Chapter 5

Subsistence Pattern

Subsistence pattern in very simple sense is the study of sources and the methods a society uses to obtain its food and other necessities. The study of subsistence is important for evaluating human-ecology relationship and for understanding the human ecological relations to their environment.

The forests of the study area are under the traditional control of the community and play a significantly important role in meeting the resource needs of the community. These communities have an intricate understanding of the natural processes and have evolved their indigenous customs and myths, tradition and tales in close proximity to the wilderness. In the absence of mass production in agriculture and industry, forest resources played an important role in the hill economy (Sikdar 1982). The subsistence economy is very vital for tribal existence; the Adi-Galos are no exception.

The region has an elaborate mosaic of cultures and subsistence strategies. The main subsistence of the Adi-Galo tribe includes swidden cultivation and animal husbandry. Apart from agriculture they have broad diversity of food-gathering techniques. They hunt games, trap birds, fish and gather wild foods because of rich varieties of flora and fauna in which they live in. Thus, they have not only relied upon the provision of nature to meet their daily needs but at the same time they have also modified the environment in order to make it better suit their needs for subsistence.
Ethnoarchaeology plays a very important role in the study of agriculture adaptation. They practice agriculture with very basic and simple tools. The continuity between the prehistoric and the present indigenous agricultural systems which has not been greatly modified offers a model to undertake ethnoarchaeological study in the region.

5.1. Agriculture

Agriculture undoubtedly plays the key role in the native food production. All the tribes of Arunachal Pradesh practice agriculture both wet or jhum cultivation. With the introduction of new technology there are instances of modern equipments being used. The Siang valley has two different types of terrain. First there are the steep slopes of the mountains and second is the plain land of the foot hills. To make optimum use of these two distinctly different landforms, the Adi-Galos have devised two different agricultural practices: jhum or shifting cultivation and wet cultivation or permanent cultivation that co-exist. The former has been evolved in the long immemorial past in response to the inhospitable nature of the hilly terrain and is practiced almost universally by the local tribes. The wet or permanent cultivation is comparatively of a recent phenomenon that makes its way along with the increasing interaction of the isolated tribal communities with the outer world, modern administration and so on. However, settled cultivation is practiced more in the foothills which comprise a very insignificant portion of the total land area.

5.1.1. Terrace cultivation or wet cultivation

In olden days, jhum cultivation locally termed as moo`dii-`rwkv or `tump `rwkv was the only known form of agriculture but today all the suitable lands have been brought under wet rice cultivation or terraced rice cultivation. Wet rice cultivation is of recent origin. Locally it is
called `isi-rwkv`, literal meaning ‘water field’ and considered most valuable landed property. A man is considered wealthy among them on the basis of the possession and size of `isi-rwkv` (Fig. 5.1).

Terraced cultivation is more popular and best practiced among the Apatani tribe who have been practicing this form of cultivation since time immemorial with their highly evolved and more advanced indigenous irrigation system. Apatani system of farming is an efficient system of farming where rice cultivation is integrated with fish culture on terraces (Saikia and Das 2004). The cropping pattern of wet cultivation is mono-cropping. In this form of cultivation, rice is the only crop of cultivation. The area under wet cultivation is permanent over years. The principal tools required for wet cultivation is hoe and machete. Use of plough among certain farmers is due to influence from Assam.

Preparing and maintenance of terrace fields are an expensive affair. The terraced land is privately owned and subject to sale and purchase. Mostly, the farmers depend on manual labour for the cultivation of their land. With the onset of the monsoon in March, the preparation of field is initiated as the soil is thoroughly soaked and loosened. Generally, men do the ploughing or preparing the terraces, making dykes, making channels for irrigation or making fencing around the field. A permanent rest place is also constructed in the field. In the absence of any male member in the family, the help of male relatives is sought or labours are hired to prepare the terrace for transplanting. Hoe (iron blade with wooden handle) and machete are the tools mostly used for clearing, ploughing and levelling of soil in terrace cultivation. Use of tractors and motor machines are recently introduced by the affluent farmers (Fig. 5.2).
Levelling is done twice to make sure the soil is smooth enough for sowing seedlings. While levelling, boulders, pebbles or woods are removed from the soil and are used for banking up the dykes of the plots. The whole terrace is divided into small plots of the same size but at times may differ due to the nature of the ground.

The terraces are well irrigated by water which is channelled from some perennial and temporary stream through canal dug in the ground or bamboo tubes placed on the surface. The presence of a water body is crucial. Terraced fields are usually located near rivulets or mountain streams and have, therefore, perennial source of water supply. These mountain streams are diverted to enter the rice fields and used as community irrigation channels. The stream and rainwater gets easily drained due to the gentle slope of the region and artificially dug earthen channels. Through these main dug channels the water flows down into the fields through several feeder channels (Fig. 5.3). At times the rainfall in this region can be quite heavy and many terraced fields can be flooded, therefore measures are taken to remove the excess water from the field. Arrangements are made to irrigate each plot by storing the water in the cultivated field itself and the excess water is drained out through small bamboo tubes which are used as inlet/outlet channels constructed through the dykes. Through bamboo tubes, excess water of one plot is drained to another and in this way the whole field gets irrigated. Thus the outlet of one rice plot functions as the inlet for the next rice plot at a lower level. Thus, water finds its course from field to field through a network of channels and then meets the major streams at the lowest level. After the preparation of plot and irrigation ensured, the work of the womenfolk starts.
Fig. 5.1: Terrace cultivation

Fig. 5.2: Use of Motor
From the month of April, transplantation of the seedlings takes place. The rice seedlings are grown separately in specially prepared seedbeds. When the seedlings are 30-40 days old, it is carefully uprooted and transplanted into the main plots which have been ploughed thoroughly (Fig.5.4). Uprooting the seedling and transplanting are mainly done by women; uprooting is generally done by elderly womenfolk while transplanting the seedlings is done by young girls (Fig. 5.5). The number of the seedlings and the space in between two seedlings depend on the quality of the paddy. After transplantation, ensuring constant supply of water becomes the prime concern of the farmer. Two months after the transplantation, weeds appear, and that is when the process of weeding starts. Normally weeding is done twice before harvesting. While weeding, the weeds are not thrown out of the plot but are dumped inside the plot itself as it decomposes and becomes nutrient for the soil.

During this whole process it is important to maintain the level of water in the plots as to keep the field from dryness. Harvesting is mostly a cooperative work between the men
Fig. 5.4: Seedling

Fig. 5.5: Transplanting paddy

Fig. 5.6: Harvesting
and the women. Women carry a basket along with them while harvesting and with the help of a knife, rice panicles are cut and at times sickle is used (Fig.5.6). While harvesting, the stubble is left in the field. These stubbles decompose in the plot itself thus replenishing the nutrient of the soil. Therefore, no chemical or inorganic fertilizer is required. Sometimes farmers use cow dung too as manures. After the harvesting, grains are dried properly and stored in granaries for future consumption.

5.1.2. Shifting Cultivation

The second type of cultivation is shifting or jhum cultivation which is practiced since time immemorial by the Adi-Galos. Shifting agriculture is the oldest cultivation system practiced throughout the tropics and sub-tropics.

Shifting cultivation as a system of cropping practice represents the indigenous form of agriculture being the most commonly and customarily accepted in this region. Arunachal Pradesh being a mountainous region has very negligible arable flat lands suitable for settled cultivation.

*Jhum* is not only the more popular form of cultivation but is also a way of life for the tribes. *Jhumming* is very closely associated with their culture and tradition. There are various rites and rituals starting from sowing to the storage of grains which are associated with the *jhum* cultivation. These rituals are customarily done for the control of rodents and pests from destroying the paddy and to appease the benevolent spirits associated with agriculture. Arrangement for social gathering or feasting is invariably done throughout clearing, sowing, weeding, harvesting and storage of the grain etc. In spite of difficult and strenuous topography, they still prefer shifting cultivation over terraced cultivation because
in shifting cultivation apart from upland rice (paddy), many subsidiary crops are also grown. The major crops produced from jhum apart from rice is millet, tubers, maize, tapioca, chillies, cucumber, beans, ginger, yam, cucumbers and varieties of leafy vegetables. These food crops provide the farmer and his family for personal consumption as well as with extra income. Apart from these crops and vegetables, shifting cultivation also provides them with firewood to keep them warm as this region experiences extreme cold in winters and wood which are used for various building activities like construction of house, granary etc. The fodder for animals also comes from the Jhum field thereby decreasing pressure on pastoral land.

