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## Different Fishing Gears Used by the Sumi Tribe of Dimapur (Nagaland)

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### ABSTRACT

This present study deals with various fishing gears used by the Sumi tribe of Dimapur (Nagaland). The study described a wide range of fishing gears as well as some indigenous methods that are used by the tribal people. Eight different fishing gears were observed during the study. Scooping gear, traps, impaling gear, encircling gear and hook are commonly used by the people along with the electric fishing and plant poisoning. Three indigenous methods- AZULA XE, AKHA KI and AKHA HEPHE CHEKEU were also recorded during the study.

**Key words:** Fishing gears, Indigenous methods, Tribal people, Sumi tribe, Dimapur

Fishing is one of the earliest traditions of the people of North-East India as well as the rest of the country [4]. Fishing techniques differ with variation in topography, ecology and available resources of an area [9]. The use of a specific gear depends on depth of water, size of the fish and their migratory behaviour [3]. Some primitive fishing methods are also very operational to catch some specific fishes. To catch the slippery and sneaky hill stream fishes, the people of North east used locally available materials and apply indigenous ideas and skills [5]. This study is conducted to acquire more knowledge regarding the different fishing gears used by the tribal people of Nagaland, focusing mainly on the Sumi tribe. Along with this, the indigenous methods that are practiced by the Sumi tribe are also documented. Several workers have made an extensive contribution in understanding the different types of fishing gears, their variations, fishes caught and their operation method used in North East India. It is observed that to catch hill stream fish's various hooks and line, encircling gear, maze/barricade, entangling gear, noose fishing and indigenous traps are used [5]. The people of Mizoram used locally available materials and apply indigenous ideas and skills (ITK) for fishing [7]. Use of traditional fishing gears and implementation of traditional fishing practices should be given priority to promote sustainable fishing and socio economics upliftment to the fishermen [11]. The advent of new fabrication materials has leads to rise of many efficient fishing techniques and the ones that were efficient in the past have become non- remunerative and unattractive and hence they are naturally being phased out [1].

### MATERIALS AND METHODS

The study was carried out in “Dimapur district” which is situated in Nagaland state of India. Dimapur is situated at 25° 54'45''N latitude and 93° 44'33'' E longitude, the district occupies a total area of 927 km<sup>2</sup>.

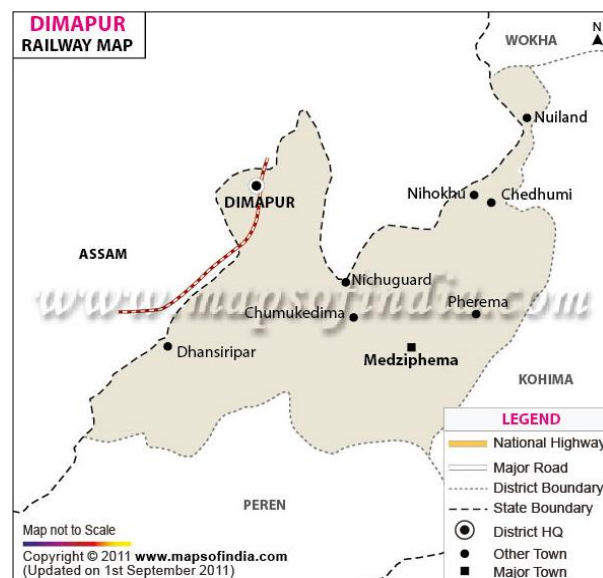


Fig 1 Map of Dimapur district  
(Source: www.map of India.com)

A field survey was carried out and all the relevant data about the different fishing gears were inquired from people. Study was carried out during July 2019- 20. The local people/ fishermen were personally interviewed and field visits are done. A questionnaire was prepared to collect the information.

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## RESULTS AND DISCUSSION

From the study it is observed that various methods ranging from catching with hands to the operation of indigenous methods are adopted among Sumi community. Based on the mechanism in the capture process, fishing gears of Sumi tribe of Dimapur district can be classified into following types:

1. Scooping gear
2. Traps
3. Impaling gear
4. Encircling gear
5. Hook
6. Electric fishing
7. Plant poisoning
8. Indigenous method

### *Scooping gear*

It is a very simple and common gear. It is operated by a single person. In shallow water regions scoop baskets, made up of bamboo are used. Two types of scooping gear are recorded in the present study.

*Akha shochekeu*: It is a pouch of bamboo matting, which is triangular in shape with wide mouth. The bamboo pouch has sieves at an interval of 0.3-0.7 cm. [2]. A bamboo rod is fixed across the mouth from the middle of the base to the triangle to the vertex and is prolonged to a short handle. The fishermen plunge it into the bed of water with the mouth facing him and scoop the fishes into the pouch that are present at the ground. The fisherman in standing position rapidly lifts it up. The fisherman scoops the gear periodically to remove the harvest. It can be used in low depth water. Small sized fishes are caught with the help of Akha shochekeu and this gear is used from the month May to July.

