

1. INTRODUCTION

In pursuance of the order of the Honourable High Court, Kolkata, dated 9-4-2001, the Ministry of Home Affairs, Govt. of India, constituted an Experts Committee (vide Notification No. U-14040/24/99-ANL dt.21-7-2001).

The task of the Expert Committee, as envisaged in the notification of the Ministry of Home Affairs issued in pursuance of the order of the High Court is as under:

- (a) To spell out the reasons those have caused sudden change in the behaviour of Jarawas.
- (b) To suggest remedial measures to enable Government to formulate programmes to save the Jarawas from danger of total extinction or of losing their identity and culture by merger with the vast humanity of the so-called civilised society.

1.1 Background for the study of the Jarawas by Expert Committee

A brief chronological account relating to the Jarawas and the High Court Case is as under:

1. The Jarawas were hostile to all outsiders. Contact teams established friendly contact with the Jarawas of Middle Andaman islands in 1974 and similar friendly contact with the Jarawas of South Andaman was established in 1989. However, the Jarawas continued to profess hostility to all others except contact expedition teams, which periodically visited Jarawa areas. The Jarawas used to attack non-Jarawas visiting Jarawa habitat; they also used to visit the settlements of the non-Jarawas in night hours before escaping into their forest abode.
2. A Jarawa boy named Enmei met with an accident during his usual hunting-gathering activities and was found immobilised due to leg injury in the fringe of the Kadamtala village, Middle Andaman island, in April 1996. The A & N Administration extended him medical treatment at the G.B. Pant Hospital. His leg bone was fractured.
3. Sri Enmei was sent back in October 1996 with a lot of gifts to his own area in Middle Andaman after he recovered.
4. In October 1997 Sri Enmei with a few other Jarawas came to Uttara Jetty in Middle Andaman in broad daylight. It was the first time that the Jarawas came out of their forest abode in daylight and in a friendly way.
5. In October 1998, the Jarawas of South Andaman also repeated the behaviour of the Jarawas of Middle Andaman by coming out of their forest habitat in daytime.

6. When the Jarawas started coming to the villages and on the Andaman Trunk Road (ATR), the non-Jarawas started giving them eatables, cloths, and later other items. The Jarawas, especially the children, found such interaction with the non-Jarawas as an interesting affair. They started frequenting such areas.
7. Miss Shyamali Ganguly, an Advocate of the Kolkata High Court, felt that the Jarawas were accepting the clothes, eatables, and medicines because of shortage of food and disease prevailing among them. She filed a Public Interest Litigation, W.P.No. 48 of 1999 in the High Court of Kolkata, seeking an order in nature of *mandamus*, directing the Government to provide all sorts of facilities and rehabilitating them as it was done for the Onges and the Great Andamanese of the Andaman Islands.
8. In May 1999 an interim order was passed by the High Court appointing Sri N. C. Ray, Secretary, Tribal Welfare, and Dr. B. S. Banerjee Director (IP&T), A & N Administration, as the Special Officers of the High Court directing them to submit a report on the problems and suggesting the ways and means for their rehabilitation/welfare.
9. In June 1999, the Special Officers submitted their report.
10. Not satisfied with the report of the Special Officers, the Division Bench declined to accept the report. The Division Bench referred the entire gamut of the Jarawa problem to an Expert Committee in February 2000. The Committee was constituted by the High Court itself. The composition of the Committee was as under:
 - i) Dr. R.K. Bhattacharya, Director, Anthropological Survey of India, Kolkata.
 - ii) Shri. Kanchan Mukhopadhyay, Head of Office, Anthropological Survey of India, Port Blair.
 - iii) Dr. (Mrs.) Namita Ali, Director of Health Services, A & N Administration, Port Blair.
 - iv) Dr. R.C. Kar, Medical Officer-in-Charge, Primary Health Centre, Kadamtala.
 - v) Dr. (Miss) Anima Burman, Medical Officer-in-Charge, Bharuka Charitable Trust Clinic, Port Blair.
 - vi) Chief Judicial Magistrate, District and Session Court, Port Blair, Member Secretary.
11. The above-said Expert Committee submitted its report. After going through the report the Division Bench of the High Court felt that the following fundamental issues about the Jarawas need to be decided upon:

- a) Whether the Jarawas should be isolated from rest of the humanity and left to themselves to lead their own way of life as they did a few years back, or
 - b) Whether the Jarawas should be brought into mainstream of the 'civilisation', or
 - c) Whether to ensure their peaceful coexistence as suggested in the Master Plan for welfare of Primitive Tribes of A & N Islands prepared by Sri S.A. Awaradi, Director, (TW), A&N Administration.
12. The Division Bench observed that these fundamental issues could be settled as a matter of policy decision of the Government. The Government cannot take such decision alone but only after taking into account the views and suggestions of the experts of national and international repute in the related fields.
13. The said Division Bench in its 60 page judgement order dated 09/04/2001 has further ordered that the Ministry of Home Affairs, Government of India should constitute a Committee of Experts to study and spell out in clear terms:
- (a) Reasons for the sudden change in the behaviour of the Jarawas, i.e., shedding their hostility, coming out of their forest abode in broad daylight and accepting the exogenous items from non-Jarawas and,
 - (b) To suggest the remedial measures for the welfare of the Jarawas.
14. In response the Ministry of Home Affairs, Government of India, constituted one Committee of Experts in July 2001. The composition of the Committee was as under:
- i) Shri N. N. Jha, Lieutenant Governor, Andaman and Nicobar Islands, Convenor.
 - ii) Shri K. B. Saxena, Former Secretary, Ministry of Social Justice and Empowerment, Government of India.
 - iii) Dr. R. K. Bhattacharya, Director, Anthropological Survey of India, Kolkata.
 - vii) Dr. (Mrs.) Namita Ali, Director of Health Services, A & N Administration, Port Blair.
 - iv) Dr. (Mrs.) Indira Chakrabarty, Dean and Director, Professor, Head, Department of Biochemistry and Nutrition, All India Institute of Hygiene and Public Health, Kolkata.
 - v) Shri S. A. Awaradi, Director, Tribal Welfare, A & N Administration, Port Blair.
 - vi) Shri Som Naidu, Assistant Commissioner, Mayabuner, Andaman Islands.

- vii) Shri Deepak Tyagi, Director-in-Charge, Anthropological Survey of India, Kolkata (was inducted in the Committee as a member in November 2002 and continued till his retirement in December,2003).
15. The Expert Committee decided to get the Jarawas studied/surveyed through multidisciplinary research teams in three phases to cover all seasons of a year. The Departments involved in the survey are:
- (1) Anthropological Survey of India,
 - (2) Botanical Survey of India,
 - (3) Forest Department, A & N Administration,
 - (4) Directorate of Health Services, A & N Administration,
 - (5) All India Institute of Hygiene and Public Health,
 - (6) Zoological Survey of India.