Hoe has played an important role in shifting cultivation throughout North-East region but among the Adi-Galos the use of hoe for shifting cultivation is unknown. Iron hoe with wooden handle is used only for terrace cultivation. The main tools needed for shifting cultivation is axe, dao, weeder and knife. There are different stages in shifting cultivation.

Site Selection

For the selection of an appropriate piece of land, the Adi-Galo farmer does a survey of the whole area to ascertain the fertility of the land. The selection of a particular site depends on many factors like local rules of ownership and inheritance, quality of the soil, availability of resources like the quality and quantity of wood that can be gathered and so forth. Distance of the field from the house is not a big problem with them as long as there are other farmers around his field. Having a co-farmer nearby one’s field is an additional advantage as help can be sought in case of sudden accidents.
The Adi-Galo farmers’ primary choice is a virgin piece of land for cultivation as it produces lesser weeds than secondary forests thereby reducing the physical labour of the farmers. The virgin land is called mooro and the secondary forest is called `moobii. In most cases, a secondary forest is cleared again for cultivation after a gap of 8-10 years. During this period a cultivable soil will be ready through the decay of the vegetable matter and reclaiming of the field by the native plant and tree species. The Adi-Galo farmer can judge whether or not a plot is ready for re-cultivation by the amount and height of secondary growth it carries. Some sort of payment in cash or kind is made by the farmer to the owner of the forest for using the plot for agricultural purpose.

ii. Clearing of the forest (Rwkv `panam)

Having chosen a site, clearing is done. Clearing of the forest generally starts from the month of December. Clearing of the site is a combined effort of both the men and women. Clearing is done in a very systematic way: starting at the bottom to reach the summit. First of all undergrowth, big creepers and climbers are cut and removed so that felling big trees would be easy. Wild banana plants take long time to dry, so these are felled down in advance.

Women help to clear the undergrowth using `orok (machete) while men use axe to fell down big trees. Big and straight logs are sorted out which can be used for the construction of the farm hut or later on for the construction of house. Important fruit trees are spared. Certain kind of trees are considered as the dwelling place of malevolent spirits locally called yapom, so either these trees are not touched or are cut down only after performing a small ritual called pombek in which a fowl and eggs are sacrificed to pacify the
spirit. If the tree is a `hwrek tree then a big fowl or even a dog is sacrificed but generally left uncut. Big trees are left uncut after trimming the branches.

After cutting down the undergrowths and the trees, the remains are left at least for about 2-3 weeks, for drying before being burnt.

iii. Setting of Fire (Vmv-`runam/ Koojum niino)

After the fallen trees are well dried, fire is set to the field. Firing is generally done in the month of March. Setting fire is mainly done when the sun is at its high. Before setting fire, a small prayer is done which is called `yybo- cvnam in which the farmer chants, requesting the fire to burn the field well and not to go out of its way and destroy the surrounding nearby forests. Burning down all the dried vegetation debris not only add another layer of nutrients to the soil but also help eliminate most pests and weed species. The day the field is burnt, a small feast is arranged by the farmer to celebrate the successful burning of the field.

iv. Clearing of the half burnt debris (`rwgrom `paanam) and providing amenities for the field

Clearing of the debris is done immediately after the setting of the fire. Single firing is not sufficient to burn all the felled vegetation, therefore, the unburnt debris are collected and burnt again (Fig. 5.7). After burning and cleaning the plot the next important thing is to make a strong and sturdy fence around the plot to protect the paddy from the animals especially from the domestic pigs, cows and even mithuns which are a hindrance to the growing crops. The fence is made of wood and bamboo stored from while clearing the
forest. Building fence around the whole agricultural field is an arduous task therefore relatives and friends are invited to help.

Apart from a strong fence, a small structure is also constructed in the field where cooking can be done and rest can be taken after day’s hard work. This hut is called `naakum and it is generally constructed in the middle of the field so that it can be easily approached. This hut is made to be used temporarily for a year. After the harvesting is done, the woods used for the construction of the `naakum are brought home as fire woods. Small feast is arranged in the evening and people who helped in the setting up the field are invited. After clearing of the plot and the construction of the fence, the work of the womenfolk starts.

v. Sowing (amo-chinnam)

Once the field is ready, seeds are sown. The grain seeds are sown before the rainy season begins, starting from the month of April. Sowing is exclusively females’ job. It is done with the help of a digging stick called `ciqii and a small basket called `cuucak which is tucked around their waists to carry the grains. The digging stick is prepared by first removing the knot and the bark, and shafting one end into a point. With the pointed end of the dribble, holes are made into the ground and then an accurate amount of seeds are thrown into these holes from a distance of a metre and these holes are then slightly scraped over to protect the seeds from being eaten by birds. The sowing is carried out in a systematic pattern under the swinging movement of the women (Fig. 5.8). Normally, the women stand in a row and proceeds with the sowing in a linear pattern parallel to each other. The women most conversant with the technique position themselves on the extreme ends in the row and lead the team making sure that the process is carried out smoothly and no space is left
Fig. 5.7: Shifting cultivation

Fig. 5.8: Digging stick used for sowing

Fig. 5.9: Some of the Agricultural Implements

a. ‘Wwk  b. ‘Loolom  c. ‘Orok
uncultivated. In sowing, a dibbling stick is the only tool. The tools used for shifting cultivation are primitive and basic (Fig. 5.9) (Table 5.1).

Sowing is a group activity and is accompanied by small merry-making activities such as having a feast of rice cake in the field and smearing rice paste on each other’s face. The rice paste is prepared on the leaves and used leaves are tied to the tree stumps in the field, as a wish for future prosperity for the field.

Table 5.1: Shows the primary agricultural implements used by the Adi-Galo farmers for the shifting cultivation

<table>
<thead>
<tr>
<th>Local name</th>
<th>English name</th>
<th>Material</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>Vgww</code></td>
<td>Axe</td>
<td>Iron blade and wooden handle</td>
<td>Felling and cutting trees and splitting logs.</td>
</tr>
<tr>
<td>Bood</td>
<td>Cloak</td>
<td>Bamboo, cane, toko leaf</td>
<td>It is used to protect oneself from the scorching heat or rain while working in the field.</td>
</tr>
<tr>
<td><code>Ciqii</code></td>
<td>Dibble stick</td>
<td>Wood</td>
<td>Used in sowing for making holes on the ground.</td>
</tr>
<tr>
<td><code>Cuucak</code></td>
<td>Small basket</td>
<td>Bamboo and Cane</td>
<td>To carry grains while sowing.</td>
</tr>
<tr>
<td><code>Wwk</code></td>
<td>Weeder</td>
<td>Bamboo or iron</td>
<td>To scrape the soil for removing weeds.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Material</td>
<td>Use</td>
</tr>
<tr>
<td>-----------</td>
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<td>----------------------------------------------------------------------</td>
</tr>
<tr>
<td>Kasww</td>
<td>Sickle</td>
<td>Iron body and wooden handle</td>
<td>Used while harvesting for cutting crops.</td>
</tr>
<tr>
<td>`Loolom</td>
<td>A short machete with flat end</td>
<td>Iron body and wooden handle</td>
<td>Helps to dig out deep rooted weed.</td>
</tr>
<tr>
<td>Opo</td>
<td>Winnowing fan.</td>
<td>Bamboo and cane</td>
<td>Used for winnowing. It is used to remove chaff from the grains.</td>
</tr>
<tr>
<td>`Orok</td>
<td>Machete</td>
<td>Iron body and bamboo handle</td>
<td>It is an edged multipurpose tool. It is used in all the stages of farming as well as daily chores.</td>
</tr>
<tr>
<td>`Peecvy</td>
<td>Mat</td>
<td>Bamboo</td>
<td>Used mostly during harvesting to dry grains.</td>
</tr>
<tr>
<td>`Puaa</td>
<td>Basket</td>
<td>Bamboo</td>
<td>While weeding, weeds are kept in a pua which they later dispose</td>
</tr>
<tr>
<td>`Rokcik</td>
<td>Traditional knife</td>
<td>Iron body and bamboo handle</td>
<td>It is used during harvesting to cut paddy.</td>
</tr>
</tbody>
</table>

The first sowing is called *ciddaa*. After sometime if the grains do not sprout in some areas due to any reason, the second sowing is done which is called *citten*. During the second time, sowing is done with another variety of rice either *Yaamuk* or *Kimin* (local varieties of
rice) because these varieties grow faster and catch up the first sowed crop which is usually of `Baalww variety.

