

## The Jarawa Tribe and Their Society

The term Jarawa in common parlance was synonymous with hostility and nudity in pre-1997 days. In the Aka-bea Andamanese language the word ‘Jarawa’ means “stranger”. But the Jarawas call themselves as “Ang” while the non-tribals are termed as “eenem” by Jarawas. The Jarawa language is yet to be studied in depth. However, preliminary studies indicate that the sound system of the Jarawa language attests 13 vowel phonemes and 26 consonant phonemes. The word system of the language attests six words classes namely noun, pronoun, verb, adjective, adverb and particle (Raja Singh 2002:116-119). The Jarawas are characterized by the physical features of short stature, dark skin, frizzly and wooly hair, broad to round head shape.

The Jarawa tribe inhabits today the Western region of South Andaman and Middle Andaman Islands. It has three socially discernable territorial divisions viz. Northern Group occupying Western part of Middle Andaman Island, Southern Group and Central Group occupying Western part of South Andaman Island. The Northern Group is known among the Jarawas as Tanmad and as ‘Kadamtala Jarawa’ among non-tribals. Southern Group is known as Boiab among Jarawas and non-Jarawas call them as ‘Tirur Jarawas’. The Central Group is known as Thidong among the Jarawa and among non-Jarawas it is known as ‘R. K. Nallah Jarawas’.

### Demography

The multi-disciplinary Research teams enumerated 266 Jarawas altogether. 84 in Southern Group (*Boiab*), 78 in Central Group (*Thidong*) and 104 in Northern Group (*Tanmad*). The Age - sex distribution among the Jarawas is indicated in Table

Age-sex distribution of total enumerated Jarawa population Age groups (in yrs)	Male	%	Female	%	Total	%	Sex ratio*
0-4	14	8.27	14	7.32	28	7.81	100
5-9	19	15.79	28	22.76	47		147
10-14	28	21.80	26	17.89	54	19.92	93
0-14	61	45.86	68	47.97	129	46.87	111
15-34	46	33.08	35	32.52	91	32.81	76
35-44	10	11.28	10	14.63	20	14.84	100
15-44	56	44.36	45	47.15	111	45.70	98
45+	18	9.77	18	4.88	26	7.42	100
<b>Total</b>	<b>135</b>	<b>99.99</b>	<b>131</b>	<b>100.00</b>	<b>266</b>	<b>99.99</b>	<b>97</b>

The age-sex distribution of the studied population indicates that 46.87% of their population was below 15 years of age, while 45.70% belonged to the most economically and reproductively active population group (15 to 44 years). Only 7.42% of the Jarawas are 45 years of age and above. The females outnumber the males in the pre-reproductive age categories (below 15 years), except in the early childhood category of below 5 years. The overall sex ratio of the Jarawa population was estimated to be 97 females per 100 males, suggesting a rather balanced state.

A large number of families are made up of only two members (30.51%), followed by four (23.73%) and five members (16.95%). Families comprising six and seven members are 8.47% each. The average family size of the Jarawas was estimated to be of 3.75 persons. While nuclear families are common among the Jarawas, joint families are uncommon. Nomadic way of life of the Jarawas might be the primary reason for this nuclear family norm.

Among the Jarawas the girls generally get married by 15 years of age. Only seven girls above this age were found unmarried; this might have happened due to death of their prospective husbands or non-availability of suitable mates at that point of time. Widowhood does not affect the childbearing potentiality of females in this society, since widows/widowers are generally remarried. Though the Jarawas are strictly monogamous, subsequent marriages are common among them. Almost three fourth of the males and females were married once, little less than one fourth of the married persons married twice, while about two percent of the males and females married thrice. The marriage age incompatibility was also found among them, although to a limited extent. In some cases the husbands are younger to their wives.

Reproductive performance of fifty-six married women was documented. It was noted that 30.36 % of them had no children, in fact majority (about seventy percent) of the childless women were newly married, who were yet to record their reproductive potentiality. It has also been observed, ten (17.86%) out of 56 married women had at least one live birth and 15 (26.79%) had two children. It is estimated that about 3.57% of the total married women had no issue even at the end of their reproductive span. The average number of surviving children per mother is estimated to be 2.51, while it is estimated to be 1.78 per married woman. The reproductive index, as revealed from the child-woman ratio among the Jarawas, was estimated to be 1.51. During the entire field investigation in all the areas four Jarawa women (7.14%) were reported to be at various stages of pregnancy; in one of those cases a stillbirth was reported.

It was difficult to establish the mortality rate of the Jarawas. A very rough estimate of the percentage of mortality was made by enumerating all the live births and deaths that took place during the period of study (from December 10th 2001 to September 9th 2002). During this period the total number of live births was ten while four children below one year of age died. Thus the infant mortality was estimated to be about 40%, which was relatively high for this small population. It has also been observed that male infant mortality was relatively higher than that of the females, suggesting greater survival opportunities for the females. Keeping in view the high proportion of young individuals, reasonably balanced sex

ratio, higher proportion of fertile women, proper replacement of prospective mothers suggest a progressive population trend among the Jarawas.

## **Social Organization**

The social organization of the Jarawa Tribe has three types of social units viz. Family or Household, Local Group, or Band and Territorial Group. Three Territorial Groups together constitute the Tribe.

The smallest social unit among the Jarawas is family, the members of a nuclear family are husband, wife, and their young children. Those children can be from earlier marriage(s) of the couple or born from their present marriage. Once the children grow beyond the age of six or seven years, they do not share the sleeping space with their parents, but live with the bachelor boys or maidens, depending on their sex. From this age they move from one camp to another independent of their parents.

The boys staying away from parents live in a group of other such boys, till they get married. Similarly, the unmarried girls also stay together. In case of death of the husband in a family, the unit ceases to exist and the widow, with her young children, if any, stays with the maidens or other such widows. Similar is the case with the widowers; they stay with the bachelors. The young children of the widowers generally stay with some related family, where there is a lady member. A person may leave the children with his brother or sister's family. Once remarried, the widowed people establish their own families again.

Thus, one may come across three kinds of household units; the nuclear family units, units of young boys and widowers, units of maidens and widows. The Jarawas refer to a hut or a settlement as *chadda*, and identify the residence of a family as *tutime chadda*, residence of unmarried boys with or without widower inmates as *thorkalang chadda* and a maidens' residence with or without widow inmates as *thorkongo chadda*. It may be noted, such separate residential units are not used throughout the year, especially during the monsoon months all the social units generally share one common residence, the large community hut. In this hut, however, there would be demarcated sleeping space and hearth for each unit.

A Local Group or Band consists of several families and some individuals who camp together and move from one place to another while shifting camp. Most members of a local group are related to each other either through consanguineal or affinal relations. These local groups, however, are not of very permanent nature; they often go through processes of fission and fusion. It may happen that the persons camping together may divide them up in smaller groups and go in different directions and reassemble somewhere at a later date; it may also happen that members of one local group unite with members of another group to camp together for a few days or even a longer period.

The next larger social unit is the Territorial Group. There can be several Local Groups in one such Territorial Group. There are certain customs governing the rights of a territorial group over its territory. Persons are free to forage within their own territory, but they are not supposed to do so beyond its limit. In case some people are interested to forage in some other territory, they must meet the concerned group and seek their permission. Generally the hosts accompany the guests to pig hunting or honey collection and the foraged item is shared. Whenever a group of persons are on visit to another area, the hosts take the opportunity of inviting them to forage together. This is considered a gesture of hospitality. When the guests

take leave, it is customary for the hosts to offer them meat, honey, arrow and such other parting gifts.

Though the territorial divisions enjoy considerable autonomy, the larger group i.e. the tribe seems to be quite important. Jarawas are an endogamous people. Social interactions take place regularly between all the territorial divisions through marriage and social visits. Members of the *Tanmad* group know each member of the *Boiab* group personally, though they live a long distance apart and have another territorial group in between, the *Thidong*.

