

Resources and Livelihood Strategies of the Shompen: An Overview

Dr. ¹Amitava Dinda and ²Sumitabha Chakraborty

Abstract: Understanding the variation of resources in the 'aborigines' life cycle in relation to optimal allocation of resources is the central concern of today's life history theory. Now-a-days due to unrestrained human intervention, the ecosystems both terrestrial and marine are witnessing negative changes. For forest dwelling societies, who depend on the forest to fulfil bulk of their needs, these changes do not augur well of their future. Forest is an inseparable part of tribal life. Most of the tribal communities live in and around forests. The forests provide them with edible fruits and leaves, roots and tubers, honey, and water etc. The symbiotic relationship existing between the tribal people and the forests is not confined to the economic activities alone. This symbiotic relation depends upon the fulfilling the human needs without irreversibly damaging the recuperative capacity of ecosystem. For tribal communities the forest serves as the life support systems and they take all preventions against destruction of forest and forest wealth. The Shompen, a mongoloid tribe, inhabit in the Great Nicobar Island of the Nicobar group of islands. They are in semi nomadic stage and live in the interior forest of the Great Nicobar Island. Along with other means of subsistence, fishing is one of their main sources of livelihood what they practice in the traditional way by exploiting the forest ecology. As a member of ecosystem communities, the Shompen always tries to make optimum utilization of the sweet water fishes as well as marine water resources.

The present study attempts to discuss about the availability of natural resources and their sustainable use by the Shompen in the realm of livelihood pattern. In addition, the study also tries to find out suitable strategies for sustainable development of the Shompen keeping in view the cultural integrity of the region, fragility of ecosystem, preservation of biological diversity and maintenance of life support system

Introduction

The human beings have varying needs and wants. Various efforts are made by human beings to meet these needs. Resources are the means of satisfying those needs and wants. However, a natural thing or a substance does not become a resource unless man recognises its utility. In fact, it is the function played by a thing or a substance in relation to human wants that make it a resource. While the nature provides the necessary physical base for man's efforts in the creation of resources, the culture influences the environmental perception, preferences and decision making of a human group. Therefore, unless perceived as 'resource' a matter or substance remains part of the nature. It is the human perception that turns a thing or substance into resource. In addition, the availability and seasonality of resources also determine the pattern of resource utilization.

The Shompen, a mongoloid tribe, inhabit in the Great Nicobar Island of the Nicobar group of islands. They are in semi nomadic stage and live in the interior forest of the Great Nicobar Island. In

¹ Dr. Amitava Dinda, Research Associate (Cultural), Anthropological Survey of India, Eastern Regional Centre, EN – 7-9, Sector – V, Salt Lake, Kolkata-700091, E-mail: amitavadinda68@yahoo.com

² Sumitabha Chakraborty, Anthropological Survey of India, Eastern Regional Centre, EN – 7-9, Sector – V, Salt Lake, Kolkata-700091.

order to meet their needs, they utilise different types of resources of the Island ecosystem. In the present paper an attempt has been made to discuss how hunting-gathering communities like the Shompen have perceived resources in the island ecosystem.

Most of the Shompen inhabit in the forest zones and invariably they are linked up with forestry activities. There is no doubt that the tribes have had a symbiotic relation with forestry activities. The making of dugout outrigger canoe is one such important activity directly related with the forest. The canoe is an important necessary item of the life of the coastal hunting gathering groups at all times. Along with other means of subsistence, fishing is one of their main sources of livelihood what they practice in the traditional way by exploiting the forest ecology.

