

Environment and Socio-economic Characteristics of the Nolias of Coastal Orissa, India

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ABSTRACT The paper deals with different aspects of the *Nolias* (Marine fisher-folk) inhabiting the coastal Orissa. For this two sample villages, Raikatturu and Bandar of Ganjam district were considered during 1989-91. The *Nolias* are mostly illiterate, addicted to smoking, snuffing and drinking. They believe in their own cultural practices such as child marriage and sacrifice of animals. Rice, finger millet (ragi) and fish constitute their staple food. In the sample villages, agricultural land constitutes 5 to 6% of the total area. *Per capita* land holding (0.03 to 0.06 ha) was very low. The average annual income from fishing was 77% of the total annual income of the family. Energy input in different fishing activities was 85.7% by men, 11.2% by women, and 3.1% by children. High population density and resource constraints have affected the socio-economic life of the *Nolias*. The *Nolias* are in the danger of losing their livelihood.

INTRODUCTION

In rural India, various occupational and cultural groups which may appropriately be called as small-scale society, inhabit in different ecological niches. They depend mostly for their sustenance, upon the limited resources available in their surroundings. The shelter environment with its resource-base and constraints influences their socio-economic and cultural life (Hardesty, 1977). Their optimal survival owes much to their prudent use of the natural resources to which they have free access.

Depletion of living resources and population growth very often compel them to encroach upon newer localities to sustain their livelihood. They may be considered as 'ecosystem people' and later they become 'ecological refugees' (Gadgil, 1991). One such small scale society is the marine fisherfolk (*Nolias*) of coastal Orissa. As environmental degradation has affected the life of these people, researches on this small scale society have become imperative to protect their habitat and culture from any

such ecological holocaust (Ellen, 1981, Bumham and Ellen, 1979).

In the area of modern ecosystem research on small scale societies very few paradigms are found in the Indian context (Patnaik, 1991). However, studies made by Vidyarthi (1963), Srivasatava (1979), Bhasin (1988, 1989), Nayak and Misra (1991), Choudhury (1991) and Nayak et al. (1992) have opened up new vistas in the field of ecosystem studies.

The present paper attempts at making a comprehensive ecological and socio-economic study of the traditional marine fishermen (*Nolias*) of coastal Orissa during 1989-1991.

MATERIALS AND METHODS

The coastal Nolia villages supported by three important components : land, sea (water) and human beings can be termed as ecosystems. Land includes human settlements, meager agricultural land, wastelands and plantations. Inshore water is also included under the sea-component.

In Orissa, the *Nolias* live in four coastal districts- Balasore, Cuttack, Puri and Ganjam being spread over 480 km coastline. The density of their population is high at Penthapatta and

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Shundhikuda of Paradeep of Cuttack district; Puri, Astaranga and Chandrabhaga of Puri district; and Chandbali and Chandipore of Balasore district. In Ganjam district the Nolias are distributed in 18 villages, viz., Patasunapur, Markandi, Ramayapatna, Nuagolabandha, Golabandha, Buxipalli, Nua Buxipalli, Dighipur, Venkatraipur, Gopalpur, Raikatturu, Bandar, Arjipalli, Nolia Nuagaon, Gokharagoda, Ramalenka, Khirsoi, and Prayagi.

This study was concentrated on the Nolias of Ganjam district. The Nolia villages, Raikatturu and Bandar were selected for detail investigation, as sample villages, during 1989-91.

The boundary of the two villages were considered as per the State revenue map. Data on demographic details and socio-economic attributes were collected through questionnaire, in the two villages. For this purpose all the households were taken into consideration. Besides, some of the elderly people of the villages were interviewed for seeking information on caste, settlement, origin, marriage system, and other socio-cultural aspects.

Qualitative information were also collected from other Nolia villages to supplement and strengthen the data obtained from the sample villages. Human energy input in fishing and firewood collection was estimated by recording the data for 7 days in a month. Data were expressed separately for the three seasons: the summer, the monsoon and the winter.

A random sample of 110 fishermen representing 50% of the fishing members of the villages was selected for obtaining information on various fishing operations and related characters.

COASTAL ENVIRONMENT

The climate of coastal Orissa is moist and subhumid. The area receives rainfall on the onset of monsoon during mid-June. Soil is mostly sandy-loam to loamy-sand and at places clayey. The average annual rainfall of coastal Orissa is 1200 mm. The 480 km long coastline

is marked by the presence of numerous tidal creeks, estuaries, swamps, tidal flats, salt lakes and salt marshes. The Brahmani-Baitarani estuary is present in the north; the Rushikulya and Bahuda estuary in the south and, in between is the Asia's largest brackishwater environment, the great Chilika lake. The latter two largely favours the brackishwater prawn-farming while former along with the Mahanadi (at Paradeep) estuary sustains the mangrove forest and the only one available in the state, providing natural habitat for the salt water crocodiles.