It may be noted that the Directorate of Tribal Welfare, A & N Administration and Andaman Adim Janjati Vikas Samity acted as nodal agencies in course of the study.

To ensure that the entire Jarawa population is studied, the composite team was divided into three teams; those teams studied all the three territorial groups of the Jarawas; Boiab, Thidong and Tanmad, simultaneously. It may be noted that the Jarawas divide their present day habitat into three territories; Boiab (the area is roughly identified by the non-Jarawas as the forest adjacent to the Tirur village, (it in fact lies between Tirur in the south and some place south of Puttatang in the north, the whole territory is located in South Andaman island), Thidong (non-Jarawas identify this stretch as the area lying between Puttatang and Middle Strait in South Andaman island) and Tanmad (the entire Jarawa habitat on the Middle Andaman island). Those Jarawa terms would be used whenever and wherever required. To understand the probable seasonal variations in economic, health and other behavioural aspects of the population, the study was conducted in three phases, roughly corresponding to the three major seasons of the islands. Thus the study continued between **December 10, 2001 and September 9, 2002**, and the study team conducted field investigation in the post-monsoon, summer/dry season, and monsoon period.

- (a) The **first phase** of the study was carried out between **December 10, 2001 and January 9, 2002**, which was the time when the second monsoon was just over.
- (b) The **second phase** was carried out between **April 12, 2002 and May 10, 2002**, which was the dry part of the year.
- (c) The final and **third phase** of the study was conducted between **August 10, 2002 and September 9, 2002**, when the first monsoon was active.

The people commonly known as the Jarawas actually refer to themselves as the Ang. Sreenathan (he has spelt the term as *eeng*) thinks, the Jarawas use the term to

differentiate them from pig or turtle; thus the term actually implies 'humans'. "To them, 'humans' is not of the same cognitive category as understood by us; it denotes a group bearing a common ethnicity, inhabiting certain portions of South and Middle Andamans" (Sreenathan 2001:6). However, in the present report the term would not be used, because for many this is a new term. Sometimes the neighbouring population of the Jarawas would be referred to as *eenen*, because that is the term the Jarawas use to describe them.

1.2 Historical background

There is no confirmed knowledge about the time when the Andaman islands were peopled first. The earliest evidence of human habitation in the Islands are available in the forms of small stone tools, bone and shell artefacts, and potsherds deposited in mounds that are known as kitchen middens. Using the method of relative dating, P. C. Dutta has suggested that the mesolithic culture "have possibly arrived in the Andaman Islands sometimes around the beginning of the Christian era" (Dutta 1978:36). Radio Carbon dating, which gives us absolute dates, ranges between 1400 \pm 100 years B.P. for Beehive Island and 2280 \pm 90 years B.P. for Chauldari (Cooper 1990:99). Rest of the world, however, knew very little about the Andaman islanders during most part of this period. It has been suggested that in second century AD Claudius Ptolemy mentioned the islands in his work. That the islands were known to the sailors and travellers become evident from the accounts of the Chinese in seventh century, Arabs in ninth century and Europeans in thirteenth century. Though they knew where the islands were located, their idea about the islanders was very inadequate. All of them described the islanders as some kind of anthropomorphic beasts practising cannibalism (Portman 1899:51-52, Mathur 1968:7). People of the neighbouring countries of South East Asia, however, had no such illusion about the islander population. Pirates operating in those parts used to capture the islanders and sell them as slaves in those countries (Portman 1899:177).

The region from where the Andaman islanders arrived and the route of their migration are matters of great controversy. According to Portman (1899:722), the Jarawas resemble very closely to the Little Andaman tribe and demonstrate marked differences in this regard from the Great Andamanese. Linguistic affinity between the Andaman Negritoes and the collective group of South-East Asia Negritoes is yet to be established. The question, how the Negritoes originally arrived in the Andaman islands, has never been resolved satisfactorily. According to Radcliffe Brown (1948) the Andaman Islands were peopled either by land or by sea route from the Arakan region of lower Burma. The deep-sea researches of Melengraaf (1921) have been utilised by Kaudeen (1939) to interpret the probable routes of migration of the Negritoes into the Andaman Islands. He believed, during the quaternary age there was a fall of 300mts in the sea level, which established direct contact with Burma and facilitated movement of the Negritoes into the islands. But the present physiographic characteristics of the Andaman Sea and the Bay of Bengal Basin floor do not support the contentions of Melengraaf (1921). On the basis of fish faunal studies Kloss (1903) suggested no such land connection between the Andaman and the Asian mainland. Recently Nei and Ray Choudhury (1982) and Omoto (1984) suggested a close affinity

between the Philippine Negritos and their neighbouring Negrito population of South-East Asia than the African pygmies. Biological affinities between the Jarawas, Semangs of Malaysia and Aetas of Philippines have been suggested with regard to anthropometric (Sarkar 1989) and dermatoglyphic (Sarkar 1987) characteristics.

Radcliffe Brown (1948) classified the Andaman islanders into two broad groups on the basis of their linguistic and cultural affinities. The first group, the Great Andamanese included ten tribes of the Great Andaman islands. Those tribes were basically loose social conglomerates speaking ten different languages dialects. The other group was that of the Little Andamanese including the Ones of Little Andaman island, the Jarawas of Great Andaman islands and the inhabitants of the Sentinel Island. The latter two groups of people, Radcliffe Brown thought, migrated at some point of time from the Little to Great Andaman islands. Probably this was the reason, why the Jarawas were in perennial enmity with their neighbouring populations and in the process neighbouring tribes developed an unfriendly attitude towards the Jarawas. Barring a few instances of personal friendship, the Jarawas maintained no social relationship with their neighbours. The enmity intensified further at a later date, when the colonisers used the Great Andamanese to 'hunt' the Jarawas with arrow and gun. Competition over resources and encroachment into other's territory can be very provocative for such communities, and it may result into violent conflicts, noted Sarkar (1993:15).

The first phase of British settlement in the Andaman islands was short lived (1789-1796). During that period the Jarawas behaved in a friendly manner with the colonisers, while the Aka-Bea-da (one of the Great Andamanese people) tried to resist all efforts of colonisation. The second phase of colony (1858) started with a similar note. The annual report of 1872-73 described the Jarawas as "peacefully disposed" towards the colonisers, while the inhabitants of Little Andaman "habitually kill, or attempt to kill" all outsiders (Portman 1899:716). During this period the Jarawas generally remained aloof of the settlers, only occasionally they wounded some runaway convicts. The colonisers, however, were not so aloof. They were eager to bring all the pre-colonial people within the fold of 'friendliness'. The objectives behind such action were threefold. They were to be befriended to ensure that crews of wrecked ships are treated well and escorted to Port Blair; to ensure that plans of colonisation are not resisted; and to ensure their help in recapturing the fugitive convicts (Portman 1899:49).

