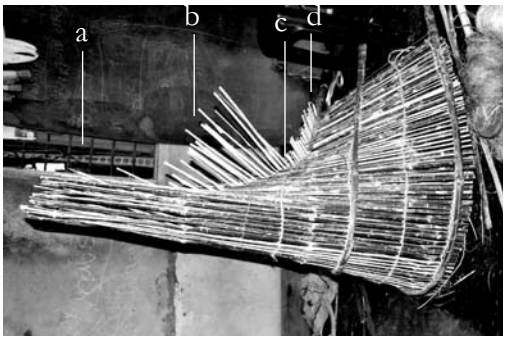

Figure 2. A fully braided thonnikkoodu. a-central path; b- criss-corssed splits; c-interknites, d-forked pole

and sun drying. The individual splits are entwined together with the tender canes instead of rope. The tail portion of the main body is closed with a separate cap like lid made of the cane itself (Fig. 3).

The Koodu is placed in small rivulets during the monsoon period sealing the gap with twigs to avoid the detour of the fishes. During the summer, the fishing by Koodu is rather interesting. The stretch of stream with mild flow rate is usually selected for Koodu fishing. The Koodu is positioned against the current in an apt place and two or

Fig. 3. Koodu made of reed and rattans (Wayanad district). a. the cap instead of peelee (tail).

three persons scare the fishes from the top of the stream by splashing with twigs on the water. The scared fishes get entrapped in the Koodu.

In Malappuram District, large scale inland fishing is associated with the Maranchery-Ponnanikole, a wetland system having connection with the Vemaband Lake ecosystem. The 220 ha kole sustains economically important fishes like *Channa striatus, C. marulius, Wallago attu, Etroplus suratensis, E. maculatus, Anabas testudineus, Ompok bimaculatus, Nandus nandus, Xenentodon cancila,* etc. The fishers have developed a unique type of Kooduto catch fishes like *C. straitus* and *C. 0marulius,* which fetch an exorbitant price in the domestic market (250-300/ kg).

The Koodu here is made of strong bamboo sticks (< 1m length) cleaved from high quality Bamboo species. The main body is fabricated by entwining the sticks by five interlace and distending circular by inserting two strong iron rings at both ends (Fig. 4). Two Pillakkoodu are fabricated in the same fashion mentioned earlier and attached on both the sides the main body. The fishes that are trapped would be taken out through a window like opening made on the main body.

The Koodu is placed randomly half or three fourth immersed in water, covered with the water plants, along the banks of the channels. The fishers exploit the behaviour (of snakeheads) of hiding fishes under aquatic vegetation. The snakeheads on finding the Koodu, enter into it and get trapped.

Fig. 4. Bi-mouthed Koodu (Malappuram district)

During monsoon, large sized *Wallago* are caught in plenty and is the major attraction of the monsoon fishery. The traditional fishers have modified the basic structure of Kooduto capture these large sized fishes. These are often referred as Kalan Koodu or Walak kooudu (*Wala* referable to *Wallago attu*). No difference in the basic structure of Koodu is seen except in the size and materials. Instead of small cleaves of bamboo, lengthy and strong bamboo poles of 10-15 ft are used. These are entwined with strong ropes (Fig. 5).

In Central Kerala, this traditional trap has undergone changes due to various reasons. The scarcity and high price of bamboo and reed and unavailability of quality eerkkil due to

rootwilt of coconut forced the fishers to think of alternative raw materials. The main body is thus fabricated with 5-6 bamboo poles which are tied well on a strong iron ring (instead of the pullani; *C. floribunda*) and plastic net of small mesh size is

Fig. 5. Walakkoodu common in Thrissur district

wrapped over it. However, Pillakkooduis made in the same basic pattern and attached to the main body (Figs. 6a,b).

The Koodu designed by the tribals in Munnar (Muthuvans) is an excellent example of their traditional skill. Here the main body is made on a single bamboo or reed pole. The Bamboo pole of desired length is cleaved in to 20 or 25 splits very thinly. These splits are weaved with thin ribbons cleaved out from the bamboo poles. The Pillakkoodu is in the same fashion as that of the other Koodu(Fig. 7).