There are wide varieties of local rice produced by the Adi-Galos. These are locally termed as `Baalww, Kimin, Yaamuk, Dangum, Hoiki, `Daan, `Aqkvr etc.

Similarly, maize (tvpv) and millet (tamii) are produced as traditional substitutes by the different tribes of Arunachal. They also grow vegetables like cucumber (mvvkuu), mvvbyv, pumpkin (talar), gwyww, pette, root potatoes (iqin), yam (exi), sweet potato (maalww), kopv, eggplant (baayom), chilli (yaluk), beans (peeren), soybeans (peak) gourd, garlic (takee), talap etc. Root crops are sown near tree stump or on the slope. Generally creepers and climbers like pumpkin, cucumber etc. is grown in the corner of the field as they tend to disturb other crops.

vi. Weeding

Till the seedlings start appearing, the field has to be protected from the birds and therefore the farmer has to go to the field every morning and evening. And this is the time when lots of traps are used in the fields to catch birds. After at least 2 months weeds start appearing. It is the duty of the women to keep the field clean and weed free. By the end of May, monsoon starts and the rain and the moisture cause the weeds to grow fast, therefore enough care is taken to remove the uprooted weeds which are placed in a basket (puaa) and dumped away from the crops to avoid any change of its regeneration inside the field.

Weeding is a slow and time consuming process therefore; mutual exchange of labour is practiced. A group of women jointly work in a field and the next time they work in
another friend’s field. This way they work and also enjoy each other company. Each successive year sees more and more weeds in a plot; therefore, a plot is abandoned after the use of a year. Weeding is very important for the proper growth of the crop. It helps in the softening of the soil thus allows the roots of the cultivated crops to go deeper. Improper weeding of the field leads to infesting by rats and pests. Weeding is done with the help of a scraper by scraping the surface and removing the weeds. The scraper is made of bamboo but iron substitutes in exactly the same form and shape are found these days.

Work in the field is interdependent between the male folk and female folk. Felling down big trees, construction of filed hut (‘naakum) (Fig. 5.10) and the fencing around the field for the protection of the crop is exclusively a man’s job whereas sowing and weeding is a female’s job. Harvesting is a combined effort of both the genders.

Fig. 5.10: Field hut (‘Naakum)
viii. Harvesting

Harvesting is a co-operative work done both by male and female. It is also a communal effort. It starts from the month of August. On the day of the first harvesting, the farmer goes to the field either with a fowl or an egg to propitiate the field spirit.

Menstruating women, people who are bitten by snake or who carried dead body and have not completed a year are not allowed to enter `naakum (field hut) or the `naahuu (granary). Harvesting is considered a pious act.

From where the harvest starts in the field is very important and highly symbolical for them. Cutting the crops start from the edge of the field and move towards the farm hut. This act represents bringing prosperity and wealth to the people. While harvesting if the farmer had to temporary leave the work, he would tie a knot of the paddy plant. This act is done with the belief that it will keep the spirit of crop in the field and the spirit will not wander out of the field in his absence.

The first rice is not cut but the grains are pulled out with the hands by the main woman of the house and collected in a basket. This basket is brought back home well covered and the rice is prepared to serve as a ritualistic feast to the elders of the family. The harvested grains are spread on bamboo mats to be dried of its moisture near the farm hut. The accumulated grains are thrashed both by males and females.

The tool mainly used for harvesting is a sickle or local knife made of iron with wooden handle. However it was noted that till the recent past people were using bamboo knives with sharpened edge as harvesting tool.
Several other minor rites accompany the harvest of the crops. None of these rituals or even a minor act can be missed in the process. This explains the importance of agriculture in the life cycle of the Adi-Galos.

ix. Storing

The newly harvested grains are dried in sun or over fire and then stored for future consumption. Granaries are constructed away from the village to save it from any fire accident in the village. In the village, houses are constructed very compactly and the houses and the granaries are made of bamboos, weeds and leaves which do not require time to catch fire. Hence giving rise to an offsite specifically for storage purpose. The granaries are built in such a way to especially protect it from the rats.

5.1.3 Protection of Crop

The Adi-Galo farmers have to face many challenges in agricultural pursuits as any other farmer across the country.

The most important is the climatic uncertainty. They depend on monsoon for productivity of the crops. *Amo Hugnam*, the occurrence of false grain, is a very common problem that the farmers face. In *Amo Hugnam*, the paddy flowers but do not bear grains inside. It becomes whitish in colour. This is mainly due to fluctuation in the weather.

The insect or pest attack is the next difficulty that the farmers’ face. After sowing till the crop is ready to harvest, it becomes necessary to protect the crops from birds, animals and insects till the time of harvesting. Different types of traps are used to catch birds and rats
that destroy the crops. Thus, they perform certain rituals like *Dwbin*, *Dwr-tacww* and *`Ampuu* to protect their field from the attack of the pests and insects.

*Dwbin* is a ritual performed by the whole village to protect the standing crop from the attack of insects. In this ritual, bamboo altars of various natural divinities responsible for the protection of the crops are raised on the grounds. For this ritual, piglets, chicks and eggs are sacrificed and the blood is smeared on these bamboo alters.

*Dwr-tacww* is another ritual performed at the time of weeding by the whole village for the protection of the crops against the insects (Fig. 5.11a,b,c).

*Aampu* is another type of agricultural ritual which is performed at the time of harvesting for the protection of the crops.

*`Buulii jugnam* (bamboo flowering) is another problem for the farmer. After a gap of 30-35 years the bamboo plant tends to flower which attracts rats. This increases the rat population which is a great threat to the grains. Because of all these reasons most of the farmers switched to the practice of wet rice cultivation or terrace cultivation which is much safer and simpler than the *jhum* cultivation. The importance of agriculture in the Adi-Galo society is also reflected in their festivals and rituals.

The ethnographic studies show that there was a strong similarity between the past and the present material cultural forms in agricultural implements. The same implements could have been used even before the establishment of agriculture.
Fig. 5.11: *Dwr-tacww* ritual for the protection of crops
Incipient agriculturists apparently made use of existing tools and techniques, and therefore the assemblage of small tools does not necessarily change with the shift from gathering to agriculture (Braidwood 1957).

It is difficult to find any direct physical trace of evidence for agriculture in the form of plant remains as plant remains are perishable in nature and are not usually present in archaeological sites. Preservation of such remains is dependent upon either the element of chance or favourable environmental conditions. So we have to rely on indirect evidence like constructions feature, implements and cultural features supported by agricultural economy. Among indirect evidence a number of artefacts have been considered evidence for agriculture. However, the primitive agricultural tools indicate that there was no or little need to change their tool technology as there was no major change in the ecological setting. Archaeologist mainly dependent on surviving tools to interpret the economy and technology of past communities. But as noticed in the region under study even the tools used is of perishable materials, unlikely to leave any archaeological remains. Hence, only ethnographic study can lead to understand those aspects of agricultural societies.

5.2. Animal husbandry

Animal husbandry plays a very important role in the day to day socio-economic life of the local tribal population. Rearing of animal is very common among them. The environment also affects the food habits of the people in high cold mountains, making it necessary to have a high fat and protein rich diet.

Though hunting is still practiced but it is not done on regular basis to ensure a continuous supply of meat and since meat is an important element in their diet, they rear
many animals like cow, pig, goat, duck, hen etc for meat. Apart from supplying meat, these domesticated animals and fowls are also used as offerings during rituals. Pigs, cows, fowls and eggs are extensively used during rituals.

Animal husbandry, particularly of pigs, is closely integrated with the agricultural systems (Kirch 1978). In their society the domesticated pig plays a very important role. It is a domesticated animal and even treated as a pet. Pig has multiple functions for them. Pigs make a major contribution to human diet and symbolic feasts throughout Asia. Pork is extremely important in terms of both nutrition and social value. Pork is always a preferred food and it is a great source of fat and protein. Fat is critically important for proper metabolism and for adequate calories to maintain body temperatures during cold periods. Pigs contributed the most meat per year followed by cattle and mithuns.

