

SOCIO-ECONOMIC SURVEY OF FISHERMEN ENGAGED IN THE LIME SHELL FISHERIES - A CASE STUDY

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Along the Indian coast line, at some localised centres such as the Kakinada Bay, the molluscan shellfish forms sustenance fisheries of considerable magnitude. As a case study on socio-economics, Balusutippa, a major lime-shell fishing village situated 48 km from Kakinada, was selected and a survey was conducted in March 1978.

PRESENT STATUS OF THE LIMESHELL FISHERIES OF THE KAKINADA BAY

Information on various aspects of these fisheries is available in the works of Narasimham (1969, 1972 and 1973). Only the salient features, incorporating the recent changes in the pattern of these fisheries, are given here. The Kakinada Bay has a water spread of 132 sq. km

and is generally characterised by soft muddy bottom with good amount of silt. The total area fished for molluscs is 100 sq. km, confined mostly to a maximum of 4 m depth, with practically no fishing in the deeper northern section.

Fishermen residing in 15 villages (Table 1) fish in the Bay for the lime-shell. Since majority of the fishing villages are located beyond 20 km from the fishing grounds, the fishermen move with their families along with provisions and drinking water in a boat. After fishing for 4-5 h during low tide in the Bay they move to the mouth of a river or irrigation canal which forms a base camp where they unload the catch on the bank. They stay the nights in the boats and conduct continuous fishing from the base camp for a month or two. Usually they break the

TABLE 1

*Fishing villages, fishermen population and craft engaged in the
lime-shell fisheries of the Kakinada Bay.*

Name of village	No. of Navas	No. of Shoe donis	No. of fishermen full time	families engaged part time	No. of batties
Dummulapeta	10	—	5	20	—
Yetimoga	20	—	10	35	23
Putrayapakalu (inhabited in Nov-May only)	4	—	—	10	—
Boddu Chinna	—	3	—	8	—
Venkataipalem lakshmi pathi puram	—	75	—	20	—
Gakimoga	—	10	10	18	14
Tirthalamondi	—	15	8	33	—
Bhairavipalem	—	10	6	21	—
Girijampeta	—	4	—	8	—
Yerragaruvu	—	62	81	38	23
Balusutippa	—	134	32	270	12
Kothapalem	—	3	—	10	—
Mulletimoga	—	17	13	32	5
Masanitippa	—	2	—	8	—
Neellarevu	—	3	—	10	—
	34	268	165	541	77

fishing on Fridays to get provisions from Kakinada. The entire family, including women and children, partakes in fishing, which is by hand picking, without any diving aids. Fishing is conducted throughout the year with peak landings in January-May.

A dozen species of molluscs, namely *Placenta placenta* (Linnaeus), *Anadara granosa* (Linnaeus), *Meretrix meretrix* (Linnaeus), *Katelysia opima* (Gmelin), *Paphia malabarica* (Chemnitz), *Donax cuneatus*, (Linnaeus), *Umbonium vestiarium* (Linnaeus), *Cerithidia* spp, *Hemifusus pugilinus* (Born), *Telescopium telescopium* (Linnaeus), *Natica* spp and *Turitella* spp constitute the lime shell fishery of the bay. The catch is almost exclusively used for burning into lime in kilns, locally known as *batties*. The estimated landings in 1977 show that the windowpane oyster *P. placenta* ranked first with a production of 5,000 tonnes (valued at Rs. 2,50,000), followed by the blood-clam *A. granosa* with 1,000 tonnes (valued at Rs. 1,00,000). Other molluscs accounted for a catch of 2,000 tonnes valued at Rs. 1,50,000. The value of the lime-shell increases further when converted into lime. Until recently the State Government annually realised about Rs. 7000 by issuing licence for about 300 boats to fish for the molluscs in the Kakinada Bay.

A total of 302 fishing craft comprising 34 Navas and 268 shoe-donies are deployed in these fisheries. Among them, 240 are used in fishing while the remaining 62 are utilised in the transport of lime-shell to the *batties* and for the transport of the lime to marketing centres at Kakinada and Rajahmundry in the East Godavari District, Narsapur, Bhimavaram Palakollu, Tadepalligudem and Eluru in the West Godavari District and Gannavaram and Vijayawada in the Krishna District.

Out of a total of 706 families in the 15 villages (Table 1), 165 are employed full time either in fishing for the molluscs or in lime preparation and its marketing. The remaining 541 families are engaged part time during January-May in the lime-shell fisheries; they pursue prawn fishing during June-December. Yetimoga, Gadimoga, Balusutippa and Mulletimoga are both fishing and lime manufacturing villages while Yerragaruvu is exclusively a lime producing village.

SOCIO-ECONOMIC CONDITIONS OF THE FISHERMEN AT BALUSUTIPPA

Balusutippa is essentially, a backwater fishing village with little marine fishing activity, and has a population of over 5,000; about 90% of them live on fishing. The economy of the village is mainly dependent on the lucrative prawn fisheries while fishing for finfish and the limeshell is secondary.

The present survey showed that there are 32 full time and 270 part time fishermen families dependent on the lime-shell fisheries. As there was considerable disparity in the income between the two groups of families, they are treated separately.