The important rivers which pass through the coastal districts and fall into the Bay of Bengal are the Subarnarekha, the Budha-balanga, the Baitarani, the Brahmani, the Mahanadi, and the Rushikulya.

The Experimental Villages

The two sample villages are situated near Gopalpur-on-Sea (84° 54'E and 19° 16' N) at a distance of 50 km south of the mouth of Chilika lake and about 17 km from Berhampur city.

The coastline near the study site is a fairly straight and sandy stretch. The width of the beach is between 30 and 60 meters depending upon tide and season. There is a backwater area which passes in a north-south and in a south-east direction at Bandar and Raikatturu, respectively and ultimately joins the sea on the east near Raikatturu. The creek remains separated from the sea by a sand-bar for most of the time in the year and during rainy season (September-October) the bar is cut open by the local people. The tidal flushing confers a two-layered flow. The creek supports a seasonal sustained fishery comprising mostly of prawns and mullets.

OBSERVATION AND DISCUSSION

The Nolias and Their Practices

The Nolias are Telugu-speaking marine fisherfolk. However, most of them know Oriya. The majority of these people live in small hamlets and depend on living resources available in their surroundings. They profess mainly to inshore fishing.

A sizeable proportion of the original Nolia inhabitants of the neighbouring state, Andhra Pradesh might have alienated from their homeland or have migrated in search of their livelihood under compulsion of population growth and have settled on coast-line of Orissa at different places. Mostly they have been found to encroach upon sandy beach or at some places they have settled up in slums of coastal towns or villages with limited resource access. They may be regarded as 'ecological refugees' (Gadgil, 1991). This is strongly supported by our observation of some hamlets like Nuagola-bandha which has come up only during last few decades. The possibilities of access to resources of newer and newer localities open to them has probably led them to concentrate on the coastal tracts of Orissa.

The Nolias are a conglomerate of two major sections-'Wadabalji' and 'Jalari'. The former is supposed to be originated from 'Wada' (= boat) and the latter from 'jala' (= water or net) (as explained by elderly Nolia people). Thus it means that the origin of both sections has a connotation to their professional characteristics.

The 'Wadabalji' group is thought to be superior to 'Jalari'. However, they are not included in any of the categories- scheduled caste and scheduled tribe while many of their fishing counterparts such as 'Keota' and 'Kondara' people belong to scheduled caste.

The Nolias have a patrilineal society constituted by a number of clans which are again divided into a number of lineages. Nuclear family units with husband, wife and children are common. However, subnuclear and joint family system are also found among the Nolias.

The marriage of the Nolias takes place between both closely and distantly related clans. Marriage is generally celebrated at the age of 16 for boys and 10 for girls. However, the child marriage tradition has been abolished in some families where the marriage age is about 20 for boys and 15 for girls. In case of child marriage, the bride is sent to her husband's

house after attaining puberty. Family planning is insignificant among the Nolias. Both males and females are reluctant to undergo sterilization with the fear of death or weakness. They still believe that birth control goes against the will of God.

The Nolias are mostly illiterate. The average literacy rate of the village during 1989-90 was 15.7% (male 23.8% and female 8.3%). Birth rate (number of children born per thousand population) was 40.9.

The Nolias believe in occult, worship Gods (*Devta*) and Goddesses (*Devi*), sacrifice animals and offer liquor to deities. The *Ghar devta* or family God *Simadriapanna* (Narasingha) is their most popular deity. The *Ghar devta* is worshipped in a corner of the house. On every Saturday most of the members of the family take vegetarian meal and worship God, offer voluntary oblation which is preserved in a container. Subsequently, on an auspicious day the amount is donated to the priest/God, when they visit any pilgrimage especially Puri Jagannath temple or Simachalam (Andhra Pradesh).

The prominent Goddesses they worship are, *Gurappa*, *Kamili* (Laxmi), *Taatamuru* or *Mutialumuru* (village deity) and *Saatulu*. Biennially they observe the festival of the village deity with much pomp and luxury.

The Nolias sacrifice animals such as sheep and goats to satisfy the anger of God for good fishing and health. However, their attitude towards religious beliefs, custom, caste-categories, marriage and kinship are changing gradually due to the impact of modern civilization.

The staple food of the Nolias are rice and finger millet. Their most favourite item is *jau* (a semiliquid diet prepared from the flour of finger millet along with fermented boiled rice water). Fish curry is their most common item. Seldom they take mutton and dal (legumes). Almost all Nolias prefer to take *kanji*, an item prepared from leafy vegetables with fermented watery residues of boiled rice.

