

Survey on the Idle Capacity of Fish Processing (Freezing) Plants in India - II - East Coast

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The extent of idle capacity in the fish processing (freezing) plants in the east coast of India estimated by stratified random sampling and the factors responsible for the same are reported. The estimates of idle capacity of fish processing plants in the east coast for the years 1978 and 1979 were respectively 75.9% and 72.5% on the basis of 250 working days per annum and double shift per day. The percentage errors of estimates worked out to 6.9 for 1978 and 4.7 for 1979. The corresponding figures were worked out on the basis of 200 working days also. Substantial under-utilisation of plants in all the maritime states in the east coast accounted mainly to non-availability of raw material, high cost of production, shortage of power, scarcity of ice and potable water during peak season and frequent labour troubles.

The total coast line of the maritime states in the east coast of India comprising the states of Tamil Nadu, Andhra Pradesh, Orissa and West Bengal is about 2650 km, 47% of the total coast line of India (Anon, 1978). The penaeid prawn landings in the east coast were estimated at 22.8 thousand tonnes in 1979 (Anon, 1979), which formed nearly 20% of the total penaeid prawn landings in India. Freezing of prawns for export started as early as 1968 (Anon, 1978) in this coast. Prior to this period, prawns from Tamil Nadu and Andhra Pradesh were transported to neighbouring states by rail and road. The vast potentiality of raw material, especially bigger sized prawns in this coast and the increased transportation charges over years, paved the way for the establishment of fish processing (freezing) plants in the east coast. In the beginning of 1969 there were hardly a couple of fish processing plants with an annual installed capacity of about six thousand tonnes. Gradually, more and more plants came into existence, and in the beginning of 1979 there were about 94 fish processing plants engaged in freezing of prawns, froglegs and lobster tails. The total installed capacity of these plants was about 120.5 thousand tonnes per year (250 working days in 3 shifts) and the annual production was nearly 22.3 thousand tonnes in 1979. Since these plants depend mostly on seasonal prawn catch,

there is every reason to suspect the existence of large idle capacity in plants in this coast. To estimate the extent of idle capacity of the plants and also to identify the causative factors, a survey was conducted during 1980, covering all the maritime states in India. The chief findings of the survey of the east coast states of India are reported in this paper.

Materials and Methods

To estimate the idle capacity of the fish processing plants in India, a stratified random sampling plan was adopted, the strata being freezing plants of under 5 tonnes, 5 to 10 tonnes and above 10 tonnes capacity per day. Allowing a marginal error of 20% on the installed capacity at all India level, 45 freezing plants were sampled, out of a total of 94 on the east coast. Data from the sampled plants were collected through personal interviews for the years 1978 and 1979 as per the proforma prepared for the study. The idle capacity of each sampled plant was worked out by taking the difference between the installed capacity and actual production during the year for single, double and triple shifts for 200 and 250 working days per year. However, under practical conditions, 250 working days per year can be considered to be normal with respect to many organised

industries (Mensinkai, 1969). The idle capacity of the plants in each stratum was estimated first and pooling the stratum estimates at respective levels, the estimates for the states and the east coast as a whole were obtained. The formulae used for the estimation were the same as those described in an earlier communication (Krishna Iyer *et al.*, 1981).

Results and Discussion

The estimates of installed capacity, idle capacity and the percentage error of estimates worked out for single, double and triple shifts by taking 200 and 250 normal working days in a year for 1978 and 1979 are presented in Table 1. The stratum wise and statewide idle capacities for east coast are furnished in Table 2.