Breeding of pig is time consuming but they are of considerable importance both economically and ritually to them. They also consume pigs which are ritually sacrificed.

Apart from dietary and ritual importance pig also plays important role in festivals and social transactions. Pigs are one of the main economic assets reserved for wedding feasts; settling disputes; paying fines for fighting or breaking the law. Because of its fertility, pig plays a prominent part in matrimonial matters. Among them it was customary for the bridegroom's family to send to the bride's family gifts of pigs or pig meat.

Pigs are also considered as expensive prestige goods therefore it is also used as a medium of exchange as well as it forms an item of community feast.
Pigs are also very productive because of their high reproductive rate, and they are very resistant to disease and produce a large amount of fertilizer for farming (Rappaport 1967). Hence, it is quite efficient and economically reliable to have pigs for the Adi-Galos.

In olden days, pig sty was attached with the main house but nowadays pig pens are made separately from the dwelling place of the people but within the same compound. They are fed twice a day with the leftover foods, rice husk mixed with water while some owners take the special care by cooking special meal for them. Killing of pigs is considered as a highly specialized task. No knife is used to kill the pig. Pigs are killed by piercing the heart with a bamboo spike. Local knife is only used afterwards for the tearing and removing the inner organs of the pig and then the body is roasted to allow an easy cleaning of the skin. All the different parts of the pig are consumed.

In addition to pigs, chicken and fowl are other domesticated animal kept by them. Similarly chickens are also bred and used as sacrificial items on numerous rituals. Fowls and eggs are in regular demand as every ritual needs its sacrifice. These fowls are also fed every morning and evening. For their protection small houses are made with bamboo.

Another very important animal is a rare species of livestock is the mithun (*Bos frontalis*). It is a semi-domesticated animal and indigenous to North-East India. The animal has got good potential for production of quality meat, milk and leather. *Mithun* apart from being an important subsistence source for direct consumption, represent the wealth of a person. *Mithuns* are used primarily as means of exchange in bride-wealth and other reciprocal transactions. In local mythology, is the first born of the union of earth and sky. *Mithun* is considered highly important by them for its value and its usefulness. *Mithun*
represents wealth and status in Adi-Galo society. It brings prestige and political power to the owner and at the same time it is in great demand for big rituals. There are major big rituals where the sacrifice of mithun is mandatory and without which the ritual is a failure.

Unlike cattle and sheep, mithun cannot be herded. They are not kept in the house but left free in the dense forest. But the family can recognize their mithun by any distinguishing mark that they make on the ears or other body parts of the mithun. All the commodities and materials in Adi-Galo society are valued in terms of mithun. Before any important ritual or marriage ceremony, groups of young men go to the forest looking for mithuns. Searching for mithun in the forest is very tiresome. The group is divided into subgroups and they spread themselves to search for the mithun. There are times when the search goes for even more than a week and the people would remain in the forest until the mithun is found. They would take food along with them as they go out of the house. They would depend on the jungle for their subsistence if required. They would take salt along with them to protect themselves from leeches, which can be very dangerous as the forest is leech infested.

The skulls of the mithun sacrificed in any important ritual or marriage are hung on the walls of the house as a social display of wealth as it signifies the wealth and status of the family. Mithuns are cheap to maintain as forest resources for grazing are plentiful. Under such circumstances, the economic efficiency is high, with little maintenance costs. Also, since these animals are strongly territorial they need no special care. Apart from mithun, they also bred cows but cows are never used for milking. The only purpose of cow is for meat. The entire process of mithun search can be of real importance to understand hunter-gathering societies, and draw parallels for archaeological interpretations.
5.3 Gathering

Murty (1985a) argues that the tremendous tribal knowledge of plant species results from ecological adaptation and exploitation over a long period, and thus justifies the use of analogies drawn from the recent tribal subsistence patterns along the South east coast to predict past subsistence strategies (Pappu 2002).

The Adi-Galos are agriculturists but they regularly gather. They make short forays into the rivers and forests to meet their subsistence needs but always return to their place of settlement. Gathering is mainly the job of women and children who go in groups to the forest to collect sufficient supplies for the whole family. It is much simpler as it requires no cultivation but a skill to identify the edible plants. They collect wide varieties of fruits, mushrooms, leaves, ferns, roots and other wild edible vegetables (Fig. 5.12 & Table 5.2). This activity is an indispensable part of the Adi-Galo economy.

Fig. 5.12: Digging roots and tubers
Table 5.2: Shows a list of wild plants used as vegetables, condiments and spices by the Adi-Galos

<table>
<thead>
<tr>
<th>Botanical name</th>
<th>Local Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Allinia galangal</em> ((Linn.)\Willd.(Zingiberaceae))</td>
<td><em>jakvr</em></td>
</tr>
<tr>
<td><em>Clerodendron Colebrookianum</em> (Linn.)(Verbenaceae)</td>
<td><em><code>oin-</code>taap</em></td>
</tr>
<tr>
<td><em>Dioscorea esculenta</em> ((Lour.)\Burkill)(Dioscoreacea)</td>
<td><em>iqin-`tabv</em></td>
</tr>
<tr>
<td><em>Diplazium Esculentum</em> (Retz)</td>
<td><em>o-takaa</em></td>
</tr>
<tr>
<td><em>Fagophyllum esculentum</em> (Moench)(Polygonaceae)</td>
<td><em>okuuu</em></td>
</tr>
<tr>
<td><em>Ficus caudate</em> (Wall)(Moraceae)</td>
<td><em>`takuk</em></td>
</tr>
<tr>
<td><em>Fragaria indica</em> ((Linn.)Wall)(Rosaceae)</td>
<td><em>enci</em></td>
</tr>
<tr>
<td><em>Ipomoea batata</em> ((Linn.)Lam.)(Convolvulaceae)</td>
<td><em>maalww</em></td>
</tr>
<tr>
<td><em>Manihot Esculenta</em></td>
<td><em>`hwnn-iqin</em></td>
</tr>
<tr>
<td><em>Pouzolzia Bennettiana</em></td>
<td><em>`oik</em></td>
</tr>
<tr>
<td><em>Solanum Nigrum</em> (Linn.)</td>
<td><em>`orv</em></td>
</tr>
<tr>
<td><em>Spilanthes Oleracea</em> ((Linn.)\ (D.C)(Asteraceae)</td>
<td><em>marsaa</em></td>
</tr>
<tr>
<td><em>Zanthoxylum acaanthopodium</em> ((Linn.)\DC(Rutaceae)</td>
<td><em>oxor</em></td>
</tr>
</tbody>
</table>

(Source: Tarak, Koyu, Samal and Singh 2009)
It provides the natives with important ingredients of their daily diet. At least everyday 2-3 dishes are made of entirely wild gathered foods. They have a long tradition of exploiting the wild plants in various forms such as vegetables, medicines, condiments, herbs etc. They exploit seasonally available plant resources by making short forays into the forest. Fishing expeditions are also undertaken whenever needed but they always return back to their settlement except in certain occasions when a group decides to go for fishing for 2-3 days.

Most of these plants grow in the wild but some are now being grown in the gardens because of its need on daily basis. The Adi-Galo women are extremely efficient and precise in their knowledge about where to search for certain species of plants. Gathering on a small scale takes place almost daily. The daily chore of an Adi-Galo woman after getting up early in the morning is to go to the forest to gather plants which on their return is cooked as the day’s meal.

They are also very capable in identifying the edible mushrooms and different types of tubers. Gathering does not require much sophisticated tools. A digging stick and a basket and sometimes a knife (‘rokciık) are all they need for gathering. During ceremonies, meat are always cooked along with wild plants, therefore, before every big ceremony the people make expeditions into the forests to collect these plants. Gathering is particularly not challenging and glorious like hunting and fishing but equally important and demands an intimate knowledge of the environment and the skill to identify edible wild plants. Regarding the exploitation of wild plant foods, there are no archaeological traces, but considering the variety of wild plant foods that form the subsistence base of the
ethnographic present, it is possible to expect considerable reliance on such flora in the prehistoric past also.

No specialised tools are used for the purpose. Women use their hands and if necessary use a stick lying around to dig out a yam. The plants are collected in bamboo baskets and brought home. This whole process does not leave any deposit or remains behind.