All the objectives were part of colonial interest of the settlers and they were anxious to achieve them. Some of the Great Andamanese tribes were 'befriended' in 1863 and many of them were kept in Homes made for them in and around Port Blair with the overt purpose of 'civilising' them. The immediate result was, inmates of the Homes started falling sick. They were infected with a number of diseases, initially within the confines of the Homes, and then through the length and breadth of the territory. The authorities responded by winding the Homes up and sending the people back to their habitat. It was noted in the last part of the nineteenth century, not a single child born in any of the Homes survived through its infancy. Whenever the authorities came to know that a lady has become pregnant, she was send back to the jungle. M. V.

Portman was looking after the tribal affairs for some years. He noted that some of his predecessors could do very little for the tribes other than trying to save them from one disease or another (1899). The Jarawas were not among the 'befriended' ones, but, knowing fully well the consequences of contact, the authorities were still eager to bring them within the fold of 'friendliness'.

"In January 1876 two expeditions were sent to search for the Jarawas, and one party visited four villages, in which they left quantities of unsuitable presents, and brought back specimens of the Jarawa weapons, and utensils. It was unfortunate that, at the outset, the Jarawa huts should have been looted thus, and the presents left, being such things as matches, pipes, tobacco, and looking glasses, the uses of which were unknown to the savages, were useless to them, and by no means compensated them for the articles taken away" (Portman 1899:717-8).

For many years such expeditions were organised. On some occasions Jarawa ladies and children were captured. On other occasions the expeditioners injured and killed Jarawa men. The expedition parties were composed of some Great Andamanese, traditional enemies of the Jarawas, and some convicts. The British officials were seeking short cut routes to achieve their objectives. They first 'befriended' the Great Andamanese and then expected them to 'tame' the Jarawas. Their further plan was, with help of the 'befriended' Jarawas, they would 'befriend' the tribes of Little Andaman Island. The Great Andamanese taking part in the expeditions generally made use of every opportunity to kill the Jarawas or to plunder their camps (Mukhopadhyay 2002:43).

The programme was successful in making the aloof Jarawas a hostile group of people. The intensity of hostility increased since the early years of twentieth century. The expeditions were no more conducted with the purpose of 'befriending' the Jarawas, now those were called punitive. The Jarawas were attacking and killing convicts and policemen. On the other hand their area was being combed, their huts were being destroyed. The number of Jarawas hurt or killed in course of the expeditions would never be known (Mukhopadhyay 2002:45).

During the first phase and the early years of second phase of British colonisation of the Andaman islands, the Jarawas were found to occupy the southern part of South Andaman Island and Rutland Island lying further south. The major harbour and the penal settlement were established in this area. Before the end of the nineteenth century this whole area was brought under settlement and forest operations. As a result the Jarawas were evicted from their land by force and pushed northward. Incidentally, everywhere the Great Andamanese were dying out very fast, making their land available to the Jarawas (Incidentally it may be mentioned that the Jarawas and the Sentinels could survive because of their isolation otherwise they would have fallen prey to diseases). But such migration did not bring the conflict to end. Slowly all the areas of the Archipelago were being brought under forestry operations. The Jarawas, wherever they were, were being chased.

It may be noted that the Jarawas never bowed down to the pressures of colonisation and vacated South Andaman completely. In early 1950s, Lidio Cipriani reported their presence in both South and Middle Andaman islands. “ A few roads radiate from Port Blair,” he noted, “but none penetrate more than twenty kilometres or so from the township. To the north of the town is a well-maintained police cordon that stretches right across the island from east to west to prevent infiltration by the Jarawas; those in the south were all rounded up some time ago” (1966:6)

Finally a dividing line between the colonised area and the area occupied by the Jarawas was drawn in 1957. In that year the chief commissioner declared certain areas as reserved for the `aboriginal` people of the islands. Some parts of South and Middle Andaman islands were demarcated for the Jarawas. While creating the `reserve`, attention was given to continuation of the colonisation programmes like settlement of villages or extraction of forest resources.

The colonisation programmes caused more immigration and establishment of more villages through years. Table 1.1 can give some idea in this matter. It may be noted that the only urban area of the islands, the town of Port Blair, is located in South Andaman islands. The rate of population growth in that island is rather skewed. But area brought under settlement showed a steady growth. In rural Middle Andaman islands the rate of population growth was steadier. Though the rate of bringing land under settlement scheme was slightly lower, the quantum of cleared land was not negligible.

Table 1.1 Decadal growth of population and settlement area

Year	Population	% of decadal growth	Area brought under settlement (sq. km)	% of decadal growth
South Andaman				
1951	16,844	---	909.5	---
1961	30,644	81.93	1760.4	93.56
1971	86,530	182.37	3010.4	71.01
1981	1,02,394	18.33	5829.6	93.65
Middle Andaman				
1951	5,392	---	875.4	---
1961	11,082	105.53	1588.5	81.46
1971	23,686	113.73	2446.1	53.99
1981	55,239	133.21	2978.6	21.77

Source: *Census 1981*

Other than settling immigrant populations, forestry operations were no less disturbing for the Jarawas. The incidents of violent conflicts between the Jarawas and the staff of the forest department bear testimony to that. To top it all, in early `70s the authorities started laying a road through the area declared as `reserve` by the authorities. The building activities faced with stiff resistance from the Jarawas. The authorities, however, were determined to go ahead. Their seriousness in this matter was amply demonstrated, when in 1979 they redefined the `reserved` area and in the process took the forest lying east of the road in South Andaman island out of the

reserve. This immediately served one purpose. Officially, the road was not going through the Jarawa reserve any more, now it was lying on the edge of it.

Though punitive expeditions stopped in years after independence, non-friendly relations between the Jarawas and their neighbours did not come to an end. Such unfriendliness was caused by one prime factor, exploitation of natural resources of the Jarawas by others. There were several forms of exploitation. Firstly, in name of the colonisation programme, large forest area was cleared. Often, such forest was beyond the boundary of the reserve, but government created the reserve unilaterally. The Jarawas, in fact, used to collect resources from areas lying outside the reserve. Secondly, the forest operations continued to extract timber and other resources, causing disturbance to the Jarawas and depletion to their resources. Thirdly, the settler populations used to extract different kinds of resources from inside and vicinity of the reserve. For the villagers forest was the source of timber and non-timber forest produces as well as games like wild pig or deer. Fourthly, the fishermen from the villages (and sometimes from the town of Port Blair) used to fish in the creeks and the coastline of the reserve.