## Customs

After attaining thirteen to fourteen years of age the adolescent ceremony of a boy, *lepa*, is celebrated. The boy is supposed to hunt a wild pig with his own endeavour (he is assisted by his certain kin in that) and offers it to his kin and others. The *opemame* ceremony of a girl is observed when she attains puberty. As per custom the Jarawas rename their children during or after the adolescent ceremony.

On the first day of menarche her movement was restricted within a small square area surrounded by four posts and she kept her eyes closed. A mixture of *alum* (a reddish soil), pig fat and gum extracted from a creeper was applied on her head, neck and face. During that period she did not talk to any person; she did not take bath and kept seated or lied on a bed of 'deoa' leaf. Every morning those leaves were changed. There were some restrictions on food, she was not served with pig meat and honey. She would primarily subsist on *onog* (a kind of mollusc) and *eeng* (water).

After three days, she took bath and ate pig meat, especially pig fat. That morning she took some small kid(s) on her lap and prayed for fertility. On that day all women and girls present in the camp gathered around her. The girl was dressed with floral ornaments; the women and the girls sang and danced. In their songs they described what adulthood of a woman means, that she has entered the reproductive life, and how she would make love (*henaga*) with her mate. The girl also sang a song of her own. Unmarried girls spend time in jungle and make love with their beloved ones. They use two types of leaves (known as *wachahi* and *hatho* among the Jarawas), as contraceptive. Some of the married women also use those.

Usually the parents of a child or elder persons of the family start discussing a match for marriage, when the prospective bride or groom is one or two years old. After attaining the age of seven or eight years, the prospective bride or groom may move from one camp to another with the would-be in-laws and share food with them, but stays with the bachelors or the maidens of that particular local group, and not with the family of the future in-laws. Sometimes such proposed marriages are not finally solemnised.

Though age could not counted in terms of years, generally the age at marriage appears to be eighteen to twenty years for the boys and fourteen to fifteen years for the girls.

If the proposed husband of a girl dies before the marriage is solemnised, many a times such a girl is found to be compelled to marry some widower.

During the menstrual period of wife, the husband is not allowed to sleep with his partner till the bleeding stops. For first pregnancy, the lady, and her husband do not use any apparel or ornament and do not decorate their body with white clay. The lady does not accept anything, edible or non-edible, from the non-Jarawas. It is found that during pregnancy they avoid few foods and preferred few. During parturition the Jarawa lady is isolated at a corner sitting on *jungli supari* planks with a fire near by. They cut the umbilical cord with arrows head, and mother feeds the baby with first milk “cholustrum”.

Some elderly lady of the settlement attends delivery of a child. The women demonstrate their happiness after birth of a female child by clapping. The old women, particularly the maternal grandmother of the new-born, start crying after the birth. After a while all of them participate in dancing and singing.

Both father and mother take care of their children since birth. A baby fully depends on breast feeding till dental formation and such feeding continues up to 2 to 3 years of age, along with other foods. They feed the new-born the first breast-milk (colostrums). Breast milk is given to the child not only by the mother, but also by other women of the same group, whenever necessary. Sometimes even the unmarried girls put their breast in the child’s mouth to stop it from crying.

The elders and teenage girls share the responsibility to care the young ones. The infants are carried along with them with plant fibre bands supporting from their heads or across the shoulders and the infant’s hands are tied in the front at the wrists around the neck of the elder. Monitor lizard fat is used to massage the newborn babies. The first stage of weaning is done by giving small quantities of boar fat increasing it day by day, then honey and followed by boar meat, fish etc.

Sometimes close relatives of a deceased person can be seen to wear the mandible or small pieces of long bones of the dead person on neck or on waist. The Jarawas generally dispose of a dead inside the forest away from their camp site. They leave it partially or completely exposed, often between the buttresses of some large tree, and wait for its decomposition before collecting the pieces of bone. The bones are worn for some days or weeks as mark of mourning.

## **Kinship**

Kinship plays a significant role in Jarawa society. This can be seen in many ways. The kins extend their cooperation in constructing family hut or a large community hut, in foraging activities, in movement from one camp site to another. The Jarawas generally refer to and address their kin by using kinship terms and not by using personal names. Their kinship terms are mainly descriptive in nature. In reference the kinship terms are prefixed with pronouns like *ma*, *u*, *wa*; thus *kaya* (mother) becomes *wakaya* (my mother), *aamume* (father) becomes *wamume* (my father); *mau-mame* (father’s father) becomes *u-ma-a*; so also *kaya-ume* (mother’s father) becomes *u-ma-a*, while *maya-waya* is the term for mother’s mother.

In address, they simply use the term *kaya* for mother, *aamume* for father. The elder ones refer to younger brothers and sisters as *aaikota*, while elder sibs, irrespective of their sex, are called *maapo*. The younger ones are addressed by name. The classificatory term *da* stands for son or boy, *do-e* stands for daughter or girl, and these terms also refer to grandchildren.

## Material Culture

They make tools and implements using materials that are available from their forest habitat, except iron. Since long they have been collecting iron from different sources like wrecked ships and later from the settlements/villages. The artefacts made and used by them are mostly function oriented and gender specific. Always the men make the hunting implements like bow (*aav*), arrow (*patho*) and chest guard (*kekad*). Conversely, the women make fishing net (*botho*) and cane basket (*ta-aika*), which are used for collecting and gathering activities. There is, however, no gender restriction in using the artefacts, except that the widows are not supposed to use bow and arrow as the same had been destroyed with the death of her husband.

**Shelter:** Though the Jarawas consider the settlement area as well as a hut as a *chadda*, they differentiate different types. A small lean-to-type temporary hut used by a couple and their children is *tutime chadda*. A semi-permanent Community hut can be oval or round shaped; such a hut can be of medium size meant for four to five families, or it can be large meant for twenty and more families. Such a shelter is known as *chadda-de huthu* or *chadda-de-thuma*. A bachelor boys' dormitory, where widowers also reside, is called 'thorkalang chadda' and a maidens' or widows' dormitory is 'thorkongo chadda'. The size of a temporary lean-to-type hut (*tutime chadda*) varies from 4.5' to 5' in length, 5' to 5.5' in breadth and 4.5' to 5' in height. Generally six to eight branches of locally available trees with a diameter of about 2" to 3" are used as supporting pillars on which long branches are tied with bark strips, both horizontally and vertically, for supporting the roof (*wilpo*). Then the roof is thatched with long cane leaves and a kind of palm leaves (*salai patti*). Both men and women take part in collection of materials as well as in construction of shelters. From collection of materials to construct a lean-to-type hut they require one to one and a half-hour.

There are permanent space demarcation in the Community hut for individual families. This demarcated space is known as *thula*. There would be a central fireplace in each large hut used for baking or boiling meat, besides the individual hearths for the family units. Common fireplace is found in each medium size hut also. In most cases there is a *ham* or hanging platform for keeping pig-fat and meat. Such a platform is made above the central fireplace. One or two such platforms are used for keeping household articles. The platforms are generally made at about  $2\frac{1}{2}$  or 3 feet high from ground. In each semi permanent hut, in addition to various foraging and household articles, there would be number of pig skulls hanging from the roof tied with cane strips or put in fishing nets.

## Dress and Ornaments:

Though the Jarawas did not use any apparel to cover their bodies, in recent times some of them use clothes occasionally, which are collected from different sources. All kinds of fabrics, including woollen threads, are known as *kangapo*. Further, some of them collect clothes not for the purpose of wearing them, but to make ornaments from the threads.