5.4. Fishing

Arunachal Pradesh provides a very good scope for understanding traditional fishing techniques. Some of the very important rivers in Arunachal Pradesh are the Siang, the Subansiri, the Lohit, the Tirap, and the Kameng, of which the Siang flows through West Siang district with its many tributaries.

The importance of fish in an Adi-Galo society cannot be ignored. As most of the villages are located near a river or stream, fishing is a very important economic activity and fish is an important source of food for them. The importance of fish is next to meat in their society. Fish is not only important as a source of protein but also an important food item in any feast or ritual to entertain the guests. Among them, fish item is a great gift to offer apart from the meat. Sharing of fish is important socially and communally. Catches are shared among the relatives and extended family. Fish are exchanged during marriage. Certain species of fish were only exchanged during marriage such as *Amblyceps sp. (Tammii)*, *Chaanna punctata (Talo)*, *Pterokryptes afgana (tayek)*, *botia sp. (Ribo-Ringum)* etc. are not used. Certain fish are also ritually tabooed to eat for a stipulated time period.
Community fishing is very common among them. Fishing is not only a medium of food supply but it brings the members of the clan together and binds the community further. For them fishing is not just an economic activity but also an important part of education process which is being passed on to the successive generations through community fishing. Community fishing is a part of the cultural heritage of the Adi-Galos of the West Siang district of Arunachal Pradesh. In community fishing, men, women, young and even children take part. On the appointed day many families come together with their assorted indigenous gears. Food is cooked by the side of the river bank itself with some of the freshly caught fish and all the participants eat together. The catch is divided among the participants who then either steam the fish in a bamboo receptacle or dry it over fire for preservation and future consumption.

Fishing is practiced mainly during the winter season when there is abundance of fish in the rivers. They are very fond of fishing, so they even travel to far off places on foot, for days together and stay near the river in the forest for few days for fishing. Most of the Adi-Galo men are good fishermen. They know the movements and seasons of the various fish species.

During rainy season fish are found abundantly in the rivers and even in the streams to lay their eggs. The common fish which are fished by them are Ngoru (Garra annandalei), Riibo (Schistura rupecula), Riingum (Nemacheilus devdevi), Orse (Semiplotus semiplotus) Ngopi (Labeo gonius) etc. (Bagra 2010).

Due to the importance of fish among them many indigenous techniques have been developed. Some popular traditional methods of fishing are hand-gathering, trapping,
stationary enclosures, indigenous basket-shaped wicker traps, bamboo weirs and use of stupefying aids to catch fish. These indigenous techniques are: *qou nunam (ubnam)*, *`lwruu ubnam*, *tahum-kunam*, *ta`kom `gaanam*, *w`dwr`gaanam*, *`riigoo goonam*, *`higo `tonam*, *`hwl `monam*, *`lwwpum `pumnam*, *`paakam karnam*, *hi`bok pvnam*.

Though many new methods and machineries are available for catching fish, a number of age-old traditional methods are still used. Specific fishing methods are used very effective to catch particular species of fish.

The indigenous gears which they use for fishing are made of perishable locally available material. The indigenous traps are designed in such a way to make the entry easy and the exit difficult; once the fish enters inside it cannot escape (Fig. 5.13 a-b). Traps are culturally almost universal. They make traps with various forms: conical, cylindrical and basket type. Some of the traps are used exclusively by the women and some by the men only. Traps can be either fixed or mobile. However, a number of techniques with various kinds of traps and weirs which can be operated by a single person are also practiced.

![Fig. 5.13: *W`dwr*](image)
Religious rites and other marks of respect are integral to the practice of fishing. They believe that there are guardian spirits for the mountains, rivers etc. therefore before a large scale fishing mission, the priest performs a ritual called `ambin hunam.

Some of the techniques applied by them are very basic without the use of any equipment. In some techniques only bare hands with the knowledge of the movement of the fish is adequate while others need group involvement. Some of the main fishing techniques are illustrated below:

- **Qou nunam (ubnam)**

  They are very efficient in catching fish by their bare hands also as they have immense knowledge about the fish movements and their behaviour. This technique involves putting one’s bare hands between gaps of the stone inside water to catch fish.

- **`Lwwruu ubnam**

  Another technique is called `lwwruu ubnam in which also one uses one’s bare hands to catch fish. It is done in the season when fish carry eggs and their movements become slow thereby making it easy to catch them. Hand catching requires a great deal of knowledge about the habitat and behaviour of the species. One requires the skill of identifying shelters or picking up minute trails or signs of the presence of a given species.

- **Tahum /Tasum Kunam**
In this fishing method a conical shaped basket with narrow end and broad mouth, `raaju is used to catch small fish in the rivers and streams. This gear is made of cane and bamboo.

It is used by the womenfolk to fish. `Raaju is put down in the water and fixed in between two legs, and slowly with both hands the bottom of the stones are searched. Because of the disturbance caused fish come out of their hideouts and go enter the `raaju. The `raaju is then lifted up and the catch is put in a small bamboo container or basket called `ginci, which is tucked under the waist for carrying the catch. The mouth of the basket is covered with ferns and leaves to prevent the fish from coming out of the basket.

- `Riigoo goonam

This method is also practiced by womenfolk. In this technique the `raaju (cylindrical gear with wide mouth and narrow end) are fixed in the river in a straight line in such a way that the whole width of the river from one bank to the other bank is covered and the corners are covered with ferns and other shrubs, so that no space is left for the fish to escape. From a distance of about 10 metres, women who are facing towards the mouth of `raaju start moving the stones vigorously with the help of a stick etc. so that the fish come out of its hideouts and make an escape towards where the `raaju are already fixed. Gradually the fish are herded towards the mouth of the `raaju. Once the fish enter the `raaju, they are immediately lifted out of the water and the fish caught in the individual `raaju are taken (Fig. 5.14 a, b, c).

- Ta`kom `gaanam
In this technique a gear locally called *ta’kom* which is a hand–woven long funnel shaped wicker, is placed against the water current with some leaves inside it. A simple *ta’kom* can also be made of split bamboo. It can be kept overnight. As it is fixed against the water current, fish that enters a *ta’kom* could not turn around to get out.

a. Preparing to fix the *raajuu*

b. Fixed *raajuu*
c. Lifting the `raaju

Fig. 5.14: `Riigoo goonam

- W’dwr’gaanam

It is a traditional basket weir fish trap about 2 m long comprise of two wicker cones, one inside the other which is made in such a way that it is easy for the fish to get inside and hard to get out. It can be set as well as mobile. To catch fish, the trap is buried half way in shallow water. Sometimes to lure the fish, baits are used.

This gear is traditionally used by men. This method is common in this region as it does not require to guard the trap.

- `Lwwpum `pumnam

It is another simple method of fishing where flat stones are piled underwater. This is done during the cold months when fish like to remain in holes. Choosing an appropriate site to pile the stones is the most important issue. A site with shallow water, medium current and sufficient sunlight is the most appropriate selection.
Big flat stones are piled underwater in such a way that there is sufficient space inside for easy movement of fish. These piled stones are called `lwwpum (Fig. 5.15). These piled stones are left undisturbed for 2-3 months, after which the fish gathered in the `lwwpum are harvested. A circular bamboo screen locally called cwergoo is used to cordon the `lwwpum. It is tightly fixed at the bottom so that fish cannot escape. From a small hole in the bamboo screen, w’dwr is fixed. After that, gradually the piled stones are removed. It is practiced mainly from October to February.

Fig. 5.15: `Lwwpum `pumnam

- `Paakam karnam
A rotten wood is submerged in the river surrounded by big stones for 10-12 days or sometimes even a month for the fish to come and breed. After the incubation period, *w`dwr* is put to get the fish that made home in the decayed wood.

**Use of fishing weir**

The Adi-Galos also use different types of weirs for fishing. The large fishing weir structure is constructed from wooden posts, wattle fences and with stones at times. The wooden stakes are woven together to create barrier or temporary dam that traps fish while letting water pass through. All the openings are blocked with traps, baskets or net traps. These are buried half way in shallow water. In stone weirs, stones are arranged into rectangular walls on the edge of rivers. At regular intervals the wall is opened. Then the fisherman would wade into the walled trap and seize their catch. Today the government prohibits such massive trapping techniques during the fish breeding season.