In 1974 some personnel of the Bush Police Force could establish friendly relations with the Jarawas. Since then groups of government officials including policemen, doctors, administrators and anthropologists used to visit them once in a month or in two months. Such visits helped to break down the wall of suspicion on both sides to a large extent. Whatever anthropological information could be collected on the people through such limited and brief interactions, were recorded by Sarkar (1990).

As the reasons responsible for enmity were not removed, the Jarawas continued to treat the occasional visitors with friendliness, the villagers and other settlers with indifference and the extractors of resources with unfriendliness.

In April 1996 a Jarawa boy with a broken leg was sent to Port Blair for medical treatment. He was released in October same year and sent back to his habitat with lots of gifts. The situation took a dramatic turn in the later part of 1997, when a group of young Jarawas came out to Uttara Jetty in October that year, the boy with the broken leg was among them. After that date more and more Jarawas visited jetties and villages in the Middle Andaman island. Once the beginning was made, such visits took place frequently and the Jarawas started coming in large groups. The Jarawas more occasionally in a large group comprising at times one-fourth of their population of 266. Within a year the Jarawas of the South Andaman island followed suit.

The chain of events caught the government officials or whoever were concerned, unprepared. They were not very sure about what should be done in such a situation. The villagers started feeding them rice, the government made arrangements to airdrop food packets. There was much guess and debate over the probable reasons responsible for such change of behaviour of the Jarawas. It is one of the major objectives of the present study to search for those reasons.

1.3 The Place

The Jarawas, it has been discussed, used to inhabit the southern part of the South Andaman island earlier. It was the forces of colonisation that drove them northward. They were being chased from the south and due to population decline among the Great Andamanese tribes; the northern parts of the Great Andaman islands were lying almost vacant. Initially they moved northward as far as Mayabunder, but then retreated back and settled down along the west coast of South and Middle Andaman islands. Their occupation of that land was granted some legitimacy in 1957, when it was declared a 'reserve'. The declaration was reviewed in 1979, when the area was reduced. At present the area of the 'reserve' is about 638 sq km.

1.3.1 Topography, climate and vegetation of Jarawa habitat

The chain of islands in the Andaman Group are in fact the camel backs of the submerged mountain ranges projecting above the sea level running north to south. It is believed that the mountain ridges of the islands were formed at the expense of a narrow but deep oceanic furrow during the Late Mesozoic period (100 million years ago). The contour of the land is generally uneven and hilly with flat beds at places. The Jarawas inhabit the Andaman Group of islands and now they are confined in the forests on the western coast (western part of ATR) between Tirur in South Andaman to Middle Andaman. The soil cover in these islands varies between 2 m. to 5 m. in the hilly tracts. Coastal flats are admixture of sand, silty clay and diluvial material together with fine fragments or coral lime. The soil is in general more or less acidic with considerably high humus or detritus on top.

The climate of the islands is tropical *i.e.*, warm, moist and equable. The proximity of sea and abundant rainfall prevent extremes of heat and the variation of temperature on these islands is rather low (23°C - 31°C).

Very luxuriant and rich vegetation has developed in the area marked as Jarawa Reserve, which can be broadly classified into the following types:

- I. Giant Evergreen Forest,
- II. Tropical Evergreen Forest,
- III. Hill-top Tropical Evergreen Forest,
- IV. Semi-Evergreen Forest,
- V. Moist Deciduous Forest,
- VI. Littoral Forest,
- VII. Mangrove Forest.

Moreover, cane brakes and bamboo brakes grow in small patches. Except mangrove forests all other types of forests cannot be distinctly demarcated, rather they imperceptibly merge into a zone to develop an intimate mixture.

The **Giant Evergreen Forest** is the most luxuriant type of multistoried forest. The top canopy is formed by the giant trees, which are almost entirely evergreen.

They develop near the banks of larger streams where soils are deep and alluvial. The main tree species found in this type of forest are *Dipterocarpus* sp. (Gurjan), *Callophyllum soulattri* (Poon), *Artocarpus chaplasi* (Taungpienne), *Sideroxylon longepetiolatum* (Lampatti), *Amoora wallichii* (Lalchini), *Sterculia campanulata* (Papita), etc.

The **Tropical Evergreen Forest** is somewhat similar in composition of vegetation with the above type but is less luxuriant in terms of size of the top storey, their density and height. Further, the top storey is irregular in outline and deciduous tree species are seldom seen in this type of forest. This type of forests are noticed as caps of the hills while the slopes bear moist deciduous forests. *Dipterocarpus* sp., *Artocarpus chaplasi*, *Artocarpus gomeziana* (Kala Lakuch), *Callophyllum soulattri*, *Panconia andamanica* (Red Bombway), *Hopea odorata* (Thingam), *Endospermum chinense* (Bakota), *Baccaurea sapida* (Khataphal), *Myristica andamanica* (Jaiphal), etc. are the main tree species occurring in this type of forest.

The **Hill-top Tropical Evergreen Forest** occurs on hilltops and sometimes on steep slopes lower down on poorer soils. It is usually exposed to high winds and the trees are somewhat stunted in growth. The main tree species occurring in this forest are: *Dipterocarpus costatus*, *Mesua ferrea*, *Canarium mani*, *Hopea helferi*, *Cratogeomys formosum*, *Euphorbia trigona*, etc.

The **Semi-Evergreen Forest** includes giant trees of both deciduous and evergreen species. Climbers are also common. This type of forests occur on well-drained immature soils, mainly on tableland. *Dipterocarpus* sp., *Pterygota alata* (Letkok), *Terminalia bialata* (White Chuglam), *Terminalia procera* (White Bombway), *Pterocarpus dalbergioides* (Padauk), *Lagerstroemia hypoleuca* (Pinyinma), *Albizia chinensis* (Bonmeza), *Albizia lebbek* (Koko), *Artocarpus lakoocha* (Didu) are the main tree species in this forests.

The **Moist Deciduous Forest** is multistoried, top canopy of which is formed by giant trees of about 40 m. height, 3 m. girth and heavily buttressed. They occur on hilly ground but not beyond 100 m. altitude. *Pterocarpus dalbergioides* (Padauk), *Diospyros marmorata* (Marblewood), *Sageraea elliptica* (Chooi), *Canarium euphyllum* (White Dhup), *Albizia lebbek* (Koko), etc. are the main tree species in this forest. This type of forests is the important source of many valuable commercial timbers.