Traditionally the Jarawas adorned them with various objects like shell, clay, leaves and flowers. Recently they have added cotton threads and wool to the list. Though both the sexes are fond of ornaments it is the female folk who make it. Ornaments of the Jarawas can be divided into two broad types - permanent and temporary. Permanent ornaments are made of shell, and cotton threads or wool, while the temporary ornaments are made of flowers, fruits and tender seasonal leaves. The temporary ornaments are mostly named after the plants from which the materials are collected. Women of all age groups are very fond of decorating them with seasonal flowers.

Generally the women are careful about the ways they are decked up. The women, including the young girls, collect flowers, colourful leaves, stems, fruits, fibres made from bark regularly. In afternoon hours they prepare colourful garlands, which often are huge enough to cover the upper part of the body, head gear or hair band, bracelets, armlets, and waist girdle. Not only women, the men also wear such floral ornaments and participate in dance and music.

The Jarawas, both men and women of all age groups, decorate their face and body with clay. After eating pig or monitor lizard they invariably smear their face and body with clay and later make designs on it. Body decoration and painting are integral part of their daily activities. Certain specific geometric line designs like wavy, criss-cross and straight have been noticed. The designs are made freehand with fingertips, nails, shells or wooden stencils known as *thomtang*. The Jarawas are very fond of singing which is related to their activities like making floral ornaments, baskets, wooden buckets or fetching water. Dance is also an integral part of their life.

**Arrow** (*patho*): There are different kinds of arrows for different purposes. Arrow making is a long process and the iron for the same is either supplied by the Administration or procured from roadside and villages. Iron is given shape with the help of chisel and hammer without tempering it. It is sharpened on a piece of stone. Once the arrow is ready it is fixed to a bamboo shaft (*theenaang*) and tied with the string, which is made of the fibre of a climber known as *wiibo*. Thereafter the tied portion (*thopijaye*) is waxed. Depending on size and shape and nature the arrows are classified into the following types:

- (a) Arrow used for hunting of pig
- (b) Arrow used for fishing
- (c) Arrow used for hunting monitor lizard
- (d) Harpoon for pig hunting

**Bow** (*aav*): For making bow wood of *chooi* (*Sagarea elliptica*) is used. It was observed that the tree is not available throughout the Jarawa territory. In order to procure the same they move long distances, sometimes to Potatang or to Baratang Island. The bowstring, *betho*, is made from fibre of a climber known as *way*. The string of the harpoon is made of fibre of *ehabad* climber.

**Knife** (*twad*): Knife is generally used for different purposes ranging from cutting flesh to making string from a bark or a leaf. Method of making knife is same as arrow head. The knife is made either of iron or aluminium. The flattened end of knife is rapped with the string of *tha-an*, an orchid (*dendrobium*).

**Chest Guard** (*kekad*): Chest guard is used by adult male Jarawas during hunting and gathering activities, though it is not compulsory; they insert their knives in it. It also protects the chest and abdomen from injury, which may occur during hunting. It is made of bark strip of *Stracula vilosa*.

They keep two layers of bark strip in a chest guard and its width varies between 9 to 12 inches. Both the ends of the bark strip are neatly stitched together with threads extracted from same bark.

**Bucket** (*u-hu*): Wooden bucket is generally used in collection and storage of honey. Besides, it is also used to keep and carry other household articles. It is a dugout wooden block of a tree trunk known as *tha-ad* (*Pajanelia reheedii*). After getting the wooden block it is scooped out and given the shape. Thereafter it is waxed from outside as well as inside.

**Cane basket** (*tai-g-a*): It is used for collection of fruits, roots, tubers, shells etc. It is somewhat conical in shape with wide mouth and narrow bottom. Circular sticks of the baskets are of red cane (*Korthalsia rogersil*) and strips are of malai cane (*Calamus baratangenesis*).

**Torch** (*tuhu-ga*): It is used during night when they move from one place to other. To make it *selai patti* (*Liquala peltata/spinosa*) is rolled and thereafter it is filled with resin, which is collected from the tree of *Parishia insignis* and *Caneriam euphyllum*.

**Fishing tools**: The Jarawa men fish with bow and arrow, while the women use small hand net. A fishing arrow is known as *thom*. It has two main parts, the body or shaft made of bamboo stick and the needle shaped iron arrow head. The fishing net is known as *botho*, its mouth is made of cane or a long and narrow branch of tree bend to form a circle and the ends crossing each other are tied, while one end of the stick or cane is left long to form a handle. Earlier the fishing nets were prepared with bark fibre but nowadays they use nylon threads collected from seashore. The women folk prepare the nets.

The material culture of the Jarawas is not only utilitarian, they try to make the objects of daily use aesthetically pleasant. They engrave geometric designs on bow with iron knife, make intricate designs with lines on chest guard or wooden bucket, and decorate the buckets with strips made of orchid stems. They derive immense pleasure not only from the end result, but also from the very act of decorating the objects. They spend considerable time in making the ornaments and also for making designs on their own face or body.

## **Food and Subsistence Activities**

Food is normally procured through hunting, gathering and fishing. The procured food includes varieties of fruits, tubers, honey, mollusc, fish, and animals like pig, monitor lizard and turtle. Besides, honey was an important item of food for the Jarawas.

The Jarawas move in groups into the jungles and keep watch on prospective locations for pigs in somewhat open spaces in the jungle. If they can locate pigs, they approach carefully and try to take position from different angles. Then they shoot arrow from a distance of about 15 to 20 m. Occasionally the Jarawas take support of dogs to surround the pigs from different sides and hunt the animals more easily.

Normally the men hunt crabs by hitting arrows when these were encountered in water or mudflats. The women use net for trapping the crabs and often dug out the crabs from burrows. The women and children usually caught fishes from shallow waters, in streams and near shoreline, by hand-nets. The Jarawa men and boys used pointed arrows (without metallic arrowheads) made up of bamboo for fishing. The success rates of hitting the targets were high (about 70%). They used to gather the hunted fishes in the baskets on their backs.

Jarawa women collected turtles' eggs from the sandy beach in a bay area. The turtle nesting grounds were detected near the edge of tidal flat (high water mark), where grass grew. The women and children used to collect marine molluscs like *trochus*, *turbo*, giant clams, cowries etc., from the inter-tidal areas of coral beds on open seashore or mouth of bay area. During low tides the coral beds were generally exposed where these molluscs were seen in good numbers. The chitons and neritids were usually collected from rocks on the tidal flats.

The clams were often seen in mangrove mudflat areas. During low tides mud flats were exposed and the Jarawa girls collected clams from the puddles or depressed areas where water was still standing. They used to feel the presence of clams by their feet, and picked up and collected in baskets. The Jarawas collect grubs of wood inhabiting beetles. The women used to collect grubs from soil just underneath rotting logs. The larvae/grubs of the borers were collected by exposing/cutting an infested tree or tree stumps by cutting these with the help of axe.

The Jarawas collect honey produced by two types of honeybees. They climb trees, cut the beehives and bring them down in containers made of wood. The person who first locates a beehive enjoys the privilege of collecting it. If the person cannot collect the honey immediately, a few shrubs around the tree are broken to notify others that the beehive has already been located. Both men and women collect honey; there is no gender difference in this pursuit. Honey is partly eaten on the spot by all persons present and the remainder is brought back to the camp. Considerable difference in availability of honey between the two successive seasons; post monsoon (December) and dry (May) was noted. The estimated collection of honey per beehive was 8.812 kg (including wax) in December (n-8, mean-8.812, SD – 3.85kg) and it was 3.267 kg in May (n- 4, mean-3.267, SD – 3.307 kg).

Collecting caterpillar, mostly larva of woodborer, is an important pursuit. The caterpillars fall from canopy of the trees to ground just before metamorphoses, and Jarawas

collect them. Sometimes they cut the tree trunks with axe to extract the borer larva inside. Availability of this item marked seasonal variation.