**Herbal poisoning**

The use of fish stupefying plant is an old practice in the history of humankind all over the globe. Indigenous people using various fish poisons to catch fish are a common among many tribes of North-East India. Fish poisons are extracted from several plant species and these are mixed with water which makes the fish numb.

Even the Adi-Galo tribe of Arunachal Pradesh, due to their close contact with nature for long period of time have acquired the knowledge of usefulness of certain plants to be used as fish poisons.
The use of fish stupefying plants has historically been used by many hunter-gatherer societies to stun fish, so that the fish become easy to collect by hands. These stupefied fish can be eaten by humans without any adverse reaction. Mostly the plant species used as fish poison by the tribal are harvested exclusively in the wild (Table 5.3).

Table 5.3: Shows the different plant species used by the Adi- Galos to poison the fish

<table>
<thead>
<tr>
<th>Local name</th>
<th>Species</th>
<th>Part used</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>Ditkaa</code></td>
<td>Not identified</td>
<td>----------</td>
</tr>
<tr>
<td><code>Ditk-tamo</code></td>
<td><em>Ploygonum Hydropiper</em></td>
<td>Leaves</td>
</tr>
<tr>
<td><code>Mukek</code></td>
<td>Not identified</td>
<td>Fruit</td>
</tr>
<tr>
<td><code>Mutv</code></td>
<td>Not identified</td>
<td>Fruit</td>
</tr>
<tr>
<td><strong>Oxor</strong></td>
<td><em>Xanthozyllum nitidum</em></td>
<td>Fruit seed</td>
</tr>
<tr>
<td><code>Pagmo</code></td>
<td>Not identified</td>
<td>Root</td>
</tr>
<tr>
<td><strong>Ranjir</strong></td>
<td>Not identified</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Rwpwk</strong></td>
<td><em>Milliettes pachycarpa</em></td>
<td>Root tuber</td>
</tr>
<tr>
<td><code>Rugdwk</code></td>
<td><em>Cyclosorus extensus</em></td>
<td>Leaves</td>
</tr>
<tr>
<td><code>Talik</code></td>
<td>Not identified</td>
<td>----------</td>
</tr>
<tr>
<td><strong>Tanwr</strong></td>
<td>Not identified</td>
<td>Bark</td>
</tr>
</tbody>
</table>
Use of herbs as fish stupefying agent (*Hi`bok Pvnam*)

In this technique of fishing male, female, old and young all participate. It is performed in a festive mood. This technique requires group involvement where the male group constructs a barrier or a temporary blockage across a river using reeds, tree branches and stones which results in a drop in the water level downstream. For stupefying fish through usage of fish poisons, the selection of a suitable water body is very important. Poisoning or intoxication is generally done in shallow water bodies, slow flowing or stagnant water so that the concentrated poison can be more effective. When the flow of the water reduces, the leaves, roots, seeds or the bark of the plant which is to be used as poison is crushed into a pulpy mass and scattered in and around the base of rocks and into holes where fish might hide. A small opening is made in the blockade to let the water mix with the crushed material or it is simply thrown in the water so that it can thoroughly mix with the poison which starts affecting the fish right after 10 minutes and soon thereafter the fish start floating belly upwards. The Adi-Galos use varieties of stupefying agents. *Tamo* is the common term for all the poisoning herbs. The use of these poisonous plants does not remain the same throughout the season as their effectiveness also changes. Oxor, `Diik-tamo are mostly used in winter whereas *Rwpwk, `Talik, Taataa `puraa, Tanwr, `Rugdwk* are used throughout the year.

<table>
<thead>
<tr>
<th><em>Taataa `puraa</em></th>
<th>Not identified</th>
<th>Leaves</th>
</tr>
</thead>
</table>

(Source: Chaudhuri, Das, Sarkar, Lakra 2008:36 and my interview from the villagers of Bam village, 2008)
In the case of *Diik-tamo* bundles of this bush is laid on stones thereafter pounded and crushed and the juice is mixed well with the water which is done only by men. Women and tabooed people (like people bitten by snake or who carried dead body and have not completed a stipulated time period etc.) are strictly restricted from touching such items. It is believed that if such people touch the herbal poison, the poisoning capacity gets reduced. Two to three people beat the plant upstream and the rest of them who are not engaged in beating and mixing the plants gather downstream with `raajuu or even with bare hands to catch the floating fish that succumb to the poison. Thus, the fish poison makes the fish float in a dazed state and come to the surface of water from where they can be captured easily.

As the juice of the plant mingles with water the bio-active components present in the plant act on the fish and their activity slowly get paralyzed. The fish become stupefied and they rise to the bank or the surface of the river, where they are caught with bare hands and thrown on to the bank or put inside a container which is tagged along the waist. The effect of the poison does not last for more than 20 or so minutes. Therefore, the stunned fish are collected immediately and any fish that were washed out of the pools or overlooked in the gathering would recover and swim away, since the toxins merely stupefied the fish rather than killing them outright. The poison does not adversely change the taste and quality of fish. These stupefied fish can be eaten by humans without any adverse reaction (Fig. 5.16 a, b, c, d, e, f, g, h).

The government prohibits such massive trapping techniques during the fish breeding season. Indigenous techniques are eco-friendly and non destructive at all other aquatic life
forms but due to change in life many modern method are also practiced. Fishing is reduced to just a means of individual amusement.

Muddying Water

There are other simple methods like the fish are caught by muddying the water and feeling for the fish with both hands and feet. The belief is that because of the sudden muddiness of water the fish become blind. Fish gasping for air in muddy water is then caught using cast nets operated from indigenous bamboo rafts. This is a very common practice of the Wanchos, another tribe of Arunachal Pradesh.
c. `Diik-tamo

Fig. 5.16a-c: Hi`bok Pynam

d. `Diik-tamo beaten into the water

e. Fixing W`dwr
f. Collecting fish

Fig. 5.16d-f: Hi`bok Pvnam

g. Edible ferns
Apart from these traditional fishing techniques, other methods like *vkvr vrnam* (fishing line), *`vhap vrnam* (netting) gillnets, pot-traps or baited pots (*pwcww `monam*) and mosquito net for catching fish emerged as popular fishing technique among them which is an influence from outside mainly from Assam.

These traditional methods of fishing do not deplete the stock of fish in the river. The modern indiscriminate poisoning of creeks and ponds, however, has caused a decline in fish stocks. Presently, modern equipment and techniques like chemical poisoning, blasting and electro fishing for catching fish are also used. Fish are killed by blasting dynamites in the river and then skimmed from the surface and from the bottom. These are responsible not only in fast depletion of the fresh water fish but also causes water pollution, therefore, the state government has very strict regulations regarding fishing.
Recording and study of the traditional fishing techniques lead to conclude that all the materials used in fishing are highly perishable. In most of the cases the ecological factors are manipulated or moulded to the advantage of the fishermen. In both cases, there is hardly any chance of leaving no trace of any kind.

5.5. Hunting

Meat is culturally important for the Adi-Galos. Meat is universally highly valued far above other types of foods. Fresh meat is distributed throughout the community. Not only does it ensure that no spoilage takes place, but it also sets up numerous obligations to reciprocate within the community. It promotes co-operation and solidarity. Often the slaughter of an animal is for a ritual occasion so that its death serves multiple purposes. It feeds both the gods and the people. Sharing is embodied in their culture.

Plant food is basic. Meat is real food and full of prestige. They believe that certain body parts of animals are meant only to be eaten by the elders or male members of the society and children and female were forbidden from eating certain portion like the brain part and the tongue. Thus, reserving some portion of the meat for member of certain age and gender.

Hunting is not a major economic activity and it is less reliable than plant food gathering. Even though agriculture and animal husbandry became more prevalent, hunting, both small and big game is still practiced by them. Though people domesticate animals at home, hunted meat is still considered a prized thing. Hunting is more of a social activity rather than a subsistence activity. It is a pastime for the male members of the society. In an Adi-Galo society it will not be an over generalization to say that men always hunt and
women always gather. This gender based activity is considered an important division of labour in hunting gathering societies.

Ethnographic studies, as well as historical data provide information about historic hunter-gatherers. Hunting can be done individually or organized in a group. However, there are wide array of weapons used by them. They make use of traps, weirs and pitfalls in their hunting process.