The **Littoral Forest** grows on high-level soil along the coastline beyond the reach of tidal waters. The common tree species found in this type of forests are: *Mimusops littoralis* (Bullet Wood), *Tetrameles nudiflora* (Thitpok), *Terminalia calappa* (Badam), *Pongamia glabra*, etc.

Mangrove Forest extensively occupies the shores, mouth of creeks, inland channels, etc. *Rhizophora mucronata*, *R. apiculata* and *R. stylosa* are the main plants species occupying the outermost seaward fringes and form dense clusters. *Bruguiera parviflora* and *B. gymnorrhiza* are the prominent plant species in the brackish water

swamps that sometimes extend from sea mouth and are connected by creeks penetrating deeply into the interior. Other mangrove plants, e.g. *Sonneratia* sp. extend some distance inland into the tidal forests, whereas *Avicennia officinalis*, *Heritiera littoralis*, *Scyphiphora hydrophyllacea* are seen towards the landward side of mangrove swamps.

Climatically these islands are more or less uniform and variation in elevation is small. The tropical rain forest vegetation is mainly the function of the climatic or edaphic factors. A notable feature of the ecology of the tropical rain forest of the South and Middle Andaman islands is that tropical rain forest environment of these islands is diverse floristically and devoid of large wild life except wild pig (*Sus scrofa*), monitor lizard (*Veranus salvator andamanensis*), spotted and barking deer. The Jarawas who inhabit such a diverse biotic environment are found to rely upon a range of plants and animals to fulfil their requirements.

During the period of study some Jarawa *chadda* or camps were identified and visited. In addition, some adjacent places, where the Jarawas were not present or where there are settlements of the non-Jarawa population were also visited in the interest of the study. Following is a list of such places visited in course of the study by the Anthropological Survey of India, Botanical Survey of India, and Zoological Survey of India. Locations studied by other organisations have been mentioned in their respective reports.

Table 1.2 Camps of the Jarawas and other places visited during the study

Sl. No.	Jarawa camp	Location	Type of camp	Studied by
Boiab				
1	Jhaukona camp	11 ⁰ 42'58.6"N 92 ⁰ 34'31.2"E	Coastal, Temporary	An.S.I., ZSI, BSI
2	Eno	11 ⁰ 43'04.6"N 92 ⁰ 33'13.0"E	Coastal, Temporary	An.S.I.
3	Tatha-etha	11 ⁰ 42'28.0"N 92 ⁰ 34'38.1"E	Forest, Temporary	An.S.I., BSI, ZSI
4	Tothi-duba	11 ⁰ 42'51.5"N 92 ⁰ 34'20.6"E	Forest, Temporary	An.S.I., BSI, ZSI
5	Tinatho	11 ⁰ 57'08.2"N 92 ⁰ 40'57.4"E	Forest, Temporary	An.S.I., BSI, ZSI
6	Lapaitala	11 ⁰ 44'15.9"N 92 ⁰ 36'26.8"E	Forest, Temporary	An.S.I., BSI, ZSI
7	Alugithale	11 ⁰ 59'34"N 92 ⁰ 42'00.2"E	Forest, Temporary	An.S.I.
8	Ginai-talla	11 ⁰ 44'58.0"N 92 ⁰ 36'52.7"E	Forest, Temporary	An.S.I.
9	Thapiliem	11 ⁰ 56'56.0"N 92 ⁰ 41'02.2"E	Forest, Temporary	An.S.I.
11	Eanathilia	11 ⁰ 42'45.7"N 92 ⁰ 34'28.2"E	Coastal, Temporary	An.S.I.

12	Gangnapo	11 ⁰ 42'35.9"N 92 ⁰ 35'47.5"E	Forest, Semi-permanent	An.S.I., BSI, ZSI
13	Pecheleg	11 ⁰ 59'28.8"N 92 ⁰ 37'02.1"E	Coastal, emi-permanent	An.S.I., BSI, ZSI
14	Nono-uge	11 ⁰ 47'0.2"N 92 ⁰ 33'13.0"E	Coastal, Semi-permanent	An.S.I.
15	We-shekup	11 ⁰ 46'13.8"N 92 ⁰ 32'49.0"E	Coastal, Semi-permanent	An.S.I.
16	Wag-tha-waw	11 ⁰ 43'33.3"N 92 ⁰ 33'57.6"E	Coastal, Temporary	An.S.I.
17	Totha-wikiji	11 ⁰ 48'56.7"N 92 ⁰ 33'34.6"E	Coastal, Temporary	An.S.I.
18	Inen-y	11 ⁰ 43'58.8"N 92 ⁰ 36'55.2"E	Coastal, Semi-permanent	An.S.I., BSI, ZSI
19	Muth-tuweya	11 ⁰ 54'18.2"N 92 ⁰ 32'9.3"E	-	BSI, ZSI
Thidong				
20	Tahato	12 ⁰ 43'58.8"N 92 ⁰ 36'55.2"E	Forest, Permanent	An.S.I., BSI, ZSI
21	Tuhi	12 ⁰ 43'58.8"N 92 ⁰ 36'55.2"E	Forest, Permanent	An.S.I., ZSI
22	Tuterbelo	12 ⁰ 7'37.0"N 92 ⁰ 43'16.7"E	Forest, Semi-permanent	An.S.I., BSI, ZSI
23	Mimun	12 ⁰ 2'33.5"N 92 ⁰ 42'6	Forest, Temporary	An.S.I., ZSI
24	Inkamaha	12 ⁰ 11'59.8"N 92 ⁰ 39'37.4"E	Coastal, Semi-permanent	An.S.I., ZSI
25	Hutukunu	12 ⁰ 12'1.3"N 92 ⁰ 39'24.1"E	Coastal, Semi-permanent	An.S.I., ZSI
26	Tanaoben	12 ⁰ 8'52.6"N 92 ⁰ 44'2	Coastal, Semi-permanent	An.S.I., ZSI
27	Otathamele	12 ⁰ 9'23.1"N 92 ⁰ 44'5	Forest, Temporary	An.S.I.
28	Moulahuchu	12 ⁰ 4'55.7"N 92 ⁰ 42'5	Forest, Temporary	An.S.I., ZSI
29	Lebaetala	12 ⁰ 14'22.7"N 92 ⁰ 42	Coastal, Semi-permanent	An.S.I., BSI, ZSI
30	Katabobo	12 ⁰ 14'0.5"N 92 ⁰ 42'2	Forest, Temporary	An.S.I.
31	Thulug	12 ⁰ 14'32.4"N 92 ⁰ 41'58.0"E	Forest, Temporary	An.S.I.
32	Thota-ulio	12 ⁰ 11'19.9"N 92 ⁰ 38'55.3"E	Forest, Temporary	An.S.I.
33	Motebute	12 ⁰ 10'29.1"N 92 ⁰ 38'45.1"E	Coastal, Permanent	An.S.I., BSI, ZSI
34	Alo-ethela	12 ⁰ 6'55.2"N 92 ⁰ 42'5	Forest, Temporary	An.S.I., ZSI