*Akha sho*: It is a commonly used scooping basket. It is a medium sized bamboo basket. It is bowl shaped and used for scooping the fish out of the water. Its diameter is nearly 30 cm, and is made up of split bamboos. When water remain low in derelict or seasonal ponds, water is disturbed vigorously till it becomes muddy. Due to silt, respiration problem arises and fish starts surfacing. It is used to sieve the surfacing fishes. The basket is dipped into water and lifted suddenly after towing some distance under water. The water strains down leaving fish in the gear. Small to medium size fishes are caught with Akha sho and it is operated during May to July.

### *Traps*

This method is very common because less time and less maintenance is required and no physical attendant is needed. The trap is designed in that way that once the fish is entered, it cannot escape.

*Akha qhu* (1): This is a funnel shaped trap made of a single piece of a thick bamboo, made by splitting a large bamboo into different thin line rods which are tied together by threads of cane. It has a wide mouth opening and gradually tapers towards the end. During rainy season when fish comes out to the paddy field from the water-logged areas, fishermen place the trap at shallow weed infested water bodies for several hours. Along with the water current fishes are trapped inside the Akha que. This trap is

traditionally practiced due to its low money cost, low energy cost and ease of operation. With the help of Akha que small to medium sized fishes are caught and it is operated from September to December.

*Akha qhu* (2): It is a small pitcher, woven from strips of bamboo. It has bamboo strips at the opening so as to prevent fish from going out once it gets trapped inside. It can also act as a basket to keep the fish once it is caught. It is closed at the bottom, with the mouth opening across the flowing water. During September to December Sumi tribe use this gear to catch small sized fishes.

### *Impaling gear*

This is a form of gear by which a fish is impaled by a sharp device. The basic principle of the method is to make fish wounded using some device like harpoons, spears, knife etc. The device can only be employed when the fish is visible. Impaling gear is easy to manage and very useful in catching fishes. This method is usually operated during calm season and low tides in shallow waters near shore with a few meters depth where fishes are known to aggregate. After locating the fish in water by observing the bubbles or the movement of the fish, the spear is thrown. This gear is applicable in small water bodies where water depth is less.

*Akha ghekhe chekeu*: It is commonly used fishing gear. Akha ghekhe chekeu is a bamboo-made spear. Its length is about 1.50 to 2 meters, fitted with many sharp iron points to ensure that fish will be held fast once the iron point pierces the body. The iron points are firmly tied in a bunch on one end and the other pointed ends are arranged in such a way as to cause them to diverge from one another and are detachable. It is thrown at the larger fishes by the fisherman. This method is very time consuming and efficacy level is also low as the fishes are seldom used for sell as the fish is wounded and does not get a market. This gear is operated throughout the year to catch large size fishes.

### *Encircling gear (cast net)*

The encircling gears are found to be operated in shallow water. The salient feature of this net is that, irrespective of the size, it is provided with a peripheral pocket. It is handed by a single person. Cast net is small bell-shaped net with weight on the periphery and having a string. The principle of this gear is to throw the net in a circle for trapping the fishes of a water body. Cast net is operated in rivers, beels, and pond throughout the year. It is single handed operated net with different mesh and pockets size to catch targeted fishes throughout the year.

*Akha meh*: It is a circular net having the shape of a large umbrella. A strong cord is attached to the apex and a number of lead or iron weights are fixed all along the margin. The diameter of the cast net ranged from 1 to 2 m and the mesh size ranged from 0.5 to 3 mm. Fisherman throw the net fully spread over the water, keeping the long rope on his left hand. Once the net is cast and drawn, the bottom part of it is closed together by the weight of the lead and the fish are entrapped inside the net. All kinds of fishes can be caught by using encircling gear. Encircling gear is used throughout the year.

*Hook*: Here the fishes are individually caught and retained by hook. In this technique, artificial or natural baits

are used to attract the fishes to swallow a curved needle or hook.

*Akha musu chekeu* (1): In this method, a rod or bamboo stick is tied with indigenous fibre or nylon twine and the end is fixed to a hook. An artificial or natural bait is attached to the hook. The baited hooks are thrown in the water and the floats or thread lines used are observed for its movement. When baited hook is swallowed by fish the thread jerks, and the fish are caught and hook engulfed by the fish is removed. A sinker or float may or may not be present. Small to medium sized fishes are caught with this gear throughout the year.

*Akha musu chekeu* (2): This is a more advance and modern gear as compare to akha musu chekeu (1), but its

functions are more or less same. The fishing hook used in this gear has specific design that causes them to appear circular in shape. Used primarily for live bait fishing, these hooks increased hooking percentages and help to prevent gut hooking fish. When a strike occurs, the barb penetrate only after the hook reaches the corner of the mouth and in turn it jerks the thread attached to the rod. At that moment the fisherman pulled the thread out of the water.

*Electric fishing (battery)*

In electric fishing, electric field is created in water which immobilized the fishes and fishes are collected. This method is becoming very popular in most part of Nagaland. During November and January electric fishing is used to catch medium to small fishes.