Gathering wild edible plants is another important subsistence activity for the women. The major edible plant resources are wild tubers, seeds of various plants and various seasonal fruits. Women gather wild tubers by digging earth with iron rods. The proportion of wild tuber in their diet is quite low (about 6%) and that too when they stay in interior parts of forest. Wild tuber accounts for a major part of the total starchy food intake; this item can be eaten after boiling or baking. There is considerable difference in density of such food plants between various types of forest, such as deciduous or evergreen. Leaves are not used as food; those are used as medicine.

The Jarawas eat many kinds of seeds; some are eaten raw and some are processed before eating. Most of these seeds are gathered and transported to the camp by the women, while men occasionally help the women in gathering, when the seeds are available abundantly. Availability of seeds has a strong seasonal variation. All kinds of fruits are eaten fresh, and a great portion is consumed on the gathering spot itself, except *Pometia pinnata*, *Baucaria sapida*, *Cycus* sp., which are gathered in large quantities and carried to the camp. Men, especially the young ones, climb high up the trees to collect jackfruit, which becomes abundant during the peak dry season. During the dry season jackfruit comprised a considerably high portion of their food, more at camps in interior parts of forest and less in coastal areas.

Traditionally, food was cooked in pit ovens called *aalaav*; those were made inside or outside their huts for roasting food. Such ovens are mostly used to cook pig meat and jackfruit. After three to four hours the cooked food is taken out for consumption. In recent times, it has been observed that most of the time they boil pig meat and other items of food. Boiling is done in *buchu* or aluminium vessels. Those vessels were either supplied by the AAJVS or procured from the villages. The males process pig meat; cooking the meat in pit ovens is also done by them, while boiling meat in a *buchu* is not a gender specific job. It has generally been observed that the males consume larger part of pig meat. If it is monitor lizard, only the males consume it without giving any share to the females.

## **Jarawa Movement**

Jarawa is a nomadic tribe. Jarawas move from place to place for the various purposes like foraging, socializing etc. Generally members of one or two families leave camp for some time and go to places to visit their relatives. Young boys of a camp-group often go to visit other groups of Jarawas. In the latter case the visitors do not indulge much in socialising with their relations, they prefer to interact with persons from their own age from both the sexes. The boys also prefer to take part in hunting or fishing together with their hosts; going to jetties, police outposts and such other places where they can meet the *eenens* (non-Jarawas).

On the basis of frequency of movement and in terms of distance covered, they may be put under three groups. Least mobile were the groups comprising maidens, widows and spinsters. They moved with the family units within their territory, but never ventured out of it into the territory of other Jarawa groups. The most mobile groups were those of the unmarried boys initiated into hunterhood. Even within their own territory the boys were found to move separately and at a faster pace than others. The family groups, widowers and small boys stood somewhere in between.

There is a specific division of work to be done in relation to movement from one place to another. While the males were observed to pack and carry their own hunting implements, the ladies were seen to carry the food articles like honey, roots, tubers or smoked meat in possession of the family, in addition to her own belongings. After reaching a new camp site, a group generally divides the works to be done for settling down. The ladies and the children go for collection of poles and leaves required for erecting temporary shelters, the men go out in search of some food. The maidens erect their own shelter and then go out for food collection.

While moving from one camp to another along west coast or in interior parts of the forest, the Jarawas walk. While crossing the crocodile infested creeks of coastal areas, they chop down tree trunks and use the same as bridges. All these are traditional ways of movement. In recent years they have learnt to make use of the roads and motorised means of transport, wherever those are available. When they were camping at places close to the Andaman Trunk Road, they were riding buses and lorries regularly. This has drastically changed the speed of their movement.

## **Beliefs about Nature and Universe**

Appearance and movement of the celestial bodies of sun (*ehey*) and the moon (*taape*) influence the subsistence activities of the Jarawas and their movement from one camp to another. Like forest and sea, the Jarawas consider the sun and the moon as important phenomena for their living and survival. They also recognise the sky (*pangne*), stars (*chhilobe*) as distinct phenomena like cloud (*ethi-bithi*) and rain (*o-ho*).

The term *ehey* is used to identify the sun as well as daytime or daylight. However, they identify different parts of a day by different names; dawn is *chapogiye*, morning is *kekame*, afternoon is *thepole*, dusk is *chokitaji* and night is *kethale*. The directions, east and west, are identified with the rising and setting sun. During day hours time is measured with movement of the sun. They know that the *ehey* never dies, it comes back every morning. But unless the sun sets, the *taape* can not come.

The *taape* or moon is differentiated on basis of its size and appearance; like *taape-epadiwaiya* (very small moon), *ehaba-hutu-thame* (big moon) and *ehaba-tuhuma* (full moon). Complete disappearance of the moon is called *nademame*. Rise and fall of the level of sea and its waves depend on appearance of moon, the Jarawas relate it with high tide (*chakthe*) and low tide (*chigi-a*).

They enjoy the moonlit nights with great joy by singing *gegap* (song) and *paaloha* dancing. During this period they can collect more honey from forest, get more fish or mollusc from sea and creeks (*ho-ag*). In moonlit nights they even go for hunting or fishing, which is not possible during dark nights. The new moon or dark nights are not preferred, as they are scared of evil spirits that may appear during dark nights.

## **Jarawas Journey to the Present: History of Their Relationship with Non-Jarawas**

The origin of Andaman Islanders has been the subject of speculation for centuries. The latest genetic researches indicate that the Andamanese have clear affinities to Asian than African populations and therefore are the descendants of early Paleolithic colonizers of South East Asia - the hunter gatherers and the first migrants moved out of Africa about 60,000-100 thousand years ago. (Thagaraj et.al. 2002). Palaeoanthropological evidences suggest that Andaman Negrito occupied the islands at least 2000 years ago (Dutta 1974).

On the basis of her archaeological findings Zarine Cooper held that the Islanders must be regarded as active players in the arena of the Andaman Sea wherein lay adequate scope for the adoption and rejection of ideas and innovations. Despite being victims of slave raiders and other marauders, the Islanders were, by and large, able to keep strangers at bay and, when the occasion arose, were able to interact with them. She concludes with note that Andaman Island represents the dynamic interaction of traditions within and outside the Archipelago, a process that spans at least two millennia [Cooper 2002:165.167).

Before the advent of non-autochthons in Andaman Islands in the previous century, the Great Andaman (which is divided into South, Middle and North Andaman Islands) was inhabited by the numerically predominant Great Andamanese and the Jarawas, while the Little Andaman by the Onges, and the North Sentinel by the Sentinelese. Thus, the Great Andamanese and Jarawas were the immediate neighbors. Though they were at loggerheads for ages, they nonetheless lived in that state all along. Both the tribes had the same culture pattern and as such the similar eco-cultural-equilibrium was struck, that is to say they had the same "nature-culture complex".

On the contrary, non-autochthons, who arrived in Andaman Islands in 19th and 20th century following the two major events of 1857 and 1947 in the Indian history, belong to the culture pattern so different from that of aborigines and with their nature-culture complex so much unlike that of the autochthons that the latter suffered the "psycho-technological shock" due to farmer's impact. The nature-culture complex of autochthons operates through the eco-cultural equilibrium, an age old phenomenon, on other hand, the nature-culture complex of

non-autochthons is based on the economic growth model (for more wealth and more comforts for more people), the modern phenomenon which has already become old aged, because it operates basically on non-cyclic process of exploitation of natural resources.