Tanmad					
35	Daag-totembu	12 ⁰ 18'22.11"N 92 ⁰ 43'28.7"E	Forest, permanent	Semi-	An.S.I., BSI, ZSI
36	Oleg	12 ⁰ 18'2.9"N 92 ⁰ 43'2	Coastal, permanent	Semi-	An.S.I., BSI, ZSI
37	Hochu	12 ⁰ 22'12.6"N 92 ⁰ 42'20.9"E	Coastal, permanent	Semi-	An.S.I.
38	Hiulele	12 ⁰ 22'52.6"N 92 ⁰ 42'17.9"E	Coastal, permanent	Semi-	An.S.I., ZSI
39	Uli	12 ⁰ 26'50.0"N 92 ⁰ 46'29.3"E	Coastal, permanent	Semi-	An.S.I.
40	Tanmad	12 ⁰ 11'43.9"N 92 ⁰ 43'0.06"E	Coastal, permanent	Semi-	An.S.I., BSI, ZSI
41	Dhaninallah	12 ⁰ 27'42.1"N 92 ⁰ 44'54.0"E	Forest, Temporary		An.S.I., BSI, ZSI
42	Ulli-a	12 ⁰ 26'56.2"N 92 ⁰ 46'31.6"E	Forest, permanent	Semi-	An.S.I., ZSI
43	Elag-wae	12 ⁰ 45'11.5"N 92 ⁰ 17'50.1"E	Forest, Temporary		An.S.I.
44	Elag-O	12 ⁰ 17'49.1"N 92 ⁰ 45'12.2"E	Coastal, Temporary		An.SI, BSI, ZSI
45	Kaushalya	12 ⁰ 31'32.6"N 92 ⁰ 49'50.8"E	Non-Jarawa village		AnSI, BSI, ZSI
46	Bamboo Tikri	12 ⁰ 19'59.8"N 92 ⁰ 45'39.9"E	Non-Jarawa village		AnSI, BSI
47	Southern part of Spike Is.	12 ⁰ 14'32.9"N 92 ⁰ 42'24.3"E	Coast, Uninhabited		ZSI
48	Tentul Tikri	12 ⁰ 14'43.6"N 92 ⁰ 41'51.4"E	Coast, Uninhabited		ZSI
49	Mohua Tikri	12 ⁰ 31'56.4"N 92 ⁰ 40'45.1"E	Coast, Uninhabited		ZSI
50	Motieta	12 ⁰ 19'40.6"N 92 ⁰ 42'32.5"E	Coastal, permanent	Semi-	AnSI., ZSI

The southern part of the South Andaman island was colonised long back in the nineteenth century, displacing the Jarawas from that land and settling self-supporting convicts there. These self-supporters, after serving a certain period of their term of sentence, were allowed to settle down in villages as cultivators. This may be to enthruse them for surplus generation – a subtle pressure that the dominant endeavour to put on the weaker section. There were people from both India and Burma among them. Even later, in the 1920s, some other convicted populations were settled there. The self-supporters were convicted individuals from different parts of the sub-continent, who formed some kind of social conglomeration in the penal settlement. The latter groups of settlers, the Moplals from Malabar in south-west India and the Bhantus from the erstwhile United Provinces of northern India, reached the Andamans in large groups consisting of many families. They were never put in prisons, but were

straightaway settled in villages. In the pre-independence period, such people were neighbours of the Jarawas in South Andaman; their settlements formed the southern boundary of the present day Jarawa habitat. Since establishment of those settlements in the late nineteenth and early twentieth century, the Jarawas and their neighbours clashed with each other violently many a times. The northern part of the present day Jarawa habitat, located in the Middle Andaman island, started experiencing similar kinds of conflict, when forest of that area was cleared and villages were settled around the mid twentieth century. Majority of the people settled in this part were the Bengalis displaced from the eastern part of Bengal as consequence of partition of India in 1947. Around this time a large section of the population settled in South Andaman island in pre-independence period left the islands for mainland Asia, both India and Burma, and many Bengalis were rehabilitated on the land vacated by them. Thus in the north the villages adjacent to the Jarawa habitat are dominated by the Bengalis, while in south it is a mixed population comprising both pre and post-independence settlers having varied ethnic backgrounds. For the Jarawas living in northern part of the South Andaman island, the Baratang island is the nearest point of non-Jarawa habitation. As it was located on other side of a creek, the Jarawas of this part were comparatively less disturbed. A large section of the inhabitants of the Baratang island is from the Ranchi community. They came from different tribal areas of the eastern and central India to work as blue-collar employees for the departments of forest or police, and settled down in this part and elsewhere almost on their own. Of the three kinds of neighbours of the Jarawas, the Ranchis knew the forest best, partly because they came from forested parts of the country and partly because they were compelled to learn about the Andaman forest as part of their job and further they too were tribes. The pre-independence settlers, though came from varied backgrounds, learnt something about the forest and little about the inhabitants of the forest through their stay in the islands was for many years. Though the Bengalis and a few other communities came late, they learnt very fast about their surroundings from the earlier settlers. Within a few years they were equipped with knowledge and techniques required for exploiting the resources of the forest and adjacent waters.

Whatever is the distance between their habitat and the non-Jarawa villages, in almost all parts of their habitat the Jarawas were subjected to certain intervention into the maintenance of the integrity of their territory. Forest operation in the forms of plantation and timber extraction, presence of policemen in and around their habitat, hunting, fishing, and finally construction of road through their territory were such interventions.

It may be noted that except the forest workers, poachers, policemen, road construction workers forming a small section of the non-Jarawa population; majority of the islanders preferred to stay away from the Jarawas or from their habitat. It is only recently that they have met the Jarawas face to face.

1.4 Methods and techniques of data collection

1.4.1 The Anthropological Survey of India was engaged in studying behavioural aspects of the Jarawas. For the purpose ten persons from various backgrounds of cultural and physical anthropology and human geography took up the study. They

were divided into three groups, so that they could work simultaneously on the three territorial divisions of the Jarawas. During the first and second phases of the study, the members of the Anthropological Survey of India tried to stay as close as possible to the camps of the studied population in order to observe the behaviour of the people closely round the clock. During the third phase, however, it was decided to stay away from the Jarawa camps.