It has been argued almost unequivocally for long time that tribesmen in India have lived in forests. Ahmed (2004:145) avers that forests cover 65.8 per cent of total forest cover of the country in tribal districts. In order to substantiate his stand further, Ahmed (ibid) states that tribal socio-economic life is intimately connected with forest ecology. Forest is an inseparable part of tribal life. Most of the tribal communities live in and around forests. The forests provide them with edible fruits and leaves, roots and tubers, honey, and water etc. The symbiotic relationship existing between the tribal people and the forests is not confined to the economic activities alone, but also transcends to the cultural realms (Ahmed, Ibid, 148). This symbiotic relation depends upon the balancing of their needs with availability of resources and the forest serves as the life support systems of the tribal and they take all precautions against destruction of forest and forest wealth. Geeta Menon (1988: 175), similarly views that there is a close relationship between nature and culture, oriented to maintaining a balance between human beings and nature. The tribal exploited the forest in a quite regulated manner and preserved them as a resource for prosperity. They had what can be called a constructive dependence on forest and other natural resources. K.S. Singh (2004: 42) too supports the views about the tribe forest symbiotic relationship. "Forest are still like of most tribes – their economy, their culture, their belief systems... Tribes had and still have natural rapport with their environment. Even in reclamation of land, a tribal shows sensitivity and tenderness, which is uniquely his own. He would not destroy a tender plant, he would not fell a fruit-bearing trees or trees considered sacred, and he would not take for a toothbrush a twig from a young and tender sapling but from an old twisted tree. Traditionally tribes are never exploited or over exploited forest resources and have always made a judicious use or have been economical in the use of resources" (K.S. Singh 2004: 42). Roy Burman, B.K. (1982), L.K. Mahapatra (1997), Shroff (1997) have prevailed over similar view points. Gadgil and Guha (1995: 325) elaborated this wide economic and ecological disparity between two groups of people in India. The foragers, pastoralists, peasants and the fisherman, who are dependent on the resources available in their immediate surroundings to meet most of their material needs, have been described as ecosystem people. The ecosystem communities share the resources among them following certain traditional rules, they practice some prudence to ensure future availability of resources, and they possess detailed knowledge about their environments. The above activities and knowledge of the people form a system of belief and oral tradition. Fishing, as one of the major available resources of the Shompen prevails in abundance. As a member of ecosystem communities, the Shompen always tries to cover maximum utilization of the sweet water fishes as well as marine water resources besides terrestrial resources.

Language was a major bar for doing field work in the Shompen area as they are monolingual. None of the neighbours of the Shompen have picked up their language, and the service of suitable interpreter was not available. It is also very difficult to reach the Shompen settlements. The Shompen is the least studied group other than the Sentinelese of Andaman and Nicobar Islands in India. The present study has been done in the year 1997 and 1998 at different parts of Great Ni-

cobar Island. Anthropologists of Anthropological Survey of India are of the opinion that the understanding and knowledge about Shompens is still scanty and more scientific research is required. The recently issued Andaman and Nicobar Islands Shompen Policy, 2015 admits that there is a 'need to address various gaps in our understanding of this somewhat less known community' [Amit Ghosh, Siddhartha Shit and others, 2015; Source: xaam.co.in, 1 November 2015, Article: The less known Shompens of Great Nicobar Island (Anthropology)].

The Locale

Great Nicobar Island lies between 6° 45' and 7° 15' latitudes and 93° 38' and 93° 55' longitudes covering a geographical area of about 685 sq. kms. The Great Nicobar Island is declared as one of the important Biosphere Reserve in 1989 having a total forest cover area 885 sq. kms., in which core zone as 705 sq. kms. and buffer zone as 180 sq. kms. The northern half of the Great Nicobar Island is dominated by mountain ranges and while patches of flat land stretches along the coast and river valleys in the southern half. The topography of the island is extremely undulating; with minor hill ranges with gradients 50 and 60. These hill ranges serve as a barrier against outsider who wants to visit the Shompen area. The terrain of the Great Nicobar is completely undulating and hilly. The island has differentiated itself from the other islands with the perennial rivers and streams. Amongst them, the Galathia, the Alexandria and the Dogmar are the important rivers where navigation is only possible. The rivers and streams having average 5 fathoms in depth and 24 meters wide, which helps the Shompens for navigation. The rivers of the Great Nicobar Islands are full of aquatic life like crocodile, turtle, varieties of fish, etc. The island has coconut, areca nut, palm trees, pandanus, bananas, papaya, bamboos, varieties of hard wood trees, different types of wild edible fruits and roots, etc. The climate of the island is wet and tropical and the average annual rainfall is between 90 and 170 inches.

Great Nicobar island is covered with dense forest, full of tropical trees – White Chuglam (*Terminalia bialata*), White Dhoop i.e. Resin (*Canarium euphyllum*), Mango (*Mangifera silvatica*), Jamun (*Schizigium* sp.), Rudraksh (*Eliocarpus gangestus*), Coconut, Pandanus (*Pandanus tanctoria*), Jungli Supari (*Areca triandra*), Jungle Bet (*Calamus longisetus*), Lal Bet (*Kosthalsia laciniosa*) etc. are found in plenty, some of them are endemic in nature. Lush mangroves swamps and sea-grass meadows provide the necessary habitat for crocodiles and turtles. The wood and leaves of a good numbers of trees are used for various purposes such as canoe making, fencing, hut construction, thatching of roofs, fire-drills etc.

