

# Raw Material Purchase Pattern in Seafood Plants in Kerala

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Inadequate and irregular supply of raw materials are the foremost problems faced by the processing plants in India. A study has been carried out on the purchase pattern of raw materials to assess the situation in the seafood plants of Kerala, during 1983-84. 50% of the processing plants are located within one km from the main landing centre in a region. 82% of the plants have their own transportation facilities. 64% of the plants in Cochin region took 4 to 6 h for bringing the raw materials to the plants after purchase. This was between 6 and 8 h in Kollam region. In all the plants, the main item of purchase was confined to shrimps. The raw material purchases in all the plants were far below the installed capacity. In 39% of the working days, the plants selected for the study had no purchase or production during the study period.

The main constraint faced by the processors in the seafood industry is the inadequate and irregular supply of raw materials. Unlike in other industries, the raw materials cannot be purchased and stored for a long time due to its short shelf-life. This, along with wide fluctuation in shrimp landings and tough competition, makes purchasing the most critical function in seafood industry. Improper management in the purchase and transportation of raw materials will lead to loss of quality. Iyer *et al.* (1981, 1982, 1985) have surveyed the fish processing (freezing) plants of the west and east coasts of India to estimate the capacity utilization of these plants. As per their study, during 1978-79 period, the capacity utilization in Kerala was only 17%.

## Materials and Methods

Seafood processing plants in Kerala are located at Cochin, Kollam, Alapuzha, Kozhikode and Kannur. Cochin region has 60% and Kollam region 20% of the total of about 90 fish freezing plants in Kerala. 15 plants from Cochin region and 6 plants from Kollam region were randomly selected for

detailed study on (1) distance of fish processing plants from main landing centre, (2) raw material sources, (3) mode of procurement (4) means of transportation and (5) time lag between purchase of raw materials and their arrival at the processing plants.

Four plants in Cochin region were selected at random to conduct detailed study on the raw material arrival and/or purchase pattern. Data on the raw material procurement pattern and the quantity arrived in these plants on 5, 10, 15, 20, 25 and 30th of every month were collected for a period of 2 years (1983 - 84).

## Results and Discussion

Table 1 gives the frequency distribution of seafood processing plant with respect to distance from the main landing centres. In Cochin region 93% of the processing plants and in Kollam region all the processing plants are within 10 km from the main fish landing centre.

Percentage of processing plants in Cochin and Kollam regions which are

Table 1. *Frequency distribution of seafood processing plants with respect to distance from main landing centre*

| Distance range       | Cochin, % | Kollam, % |
|----------------------|-----------|-----------|
| Within one km        | 33.0      | 67.0      |
| Between 1 and 10 km  | 60.0      | 33.0      |
| Between 10 and 25 km | 7.0       | -         |

receiving raw materials from different landing centres are shown in Table 2. Seventy-eight percent of the plants received raw materials from Ambalapuzha-Neendakara coastal belt and only 13.5% of the plants collect raw materials from Mangalore, Thiruchandur and Tuticorin.

Table 2. *The percentage of processing plants in Cochin and Kollam regions which are receiving raw materials from different landing centres*

| Main landing centres    | Cochin | Kollam |
|-------------------------|--------|--------|
| Cochin Fishing Harbour  | 50.0   | 33.0   |
| Ambalapuzha-Neendakara  | 90.0   | 66.0   |
| Neendakara-Kovalam      | 80.0   | 66.0   |
| Kalikavilai-Kanyakumari | 20.0   | 66.0   |
| Aroor-Ambalapuzha       | 80.0   | 50.0   |
| Vypeen Island           | 10.0   | 17.0   |
| Tuticorin & Mandapam    | 10.0   | 17.0   |
| Thiruchandur            | 10.0   | 17.0   |
| Mangalore               | 10.0   | 17.0   |
| Kozhikode-Mangalore     | 40.0   | 17.0   |
| Others                  | 80.0   | 50.0   |

The percentage of processing plants which are using different modes of raw material procurement and different means of raw materials transportation are given in Tables 3 and 4 respectively. About 80% of the plants studied, procured their raw material only after obtaining the purchase order from the buyers abroad. At times, some companies bought raw materials

directly from the landing centre in lots which were peeled at their own peeling sheds or at the peeling sheds arranged on lease or rent. 82% of the processing plants collected raw materials either by their own insulated trucks or through hired insulated vehicles. Only 12.5% of the plants received raw materials by boats or traditional crafts.

Table 3. *The percentage of processing plants in Cochin and Kollam regions which are using different modes of raw materials procurement.*

| Mode of procurement                                      | Cochin, % | Kollam, % |
|----------------------------------------------------------|-----------|-----------|
| By auction through agents                                | 70.0      | 75.0      |
| By contract                                              | 20.0      | 25.0      |
| By direct purchase                                       | 80.0      | 50.0      |
| Partially from their own boats and partially from agents | -         | 25.0      |
| Through own depots at the landing centres                | 20.0      | 75.0      |

Table 4. *The percentage of processing plants in Cochin and Kollam regions which are using different means of transport for raw material transportation*

| Means of transportation                | Cochin, % | Kollam, % |
|----------------------------------------|-----------|-----------|
| Own insulated vehicle & hired vehicles | 89.0      | 75.0      |
| Hired insulated truck alone            | 11.0      | 25.0      |
| Own insulated trucks alone             | -         | -         |
| Own open trucks                        | 11.0      | 50.0      |
| Own autorickshaw                       | 22.0      | 25.0      |
| By boat                                | -         | 25.0      |
| Door delivery by suppliers             | 78.0      | 100.0     |

Time lag observed between procurement of raw materials and their arrivals at the processing plants in Cochin and Kollam regions are presented in Table 5. 64% of the plants in Cochin had an average time lag 4 to 6 h between raw material purchase and its arrival at the processing plants. The

Table 5. *Time lag for raw material procurement - percentage frequency distribution of factories*

| Time lag between purchase and arrival at the factory | Cochin, % | Kollam, % |
|------------------------------------------------------|-----------|-----------|
| upto 2 h                                             | -         | -         |
| Between 2 and 4 h                                    | 18.0      | -         |
| Between 4 and 6 h                                    | 64.0      | -         |
| Between 6 and 8 h                                    | 18.0      | 100.0     |

time lag observed in plants at Kollam region was between 6 and 8 h. None of the plants had an average time lag beyond 8 h.

Daily purchase pattern of raw materials in 4 randomly selected processing plants during a period of 2 years was studied. It was observed that, when a plant had peak arrival of raw material on a particular day, some other plants in the same locality had no arrival of raw material at all. In all the plants, the main item of purchase was confined to shrimp and the quantity of raw material purchased was far below the daily requirements. In one plant, out of the total

working days, only 0.72% of the days it received sufficient quantity of raw materials for the full utilization of freezer capacity and in another plant it was 4.4%. In the remaining plants, the raw materials purchase on all days was far below the requirement.

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