Fig 2 Akha shochekeu



Fig 3 Akha sho



Fig 4 Akha qhu 1



Fig 5 Akha qhu 2



Fig 6 Akha ghekhe chekeu



Fig 7 Akha meh



Fig 8 Akha musu chekeu (1)



Fig 9 Akha musu chekeu (2)



Fig 10 Electric fishing



Fig 11 Azula xe



Fig 12a Akha ki



Fig 12b Fishes caught in akha ki

Table 1 List of Fishing gears used by Sumi tribe of Dimapur district			
English name	Local name	Size of fishes	Fish species
Scooping gear	a. Akha shochekeu	Small to medium sized fishes	<i>Puntius sp.</i>
	b. Akha sho		<i>Chanda sp.</i> etc.
Traps	a. Akha Qhu (1)	Small sized fishes	<i>Channa sp.</i>
	b. Akha Qhu (2)		<i>Garra sp.</i> etc.
Impaling gear	Akha ghekhe chekeu	Big sized fishes	<i>Labeo sp.</i>
			<i>Cyprinus carpio</i>
Encircling gear	Akha meh	Small sized fishes	<i>Cirrhinus mrigala</i> etc.
			<i>Puntius sp.</i>
Hook	Akha musu chekeu (1)	Small to medium sized fishes	<i>Garra sp.</i>
	Akha musu chekeu (2)		<i>Barilius sp.</i> etc.
Electric fishing	-	Small to medium sized fishes	<i>Puntius sp.</i>
			<i>Channa sp.</i>
Plant poisoning	-	All types of fishes	<i>Labeo sp.</i> etc.
			<i>Barilius sp.</i>
Indigenous methods	a. Azula xe	Small to medium sized fishes	<i>Channa sp.</i> etc.
	b. Akha ki		<i>Catla catla</i>
	c. Akha Hephe chekeu		<i>Cirrhinus mrigala</i>
			<i>Puntius sp.</i> etc.
			<i>Garra sp.</i>
			<i>Devario sp.</i>
			<i>Barilius sp.</i> etc.

Plant poisoning

This is another common method of fishing among Sumi Tribe. Various plant derivatives are used as poison. The plant components are mixed proportionately and is thrown into the river. Poison of a single plant is sufficient to kill the fishes. By using plant poison, fishes can be catch at a large scale. The fish killed by these methods is fit for human consumption. Leaves of the walnut tree are commonly used by the Sumi tribe in this purpose.

Indigenous methods

The following indigenous methods are practiced by the Sumi tribe.

**Azula xe:** It is an indigenous method practiced by the Sumi tribe, where a stream is diverted into a small channel

with the use of mud, plants and boulders that are available on the site, so that the water from the stream is bailed out and the fishes are caught easily. Once the partition is done the poisonous plants are crushed and are released into the water. The dead fish that rise to the water surface are then collected. This method can be used from November to April to catch small to medium sized fishes.

**Akha ki:** This literally translate to ‘fish house’ instead of using bamboo, the fishermen use the trunk of the banana plant closed at one end by a node and open at the other end. The trap is laid on the flowing water and its position is marked with floats of aquatic weeds. Fishes taking shelter inside it are caught by periodical lifting, the gear is very easy to make, as the trunks are usually available on the river banks. Small sized fishes are caught with this gear. This gear

is operated from April to July.

*Akha hephe chekeu*: The fisherman usually uses a hammer to break the large boulders that are usually present in the middle of the river and collect the fish which are found under the rock, with the help of the hands. By using this method all kinds of small fishes can be catch from October to February.

From the study it is observed that there are eight types of gears which are used by the people of Sumi tribe of Dimapur district. Among various fishing gears electric fishing is one of the most destructive gear uses by Sumi tribe. It is observed that fishing with traditional gears is eco-friendly in comparison to the destructive fishing, which imbalances the aquatic biota. Traditional knowledge plays very useful role in rescuing disappearing knowledge and return it to local communities. Traditional knowledge helps to maintain a sense of pride in local cultural knowledge and practice and reinforcing link between communities and environment, therefore essential for conservation [4]. Indigenous traditional knowledge among fishing communities is wide and varied. A number of similar fishing methods have been reported to occur in various parts of

India. Since not much technicalities in operation of these traps are required, they are easily adopted [10]. The Azula Xe which is an indigenous method practiced by the Sumi tribe is similar with that of *Lui thliar* which is practiced by the Mizo people [7].

## CONCLUSION

Present study concludes that the gears are of great importance when it comes to fishing. It has a impact on the fishermen's livelihood and the socio-economic status of fish farming. A study was attempted to identify and classify the different fishing gears used by the tribal people of Dimapur, Nagaland focusing mainly in the sumi tribe. In total 8 different types of gears were recorded; Akha meh, Akha Musu Chekeu and indigenous method- Azula Xe and Akha ki were frequently used. While other modern methods like electric fishing is also become popular among the tribal people, Importance are usually given to the use of indigenous methods as the materials needed for it to function are easily available and since the indigenous practices is a sustainable method, there is a need to preserve and promote such practices.

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