The fauna varieties are less in number in comparison with floral beauty of the island. Wild mammals like, pig (*Sus nicobarensis*) and black faced grey monkey (*Macacus umbrosus*) are the endemic variety of the island. In the bird variety, the Great Nicobar Serpent Eagle (*Haenatronicheela* Klossi), Megapode (*Megapodius nicobariensis* Abbotti) are the endemic variety of this island. There are number of lizards, pythons and snakes mostly non-poisonous and salt water crocodiles (*Crocodylus palustris*) widely distributed in almost all the creeks and back-waters.

The Shompen

The Shompen by nature are shy and timid. In 1981, the total population of Great Nicobar island was recorded as 4976. The total tribal population (including Nicobarese and Shompens) stood at 454. Out of these the Shompens were 217. Awaradi (1990) puts total Great Nicobar population as 8000, while the Shompen's estimated population at 135 in 1988. It is pertinent to mention here that the Shompens estimated population was reported as 342 in 1901. The Shompen live in small groups in the dense forest along the river or stream, numbering about 214 individuals (Rizvi, 1990). According to Jindal (1995) the Shompen number 161 scattered in eight camps. In 2001, the population was estimated at approximately 300 (Weber, George. 2010. *The Shompen People*.

Port Blair: The Andaman Association. www.Google.com). The study team of Anthropological Survey of India of 2015 comments that the Shompen population could be between 200 and 300. One of the unique aspects revealed in the study is that compared to the number of men in the Shompen, there are fewer women. Many adult men were found not to have a partner. Marriage by capturing women from different groups and sub groups is one of the customs of the Shompen society. This custom of marriage by capture may be one of the reasons for mutual hostilities between different groups [Amit Ghosh, Siddhartha Shit and others, 2015; Source: xaam.co.in, 1 November 2015, Article: The less known Shompens of Great Nicobar Island (Anthropology)]. 'Quite in parallel to Great Andamanese and Onge, the process of depopulation was hastened among the Shompens after the arrival of outsiders. Culture shock apart, the diseases were passed on to the natives through outsiders leading thereby to population decline...' (Mann 2005: 178). The Shompen are settled in Jhaunalla, Trinket Bay, Laful, Kokyan, Galathia river area, East – West 35 kms., East – West 27 / 28 kms., Dogmar river, and Alexandria river area. The East – West road of Great Nicobar island has completely damaged due to 2004 Earthquake (Tsunami). The Government of India, designated some groups of the scheduled tribes as 'Primitive Tribal Groups' (PTGs) now designated as Primarily Vulnerable Tribal Groups (PVTG) and the Shompen of Great Nicobar Islands is one of the PVTG. Their prime problems have been identified as declining or stagnant population, low level of literacy, pre-agricultural technology – primarily belonging to the hunting and gathering stage and extreme backwardness. The Shompen still live in their primitive technological level and are still keeping them apart from the civilized society and retain their traditional mode of living. Their means of subsistence is food gathering, hunting and fishing, domestication of pigs and a bit of horticulture provided by Andaman and Nicobar Administration. Gardening is the prime economic activity of the Shompen. The major share of their daily food comes from the garden. Generally the Shompen maintain at least one garden very close to their settlement. All the Pandanus (scientific name- *Pandanus tanctoria* locally known as 'slaa' in Galathia river) gardens appear to have a natural growth. The right over the garden does not belong to an individual or family but to the band. After horticulture, hunting and fishing are the major activities, which the Shompen practice for their livelihood. Hunting and fishing activities continue throughout the year. Generally hunting is carried out with the help of dogs for chasing the wild boar. The Shompen are expert in fishing. Fishing is carried out with the harpoons, which may have single, or many iron blades. Food gathering is another economic activity of the Shompen. The food gathered includes honey (locally known as 'kopou' in Galathia river area), wild fruit, tender inner stalk of the 'komba' (scientific name- *Pynanga coastata*), areca nut, betel leaf, wild potato (locally known as 'kai' in Galathia river area) eggs and caterpillars.