Tamil Nadu

Tamil Nadu, one of the important maritime states in the east coast of India has a coast line of about 998 km. Though dry fish export flourished in the state for more than a century, freezing of prawn for export started only in late 1968. The first freezing plant was started in this state some time in 1968 with a daily production of 5 tonnes. As exportable variety of prawn was available in plenty in this state and consequently more and more freezing plants came into existence, so that at the beginning of 1979 there were about 44 freezing plants. Out of these, 21 plants were sampled for estimating the idle capacity, 14 from under 5 tonnes, 5 from 5 to 10 tonnes and 2 from above 10 tonnes daily capacity. The installed capacity of all the plants in the state during 1978 and 1979 for double shift and 250 working days in a year was estimated to be 39.4 and 38.5 thousand tonnes respectively while the actual production estimates were 12.0 and 13.7 thousand tonnes. The idle capacity of the plants for 1978 and 1979 for double shift and 250 working days in a year was estimated at 69.4% and 64.5% and the corresponding triple shift figures were 79.6% and 76.0% (Table 1). Compared to other east coast states, the idle capacity is found to be less in this state. Among different strata (Table 2), plants under 5 tonnes daily capacity had less idle capacity than those in 5 to 10 tonnes

and above 10 tonnes capacity per day, in all the 3 shifts, both for 200 and 250 working days in a year for 1978 and 1979. Under 5 tonnes capacity range, the percentage idle capacity for single, double and triple shifts were 21.1, 60.6 and 73.7 in 1978 and 21.8, 60.9 and 73.9 in 1979 respectively when 250 working days in a year were taken. These figures are less than the east coast estimates for plants under 5 tonnes for the three shifts, 51%, 75.5% and 83.7% in 1978 and 44.6%, 72.3% and 81.5% in 1979 respectively. Compared to 1978, the capacity utilisation has slightly increased during 1979. The main factors contributing to the idle capacity of plants in this state were non-availability of raw material, shortage of power and high cost of production. The percentage errors of estimates of idle capacity for 1978 and 1979 with double shift and 250 working days were 15.5 and 9.8 and for triple shifts the corresponding figures were 12.8 and 7.8 respectively.

Andhra Pradesh

Next to Tamil Nadu, Andhra Pradesh has the longest coast line (970 km) on the east coast. Freezing of prawns for export was started in this state as early as 1972. Prior to this, major portion of the prawn landings was transported to neighbouring states, where it was processed and exported. In the beginning of 1979, there were hardly 15 fish processing plants engaged in freezing of prawns, lobster tails and froglegs. 8 plants were sampled for estimating the idle capacity, 4 from under 5 tonnes, 4 from 5 to 10 tonnes capacity per day. There were no plants above 10 tonnes capacity in this state during the survey period. The installed capacity of all the plants in 1979 for double and triple shifts for 250 working days in a year were 12.6 thousand tonnes and 18.9 thousand tonnes respectively, (Table 1), and the estimated production during the year was 3.8 thousand tonnes. The idle capacity of the plants for double shift and for 250 working days in a year for 1978 and 1979 was 77% and 70.1% respectively while the corresponding figures for triple shifts were 84.7% and 80.1%. Though there existed substantial idle capacity of plants in both double and triple shifts, they were less, compared to the east coast figures of 1979. The stratum wise idle capacity

Table 1. Annual installed capacity and the rate of unutilised capacity (in '000 tonnes of frozen fishery products) in 1978 and 1979 for the states in the east coast of India