Hunting weapons are always kept away from women and before the hunting expedition, if the hunter see an inauspicious dream, he would not participate in the game hunting. Before the introduction of guns, the hunters used simple but very effective tool kits and methods to catch their hunt. Though every Adi-Galo is not a good hunter but every house possesses the hunting tools and kits (Table 5.4) (Fig. 5.17 and 5.18). Apart from these primitive weapons, the Adi-Galo hunters have also started to use guns and rifles. With the introduction of guns, not many of these indigenous weapons are used anymore but these are used symbolically in marriages and rituals.

Table 5.4: Shows the basic weapons used by the Adi-Galos for hunting and the raw materials for making these tools

<table>
<thead>
<tr>
<th>Local Name</th>
<th>English Name/ Explanation</th>
<th>Material Used</th>
</tr>
</thead>
<tbody>
<tr>
<td>`Tarvk</td>
<td>Hunting Ring</td>
<td>It is made of cane, used for holding the bow steady</td>
</tr>
<tr>
<td>`Upuk</td>
<td>General arrow</td>
<td>Bamboo</td>
</tr>
<tr>
<td></td>
<td>Description</td>
<td>Material</td>
</tr>
<tr>
<td>-------</td>
<td>------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><em>Omo</em></td>
<td>Arrow with iron point</td>
<td>Bamboo and iron</td>
</tr>
<tr>
<td><code>Pugjwr</code></td>
<td>Arrow with bamboo point</td>
<td>Bamboo</td>
</tr>
<tr>
<td><em>Wrv</em></td>
<td>Bow</td>
<td>Bamboo</td>
</tr>
<tr>
<td><em>Gebbuu</em></td>
<td>Quiver</td>
<td>Bamboo and cane</td>
</tr>
<tr>
<td><code>Orok</code></td>
<td>Machete</td>
<td>Iron body and bamboo handle</td>
</tr>
</tbody>
</table>


Fig. 5.17: Hunting Implements
Hunting bird is not as popular as hunting animals among them except hunting wild hen. They believe that all nocturnal birds are agents of ghost therefore they do not kill them. However, if an owl repeatedly hoots at night on someone’s roof, it is considered inauspicious and that particular owl is killed. Seasonal birds (dwg pvtaa) like tako papok, pentir, `ciir-`piir are also not killed and consumed as they are considered sacred and treated as agents/harbinger of new season and good productivity.

The Adi-Galos believe that the taste of certain animal is tasty only at a certain period of the year and not throughout the year. Therefore, hunting is seasonal. For example, monkeys and wild cats become fatty in winter, so they are mostly hunted in winter.
Over a span of time the Adi-Galo hunters have devised different techniques and methods to catch games both big and small. They hunt small games such as rats, squirrels as well as big games like deer and wild boar (Table 5.5).

Table 5.5: Shows some of the common animals hunted by the Adi-Galos

<table>
<thead>
<tr>
<th>Galo Name</th>
<th>English Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bwbo</td>
<td>Wild goat</td>
</tr>
<tr>
<td>Hobv</td>
<td>Monkey</td>
</tr>
<tr>
<td>Hocvr</td>
<td>Stag</td>
</tr>
<tr>
<td>`Hodum</td>
<td>Barking deer</td>
</tr>
<tr>
<td>Hoin</td>
<td>Civet</td>
</tr>
<tr>
<td>`Hokek</td>
<td>?</td>
</tr>
<tr>
<td>Holvv-` taso</td>
<td>Wild cat</td>
</tr>
<tr>
<td>Homen</td>
<td>Any wild cat family in general</td>
</tr>
<tr>
<td>`Horci</td>
<td>Wild boar</td>
</tr>
<tr>
<td>Horv</td>
<td>Wild Boar</td>
</tr>
<tr>
<td>`Horkek</td>
<td>Varanus</td>
</tr>
<tr>
<td>Hocik</td>
<td>Porcupine</td>
</tr>
<tr>
<td>`Hotv</td>
<td>Elephant</td>
</tr>
<tr>
<td>Hottum</td>
<td>Bear</td>
</tr>
<tr>
<td>Holvv-` taso</td>
<td>Wild cat</td>
</tr>
</tbody>
</table>
They are expert in trapping using snares, pits and deadfalls to capture an animal. They are also very skilful in following the foot tracks of animals. Some of the hunting done is purely based on their skill to read the trails left by the animals. They have adopted different types of hunting techniques for different animals. Some of the important techniques are illustrated below.

Trapping small games and Midduu

Small rats, squirrels and porcupine which are abundant in the region are subjected to intensive hunting and trapping. They are trapped in numerous snares set at the openings of their dens or on their trails.

*Midduu* is a very popular technique for catching rats. Generally it is conducted in the harvested field. Initially a survey is done to locate rat holes in the vicinity. Once the holes are confirmed, all the other holes are closed except two. In the mouth of one hole a bamboo tube with a hole at the bottom filled with rice husk is put while the other hole is kept as an exit for the rats. Once the bamboo containing rice husk is lit, the smoke travels through hole, suffocating the rats hidden inside. In order to escape the smoke, the rats try to exit through the other hole from where they are easily caught.

Snares for catching birds

Snares are used abundantly, being set at the edges of the rice-fields and in the jungle for birds and small animals of various sorts. Techniques used for catching birds are *rvvpvv, `hitkaa, `gwok, gorvv, and `poocik/goocik*. In *`poocik/goocik* the trap catches the prey without budging from the ground. In *`gwok* the trap springs and catches the prey. Most
commonly used techniques for catching rats and other small games like squirrels are ujuu, midduu, `buupur, odo-gonam, hipur etc. In these methods, basic items like stones, bamboo sticks, water, fire and some leaves are used for catching the desired animal (Fig.5.19).

Use of Pitfalls for big games

The use of pitfalls is done to catch big animals. These pitfalls are 1m to 4 m deep. Long and sharp bamboo spikes are fixed all over the bottom of the pit and it is covered with thin branches, twigs and leaves for camouflage. Different traditional techniques used for hunting games are beepak pagnam, 'hogum`gonam, `kiirup goonam and `hwwr-tonam.

- **Beepak pagnam**

This technique is done for trapping/catching monkeys. This technique is not in use any more. It was used when the human population was less and the villages were surrounded by dense forest. The villages were frequented by monkeys. This technique used to be a communal hunt. Men folk from the village chase the monkeys and bring them together in a cordoned area after which they start cutting the surrounding trees except a single tree. This leaves the monkeys with no other option but to take refuge in that single tree from where it was hunted or caught by the people.

- **`Kiirup goonam**

In this technique dogs are the hunting companion of men to find, flush, chase or pursue and retrieve the prey like deer or wild boar. Deer is a very favourite animal among the Adi-Galo hunters and deer meat is one of the most prized items. It is hunted especially during
September to December. The Adi-Galos are expert in tracking down deer trails. Two techniques are used to hunt deer:

i. `Peegok gognam

It consists of a specific technique for deer hunting. The hunter surveys and ascertains the trail of the deer. Once it is confirmed, the hunter hides and makes a cry of a fawn to attract the attention of the mother deer. In Adi-Galo dialect `peegok means fawn and gognam means to call. The hunters could make such a sound with the help of a leaf which attracts the mother deer. When the deer comes looking, it is hunted easily.

i. `Hwwr tonam

Another technique for hunting deer is `Hwwr tonam. The Adi-Galo hunters are aware of the eating habits of deer. There are certain wild berries like bvlam, paaku, `hwwlum and taguu which the deer comes to eat during the season. When it is the time for the bvlam fruit to ripen, deer can be seen around bvlam trees.

The hunter first follows the signs and trails of deer to ascertain which tree is frequented by the deer. After confirmation, the hunter makes a small structure on the top of the tree or remains ambushed near the fruit laden tree and sits quietly and waits for the prey to come. Deer is also stalked and hunted especially where there are large visible areas, such as mountainous terrain.

Communal hunting is also done on several occasions. It is not only a necessary action designed to promote success in the chase but also together with the actual hunt, something which serves to reinforce group solidarity and cohesion in the culture.
Ritual before hunting is essential before embarking on any big hunting mission. Before every community hunting mission, the priest of the village performs a ritual called *roksin kaanam*, for the success of the hunting operation and safety of the hunters. The hunters are supposed to observe certain taboos before setting out for a big hunt. Before going for such hunting operation the selected hunters keep themselves away from certain activities like going near menstruating women, avoid physically closeness to their wives and people who carried dead body and have not finished a year and also from person involved in incestuous relationship.