Origin: Man (1889) considered that the Shompen is the aboriginal stock of the Nicobarese. Their singular purity of breed, even at the present time, seems to point to this, for other sections and coast tribes even in Great Nicobar show traces of admixture with Malay and other stocks. But Sir R.C. Temple (1903) contradicts this, stating there is no racial difference between a Shompen and other Nicobarese. The differences are merely such as exist between islands and as are to be expected among the living and almost isolated existence. "Studies of mitochondrial DNA have shown that the maternal lineage of Shompens is closest to that of Indonesians Variations in DNA segments on the Y chromosome also reveal affinities to Austroasiatic people including the Nicobarese and Vietnamese, rather than to people from mainland India"(Trivedi Rajni, T. Sitalaximi and others, 2006).

History and earlier studies: The existence of an inland tribe in Great Nicobar was first mentioned by Pastor Rosen, a Danish missionary, in 1831. In 1846 Admiral Steen Bille paid the first recorded visit. When the islands were annexed by the British Government Fr. Ad. de Roepstorff (1874) paid three visits, and found a temporary encampment. He was accompanied on one occasion, in 1881, by the Chief Commissioner, Colonel T. Cadell. E. H. Man first visited the Shompen in 1884 and was subsequently much in contact with them' (Rizvi, 1990). In 1901 Boden Kloss found only a ruined hut, heaps of shells, and split seed-cases of the *Barringtonia speciosa* on his first search of the Shompen in and around the Ganges Harbour. On his second attempt in Casuarina Bay on the west coast, he located and visited the Shompen of the Dogmar River. In 1905, C.P.B. Anderson paid a visit to Great Nicobar island. In April 1952, B.S. Chengapa, Conservator of forests, led an expedition to this island and the Shompen. Later Sondhi (1952); M.G. Raja Ram (1960); M. K. Nag and others (1966); S. Raha (1970); S. Mukherjee (1974); Paramanand Lal (1977); T. Lal (1978); Rizvi and Haider (1974 & 1987); Subbakrishnan, Pal and Pandey (1988); Dinda, Amitava (1997 -1998); S. Chattopadhyay and A. K. Mukhopadhyay (2003); S. S. Barik, B. Das and S. Biswas (2004); Elanchezhian, M. A., Kumar, R Senthil, Beena, S. J.yanarayana, M. A. (2007); A. Ghosh and S. Shit (2015) and others had carried out research work among the Shompen. But there is few published literature on the Shompen.

Economy: The subsistence economy of the Shompen has a very close relation to the ecology. Other than horticultural gardening provided by Andaman and Nicobar administration, hunting and fishing, food gathering and the rearing of animals, basket and fabric making etc. are the main economic activities of the Shompen. Generally the Shompen resides near a Pandanus (*Pandanus tanctoria*) garden, which is naturally grown. The Shompen go to hunt in the forest while fishing is done in the sea, rivers, streams that flow through near their habitat. Food gathering as one of the major economic activity does not have much bearing on the subsistence of the Shompen. It is only done during the hard days of the rainy season when the hunting become meager. Hunting of wild pigs, monkeys, monitor lizards, pythons etc are common among the Shompen. Honey, lemons, megapod eggs, sea shells etc, collected by the Shompen are also exchanged and in return take rice, sugar, tobacco, clothes and implements like *dao*, axes etc from the Andaman and Nicobar Administration at Campbell Bay as well as from neighbouring Nicobarese.

Utilization of Major Natural Resources

The Shompen utilize natural resources both terrestrial and aquatic such as wood, Komba or *Taani* leaves, 'Dhani palm' leaves, resin, honey, wild boar, crocodile, different types of fishes, turtles, snake, frogs, pigs, birds, monitor lizards, crocodiles, fresh water fishes, shellfishes, yams, spathe of areca, fruits of pandanus, coconut etc. But the Shompen do not over exploit the natural resources. They are judicious user of both terrestrial and aquatic resources. The major resources are described below:

Wood: The Shompen utilize wood for their dugout canoe making, hut construction, making of harpoons shaft etc.