## **Colonial Period**

The history of the relationship of Jarawas with non-Jarawas in the early period is interlinked and inseparable from such history of Andamanese, another Negrito tribe among the Andaman Islanders. Mukhopadyay (2002:25-42) has narrated history of interface of Negritos of Andamans and non-islanders. A retrospection of the relationship between the Jarawas and the non-Jarawas suggests continuity of a pattern. Colonial forces have almost always utilized the available resources for their own benefit and seldom for the welfare of the 'native islanders'. Till early nineteenth century the 'new-world' colonizers exterminated the 'aborigines' by arms or by poisoning and then by introducing various diseases among them. Many American tribes and the Tasmanians fell prey to such situations. As the Andaman Islands were colonized during the second half of the nineteenth century, the governmental policies for the Andaman islanders were somewhat different. The Administrators were supposed to use restraint while dealing with these people. Efforts were made to 'befriend' and 'civilize' them.. Establishment of the settlement to subjugate the islanders and then settling some people permanently in the islands was a deadly combination for the native populations of the Andamans. The first few years of Penal Settlement were marred by frequent conflicts between the colonizers and the islanders. Within a few years, however, some of the 'Great Andamanese' people became 'friendly', their interaction with the colonizers grew manifold, and steps were initiated to 'civilize' them. An "Andaman Home" was founded at Port Blair and Chaplain Rev. Corbyne was given the charge of the Home. To 'civilize' the 'savages', Mr. Corbyne started teaching them English, Urdu and elementary arithmetic. They were made to work with the convicts at clearing sites. Such intensive contact was soon followed by introduction and rapid spread of certain diseases among the Great Andamanese.

Homes for the Andamanese were established at different strategic locations for maintaining 'friendship' with the 'outlying' Andamanese and to capture the fugitives. E.H. Man was in charge "Andaman Home" from 1875 to 1879. The high points of this period are detection of syphilis and outbreak of measles among the inhabitants of the Homes. M.V. Portman took charge of the Home in 1879 and continued till 1900 and he spent almost the entire length of his tenure trying to save the Great Andamanese from one epidemic or the other (Mathur 1968:106).

After retirement of Portman in 1900, no special officer was given the charge of the Home, but it was put under the charge of the Deputy Commissioner. A&N Islands (at that time there was one District). The Government was interested to reconcile the 'native

islanders' with certain objectives, which were; (i) to ensure that the crews of wrecked vessels are treated well by the islanders and they are escorted to Port Blair, (ii) It was also expected that the islanders would stop resisting the plan of colonization, and (iii) they would rather act as Bush-Policemen and help the authorities to capture the fugitive convicts from the forest (Portman 1899:49).

In the annual report for the year 1872-1873 General Steward wrote that the Jarawas "seem to be peaceably disposed" whereas the Little Andaman Islanders habitually kill, or attempt to kill, everyone that lands on their shores (Portman 1899:716). The same report however further states that by that time all tribes were in friendly terms excluding the Jarawas, about whom little was known.

The Jarawas were being pushed from the south by the 'Settlement and Forest operations' and Portman predicted that they would move farther and farther north (1899:765). He felt, as the 'other aborigines' are dying out making more and more land available to the Jarawas, nothing could prevent them from moving up to Port Cornwallis, a place in northernmost part of the Great Andamans. In 1891 some Jarawas crossed Middle Strait to enter Baratang Island and some places in Middle Andaman Island being driven northward by the above mentioned factors and also by a devastating cyclone. The turnaround from a policy of 'protecting the tribes from collisions with the settlers and thus saving the weaker race from extermination' was complete, when in 1905 a Bush Police Force was formed with 'friendly Andamanese' as members and a Burmese Jemadar in charge of it. Their job was to hunt the Jarawas and runaway convicts (Mathur 1968:114-5).

With each passing year hostile interactions with the Jarawas increased. Convicts and policemen were being attacked and killed by them. Incidents were taking place in areas, which the Jarawas might be considering to be their own territory.

Bhakhtawar Singh (2002:6-12) writes that the British had the policy of not allowing the Jarawas to enter into the settlement area. To check the movement of the Jarawas, the British government established a chain of Bush Police posts along the periphery of the Jarawa territory. Sometime punitive expeditions were sent to catch or kill the Jarawas.

In September 1937, the Police tried to catch some Jarawas from Baratang area, but most of them managed to escape. Only a woman and her four children could be caught. One of the daughters of the woman, was named as Topsy and was brought to Port Blair. Later Bishop Richardson took her to Car Nicobar, where she was married to a Nicobari youth. The couple had several children. One of Topsy's brothers was sent to Ranchi for education, but he died there after some time. One Jarawa girl was taken to Ferrargunj by Brigadier Francis and she was kept at Aniket village. There she was being looked after by a person of the Bhantu community. Later the girl learnt some Hindi and also began to work in the Brigadier's office. After some time she was asked whether she wanted to go back to her own people or would prefer to stay in the welfare home. She opted to go back and was sent back. But after a few months she died.

At one point of time it was felt that the most effective way to conciliate the Jarawas was to 'capture them in large numbers, tame them and then send them back as messengers of peace'. One expedition organized in 1939 by McCarthy, Commandant, Civil and Military Police, was considered to be successful, as they could capture one young woman with three of her children. The experiment of taming them and sending them back could not be completed due to Japanese occupation of the Islands (Census 1961:104).

Andaman and Nicobar Islands were under Japanese occupation from March 1942 to October 1945. The Japanese were interested to fortify the entire coastline but the Jarawas made their work on the west coast of Andamans difficult. So the Jarawa territory was indiscriminately bombed, the Jarawas were fired upon (Mukhopadyay 2002:36).

### **Post-Independence Period (1947 to 1997)**

The post-independence scenario was not completely different as skirmishes between the two people continued. However, some land was declared as tribal reserve and entry into the area by unauthorized persons was prohibited. This decision of creating a tribal reserve was understandably taken without consulting the Jarawas. They had no knowledge where their territory ended and the settlement area started. So, creation of the reserve could not remove all the factors responsible for a situation of conflict.

However, elaborate arrangements were made to protect the villages, forest camps and persons working in the reserve or in adjoining areas. The Bush Police Force was no more a group of game trackers and hunters. By 1961, it was manned by 35 Jemadars, 311 Constables and one Inspector operating from 44 camps along the periphery of the reserve. In addition, the Forest Department maintained 150 Constables. Both the forces were armed (Census 1961: 104).

The Government of India decided to colonize the islands by encouraging immigration of free population. The first groups of such settlers were some displaced families from the erstwhile East Pakistan, who were rehabilitated in 1949. The idea behind the colonization programme was to 'grow more food' and make the islands self-sufficient in the matter of food (Census 1961: XLiv).

Once the colonization programme was initiated a very rapid growth of non-tribal population was recorded in the islands. Large tracts of land were required for this massive colonization programme and land cleared for such purpose was often very close to the tribal habitat with no buffer space in between. Close physical proximity of two such populations who had little or no knowledge about each other helped in the perpetuation of mutual distrust.

The rehabilitated families were given some agricultural land probably with the idea that they would pursue agriculture for generations and the land at their disposal would be able to withstand the population growth in years to come. It was also expected that the population growth would obey the 'normal biological and economic forces'. But the forces did not work as desired and the rate of growth was no more 'normal'. Resource crunch among the settler population was inevitable and the load was shifted to some extent to the resources available within the Jarawa habitat. illegal logging and poaching of games by a section of the settlers kept the situation of conflict alive.

Bhaktawar Singh narrates about friendly contact expeditions to Jarawas, a practice continued by the Administration with mission to befriend the Jarawas by dropping the gifts and not by firing the bullets. In June 1968 the villagers caught three Jarawas while they had come to the settlement in search of iron implements. They were brought to the Police Station, where they were kept for over a month. Later they were released along with some gifts of banana, coconut etc.

Between 1969 and 1974 many visits were paid to Foul Bay and Lakra Lungta, Middle Andaman by the Contact Team. Though the Jarawas used to avoid the visitors, gift items were left for them on the shore. At that time, gift items were tied and hung from trees to save them from wild animals. Interestingly, it was noticed that the Jarawas had tied many creepers from trees to help the visitors to hang gift articles for them.