Information on the social and demographic aspects of the people was collected through interview and observation. Information on their daily activities was collected primarily through observation and sometimes by participant observation. Personal experiences of several individuals on the extent and impact of contact situation on their life were collected by interviewing them. Information on material culture was collected through direct observation as well as by interviewing the people on the subject. This was the first time a lady anthropologist participated in the study, which was helpful in understanding the Jarawa women's perspectives of different issues. Through direct observation and sometimes by interviewing them information regarding their foraging behaviour, foraging zone and resources utilised by them was collected.

1.4.2 The Botanical Survey of India was engaged in studying the plant resources available to and utilised by the Jarawas. For the purpose;

1. Help of the interpreters, employed by the AAJVS, was sought for meeting the Jarawas in their forest dwellings and collect information on their knowledge about the local plants and their uses.
2. Collection of various plants from the forests by the Jarawas was observed by accompanying them during food gathering.
3. Various plant parts employed for construction of huts were noted by identifying the plants at the hut.
4. Direct observation of diet was made.
5. Processing of various food items, cooking and consumption practices of various plant foods were observed.
6. Collection of honey was observed.
7. Fishing practices were observed.
8. Use of various plants for ethno-medicine was noted by direct observation, when being used.
9. Plants used as ornaments, girdles, etc., were noted as and when those were being used.
10. Preparation of bows and arrows, baskets, bowstrings, etc was noted and the plants were identified by their leaves, flowers, fruits, etc.
11. The forest type was determined by observing the dominant elements present in the forests.
12. Abundance of plants was determined by visual census.
13. Documentation was made through photography and collection of voucher specimens of plant parts.

1.4.3 The Zoological Survey of India was engaged in studying the animal resources available to and utilised by the Jarawas. For the purpose;

1. Physiography of the places of survey work/Jarawa settlement areas, their prominent flora and fauna, were recorded for assessment of primary resource potentiality of these places.
2. For identification/enumeration of animal food items of the Jarawas and animal parts used by them, direct observation of diet (as far as possible) was made; animal materials gathered by the Jarawas were examined; and enquired about (cross-checked) from the Jarawas about their uses (whether edible or used otherwise).
3. Cooking, consumption and storage practices of various animal foods were observed at the camping sites of the Jarawas.
4. Collection hunting of various animals/honey by the Jarawas were observed by accompanying them during food procurement (as and when possible)
5. Apparent population of various animals was assessed in different biotopes by (i) direct counting of specimens in a given area (quadrant); (ii) counting eggs in nesting places (for turtles) or grubs in a potential habitat (for beetle larvae) (iii) man-hour output (for collection of animals like fishes, crabs, clams, etc.)
6. Visual census was carried out for some animals like birds, water monitors, marine crabs, etc.
7. Extent of contact of the Jarawas with the outsiders, acceptance of alien food and interest for items of exogenous people were observed in their encampments as well as during their outdoor activity and movements.

1.4.4 The Directorate of Health Services, A&N Administration surveyed the health and nutritional status of the Jarawas at their habitat. The health and nutrition team consisted of doctors/specialists from various disciplines; laboratory technicians, pharmacists and paramedical staff from the Directorate of Health Services were deputed for the study during all the three phases of the survey. A team from the All India Institute of Hygiene and Public Health, Kolkata conducted first two phases of nutritional survey, in association with a team from the DHS. However, a team from the DHS conducted the third phase of the nutritional survey.

1. Necessary training for diet survey and nutritional assessment of the Jarawas was given to all the team members by experts from the All India Institute of Hygiene and Public Health, Kolkata, before proceeding to the field. Necessary proforma were finalised after pre-testing.
2. Since the Jarawas are a small community, numbering less than 300, no sampling was done. Every effort, however, was made to cover all the available Jarawas at their habitat.
3. Morbidity status on the day of contact and preceding three days was elicited by verbal autopsy and clinical examination.

4. Mortality status of three generations, mainly the interviewed person, his or her parents and children was elicited by verbal autopsy. Such verbal autopsy was elicited by the doctors and staff of health team, who are well conversant with the Jarawa language since 1998 and also with the help of AAJVS interpreters; thus the possibility of misinterpretation is minimum as the statements were always cross-checked.
5. General and systemic health check-up of the Jarawas was done at three different places with the assistance of interpreters provided by the AAJVS.
6. Venous blood samples were collected from willing persons and immediately transported to Port Blair for various analysis.
7. Haemoglobin estimation and routine haematological investigation was done by the Haematology Cell Counter (MS4) method.
8. HBsAg, HIV and HCV tests were done by the ELISA method, whereas VDRL test was done by the latex agglutination method.
9. All other biochemical tests were done by auto analyser.
10. A few samples of fruits and tubers consumed by the Jarawas were collected and identified with the help of the BSI team members.
11. Family diet survey of the Jarawas was done by weighment of stock, balance food sheet method, guestimate method at 6 A.M, 2 P.M and 6 P.M. for four consecutive days at each habitat. The team members covered the maximum possible number of families for diet survey.

It may be noted that two major food items of the Jarawas, namely *omiin* (*Cycas rumphii*) and *cheo* (*Dioscorea sp.*), were collected and sent to the National Institute of Nutrition, Hyderabad, for nutritional analysis. Report is awaited.

The **Ayurveda** physician from **The Directorate of Health Services, A&N Administration**, was also involved in the study. Ayurveda medicines were given to some selected Jarawa individuals. Some of the individuals were not given Ayurveda treatment and some Ayurveda medicines were avoided during the survey because the Jarawas were not following diet and habit restrictions. Random study and Ayurveda medications were done. No statistical Ayurvedic study was done due to the time and other limitations.

Many individual Jarawas were observed and those having ailments were studied in detail according to the survey format.