Hunted big games like deer and boar is not brought home. It is left in the forest and the hunter on his return informs the villagers about it. Immediately, the next day the whole villagers including the women and the children go to the site (Fig. 5.20). A special feast is organised on the spot. Wild edible plants are gathered from the forest to be cooked along with the meat. Partial animal meat is roasted and other parts cooked in bamboo tubes along with the gathered plants. The brain and the tongue of the deer are also cooked but it is only eaten by the elderly men. After the feast is over, the rest of the hunted meat is distributed among the villagers. The skull with the horns and other parts of the game are brought back in the village. Back in the village, a ritual called `dwgoo` is performed. It is done to pacify the spirit of the hunted animal as they believe that all creatures are protected by different spirits. `Dwgoo` is performed especially after killing deer, stag, wild boar, and bear (Fig. 21a-b). The priest who performs the ritual instructs the whole village regarding the terms of the taboo. The next day the whole village observes taboo on their movement. They abstain themselves by not going to their agricultural field for a day.
Among the Adi-Galos a hunter gains enormous prestige in the society. A good hunter is called *xigam* whereas a bad hunter is called *xibur*. The mortuary practices of a great hunter when he dies is of a very special kind. Such hunting practices of the Adi-Galos give rise to a specific activity site off the main settlement. This offsite is an important evidence for archaeologist but is hard to be found as it can be miles away from the principle site and nothing may get preserved at all, as it would be used only once.

Killing of tiger is very significant among them. They regard the ancestry of man and the tiger as same. For them the killing of a tiger is equivalent to the killing of a human being. All rituals performed after killing a man is also performed after killing a tiger. Therefore the killing of tiger is discouraged; it is only killed under extreme situations, if a tiger starts attacking villagers.

![Fig. 5.19: Rats](image)
Fig. 5.20: Hunted deer

Fig. 5.21(a): Tiger skin
The Adi-Galo tiger-feast involves sharing the meat with the whole community. This sharing ensures enough food for everybody, and it also served to bind people together as a close-knit community. Those who eat the meat of the tiger have to observe certain taboo as prescribed by the priest. There are lengthy rituals conducted after the killing of the tiger in which the whole village participates. Taboos related with tiger killing are extremely stringent. It is strongly believed that if the taboos are not performed properly it brings more troubles to the village and ruins the family of the hunter. The tiger hunter gets an elaborate burial.

A belief in the bodily transformation or lycanthropy is common among them. According to oral traditions among the Adi-Galo, a man named Kachi Riba from Pagi village is said to have the power to transform himself into a tiger. The myth of man
transforming into a tiger or leopard is also prevalent in the neighbouring hills of Nagaland as mentioned by J.H. Hutton (Hutton1920).

5.6. Food Processing

They still follow the traditional way of cooking which is basic and simple. Food is mostly cooked by boiling, smoking, roasting and steaming. Some of those food processing techniques are highlighted below.

Studying such techniques and comparing the food remains with archaeological floral and faunal remains may also lead to understand the possible ways of food processing of past communities.

- **Smoking**

Fish and meat are smoked to be preserved for the future use. Normally the fire place in the house has a three tiered rack over it, where fish and meat are placed to be smoked or dried for future consumption (Fig. 5.22). It is good medium to enjoy seasonal food throughout the year.

- **Roasting**

Meat and fish are roasted or smoked over fire. They can be roasted in the hearth on direct fire or in burning charcoal (Fig. 5.23). For big feast or communal get together roasting is done outside the house but within the compound on a bigger fire. The meat is consumed roasted.
Meat is roasted but not deeply roasted therefore such a process will not leave any fire signs or charring on the bones which could be an important indication of food processing for archaeologist.

- **Cooking in bamboo**

They are very skilled in cooking food in raw bamboo tubes (Fig. 5.24). Foods cooked in bamboo tubes is an age old tradition among them. Raw bamboo is used in which rice, meat, fish or vegetables is placed and covered with leaves (Fig. 5.25). The bamboo is then placed near the fire to get heat. From time to time the bamboo tube is turned, so that the whole part gets heated and it reduces the chance of the bamboo fully getting burnt. Due to the rawness of the bamboo, it takes time to burn before which the food inside gets cooked. Therefore, cooking in vessel was not an essential requirement for them.

- **Steaming or Indirect Roasting**

They also process meat or fish through indirect roasting. The meat or fish are wrapped in certain leaves and then put under hot ashes. The food gets steamed due to the heat of the ash and cooked fully to be consumed directly (Fig. 5.26). This process also does not leave any particular signs on the bone remains.

- **Drying and Fermentation**

Bamboo shoot is an important food item among them, which can be consumed in different forms. It can be dried in the sun or fermented for preservation as well. Preserving bamboo shoot is a long process. Tender bamboo shoots are collected from the forest; the outer cover is peeled and thoroughly washed, thereafter cut into small pieces. The whole process is done
near a water body for the availability of enough running water. Thereafter the chopped bamboo pieces are brought home to be dried on a bamboo matt in direct sun continuously until it is completely dried and can be stored for long time and used throughout the year.

Tender bamboo shoots are beaten and stored in water in order to be fermented.

- **Grinding with wooden mortar and pestle**

Rice powder and paste is a very important component used in every Adi-Galo ritual or festival. Rice is pounded in a wooden mortar and pestle and every house has one set.

Eating in leaf is also a common practice among them. Still food is wrapped in leaves and carried to far distances (Fig. 5.28). Cooking food in bamboo tube and eating in leaves is one of the many prehistoric traditions which have been continuously used and still survive among them.

Fig. 5.22: Meat smoked over fire
Fig. 5.23: Meat cooking in bamboo receptacle and roasting

Fig. 5.24: Cooking in bamboo tubes (Pvnam)  Fig. 5.25: Rice cooked in bamboo tubes

Fig. 5.26: Meat or fish cooked under ash
Fig. 5.27: Rice wrapped in leaf

a. washing tender bamboo
Brewing `Opoo

`Opoo is the traditional alcoholic drink of the Adi-Galos. `Opoo can be made of rice or millet. For the preparation of `Opoo, material like leaves, bamboo and gourd is utilized which are perishable in nature.
The preparation of `opoo is a long process: cooked rice is spread on a mat to be cooled. Ash of rice husk is then properly mixed with the rice. Thereafter a local made starter yeast powder (`opop) is added to the mixture thoroughly. This mixture is packed tightly in a container and kept away in a dark place to remain undisturbed until fermentation completes. Fermentation period varies depending on the season of preparation. In summer 10 days is a reasonable time whereas during winter, it can take up to a month. After fermentation, the mixture is put in a bamboo strainer in which hot water is poured with the help of a gourd ladle. The hot water which seeps through the mixture gets collected in a vessel placed at the bottom of the strainer. This drink is served on every important occasion be it any merry making event or religious ceremonies.

These food processing habits of the Adi-Galos explain the minimal use of pottery for cooking. This traditional way of food related habits gives an understanding about the cooking habit of the primitive society too.

They have an expert knowledge of their environment and their economy is based on hunting, fishing and gathering in traditional manner. This intimate knowledge suggests a long tradition of exploitation of their environment and natural resources. Continuation of traditional fishing and collecting methods of procuring food, in spite of the introduction of agriculture provided an excellent insight into the past subsistence strategies. Most of the inferences concerning ecology of prehistoric agricultural communities have been derived from ethnographic accounts of folk communities. It also shows how they not only preserved but also continued the life of the prehistoric food gathering and early food producing communities.
The ethnographic study of the Adi-Galos show that though they practice various modes of subsistence most of them are done with bare hands or using very basic tools which are made of perishable materials which leaves no record.

Generally, there is no food refuge of the Adi-Galos because the leftover foods are given to the domesticated pigs or due to the excess humidity any faunal remains be it bones are damaged. In such a climate it is difficult to find any faunal remains as well.

The methods employed by modern primitive groups to hunt animals or catch fish with simple tools and devices suggest use of similar methods and approaches by the prehistoric people. They are not only expert in gathering edible plants but also medicinal plants which suggests that they had a long exploit tradition of extensive exploitation of the plant kingdom. Thus, to get an insight to understand the subsistence pattern of the Adi-Galo purely archaeological approach would not have been of much help without ethnographic observations.