One day in April 1974 a few Jarawas were seen making their hut near Lakra Lungta. Seeing approaching boat of contact team they ran away. Team anchored the boat, members got down and went inside the hut, where the gift items given to the Jarawas during previous visits were also found. The team stayed there for about two and a half hours and then returned. The next day the Contact Team again visited Lakra Lungta in a small vessel. This time the Jarawas were not scared. They had finally shed inhibitions. They came swimming towards the vessel. On reaching and boarding the vessel, they scrambled for gifts. Thereafter the Jarawas hugged all the visitors.

After 15 years, a similar friendly contact was established by the Contact Team of the Administration with Jarawas of South Andaman on western Coast near Port Campbell in 1989. However such missions to South Andaman Jarawas were not frequent unlike to the Jarawas of Middle Andaman.

On or about every full moon day the contact party met the Jarawas of Middle Andaman Island. The full moon day was chosen to make contacts, with view to maintain the regularity based on the calendar intelligible to the pre-literate Jarawas. The members of the contact party were medically screened to prevent the possible spread of communicable diseases to the Jarawas. The contact party distributed gift articles like pieces of red cloth, machetes, coconuts, banana among the Jarawas. The earlier practice of giving cooked

rice to the Jarawas was discarded later. However, giving of puffed rice, sealed in polythene bags was adopted.

The Government Doctors used to be one of the members of the Contact Team. The Doctor treated the ailments like injuries on the body of the Jarawas and fungal infection. Jarawas apparently took a liking to such healing treatment. Many of the Contact Expedition Teams had a woman also as a member. Jarawas were more curious about such a lady visitor along with the team.

The planting of banana suckers, coconut seedlings etc was demonstrated to the Jarawas in the late 1980's. Subsequently Jarawas themselves started planting seedlings carried by the Contact Team. They were convinced that such seedlings would bear the fruits that the Contact Team gives them. The Jarawas, many a times insisted to come to anchored vessel of the Contact Team, as they believed that the ship is loaded with gift items.

On few occasions in the earlier days, Jarawas were taken to Uttara Jetty near Kadamtala in Middle Andaman. Such of their visits resulted in gathering of various items found in the wayside shops near the jetty which included eatables plastic goods, cloth etc.

As a general practice the male members of the contact team were required to wear only the lower garments i.e. half pant. However, the guests or the visiting dignitaries accompanying the Contact Team used to wear upper garments also. Many a times these members of the Contact Team gave away their upper garments like shirts, baniyan to Jarawas when latter insisted for.

Thus the Jarawas came to know through such contact expeditions about medical care, clothes and availability of plentiful gift items like coconut, banana etc. in the land of others *eenem*.

A Jarawa boy named Enmei met with an accident during his usual hunting-gathering activities and was found immobilised due to leg bone fracture in the fringe of Kadamtala village, Middle Andaman Island, in April 1996. The A & N Administration extended him prolonged medical treatment at G.B. Pant Hospital, Port Blair. Enmei was sent back home in October 1996 with a lot of gifts after he recovered.

## **Post- 1997 Period**

On the late morning of October 1997 about 25 Jarawas came out of the forest with full intention of a contact rather than confrontation much like the friendly contact organized and structured in past by the Administration. Enmei succeeded in conducting fellow Jarawas as tourists to the outside world. Enmei's five months stay at hospital was significant in the relations between Jarawas and non-tribal. He learned the outsiders's language and saw

the world as presented by the hospital and other concerned agencies. He was seduced and bedazzled by all that the outside world could offer. Loaded with new experience and capacity, Enmei become an individual with a degree of influence on both the non-tribal authorities and certain section of the Jarawas. Since October 1997, Enmei has conducted many trips involving other Jarawas coming to the roadside. He was perceived as capable of bringing the world of non-Jarawas and Jarawas together. In a way Enmei's structure of events pertaining to his treatment in Port Blair has constituted and structured the history of contact as practiced by Jarawas (Pandya 2002:3384).

In October 1998, Jarawas of South Andaman also repeated the behaviour of Jarawas of Middle Andaman by coming out of their forest habitat in daytime. The Jarawas, some time in large number naked and decked with their traditional tools like knife started reaching villages, roads, jetties and other public places. They attempted to collect from houses metal items and cloth, eatables and fancy items from the shops and banana etc from the agricultural fields. Jarawas were a sort of bull in a china shop. These activities were perceived by the authorities as Law and Order issue who had also believed that such contact of Jarawas with non-Jarawas would ultimately be harmful to the Jarawas themselves as the alien diseases due to the contact may afflict them fatally.

So Police responded to tackle such situation by rounding the Jarawas up and sending them to the Forest area back. Initially Jarawas were fed in Police-out-Posts with cooked rice (*kichadi*), given gifts of bananas and coconut before they were despatched from the villages and non-tribal areas. When the naked Jarawas started coming to the villages and on to the Andaman Trunk Road (ATR), the non-Jarawas started giving them eatables, cloths, and later other items believing that they are driven by hunger and poverty. The Jarawas, especially the children, found such interaction with the non-Jarawas as an interesting affair. They started frequenting such areas.

The Jarawas were gathering on the Andaman Trunk Road, obstructing vehicles or demanding joy rides. Some of them were visiting neighbouring villages in groups. As the villagers based on their stereotyped notion were pretty sure that the Jarawas were a starving people, started organizing mass feeding programmes, whenever the Jarawas gave them the opportunity by visiting their villages. Initially it was a source of entertainment. It was clear to the Jarawas that each village and each vehicle moving along the trunk road was a storehouse of food and other articles meant for them. If not given voluntarily, they would demand what they thought was due to them (Mukhopadyay et. al 2002 : viii)

## **Consequence of Contact and Health Care**

Dr. Elizabeth Mathew (has narrated the sequence of events involving health care to Jarawas subsequent to the treatment of Enmei in 1996. Altogether 125 Jarawa patients were treated at G.B. Pant Hospital Port Blair between 16<sup>th</sup> April 1996 and 19<sup>th</sup> October 1999. The predominant disease and conditions were identified to be measles, pneumonia, acute upper and lower respiratory tract infection, besides fungal infection of skin. Taking into consideration 52 cases treated at Kadamtala, Middle Andaman Island and 90 cases at Port Blair, it can be said that about half of the estimated Jarawa population suffered from diseases and ill health between 3<sup>rd</sup> week of September to 3rd week of October, 1999 (Mathew 2002: 155-160).

Dr. Mathew has further reported that there were 21 cases of measles, 21 cases of pneumonia and remaining 48 were cases of acute upper and lower respiratory tract infection. Many of them also had concomitant fungal infection of skin and infected skin abrasions. Therefore, of the total disease load, 23.3% was due to measles and pneumonia each, and about 64% was on account of acute respiratory infection. Three of the cases with measles also had pneumonia. It cannot be said with certainty of the 18 cases of pneumonia were also of post measles sequel or otherwise. However, the occurrence of large numbers of measles among the Jarawas was an epidemic.

It is noteworthy that 10-15 cases of measles occurred among the non-tribals at Kadamtala around the 2nd or 3rd week of August, 1999 and the outbreak of measles among the Jarawas started from the 2nd week of September. This indicates, the non-tribal population was the source of infection of measles. Measles being highly infectious, transmission occurred mainly by droplet infection from person to person. Many of the Jarawas who accompanied the patients to the G.B. Pant Hospital also developed measles in the hospital, as secondary attack rate in measles is known to be over 80% among susceptible contacts (Mathew 2002:158).

## **Natural Resources, Their Availability and Accessibility to Jarawas**

Land and land based resources form a basic substratum for the growth and survival of any human society. Sea and sea based resources are also significant for littoral societies or islanders. The mineral and bio-resources are among the land and sea based resources. As such, the resources available for the Jarawas could be classified into three categories viz. animal origin, plant origin, and mineral origin apart from the land *per se*. The resources of mineral origin could further be grouped as indigenous and exogenous. The indigenous mineral resources include fresh water and soil while exogenous ones would include iron, plastic, glass and cloth.