	Single shift				Double shift				Triple shift			
	200 days		250 days		200 days		250 days		200 days		250 days	
	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979	1978	1979
Tamil Nadu												
a) Annual installed capacity	15.8	15.4	19.7	19.3	31.6	30.8	39.4	38.5	47.3	46.2	59.2	57.8
b) Estimated idle capacity	3.7	1.9	7.6	5.6	19.8	17.1	27.4	24.8	35.3	32.5	47.1	43.9
c) % idle capacity	23.4	12.3	38.7	29.1	62.7	55.7	69.4	64.5	74.5	70.5	79.6	76.0
d) % error of the estimate	61.0	77.5	33.5	28.7	18.0	12.1	15.5	9.8	14.0	8.6	12.8	7.8
Andhra Pradesh												
a) Annual installed capacity	5.0	5.0	6.3	6.3	10.0	10.1	12.6	12.6	15.1	15.1	18.8	18.9
b) Estimated idle capacity	2.1	1.3	3.4	2.5	7.2	6.3	9.7	8.8	12.2	11.4	15.9	15.1
c) % idle capacity	42.4	25.2	53.9	40.1	71.2	62.6	77.0	70.1	80.8	75.1	84.7	80.1
d) % error of the estimate	11.0	34.5	5.6	17.5	0.8	7.5	0.5	5.7	1.2	4.8	1.8	4.1
West Bengal												
a) Annual installed capacity	12.8	11.7	16.0	14.6	25.5	23.4	31.9	29.2	38.3	35.1	47.9	43.8
b) Estimated idle capacity	7.5	7.0	10.7	9.9	20.3	18.7	26.6	24.5	33.0	30.4	42.6	39.2
c) % idle capacity	58.7	60.0	67.0	68.0	79.3	80.0	83.5	84.0	86.2	86.7	89.0	89.3
d) % error of the estimate	7.3	5.7	6.0	5.1	4.8	4.6	4.6	4.5	4.4	4.4	4.4	4.4
East coast												
a) Annual installed capacity	33.6	32.1	42.0	40.2	67.1	64.3	83.9	80.3	100.7	96.4	125.9	120.5
b) Estimated idle capacity	13.3	10.2	21.7	18.1	47.2	42.2	63.7	58.2	80.5	74.3	105.6	98.2
c) % idle capacity	39.7	31.6	51.7	45.0	70.3	65.6	75.9	72.5	79.9	77.1	83.9	81.5
d) % error of the estimate	17.5	15.5	12.2	9.6	7.8	5.5	6.9	4.7	6.4	4.2	6.0	3.9

Table 2. *Percentage idle capacity in different strata of each state in the east coast of India for 1978 and 1979*

	Shifts	1978						1979					
		200 days			250 days			200 days			250 days		
		U/5	5/10	10 up	U/5	5/10	10 up	U/5	5/10	10 up	U/5	5/10	10 up
Tamil Nadu	I	1.4	57.8	14.3	21.1	66.2	31.5	4.3	11.2	28.9	21.8	28.9	43.1
	II	53.0	78.9	57.2	60.6	83.1	65.1	51.1	55.6	64.5	60.9	64.5	71.6
	III	67.1	85.9	71.5	73.7	88.7	77.2	67.4	70.4	76.3	73.9	75.3	81.0
Andhra Pradesh	I	53.2	27.8	—	62.6	42.2	—	33.7	12.7	—	47.0	30.1	—
	II	76.6	63.9	—	81.3	71.1	—	66.9	56.3	—	73.5	65.1	—
	III	84.4	75.9	—	87.5	80.7	—	77.9	70.9	—	82.3	76.7	—
West Bengal & Orissa	I	68.5	63.4	29.9	74.8	70.7	43.9	58.3	64.4	60.6	66.6	71.6	68.5
	II	84.3	81.7	65.0	87.4	85.4	72.0	79.1	82.2	80.3	83.3	85.8	84.2
	III	89.5	87.8	76.6	91.6	90.2	81.3	86.1	88.2	86.9	88.9	90.5	89.5
East coast	I	38.8	53.0	21.3	51.0	62.4	37.0	31.6	24.1	42.6	44.6	39.3	54.1
	II	70.3	76.5	60.6	75.5	81.2	68.5	65.4	62.1	71.3	72.3	69.7	77.0
	III	79.6	84.3	73.8	83.7	87.5	79.0	76.9	74.7	80.9	81.5	79.2	84.7

of the plants (Table 2) showed that, idle capacity was comparatively less in plants of 5-10 tonnes capacity per day. The figures on the basis of 250 working days in a year for single, double and triple shifts were 42.2%, 71.1% and 80.7% respectively in 1978 and 30.1%, 65.1% and 76.7% respectively in 1979. Also the stratum wise estimates of idle capacity of plants in 5-10 tonnes capacity range were less compared to the corresponding figures for the east coast in 1979; the figures for single, double and triple shifts with 250 working days were 39.3%, 69.7% and 79.2% respectively. Compared to 1978, there were improvements in capacity utilisation in 1979 due to improved prawn landings and freezing of cuttle fish and lobster tails. The major factors responsible for the underutilisation of plants in the state were, shortage and high cost of raw material (prawns) for processing and shortage of power. The percentage errors of estimates worked out for 1978 and 1979 for double shift with 250 working days in a year were 0.5 and 5.7 and for triple shifts these figures were 1.8 and 4.1 respectively.

