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# Traditional fishing traps of Mahanadi basin in Chhattisgarh

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**Abstract**
Traditional fishing traps of Mahanadi basin was studied in 2017-18 during the survey of fishing craft and gear operated in Chhattisgarh. With the advancement in the technology and modernization in the living style, the unique traditional fishing methods followed by the tribals of Chhattisgarh are in the stage of disappearance. This paper is an attempt to record the special indigenous fishing traps traditionally used by the fishers in Mahanadi basin. During the survey five (05) different types of fishing traps i.e. *Fandajali, Chingari jali, Dheer, Benda* and an Aerial trap were recorded. Collection of data was done using pre-tested questionnaire and spot observation with photographs. Most of the gears were old, made by locally available materials. Nowadays these traditional traps are very rarely used due to discontinuous flow of rivers and modernization of fishing gears.

**Keywords:** *Fandajali, Chingari jali, Dheer, Benda, Aerial trap,* Sihawa hills, fishing centers

## 1. Introduction
Fishing was evolved long before crop farming to cope up with starvation. Fishing involves the factors of adaptiveness, creativity and learning (Sathyanarayanappa, 2006) [2]. India is endowed with huge water spread of freshwater resources that exist in the form of rivers, canals, reservoirs, lakes etc. River Mahanadi, a major river in the east central India, originates at 660 m above MSL in the Sihawa hills of Kanker basin ($20^0$-20' N and $82^0$30'E) located in the North of Paragon plateau and Baster Hills at the extreme South west corner of Dhamtari district near Pharsiya village, Chhattisgarh (CMFRI, 2007). The rich and varied fisheries resources of the lake, river, reservoirs and ponds of Chhattisgarh are exploited by the fishermen by using diversified fishing methods and gears. These are locally designed to suit the local conditions and fish species. With the advancement in the technology and modernization in the lifestyle, the unique traditional fishing methods by the tribals of Chhattisgarh are in the dying stage. Some of the traditional practices of Baster were documented (Adikant *et al.* (2011) [1]. Kumar *et al.* (2017) [8] mentioned about the availability of five different gillnets used in the Madamsilli reservoir with wide variation in design features of gillnets. Pathak *et al.* (2007) [9] reported ecological status and production dynamics of river Mahanadi and mentioned about eight different types of fishing gear available in the upper stretch of the river. Manoj kumar (2005) [10] reported some of the fishing gears like gillnets, hook and dragnets and flat bottom dugout canoes used for fishing in Dudhawa reservoir. Baghel (2013) [11] studied the Icthiofaunal diversity of Baster district and reported some of the traditional fishing traps, bag nets (mendhar), lift nets (Chogodi), pung basket etc. However, detailed scientific documentation of the traditional indigenous fishing techniques of Chhattisgarh in the freshwater sector of this major river of Central India is lacking.

## 2. Material and Methods
Mahanadi river system of Chhattisgarh was selected for the study. The river lies between $20^0$ 20' N and $82^0$ 30' E in the north of Paragon plateau. The river traverse through 9 districts of the state and the study was carried out in 11 fishing centers of the river system. The data were collected by interviewing 75 fishers with the help of pre tested questionnaire and also by direct observation. The study covered three reservoirs namely Dudhawa reservoir, Madamsilli reservoir, Ravishanker reservoir and eight fishing centers i.e. Dudhawa canal, Rudri barrage, Dargahan anicut, Megha anicut, Rajim anicut, Dewarghata village, Barekal kala village and Chandrapur village in the Mahanadi river system (Fig.1).

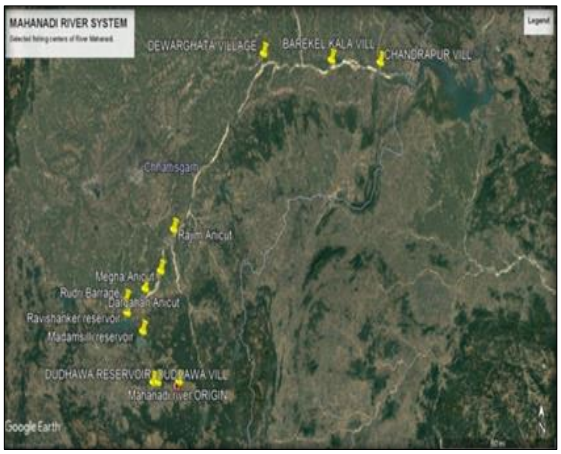


**Fig 1:** Map showing study area

## 3. Results

Fishing traps used in the selected three reservoirs and eight fishing centers varied from place to place. Few very rare to find traditional fishing techniques still existing in the fishing system of Mahanadi basin were observed. Some of those techniques including fishing traps are documented as follows:

### 3.1 *Fanda jali*

It's a box trap, locally called as "*fandajali"*. The trap is rectangular shaped and is made up of bamboo strips with two inlets of "V" shaped structure, made of wooden sticks and their ends touch together at the middle resembling spines, thereby preventing the trapped fishes from moving out of the trap (Fig.2). The length was about 56 cm, width 45 cm and the height 45 cm. The bamboo strips of 4 to 6 mm diameter were placed at a gap of 15 mm. Mouth opening of 40×15 cm was on both the sides parallel to each other (Table 1). An opening is provided on the upper portion of the trap to collect the catch. Freshwater shrimps, puntius sp., are the major catch.

**Fig 2:** *Fandajali*

### 3.2 *Chingari fanda*

*Chingarifanda* has cubical structure with a small round mouth opening at both facets opposite to each other for the entry of fishes. Mouth opening of 20 mm diameter is present on the inserted "U" shaped wall of trap. It is vertically set against the water current and is covered with shrubs and dry leaves. A big opening is provided in the top for removing of trapped fishes. '*Chingari fanda'* was observed at Dargahan anicut and Rajim anicut along the Mahanadi river. Height of the trap was about 16 cm while width was 18 cm and length 20 cm (Plate A2). The operation was generally done in river streams by placing the trap the corners where the water flow is maximum. It is also covered with some dry leaves and dead plants. The main target catch of this trap is small prawns that are called *Chingari* in the local language.

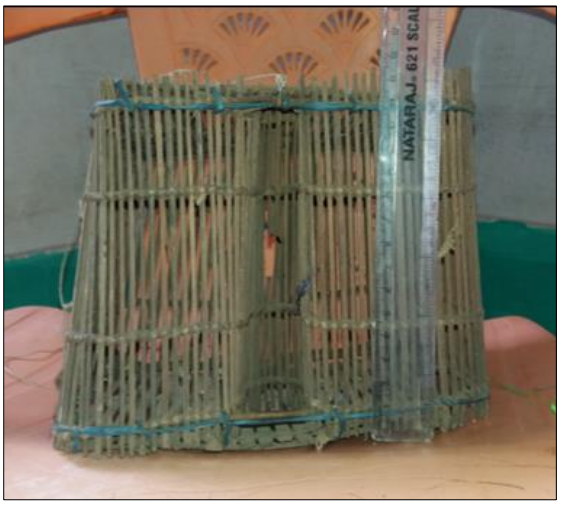

**Fig 3:** *Chingari fanda*

### 3.3 *Dheer trap*

This trap is famous all around the region. It is a type of box trap and design is totally different from *chingari funda*. It is made up of fine bamboo sticks of 2-3 mm diameter. Multiple inlets of size 10x6 cm were available in side walls. The width of the trap is shorter as compared to the length and height. The length varies from 60 to 120 cm, width 30 cm and height 40 to 45 cm (Fig. 4). An opening was provided at the top of the trap to collect the catch. Thicker bamboo strips were used at top and bottom at an interval of 15 cm as main frame of the trap. Typical design details are depicted in Table1.

*Dheer* is operated in series across flowing water body and is fixed together by a cross bamboo pole. The gear is operated during monsoon season in rivers and during late monsoon in paddy fields when the flood waters start receding. The target catches are *Clarius batrachus*, *Heteropneustes fossilis*, and *Channa* sp, etc.