### **Availability and Accessibility of Land**

About 200 years back the entire territory in Andamans belonged to the ancestors of the present Andamanese and the Jarawas. With founding of the Penal Settlement by British in 1858 and subsequently with the onset of the process of settling of mainland Indians beginning in 1948, Andaman Islander's territory was occupied for the pursuit of the livelihood, growth and prosperity of these new players in the Archipelago. At present about 649 Sq. Km of the land has been notified as Tribal Reserve meant for Jarawas. An extensive coastal waters extending upto 3 Kms from high tide mark around the Jarawa land has also been declared as Tribal Reserve. The Jarawas however, seem to consider the entire land as theirs except probably that which is under the active occupation of non-Jarawas since the notification by the Government about the tribal reserve is obviously beyond the comprehension of the Jarawas as yet.

The studies show that each square mile of tropical rain forest area has a capacity to sustain and support two hunters and gatherers (Erickson and Beckerman 1975). As such, an area of 649 Sq. Kms appears to be adequate for the population of less than 300 Jarawas. However, excessive denudation of such tropical forest may lower the carrying capacity and thereby affecting the hunters and gatherers living thereon.

Availability and accessibility of the land *per se* would be at stake due to encroachments on it by non- Jarawas, following recent change in the behaviour of the Jarawas. The phenomenon of such unauthorized encroachments have been rampant in Andaman Islands. Till the other day encroachments into the Jarawa territory was rather impossible because of the fierce hostility professed by the Jarawas.

## **Availability and Accessibility of Mineral Resources**

Jarawas depend on the fresh water streams for drinking and bathing purpose. Number of streams flow in the Jarawa territory some of which are perennial. Because of tropical virgin nature of Forest and the heavy annual rainfall around 320 cms., Jarawas appear to have bountiful fresh water resources. However, rarely due to delayed arrival of monsoons some streams may dry up but puddles of water under thick forest canopy continue to exist in the Jarawa area. Further it has also been observed that stem juice of the plants like *Calamus, andamanicus, Kurz* is used by the Jarawas as water in emergency.

As such, Jarawa tribe seems to be self-reliant in respect of drinking water resources till now. But due to the recent change in the behaviour of Jarawas, the non- Jarawas may venture into Jarawa territory to tap / exploit the fresh water particularly during the dry seasons. The population of non-Jarawas living adjacent to Jarawa territory continues to increase. Therefore there would be a threat to the accessibility of fresh water resources to the Jarawas in future if the interference of non-Jarawas is not controlled. Increase in the activities by non- Jarawas in the Jarawa reserved forest may damage the pristine ecological conditions

thereby affecting the sources of water existing through out the year at present. Further the activities of non-Jarawas may also lead to the introduction of water borne diseases due to contamination.

The Jarawas use white clay for painting their body routinely as per their customs and practices. This clay is available in the Jarawa territory and at present Jarawas do not face the dearth of this resource. However, increased activities / interference of non-Jarawas in the Jarawa area may affect the accessibility of this mineral resource as well.

The exogenous items like iron, plastic and glass were available to the Jarawas on the sea-shore for centuries. They collect these items and use them. Iron is utilized to make the arrow-heads while plastic containers are used to store the water etc. The glass pieces are also used to cut their scalp hair as per their customs. These exogenous items reach the Jarawas shores as drifts originating from the ships and shipwrecks. Iron was considered by the Jarawas as a precious item in the past. However Jarawas secured such items later from the neighboring villagers and workers through their raids. The Administration subsequently started the practice of giving the gifts to the Jarawas as a friendly gesture. The gift items include iron pieces also.

Cloth is a recent arrival in the material culture of the Jarawas. They got it from non-Jarawas earlier through their raids and later as gift from the Government and other non-Jarawas. Jarawas used the cloth as simply a source of cotton threads to make ornaments. But of late, some of the Jarawas have started using the cloths secured from the non-Jarawas as garments. This new practice may have long term effect on the health, hygiene and self-reliance of the Jarawas.

## **Plant Resources**

From the point of use of plant species by the Jarawas, the resources can be categorized as edible, non-edible and medicinal. Plant resources are consumed as a supplement to the animal resources. During the monsoon it was observed that fruits, seeds, tubers and tender shoots of variety plant species were being consumed by the Jarawas which are available in various forest types in Jarawa area.

Some are eaten raw and others after processing. Most of the seeds and tubers are gathered and transported to the camp by women, while men and children occasionally help them when the seeds are abundant. It has been noticed that the Jarawas consume more of the fruits found in the forests and honey rather than digging for tubers and roots.

Fifty five plants have been identified by the botanists as edible ones used by Jarawas. Mostly the fruits of these plants are consumed by them. Botanists and Foresters have recorded the availability of these plants as Plenty or Adequate or Scare on the basis of the visual census during the different periods / seasons of the year i.e. post-monsoon (Phase-I of the survey), dry season, (Phase-II) and Monsoon (Phase-III).

The Jarawas depend upon herbal medicines to cure different ailments. They have a practice of applying plant products externally as intact materials or in the form of crushed paste. As intact materials, the plants are worn around head, neck and waist.

Jarawas used 15 plant species for medicinal purpose viz. to get relief from body pain, stomach pain, headache, fever, cough, snake bite, insect bite, and to prevent bleeding etc.

Number of plant species have been identified which are used by the Jarawas for various purposes other than as food. These are used as the base for the material culture of the Jarawas. Plants are used by Jarawas for the purpose of fuel wood, making bows, arrows, spears, bucket, basket, ropes, ornaments, to construct huts, and as bee-repellants etc. Depending on their availability, 20 plants are used for building their shelters as indicated in Table 5.3, as many as 63 plants for ornamentation as given in table and 48 plants for various other purpose as indicated in Table .

## **Animal Resources**

The Jarawas derive most of their animal food resources from humid forests, seashores or shallow waters and mangrove areas. They have developed an excellent understanding about the ecology and prevalence of various food animals in different niches. Jarawas were acquainted with no less than 150 species of plants and 350 species of animals. The knowledge of the Jarawas about the ecology, occurrence and beneficial qualities of these plants and animals, were quite remarkable. The Jarawas were not a sea-faring community and had no knowledge of canoeing. Their activities did not exceed in seawater far beyond the soil-water interface. Their understanding of the inland flora and fauna, however, was extensive.

Littoral and sub-littoral zones were occupied by underwater corals. The coral bed displayed variety of marine life like, molluscs (shelled and shell-less), echinoderms, fishes, etc. In the littoral rocks neritids, chitons, muricids etc., were seen in plenty. A number of forest birds and several shore birds were noticed. Occasionally beehives were seen on the trees inside the forests.

Oysters were attached to substrata in inter-tidal zone. A number of animals, which construct tubes and burrows, were seen in muddy zone viz., crabs, mudskippers, cerithid molluscs, etc. Many fishes, prawns, bivalves were found in shallow waters. Birds like, reef

herons, little egrets, blacknaped tern, white bellied sea eagle, white breasted kingfisher etc., were seen.

Many fishes, mostly freshwater forms, were found in the streams; crabs were occasionally noticed. Water monitors were seen near open spaces many a times. A number of birds like parakeets, doves, kingfishers, crow, pheasants, swifts, bulbul etc., were also seen. Honey beehives were noticed on trees inside the forests.

Availability status of the some molluscs on the rocks on seashore was observed in thirty samples on one sq. km. area on coral beds during low tide. The population of spider conch varied from 0-4 (mean 1.5); tiger cowrie varied from 0-2 (mean 0.8); giant clam varied from 0-6 (mean 2.8).

Man-hour output of some molluscs, fishes, honey, insect larvae, etc. were recorded in several occasions. Jarawas collected ample quantity of honey from the forest areas, especially during dry season (April-May). The honey was noticed to appear in the beehives from the last part of December and reached its peak during the dry part of the year. The honey beehives were also seen during monsoon (August-September), but in much less number and hence the quantity of honey collection by the Jarawas was reduced from the dry season. During dry season a person could collect as much as four kg of honey (including beehive) in one collection trip.