West Bengal and Orissa

The states of West Bengal and Orissa have a combined coast line of about 680 km of which 200 km are in West Bengal. Freezing of prawns for export started here in 1971. During 1979, there were 35 freezing plants of which 11 were in Orissa. A sample of 16 plants was selected for estimating the idle capacity of which 11 were under 5 tonnes, 2 were 5 to 10 tonnes and 3 were above 10 tonnes capacity per day. The estimated installed capacity of all the plants in these two states with double shift and 250 working days in a year was 31.9 and 29.2 thousand tonnes during 1978 and 1979 respectively while the estimated production for these two years was respectively 5.3 and 4.7 thousand tonnes (Table 1). The estimated idle capacity of the plants for 1978 and 1979 with double shift and 250 working days in a year was 83.5% and 84.0% respectively and for triple shift the corresponding figures were 89% and 89.3% respectively. Among the east coast states idle capacity was maximum in West Bengal and Orissa in all the 3 shifts and in both the years. The stratum wise figures for

idle capacity (Table 2) showed that for plants under 5 tonnes daily capacity, the percentage of idle capacity for single, double and triple shifts were respectively 74.8, 87.4 and 91.6 in 1978 and 66.6, 83.3 and 88.9 in 1979 for 250 working days. These figures were comparatively larger than the east coast figures for the 3 shifts, 51.0%, 75.5% and 83.7% in 1978 and 44.6%, 72.3% and 81.5% in 1979. In plants of 5-10 tonnes capacity range, the percentage idle capacity remained more or less the same in both the years. For the plants above 10 tonnes capacity range, the percentage idle capacity was more in 1979 compared to 1978 in all the three shifts. The major factors contributing to the large idle capacity of the plants in these states were (1) non-availability of raw material (2) power shortage (3) labour problems and (4) high cost of production. The errors of estimates of idle capacity for double shift with 250 working days for 1978 and 1979 were respectively 4.6% and 4.5%.

It is evident from the foregoing discussion that there existed a considerable amount of idle capacity in the fish processing plants in the east coast of India. The idle capacity estimated for the plants in the east coast on the basis of 250 working days with double shift per day during 1978 and 1979 was respectively 75.9% and 72.5% and for triple shift these figures were respectively 83.9% and 81.5%. The percentage errors of estimates of idle capacity for double shift with 250 working days in 1978 and 1979 were 6.9 and 4.7 respectively and for triple shifts they were 6.0 and 3.9 respectively, indicating that the sampling errors are within usual limits.

The factors responsible for the large idle capacity of plants in east coast are listed in Table 3. It may be noted that non-availability of raw material was the prime factor responsible for the substantial under utilisation of plants in this coast. Shortage of power, high cost of production, shortage of ice and potable water during peak season and labour problems were other major factors contributing to the under utilisation of plants.

Table 3. *Factors responsible for under-utilisation of plants in the east coast of India*

Factors	% of processors reported the factor in the sample
Non-availability of raw material	82.2
Power shortage	62.2
High cost of production	53.3
Shortage of ice during peak season	24.4
Labour problems	20.0
Shortage of potable water during peak season	15.6
Lack of transport facilities	13.3
Lack of cold storage facilities	4.4
Unsteady foreign market	4.4
Competition of processors from other states in procuring the raw material	4.4
Lack of technical hands	2.2

Based on the findings of the survey, following are a few recommendations which may help to reduce the idle capacity of fish processing plants in this coast.

- Promoting mass aquaculture of prawns to meet the raw material shortage.
- Exploration of new prawn grounds and introduction of more and more deep sea fishing trawlers to boost up prawn catch.
- Subsidy on diesel oil to all classes of fishing vessels
- Diversification of products
- Steady supply of power
- Abolition of purchase tax on raw material
- Check on movement of raw material from one state to the other
- Control on issuing licence to new entrepreneurs
- Improved shipping facilities
- Liberalisation on financial assistance/subsidy to processors
- Improving cold storage facilities
- Fixing a floor price for fishery products

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