Nolias live in small mud houses, 2-3 roomed having a court-yard on the backside and verandah on the front. The houses are mostly arranged in two rows on either side of the village road. Irregular housing arrangements are found in some Nolia villages. The houses are usually thatched by paddy (*Oryza sativa*) straw, leaves of cocoanut (*Cocos nucifera*), palmyrah palm (*Borassus flabellifer*) and in few cases by long grasses such as *Aristida setacea* and *Vetiveria zizanioides*, collected by women from the locality. Bricks, stones, tiles, corrugated sheets are also found to be used for roof construction in a very few households. The most common timbers used for construction of houses are bamboo, cocoanut, palmyrah palm, and Casuarina.

Smoking, Snuffing and Drinking

Men and women, particularly of working class, of different age, are addicted to smoking *pika* or black cigar (rolled tobacco leaves) and snuffing (snuff, called '*nasha*' is the powdered tobacco leaves). It is peculiar to note that the females smoke black cigar by keeping the burning side inside their mouth cavity. This practice is injurious to health. The females outnumber the males in snuffing.

Both sexes beyond 16 years consume liquor regularly. Usually the rate of consumption is more on festive days. Maximum number of males (42%) consume liquor in the age group of 26-30 while 4% females (in the age group of 40-50) consume liquor regularly (Sahoo and Misra, 1992). Although the *per capita* liquor consumption varies in different villages it was 364 ml at Raikatturu and 233 ml at Bandar.

Fuel Energy Utilization Pattern

The bulk of fuel energy used for domestic activities such as cooking and heating and cremation of dead bodies comes from biomass sources. The biomass fuel consists of leaf residues, branches and twigs and stemwood of Casuarina, Cashew, Cocoanut and Screw-pines (*Pandanus*). However, the leaf residues (litter)

dominate the fuel energy. Commercial wood is also used in the villages.

In most of the households kerosene is used for lighting. Very few families use electricity. On an average the daily house-hold consumption of kerosene is 0.11 liter and electricity 1.6 kwh.

The people obtain firewood from three sources: (i) gathering free from the environment, (ii) purchasing, and (iii) collecting from the user's own land. The distance covered and time spent for firewood collection varies in different villages depending upon the easy availability of the fuel, distance to be covered, season, etc. Dungcake and agricultural residues are also used in some Nolia villages. However, in the sample villages dungcake and agricultural residues were not used. On an average, the Nolia household spends about 2.1 hour per day for collecting firewood and a firewood gatherer covers a distance of about 5-6 km for to and fro journey.

Resource-base and Economic Structure

The Nolia economy is mainly based on fishing. Economic returns from agriculture and animal husbandry subsystem are very poor owing to scarcity of crop land and pastures. They use the sea-shore vegetation for meeting their fuel energy requirement. They export quite a sizeable quantity of their catch and import essential commodities including food grains. The quantity of import and export depends upon the resource available in the village.

Nolia women work as wage labourer for construction of roads, buildings and agricultural activities. Apart from this they do all household work such as cooking, cleaning, child rearing, fetching water and gathering firewood, carrying meals to the sea shore, drying raw fish, and similar other works.

The Plantations

The sea shore vegetation is dominated by man-made plantations of Casuarine (*Casuarina equisetifolia*). It is an ideal fuelwood plant

offering all its parts - root, stem, leaf, branch, inflorescence and fruits for domestic fuel. It also helps in soil conservation, prevents shifting of sand-dunes and enriches soil fertility by fixing atmospheric nitrogen by root nodules (Nisanka, 1992). Cashew (*Anacardium occidentale*) and coconut (*Cocos nucifera*) plantations are also found in the villages. These are two important cash crops of the coastal area. Screw-pines (*Pandanus fascicularis*) are mostly found on hedges and wastelands and grow naturally. These plants are economically viable for their flowers. Flowers are used in preparation of *Kewada* water (scent) which is used as an ingredient for the preparation of pan-masala. The stem and leaf of these plants are used as fuel. The sand dune vegetation is predominated by *Spinifex littoreus*, *Ipomoea pescaprae* and *Cyperus arenarius*. The plantations with their physical environment play an important role in the structural and functional aspect of the coastal village ecosystem.