1.4.5. The All India Institute of Hygiene and Public Health, Calcutta (Govt. of India) and Health Department, A & N Administration were engaged in the Nutrition survey

1. Diet survey:

Food intake survey was done by weighing raw food materials that a family would consume throughout a day. However, weighing of food was not possible in most

cases. It was also difficult to ascertain how a particular food item was shared in a family. Moreover, domestic animals (dog) receiving a share of some food, while its master was eating, could not be accounted for. However by thorough observational method the investigators made a guestimate of the weight of various food consumed in a family. Some foods, such as pig (cleaned and dressed), was weighed which was shared by a group of the Jarawas (total heads were counted). In case of honey, a very popular food item, the amount of honey before and after consumption from a wooden vessel could be ascertained. The actual consumption was found out after subtracting the weight of a similar vessel. In case of items like bananas or any other fruit, the number of items consumed was counted and then taking the weight of a single item the total amount consumed was estimated. The diet survey was, therefore, mainly dependent on the observational methods and guestimates. In addition to observational method the food balance sheet method was added in the next phase. This involves weighing of all food items found in a family at a fixed hour (in the morning) in two consecutive days the difference between the two weights gave the amounts of food consumed. In the last phase stock of raw and cooked food (if allowed to weigh) was weighted in the morning (6 to 7 am), at mid-day (12 to 1 pm) and in the evening (at 6 pm) for four consecutive days. Difference in weight of an item, if fully consumed in a day between two successive measurements of weight, was the amount consumed during the day. For the items not fully consumed before the team left in the evening, the difference in weight of the first day and the morning weight of the next day was the weight of the food consumed in the previous day. In this phase of survey, no foods, such as bananas or other foods were allowed from outsiders to be given to the Jarawas. Even then in some areas the Jarawas themselves collected some alien foods such as biscuits, rice, banana, etc. and consumed those. Edible parts of raw food items were also calculated in this phase of the survey. A separate format was developed and field-tested for this survey.

Food consumed by young children was also noted in the last phase along with exclusive breast-feeding practices. **Water usage pattern** was also seen.

2. Clinical assessment of deficiency diseases – A thorough clinical investigation was done to assess PEM (protein energy malnutrition) and all other Micronutrient deficiencies like Iron, Vitamin B, Vitamin C, Vitamin A etc.

3. Anthropometric assessments – Height and weight of all children as well as adults was measured to assess the growth in children and BMI index in adults. Age determination was done by erupted teeth etc. and for women supported by information received on pregnancy and spacing along with other indicators.

4. Laboratory Investigations – Supportive laboratory investigations were done to assess hypertensions & CHD; Anaemia status; liver function as well as protein status.

5. Activity type – The Jarawas were classified under the category of moderately active based on their activity schedule in the whole day.

Hence, to look into the **Food Security** and **Nutritional status** of the Jarawas a comprehensive study was done covering **food intake pattern, nutritional deficiency disorders, growth monitoring** and **existing overall nutritional status** of the group. **The total energy and nutrient requirement of Jarawas per year** has also been calculated.

1.5.4. All India Institute of Hygiene and Public Health

- 1) Nutrient and food intake estimates obtained were just fair estimates as compared to similar known foods. Better estimation will be possible when food values of Jarawa foods are known.
- 2) Food intake during hunting and gathering could not be estimated.
- 3) Intra family food sharing, and sharing of food with domestic animals could not be ascertained.
- 4) RDAs (Recommended dietary allowances) of the Jarawas are not known, which should be determined based on their lifestyle, activity type, hours of rest, climatic conditions, calorogenic effect of their food and natural vagaries they usually confront.
- 5) For food items which could not be weighed because of their peculiar food intake behaviour guestimates were made. However, the investigators were explained by the experts from All India Institute of Hygiene and Public Health on how to guess the weight of a food item consumed when actual weighing was not possible.

1.5 Limitations of the study

1.5.1 Anthropological Survey of India

Though some members of the Anthropological Survey of India were engaged in studying the Jarawas for sometime prior to initiation of the present study, they were handicapped from limited knowledge of the Jarawa language. When one is not only supposed to observe the behaviour of a group of people, but also required to explain the causes responsible for behavioural changes, one is supposed to understand the thought process of the people. Without extensive knowledge of language of the people, it becomes a real difficult task. This was one of the constraints of the study, which was partially overcome by extensive observation and cross-checking of collected information by repeating the exercise time and again. One may not expect full-fledged cultural interpretation of behaviour of the people from a study, which was short-lived by conventional anthropological standard.

Another limitation of the present study was determining the actual age of any individual while collecting demographic information on the population, though birth order, dentition and other factors were taken into consideration for estimation of age.

1.5.2 Zoological Survey of India

- 1 Assessment of ecological diversity of the study area and their measurements could not be made possible for the lack of aerial survey and imagery;

- 2 Animal resources of many places and biotopes of the Jarawa Reserve area could not be surveyed properly for limitations in movement along coasts as well as on surface;
- 3 A bulk of collected animal samples still remain unidentified as the samples could not be brought to the ZSI laboratory, Kolkata for study.

1.5.3 The Directorate of Health Services

1.5.3.1 Allopathic System of Medicine

1. The Health and Nutritional survey was conducted with minimum co-operation from the Jarawas of all areas, as they were very apprehensive about the survey conducted on them.
2. Approximate age determination of the Jarawas was done by seeing physical growth, stature, dentition and colour of the hair.
3. Stool and urine specimens could not be collected from Jarawas due to practical problems in the field, as they were reluctant to give the same for examination in a container.
4. Due to frequent movement of the Jarawas, diet survey could not be carried out continuously for four days at some places in the first two phases. However, the diet survey for four days was carried out during the third phase.
5. The Jarawas were reluctant to give blood samples of their young children, especially those below five years of age and also of the pregnant ladies.
6. Accounting for the food intake at night and during hunting trips to forest was not possible due to practical limitations in the field.

1.5.3.2 Homoeopathic System of Medicine:

1. Repetition of dosage was difficult due to non-availability of the persons caused by their nomadic habits.
2. They did not observe certain prescribed precautions, which might have harmed the efficacy of homoeopathic medicines.
3. The exciting and or maintaining causes of diseases in forms of social, economic, living and sanitary habits continue to persist.
4. Individual features are lacking in the collected information because the finer symptoms could not be ascertained due to communication gap.
5. Only leading questions were asked, which misled and prejudiced the prescription.
6. Homoeopathy has limited scope in cases where irreversible organic changes or advance structural damage take place, particularly when homoeopathic drugs are discontinued before they can produce any organic change in the body .

7. Homoeopathy had limited scope in artificial chronic diseases, which result from long continued uses of violent heroic medicine in large doses.

1.5.3.3 Nutrition

1. Food values of food items, like certain roots and tubers, fish, monitor lizard, molluscs, larvae of wood borer, various wild fruits, like *gin*, *tangal*, *omiin*, *betfal*, *loke*, *cowfal*, etc. which Jarawas eat are not known. In some cases food values of similar food items from the manual of nutritive value of Indian foods by the ICMR (1) were used.
2. The present diet survey could not include the food, if any, consumed during hunting and gathering. Only those foods taken at home were observed and taken into account and therefore there may be an underestimation to a certain extent.
3. In case of foods, which could not be weighed, the investigators were asked to assume weight or volume from their earlier nutrition survey experiences. Therefore weight of food is a guesstimate of food intake.