The Kooduhave several advantages over other traditional traps. The construction of Koodu requires minimum economic input and it last for more than three years if cured and cared properly. The fishes can be caught live and thus avoid by catch mortality to fishes like *Ophisternon bengalense,* snakes *(Enhydris dussumieri)* and amphibians, which usually entrapped along with the fishes. The intensive fishing during the monsoon through gill nets on the other hand kills large number of snakes, frogs and symbrachian eels.

Fig.6. Modernization of Koodu (Thrissur district)

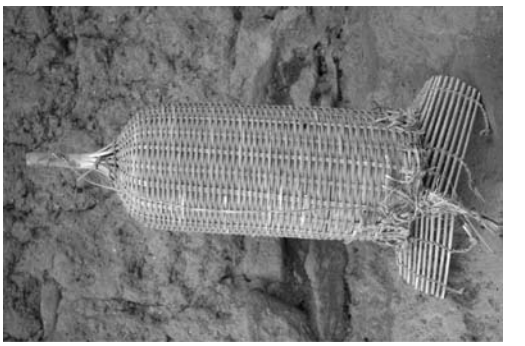

Fig. 7. The Koodu designed by Muthuvan tribes

DISCUSSION

The Koodu is a cosmopolitan, all season and eco-friendly fish trap used in Kerala. The design, fabrication and mode of operation vary from place to place due to the diversity of aquatic habitats, availability of raw materials, type of fishes to be collected, etc. The basic pattern of the Koodu is analogous to bamboo baskets in northeast India (Nirmale *et al.,* 2007; Gurumayum and Choudhury, 2009). The BuhRuhtrap of the Khasi communities of Himalaya (Tynsong and Tiwari, 2008) is also akin to the Koodu fabricated by the fishers of Malappuram district.

Previous studies on traditional knowledge related with fish and fisheries described various types of fish baskets (Remesan, 2006; Rathakrishnan *et al.,* 2009). It is inclined to believe that the popular structure of the Koodu is still undergoing

modification and innovation. The traditional fishers are fabricating big sized Koodu due to multifaceted reasons. Earlier, fishers braided only small sized fish baskets because the fishing area was so vast and that a trap however big could not be used for efficient fishing. Moreover vast floodplains offer few ideal locations to position theKoodu. Hence the fishers limited the fishing in small channels and rivulets with small fish baskets.

The entire scenario has however changed. The floodplain paddy lands have been filled ruthlessly or converted for cultivation of cash crops leaving a mosaic type habitat. The irrigation canals in the midst of paddy lands, the abode of freshwater fishes, were also filled up (Nikhilraj and Azeez, 2009). This has changed floodplains as small islands leaving very small canals to irrigate the remaining areas. The fishers accordingly modified the trap by increasing the size to fit well in the leaned channels. The roads constructed across the extensive paddy lands obviously left one or two small sluices for flood control and fishers accordingly designed the Kooduthat could fit well to the passage leaving absolutely no gap for the fishes to pass through.

The modification of the basic structure of the Koodu by replacing the natural materials is driven by scarcity and high cost of the materials like bamboo, reed, cane, etc. The plastic meshes could serve the purpose of the fine splits weaved together and also reduces the monetary input, save time and also require no traditional skill. The indigenous fishers are now experimenting on the prototype of the Koodu to increase the catching efficiency thereby overlooking sustainability. The small prototypes of the Koodu are now obsolete in many of the study sites.

The Koodu fabricated by the Muduvans, the hill tribes of Idukki district is a brilliant example of their meticulous observation and ingenuity. Probably this could be the smallest trap ever designed on a single piece of bamboo pole. This is operated in small rivulets and the targeted species are danios, rasbora, small carps, loaches, etc. The fish basket of Muthuvans explicitly proves the principle of sustainable utilization as they fish in minimum quantity (small size of the trap) and in appropriate time (never fish in the breeding period).

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