**Fig 4:** *Dheer trap*

### 3.4 *Benda jali*

*Benda jali* observed in Dargahan anicut is a type of cylindrical trap. It is also made up of bamboo strips and a mouth opening of 10 × 4 cm size is present at the base of the body. For taking out the catch opening is given at the top of the trap (Fig 5). This opening is tied before setting of the trap in the field. The shape of this trap is similar to the circular dome having a square plate as the base. About 6 rings are present with a gap of 4 to 5 cm. The operation of *Benda jali* is generally in the shallow water streams of the river which is directed to flow through these traps. To hide its presence, the trap is covered with dead and dried leaves and shrubs. The main catch were indigenous fishes like *Puntius sophore*, *Puntius sarana*, *Parambassis lala*, *Colisa fasciatus*, *Chanda nama*, *Chanda ranga*, *Channa gachua*, *Xenentodon cancila*, *Amblypharyngodonmola* and small shrimps etc.

**Fig 5:** *Benda jail*

### 3.5 Aerial traps

Fishes use to move against the flow of water and fishers use this moving pattern to catch them. Locally called Jhokni an aerial trap found in the Dudhawa reservoir Canal of Mahanadi River. This trap locally designed and operated from the canal embankment in the monsoon months. When water is released from the dam, turbulent water flow makes disturbances in the water column which causes agitation and fishes try to jump opposite to flow of water. The aerial trap is kept just near to the water surface keeping a height of one feet as the fishes jumps opposite to water flow they caught into Aerial trap hanging over water. (Fig.6). after collecting adequate quantity, fishes are collected. Observed trap was designed of bamboo frame having length of 6 meter, width 1.2 meter and the diameter of bamboo used was 50 mm. Net attached to the frame is polyethylene (PE) mosquito nets having mesh size of 2 mm. Generally, the collection of fish happens after every 15 to 20 minutes. Fishes caught in this gear are – Catla, Rohu, Silver carp, Freshwater shark, Seenghad, Puntius species etc. These traps have no target species, catch depends on the available fish fauna of the water body where the trap was installed.

**Table 1:** Design details and specifications of fishing traps of Mahanadi river system

| Sl. No. | Particulars | *Fanda jali* | *Chingari fanda* | *Dheer* | *Benda jail* | Aerial trap |
|---|---|---|---|---|---|---|
| 1. | Type of trap | Box trap | Box trap | Box trap | Cylindrical trap | Hanging trap |
| 2. | Material of the gear | Bamboo and iron frames | Bamboo strips | Bamboo strips | Bamboo strips | Bamboo and fishing mosquito nets |
| 3. | Length of gear (cm) | 56 | 20 | 60 – 120 | 40 | 6 m |
| 4. | Width of gear (cm) | 45 | 18 | 30 | 27 | 1.2 m |
| 5. | Height of the gear (cm) | 45 | 16 | 40 | 50 cm | - |
| 6. | Number of rings | 4 | 2 | 1 | 6 | - |
| 7. | Distance between rings (cm) | 9 – 10 | 4 + 6 + 4 | 17 | 4 – 5 | - |
| 8. | Number of mouth | 2 | 2 | 2 – 3 | | - |
| 9. | Area of mouth opening | 40 × 15 | 4 × 15 | 10 × 6 | 10 × 4 | - |
| 10. | Diameter in closed end (mm) | - | 20 | - | 4 | - |
| 11. | Ring material | Fine Bamboo strip | Bamboo and plastic rope | Bamboo strip | Bamboo | - |
| 12. | Fishing duration (hrs) | 12 to 14 hrs | 1 to 4 | 2 – 4 hr | 1 – 2 | 2-6 |
| 13. | Catch quantity (kg) | 1 – 5 | 1 – 2 | 1 – 5 | 1 – 2 | 1-15 |

**Fig 6:** Aerial Trap (*JHOKNI*)

## 4. Conclusions

Fishing traps indicates the creativity of the fishermen and they enlighten us about the fact that which trap was suitable for which fish. Most of the fishing traps used by fishers in the Mahanadi basin in Chhattisgarh are eco-friendly and responsible as they are made up of locally available natural materials. Fishing with traps can be enhanced with technology to target better efficiency of catch and also for the durability of the gear.

It was unfortunate to observe fishing communities of Mahanadi basin are not interested in taking up fishing as occupations as it does not guarantee a steady income. It ultimately result to disappearance of this traditional fishing method government has to initiate measures to protect these traditional practices.

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