Dug out outrigger canoe: The Shompen are very much expert in dugout canoe making (locally known as 'haa' in Trinket Bay, 'dreui' in Jhaunalla area, 'roi' in Chingam village, 'ohang' in 24 k.ms. East – West road (near Shompen Hut Complex) (Dinda, 2008). Each band has its' own two types of dugout canoes. Small River going canoes ranging from 3.65 meters to 5.18 meters with outrigger with a carrying capacity of three to five persons and used to cross creeks and rivers. Big seagoing canoes ranging from 8.84 meters to 10.05 meters with outriggers with a carrying capacity of ten to fifteen persons with articles are used for sea transport. The outrigger canoes are used

for fishing, gathering, and transport. The basic requirements for dugout canoe construction are the suitable trees of different types with different types of tools, such as axe (locally known as *neom* in East-West Road, Great Nicobar Island), adze (locally known as *hanai* in Jhaunallah; Great Nicobar Island), dao (locally known as *geuo* in Jhaunallah), saw like instrument (locally known as *ahoo* in Jhaunallah), *rheti* (locally known as *ugon*), *martul* (locally known as *laak* in Trinket Bay). The Shompen always cut the trees as per their requirement of making dugout canoe. The following trees are very useful as the Shompen use for their dugout outrigger canoe.

Sl. No.	Name of the Tree in Shompen Language	Hindi term	Scientific name
1	<i>Hanh</i>	Lalchini	<i>Amoora wallichii</i>
2	<i>Ahiah</i>	-	-
3	<i>Pehewa</i>	-	<i>Manikara littoralis</i>

Different types of wood are needed for different type of parts of Shompen outrigger canoes, which are as follows –

Sl. No.	Name of the Tree in Shompen language	Hindi term	Name of the parts (canoe)
1	<i>Ahiah</i>	-	Float
2	<i>Elam</i>	-	Boom
3	-	<i>Supari</i> (beetle nut)	Spar
4	<i>Ahiah</i>	-	Wash strake
5	-	<i>Katcarini</i>	Mast

The Shompen always use parts of *Ahia*, *Elam*, Beetle nut and *Katcarini* trees for making float and wash strake, boom, spar and mast respectively as per the requirement. They never cut the small plants for this purpose (Dinda, 2013).

The dugout outrigger canoe is used for collecting both terrestrial and aquatic resources. It is one of the most important items in their livelihood activities. Hence it is necessary to mention the scale of measurement of the Shompen outrigger canoe of one variety.

Scale of measurement of the Shompen outrigger canoe at Trinket Bay, Great Nicobar

- 1) Type of Canoe : Dugout outrigger canoe
- 2) Length from stem to stern : 10.3 meters.
- 3) Width of the canoe
 - (a) Quarter way from stern : 0.7 meters.
 - (b) Maximum width : 0.9 meters.
 - (c) Quarter way from stem : 0.81 meters.
- 4) Vertical Height
 - (a) At the middle : 0.74 meters.
 - (b) Quarter way from stern : 0.71 meters.
 - (c) Quarter way from stem : 0.76 meters.

Masts

Name	Exact position	Measurements
<i>Awhuwa</i>	Near the stern	<i>Height:</i> 8.91 meters <i>Circumference – Top:</i> 0.17 meters <i>Bottom:</i> 0.23 meters.

Sails

Name	Measurement	Shape	Colour	Material	No. of person involved
<i>Anam</i>	<i>Height:</i> 7.97m. <i>Width:</i> 4.67m.	Almost rectangular	White	Polythene	2 person

Paddle

Name	Measurement
<i>Ahiawas</i>	Length: 2.49 meters Circumference: 0.15 meter

Outrigger attachment

- 1) Local names : Boom – *khauau*
Spar – *chag*
Float – *intaha*
- 2) Length of the Boom : 3.30 meters
Circumference of boom : 0.1 meters
- 3) Length of float : 9.98 meters
Circumference of float : 0.41 meters
- 4) Length of spar : 1.31 meters
Distance of two bunch of spar on Float : 0.66 meters

The Shompen outrigger canoe of Trinket Bay of Great Nicobar can carry 10 to 15 persons along with gathered items or provisions collected from Andaman and Nicobar Administration at Campbell Bay.

Honey: The Shompen collect honey from forest in summer season. They use honey for their domestic use and barter. Honey is one of the nutritious food items of the Shompen. The Shompen of 24 / 27 Kms. of east-west road (Pre Tsunami), Galathia river area and Pilokunji area collect good amount of honey from the forest. The importance of honey is paramount in the hunting-gathering society. As a hunter-gatherer the Shompen also gather huge amount of honey for their livelihood. To them, honey is main symbol for relaxation and enjoyment of the pleasure of life. Sexual activity among the youths is heightened during the honey gathering season.