Land-use and Cropping Pattern

The agricultural land constitutes only 5 to 6% while the plantations occupy more than 70% of the total area. The CPR (Common property resource) land constitutes 29% and 17% in Raikatturu and Bandar, respectively (Sahoo and Misra, 1992). The CPR land is the land to which every villager has the right to access having no individual possession. Table 1 shows the details of land-use pattern in the two sample villages. The *per capita* land holding is very low (0.03 and 0.06 ha in Raikatturu and Bandar, respectively). It is also observed that persons per hectare of CPR land are more, 70 to 83 than that in the dry arid regions of India (Jodha, 1986). This may be due to high population density, poor soil quality, typography and scarcity of land. The land holding categories of the villages (Table 2) indicate that the majority of the *Nolias* are landless.

Table 1 : Land-use pattern in the villages (Area in ha.)

Particulars	Raikatturu	Bandar
I. Private land		
Agricultural land	1.20	3.90
Plantations	15.68	51.75
II. CPR land (Commercial Paramboka)		
Settlement	3.10	6.20
Roads	0.50	1.00
Water bodies	1.00	1.57
Waste land	—	0.25
Fallow land	0.40	—
III. Reserved land (Rakhita)		
Beach sand	2.00	—
Pastures	—	2.50
Total	23.88	67.17

Rice (*Oryza sativa*) and finger millet (*Eleusine coracana*) are grown in wetland and rainfed land while plantations are raised on dry land (Padar). Finger millet is grown as a second crop in rice fields.

Table 2 : Land holding categories in the village (Area in ha.)

Categories	Number of households	
	Raikatturu	Bandar
Landless	76 (73.8)	138 (71.5)
Less than one ha	22 (21.4)	50 (25.9)
Between 1 & 2 ha	5 (4.8)	3 (1.6)
2.5 ha and above	—	2 (1.0)
Total	103	193

Process of cultivation of rice starts on the onset of monsoon (June-July) and harvesting is done during November - December. Human energy required for cultivation is shared by the family members. Except ploughing, females participate in all agricultural operations such as weeding, transplanting, harvesting, transporting, threshing, etc. The *Nolias* usually do not use chemical fertilizer and organic manure in the field.

Livestock Subsystem

Mostly sheep and goats are reared for sacrifice before the deities and to meet the mutton requirement. Raikatturu had no cattle during the study period, while Bandar had 7

bullocks, 5 cows and 15 calves belonging to 3 households. Poultry birds and ducks are also maintained by scavenging within the village boundary. Swines are also domesticated in some Nolia villages.

The cattle population largely depend upon stall-fed fodder and paddy straw. The only small piece of pasture land in Bandar is highly degraded due to overgrazing.

Fish Economy

Fishing is a traditional occupation of the Nolias. It is highly labour intensive and hence a male domain. Children and women supplement their labour for various activities associated with fishing such as carrying food to the beach, making dry fish, selling fish in the villages and markets. Fishing is carried out always in groups of people of same family or of different families.

The mean annual *per capita* income of the fishing member from fishing was Rs. 4607. About 77% of the total annual income of the family comes from fishing.

The traditional crafts used for fishing include wooden boats (called 'tepa') and nylon nets of different sizes. Generally the boats are of two types - small (2-man capacity) and large boats (4-man capacity). Sometimes large boats (8-10 man capacity) are also used.

Net fishing is the common method. Various types of drag nets and gill nets are used for fishing. The fishermen were involved in fishing for 191 days during the study year, 1989-1990. On stormy days they do not go for fishing into the sea. The average fishing time per day was 9.4 hours. However, it varies in different seasons. The mean daily catch of the two villages was maximum during the summer (918.5 kg) and minimum in the monsoon (692.2 kg). Fishing efficiency (kg/hour) was 86.4 for both the villages.

Fish marketing is another important aspect of the fish economy. It is dominated by the middleman traders. They exploit the fishermen by advancing money at the time of their need on interest basis. Due to this practice, it is binding on the part of the Nolias to sale their catch

to the traders at a cheap rate. Larger proportion of their catch is marketed and only a small fraction is used by them.

Significant human energy input occurs in various fishing activities, such as, catching, repairing of boats and nets, selling fish on the beach and in distant villages, processing dry fish and carrying food to the beach. The average time spent (percentage of the total human hours per year) in various operations was 85.7% by men, 11.2% by women, and 3.1% by children.

In the present state of depleting fish resources, despite its low economic return, the landless poor and small farm households with their surplus labour force and low opportunity cost readily accept this low pay-off activity. The Nolias are in a state of losing their livelihood due to depletion of resources and rising living expectations.

CONCLUSION

In view of the resource constraints and difficulties in conservation and management of village resource-base, sustainable development of the area involves some infrastructural components such as, generating energy from a wider range of renewable sources. The only place where growing demand can be met is by improving the scope of marine fishery through technological developments for preservation, food preparation and protein extraction. The fishermen are to be educated and trained for application of available technology in their traditional crafts for increased harvesting without limiting the production of resources.

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