The forests in Andaman harbour some 35 species of terrestrial mammals including spotted deer (*Axix axis* and barking deer (*Muntiacus muntjak*). Of them Jarawas consume only the wild pigs as food. The wild pig is their most preferred animal food item, but there is perhaps a selection on the rate of hunting of this animal at different seasons of the year. The frequency of wild pig hunting was maximum during the post-monsoon period (December) and minimum in dry season (April-May).

The wild pigs reside in the humid forests. They move about in bands of 4 to 10 and live on omnivorous diet like tubers, roots, carrion, offal, etc. The water monitors inhabit wet, marshy forests, edges of watercourses and they are partially aquatic. They can swim far off in the sea in search of food. They also prefer birds' eggs, turtles' eggs and fishes.

The seashores are rocky, sandy or muddy. Life on rocky shores is mainly influenced by the tides; various neritids, chitons, muricids live here. Detritus-feeders like crabs also live here. Coral reef is a complex habitat inhabited by plenty of molluscs, fishes, crustaceans, etc. Top shell, turban shell, giant clams, scorpion shells, tiger cowrie, cockles, octopus are often seen on reef area during low tides.

A few birds are also eaten by the Jarawas, but frequency of hunting of birds by them was very low. The Jarawas never consume sea cucumbers, which are often seen in coral beds. The consumption of different marine molluscs was comparatively more during the post-monsoon season. The availability and consumption of turtles' eggs were doubtlessly much more during monsoon followed by post-monsoon season.

Mangrove is one of the most productive coastal ecosystems and support many brackish water fishes, freshwater fishes and shell fishes (molluscs). Burrowing crabs, prawns, shrimps, etc represent crustaceans. Many of the animals of mangroves are common to mudflats.

The Jarawas derive most of their animal food resources from humid forests, seashores or shallow waters and mangrove areas. They have developed an excellent understanding about the ecology and prevalence of various food animals in different niches.

As indicated in Table 5.6. Jarawas use as many as 166 animal species as direct source of food, two species as indirect source since animal produce is consumed as food, one animal as source medicine and seven species as source ornaments. The availability status of animal resources for Jarawas has been worked out as Abundant (A) Common (C) and Occasional (O) by adopted the standard norms and practice. The availability status is also indicated in the said Table. It could be seen that out of 166 animals observed 20.48% are Abundant, 69.27% Common and 10.24% Occasional.

The Jarawas usually do not procure surplus animal food items or waste those. They consume such food fresh or on the next day. They, however, store or preserve a few items for a longer time (up to three weeks or so) and those may be arranged in terms of length of storage period as follows: fat of wild pig/monitor, honey, meat of wild pig, turtle eggs. They used to store fat of wild pig often in plastic bottles. They were seen to consume chips of Cycas seeds by dipping those into hot melted pig fat. The Jarawas used to keep honey (with beehive) in honey buckets. These days, with easy availability of plastic bottles, they preserve honey in those bottles. The Jarawas also keep the smoked and baked meat of wild pig for a few days, which they consume later on by boiling in water.

The size of the Jarawa population at the time of this study was less than 300 and they were living in an area of about 649 sq. km. Therefore the resource base available to the Jarawas was apparently quite sufficient.

## **Accessibility of Bio-Resources**

As inferred through the diet and nutritional survey, Jarawas till now have had no severe hindrance in accessing their bio-resources. Stray instances of poaching in Jarawa area and Jarawa coastal waters did occur in pre-1997 days which, however ended in many cases in a disaster to intruders as they were either killed by Jarawas or narrowly escaped from the clutches of death. Thus hostility of the Jarawas could defend their resource fort jealously.

The multi-disciplinary teams during the survey have noticed evidences and instances of increased poaching in and around Jarawa area. The non-Jarawas clandestinely hunt wild animals like deer, pig by laying traps in forest. At times, they use gun also to shoot these animals. Now, with disappearance of very effective deterrence against ventures into Jarawa

territory in post-1997 days, the poaching is likely to increase unless the regulatory and legal measures are given to have deterrent effect clubbed with attitudinal change and willing participation in redirected economic activities by non-Jarawas.

The non-Jarawas employ superior technology to exploit bio-resources compared to the primitive technology of Jarawas. They go for mechanized extraction of the resources using modern tools, guns, boats and large nets for fishing. The population of non-Jarawas is more, their demand for resources is large and unsustainable. Therefore, they may supercede the small community of the Jarawas in accessing the bio-resources.

The Jarawas may be driven to wall because of activities of non-Jarawas in the Jarawa forest. Jarawas locate pug marks of pigs, take position and wait for opportune moment to shoot the boar with their arrows. The movement of non-Jarawas in the Jarawa area, use of their techniques to exploit plant resources or gunning down wild animals would naturally scare away the pigs, so the Jarawas who laid themselves waiting for the boars will miss their game. Similarly, noise and traffic on Andaman Trunk Road may also disturb hunting activities of Jarawas.

With the end of hostile relationship of the Jarawas with non-Jarawas the latter may begin a parasitic relationship with the former. The non-Jarawas are the people from market economy as against simple Jarawas from hunting and gathering subsistence economy. So resources which are life and blood for the Jarawas would be drained out to feed into unsustainable large market economy of non-Jarawas.

In the post-1997 situation Jarawas have been exposed / introduced to exogenous items and habits which include the items like tobacco, *Paan* eatables, clothes and habits of expecting such items from non-Jarawas in their interface on Andaman Trunk Road, villages and other places. Liquor may too reach Jarawa. Traditionally the intoxicants and even beverages are not found among the Jarawas. They are self-reliant foragers depending on none other than themselves, their society and the indigenous resources.

So the new items specially addictives may cause socio-economic degeneration among the Jarawas turning them in due course of time dependant on non-Jarawas and exogenous resource. Non-Jarawas particularly unscrupulous elements would exploit the simple pre-literate Jarawas socially and economically. Sound and healthy historical silent barter system of Jarawas may exit making way for exploitative system of exchange – “sinister-barter”. Instances have been reported, wherein non-Jarawas got Jarawa items like bows, arrows, bucket, ornament resin, honey etc. in exchange of tobacco, *paan* and some eatable. Thus not only resources may not remain with the Jarawas for their use but new habits may render Jarawas incapable to access to resources.

Giving of gifts like banana and coconuts frequently by the Administration apart from variety of eatables got from non-Jarawas in course of their interface may lead to introduction of “dependency cult” among Jarawas. They may not go for the traditional hunting and gathering activity, if they continue to get the gifts of food items, as a result Jarawas would not be accessing their bio-resources. Hunting and gathering activity among the Jarawas form a central or predominant feature of their society and culture. Thus gift giving or dole system may lead to loss of the purpose of their social existence for the Jarawas.

Bio-resources would not be accessible to Jarawas due to their diversion from foraging activities because of their interaction with non-Jarawas. Jarawas may indulge in moving on Andaman Trunk Road and other places by getting vehicle rides / lifts. Jarawa children are particularly susceptible to this.

In course of providing modern medical care, Jarawas are admitted often in the hospitals away from their territory. A group of Jarawas may accompany the patient to the hospital located at Kadamtala., Tushnabad and Port Blair etc. Such groups are not only exposed to hospitals cross infection and alien food but are away from their traditional hunting and gathering activities and hence, not accessing their bio-resources.

In the post-1997 days there would be more official or non-official visit of non-Jarawas to Jarawa camps. Such visit may interfere in the daily routine i.e. hunting and gathering activities of the Jarawas.

Thus, despite the availability of bio-resources the Jarawas may fail to access them in many ways unless the corrective measures are initiated.