Resin: The Shompen collect resin from the forest for their domestic use as well as their barter. They also procure rice, *dao* etc from A & N administration in lieu of resin.

Resources used for hut construction, implements, ornaments and other day to day activities:

The Shompen use Komba, or Taani leaves, 'Dhani palm' leaves (Cinnamon family, used in east coast) along with trunk of areca etc are used for hut construction.

The harpoons used for killing wild boar and pigs, fishing are made by attaching suitable haft of wood to variously shaped heads with single or multiple iron barbs which are made by themselves. *Dao*, axes, saws, adzes etc are provided by A&N administration. Sometimes, they procure *dao* from neighbouring coastal Nicobarese as a barter item.

Stripes of bamboos locally known as 'ahav' are used as ear rings which is only natural resource for ornaments.

Cane stripes are used for basket making of different types. Making of basket is the exclusive job of woman. The aged women-folk particularly adopt these crafts. The woman also collects raw materials for baskets. The basket-work goods are made of cane, spathe of the wild areca palm and the bark of a particular tree. Various types of basket are made with cane strips i.e. *Lal Bet*. All the household items are really the projection of fascinating creation of the Shompen mind with the help of available natural resources.

They use cane water (*Calamus longisetus*) for bath. The Shompen never cut excess cane plants for their bathing. The Shompen produce fire by friction of wood i. e. from Inbot plant (*Sterculia alata*).

Resources used as food item: The Shompen depends on turtles, snake, frogs, pigs, birds, monitor lizards, crocodiles, fresh water fishes, shellfishes, honey, yams, spathe of areca, fruits of pandanus and coconut. The staple food of the Shompen is *kewri* (*Pandanus tanctoria*) previously. Komba stem is eaten raw. Pandanus and fish, and the flesh of pigs, crocodiles and reptiles are a regular part of their diet. Nowadays, the Shompen generally take rice as their staple food, which is procured from Andaman and Nicobar Administration. The Shompen likes to take betel leaf, and areca nut as one of the item of addiction.

Fishing and Hunting

The Shompen are expert in fishing. The east coast Shompen, from their easy access to sea, quite often come to the sea shore fishing. They also fish in the rivulets and creeks. On occasion they use canoes for mid sea fishing. On the west coast, access to the sea for the Shompen is restricted. When they visit Nicobarese villages, they are always in search of octopi, which are plenty here. Females are also participated in fishing. The Shompens' knowledge of fishing is also striking one. They have the concept of the practicality of the theory of refraction between two different intensity mediums. They generally observe the fish from long distance. They use different types of implements according to fishes. Fishing is carried out with harpoons, which may have single or many iron blades. Besides these implements the Shompen carry bamboo, *dao*, bowl, green coconut, water pot, match box etc. during fishing. The Shompen also fish with a pointed iron rod and harpoon from banks of rivulets and in running water, where they get crab and some other small varieties of fishes. They go out for fishing usually in the early morning and come back by mid-day. Sometimes they also return in the late afternoon, but in case they come back before sunset. The Shompen generally catch *kukari* (*Caranx sp.*, locally known as *nou* in Trinket Bay area), *sankar* (*Rhinoptera neglecta*, locally known as *kaha* in Trinket Bay area), turtle (locally known as *magau* in Trinket Bay area), *badmas* (*Carcharhinus sp.* locally known as *mai*) etc. Besides these they also catch different types of fishes. They also collect mollusks from the muddy banks of streams or creeks, and the shells are generally used to prepare lime as well as for extracting pandanus pulp.

The Shompen inhabit the Great Nicobar Island and roam around the island in search of food, fodder and shelter. They generally go for hunting the wild boar and fishing. In course of their journey sometimes they have to cross the creek, have to travel a longer distance in the river and sometimes they have to travel in the sea for fishing and visit their brethren. In such cases they purposefully use the outrigger canoe, whether it may be a small outrigger or a big outrigger with mast, sail etc. Whenever they are in the water with their traditional watercraft, they have to follow the rule of navigation, which they learned from their forefather. The Shompen generally prefers the summer months for making a long voyage into the sea. The Shompen of Trinket Bay and Jhaunalla area usually visit Campbell Bay, the capital town of Great Nicobar Island during summer season for collecting the useful items from the authorities of the Andaman and Nicobar Administration. During rainy season the Shompen restrict themselves to their own area except involving themselves in coastal fishing and hunting in the nearby jungles. The Shompen generally prefer to go for fishing at day time during low tide. According to them, fishes are not available during full and high tide period. Approaching high tide is also viewed suitable for fishing.