The total population of the full time fishermen is 170 and the average number of person in the family is 5.3. The male female ratio is 1:1.14 and the children (under 12 years) formed 44.7% of the population. Of the 94 adults, 51 persons (54.3%) are self employed; 24 persons (25.5%) work as labourers in shell-fisheries, 9 individuals (9.6%) are employed in vocations other than fisheries and 10 persons (10.7%) are unemployed. Non-powered country crafts are owned by 14 families (43.8%). The boats are in the 2-7 tonnes range, the cost varying from Rs. 2,000-8,000. Twentyseven families (84.4%) live in their own houses and the remaining five families live in rented premises. Majority of the 27 houses (93.7%) are thatched; there are only 2 tiled houses (6.3%). The per capita income per year worked out to Rs. 1850. There was noticeable disparity in the annual income per family; it varied from Rs. 750-4500 and 67% of the families come under Rs. 750-2000 income group. Among the 27 fishermen families having assets such as a house or a boat, the value of assets ranged from Rs. 1,000-14,000; the average value of assets per family being Rs. 4,132. Education is limited to secondary school stage and 25 persons (14.7%) can read and write.

The total population of the fishermen engaged part time in the lime-shell fisheries is 1,620 the average number per family is 6.0. The male female ratio is 1:0.97 and the children constituted 40.7% of the population. Among the 961 adults, 512 (53.3%) are self-employed, 217 (22.6%) are engaged as labourers in the shell-fisheries, 84 (8.7%) are employed in vocations

other than fisheries and the remaining 148 (15.4%) are unemployed. A total of 116 families own 120 boats which are in the 2-12 tonne range their cost varies from Rs. 2,000-11,000. However majority of them are in 3-5 tonne range. Majority of families (90%) have own houses. There are 203 thatched houses (85.2%) and 40 tiled houses. The annual per capita income is Rs. 434 and the income per family; is Rs. 2602. There is significant variation in the annual income per family; it ranged from Rs.1,000 to 7,200 and 44.1% of the families earn income between Rs. 1,000-2,000. Survey of the 234 families possessing assets like house or boat showed that the value of assets ranged from Rs.1,000-22,000; the average assets per family is Rs. 4961. There are 313 literate persons (19.7%) and among them 5 studied in the high school and one went to a college.

A comparison of the status of full time and part time lime-shell fishers shows that relatively the latter are financially better off. This is because the part time fishers have traditional rights to fish in the creeks close to Balsutippa for prawns and others are forbidden to fish in these areas by age-old social custom.

There are some common features between the two types of fishermen. About 90% of them claimed to have debts which varied from Rs.200-3,000. The most common reason offered for incurring the debts is to meet the day to day expenses of the family. All the loans are private loans from relatives and the interest rate varied from Rs. 24-36% per annum. The pattern of expenditure shows that about 40% of the income is spent on food, 20% on entertainment, 15% on repayment of principal/interest, 10% on clothing and the rest on miscellaneous items. The boats are sturdy and last 10-20 years requiring very little maintenance. While unemployment is only 10-15% of the adult population, underemployment is perturbing.

STRATEGY TO IMPROVE THE ECONOMIC CONDITION OF THE LIME-SHELL FISHERS

The foregoing study clearly shows that the lime-shell fishers are backward, mostly illiterate and live at poverty level. It was observed that there are many constraints inherent in the present system which impede the progress. These are identified and the remedial measures are suggested below.

Chronic indebtedness is a common feature

among the fishermen and the remedy lies in making available institutionalised credit facility. The credit rules should be liberal and flexible to suit the local conditions.

At present the marketing of lime is in the hands of middleman and the fishermen are not getting remunerative price for the produce. There is need to organise the marketing of lime, by eliminating the middleman and associating the fishermen with it so that price stability of the lime can be ensured and profits accrue to the fishermen.

The lime-shell catches for the last decade are generally static. Recent studies by Murty *et al.* (MS) estimated the window-pane oyster resource of the Kaiknada Bay at 51,000 tonnes. Since the present production is only of the order of 5,000 tonnes there is scope to step up production by deploying more fishermen which would result in additional employment.

At present none of these shell fishes are eaten locally except for the occasional medicinal use of the blood-clam. In the Philippines, the meat of the window-pane oyster is used in the preparation of several dishes. The protein content of this oyster varies from 42.0-63.8% on dry weight basis (Sarvaiya, 1977). Better prices could be obtained for the shellfishes if they are used for edible purposes, besides the present use of the shells in lime industry.

At present pearls are not extracted from the windowpane oysters. These pearls are used in indigenous medicine and are priced at Rs. 5,000 per kg (Varghese, 1976). A recent study (Murty, 1978) has shown that 26.2% of the windowpane oyster population in the Kakinada Bay produces natural pearls. Extraction of pearls from the oysters before burning them into lime would augment the income of the fishermen.

The blood-clams are extensively cultured for their food value in China, Japan, Philippines, Thailand, Malaysia and Borneo (Cahn 1951; Pathansali and Soong, 1958). Culture of these molluscs using simple techniques would help increase production and provide gainful employment to the fishermen.

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