The Shompen travel comfortably from one place to another with the knowledge of sea. The elders of the Shompen have an important role during propelling the canoe and also in fishing activities. They instruct about the sea route. During stormy weather the elders instructs how to propel and control the outrigger canoe. During storm they put off the sail at first and travel near the sea-shore. The Shompen generally use *phag*, *tethokne*, *bagae* and *bagoe* for their fishing and hunting purpose. *Phag* (one barbed harpoon, non detachable) made of bamboo and iron used for shark and turtle hunting, *tethokne* made of bamboo stick used for fishing purpose, *bagae* made of bamboo and iron (three barbed harpoon) used for fishing purpose, *bagoe* made of bamboo and iron (detachable single barbed harpoon) used for turtle hunting, etc. are the important fishing and hunting implements of the Shompen.

Case Study 1: Auwo (M) aged 48 years of Jhaunalla reported that he gathered pandanus, areca nut, tender stalk of the komba, betel leaf, honey, eggs, caterpillars etc whichever are available in their route. He is accompanied by three male members and two dogs. He viewed that they generally catch *kukari* (*Caranx sp.*, locally known as *nou*), *sankar* (*Rhinoptera neglecta*, locally known as *kaha*), turtle (locally known as *magau*), *badmas* (*Carcharhinus sp.* locally known as *mai*) etc. Besides these they also catch different types of fishes. They also collect mollusks from the muddy banks of streams or creeks, and the shells are generally used to prepare lime as well as for extracting pandanus pulp.

Case Study 2: Anang (M) aged 52 years of Pilokunji opined that he started for hunting-gathering in the morning along with two male members and dogs. They gathered wild fruit, areca nut, tender stalk of the komba, betel leaf, honey, eggs, caterpillars etc whichever are available. He reported that they caught wild boar yesterday. He informed that dogs help them in locating and chasing the wild boar. The wild boar was shared among neighbours. They return home till they gathered sufficient amount of items. The gathering time varies from 3-6 hours. They also fish in nearby sea with the help of single or many barbed harpoons though fishing in the west coast is very tough.

Case Study 3: Kagaz (M) aged 36 years of Galathia River area viewed that he gathered areca nut, tender stalk of the komba, betel leaf, honey, eggs, caterpillars etc. He is accompanied by three male members and two dogs. He told that they generally catch *kukari* (*Caranx sp.*, locally known as *nou*), *sankar* (*Rhinoptera neglecta*, locally known as *kaha*), turtle (locally known as *magau*), *badmas* (*Carcharhinus sp.* locally known as *mai*) etc. Besides these they also catch different

types of fishes. They gather molluscus from the muddy banks of streams or creeks, and the shells are generally used to prepare lime as well as for extracting pandanus pulp.

The Shompen in Changed Scenario

Andaman and Nicobar administration generously provided them horticultural garden land, where they were trained to transplant the banana, areca nut, lemon etc. which in the later years are used for their own consumption as well as for barter with the local Nicobarese, non-tribals and even with the local administration. The canoes made by the Shompen are exchanged with the Nicobarese, who in turn give them loin clothes, cooking utensils etc. Similarly honey, lemons, megapod eggs, sea shells etc, collected by the Shompen are also exchanged for sugar, rice, tobacco and implements like *dao*, axes etc. The Shompen always do not barter their gathered items not by over exploiting the nature.

Strategy for Sustainable Development of the Shompen

It is earnestly suggested to ensure the followings:

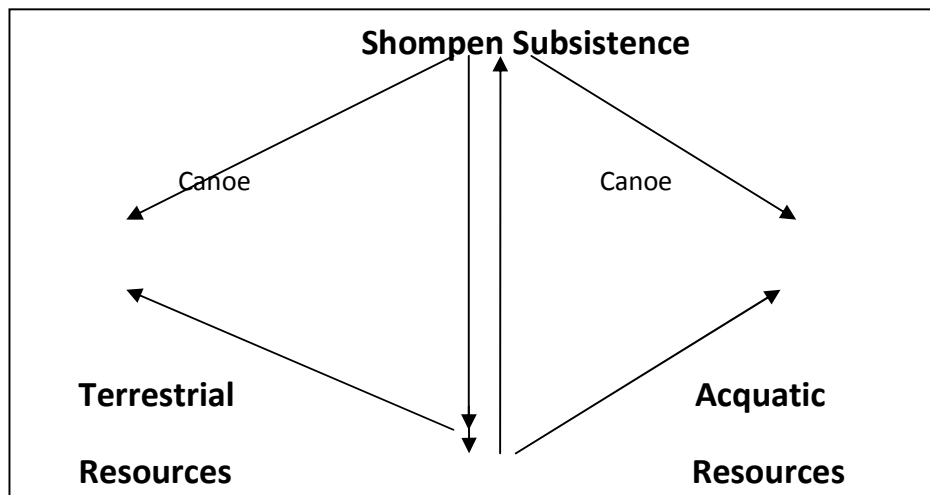
1. Medical intervention is required at each Shompens Settlement i.e. At Jhaunallah, Trinket Bay, Pilokunji, Pilobet, Shompen Hut Complex area, East–West Road area (before Tsunami 2004), Kopenhagen area and adjacent areas. It should be on regular basis as they are suffering in skin disease, bulging belly, dental problem etc.
2. Efforts should be made to curb poaching in the Shompen area as there are huge differences in technology between them and the poachers regarding fishing and other activities which, in turn, is related with density of resources.
3. Efforts should be made to ensure that kitchen garden products (banana, papaya, lemon, areca nut, beetle nut etc) should not be taken by any other community. This must be utilized for the Shompen only.
4. Steps should be taken to protect the Shompen from being exploited by the neighbouring communities.
5. The Shompen must be provided rice, clothes, iron implements and other necessary items of their daily needs.
6. Complete documentation of the traditional knowledge system of the Shompens needs to be done on priority basis before it is lost forever.
7. Contact with the outsiders should be restricted.

Discussion

The entire Shompens' economic life rotates around food gathering, hunting and fishing. Their economy is subsistence in nature and technology is simple. The subsistence economy of the Shompen has a very close relation to the ecology. The food gathered by the Shompen includes wild fruits, tender inner stalk of Komba (*Pynanga coastata*), honey, areca nut, eggs of megapod, live caterpillars, mango, resin etc. Honey is used for future consumption and also for barter. The Shompen are solely depended on immediate environment for their food. Hunting and fishing activities continue throughout the year. The Shompen use outrigger canoe for hunting and fishing purpose as they possess detailed knowledge about their environments. The catch is consumed within the family and in some cases it is distributed among the band members. They also collect mollusks from the muddy bank of streams or creeks, and the shells are generally used to prepare lime as well as for extracting the pandanus pulp. The fishing tools, like, *phag*, *tethokne*, *bagae*, *bagoe* etc. are made of bamboo, cane strip and iron, which are procured from their immediate

surroundings for sustenance. Thus the Shompen may be regarded as the valued user of natural resources at large.

Fig.1: Interdependence of the Shompen with Natural Resource



Outrigger Canoe acts as means of transport for gathering terrestrial and aquatic resources to meet the day to day needs of the Shompen (Fig. 1). The Shompen build dugout canoe and its outrigger from *hanh*, *ahiah*, *pahewa* and *elam* trees. They also use cane and areca nut slit in the canoe. They do not cut the tender trees of any variety for the making of their dugout canoe, construction of hut construction and other purposes. The Shompen also do not destroy a tender plant and would not fell a fruit-bearing trees or trees considered sacred. The Shompen collect only that much of fish which is sufficient to meet their daily need not by over exploiting the aquatic resources. It suggests that the Shompen make a judicious use of both aquatic and terrestrial resources. The present study on resource utilization of the Shompen has similarity with studies done by Roy Burman B.K. (1982), Mahapatra L.K. (1997), Shroff (1997) and Gadgil and Guha (1995) and K. S. Singh (2004). According to K.S. Singh (2004: 42) 'Forest are still like of most tribes – their economy, their culture, their belief systems...' But in the changing scenario the Shompen barter forest gathered items for rice, sugar, cooking utensils, implements, clothes etc with the Andaman and Nicobar Administration and also with the neighbouring communities. Thus the Shompen of coastal areas of Great Nicobar island have changed their livelihood strategies a bit but the Shompen of central forest areas of Great Nicobar Island still pursue the age old livelihood strategies for survival. The Shompen present a one of the best examples symbiotic relation with the nature wherein the needs are met without irreversibly damaging the ecosystem.

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