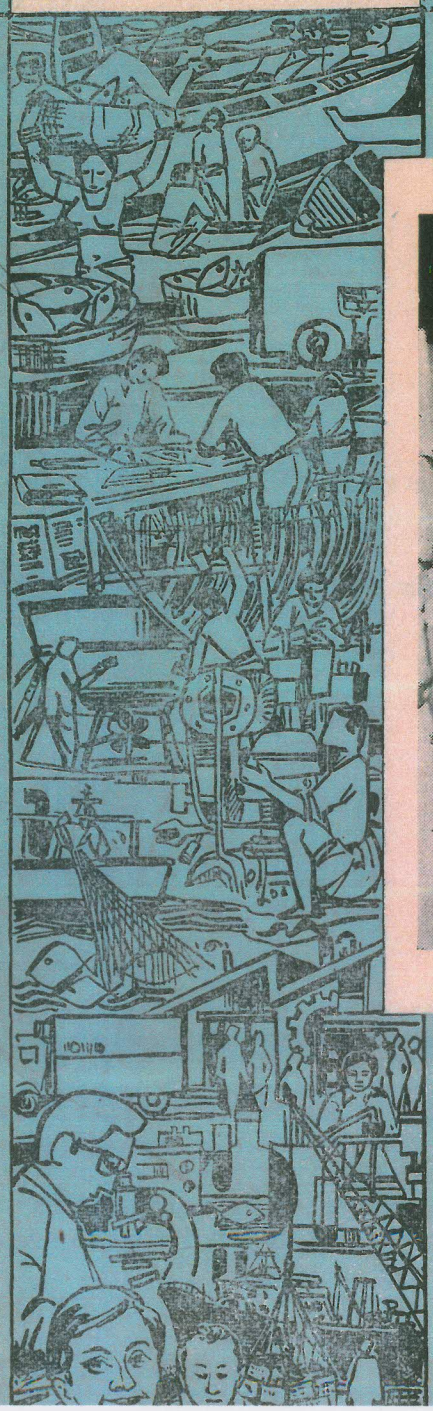
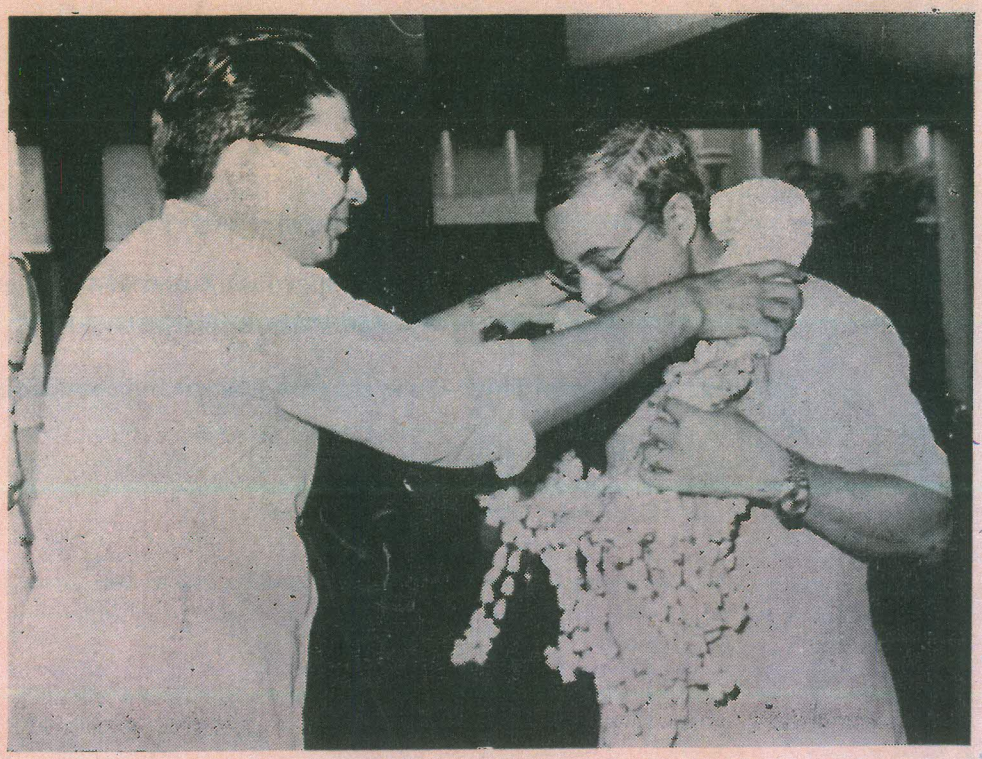
Fish technology newsletter

Vol. III No. 9 JULY–SEPTEMBER 1983





Mr. Abdul Gayoom, His excellency the President of Maldive, visited CIFT on September 11, 1983. He is being garlanded by Dr. R. M. Acharya, Deputy Director General of ICAR — Report on page 4.

CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY
MATSYAPURI P. O. COCHIN - 682 029

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Foreword

Fish Technology Newsletter is a quarterly intended to bring the fishery industry in India in touch with some of the important developments in fisheries technology resulting from investigations carried out at this Institute and elsewhere. It is not a research publication. Every effort has been earnestly made to express the ideas in non-scientific language. Its ultimate aim is the application of the results of contemporary research for the advancement of our fishery industry.

Fish Technology Newsletter does not owe allegiance to any manufacturer, patent, product or development agency unless otherwise specified. Its purpose is to open up a communication channel through which useful ideas can be exchanged, problems discussed and success shared. The process of exchanging views and opinions makes it easier to identify the real issues and that is where problem-solving begins.

We welcome contributions from any source which will help to achieve our above-mentioned aim, The sources of all such contributions will be acknowledged. We sincerely hope that the current events and informations contained in the columns "GLEANINGS FROM OTHER JOURNALS" and "LET'S TALK IT OVER" will be of interest to the Indian fishing and fish processing industries.

We also welcome suggestions from our readers for improvement in the contents and get-up of Newsletter. Any part of this publication may be reprinted in any language if the translation is true and the source is acknowledged.

Abbreviation: Fishtech News

Editorial Committee.

Maldive President Visits CIFT

As part of his one-week state visit, His Excellency Mr. Abhdul Gayoom, the President of Maldive, visited CIFT on September 11, 1983. Mr. Gayoom was accompanied by his wife and a seven-member high-powered delegation, which included Mr. Fathulla Jameel, Minister for Foreign Affairs and Mr. Ibrahim Shahib, Speaker of Maldivian Majlis.

The President and his party were received by Dr. R. M. Acharya, Deputy Director General (A. S.) of ICAR and Dr. C. C. Panduranga Rao, Director of CIFT.

Madam Gayoom is being received by CIFT Director, Dr. C. C. Panduranga Rao

The Director and Scientists of the Institute described to the visiting dignitary the organisational set-up of CIFT and its research activities. The President envinced keen interest in the research activities undertaken by different divisions of CIFT.

The Visiting President inspects the proto types of mechanised fishing boats designed and developed by CIFT

In the Gear Division, the President was told of the yeoman work done by the Institute in evolving synthetic fish net materials, the quality standards etc. to replace the natural materials traditionally used in India. Having popularised nylon and polythylene twines, the Institute is currently engaged in introducing polypropylene twines which can be conveniently and economically used in place of nylon and polyethylene. The material is very cheap compared to nylon.

Pointing out the fact that the designs of diverse fishing

At the gear section

gear for operations from different classes of vessels of the fishing industry in India, the President was told of the continued efforts being made to improve upon each type of gear. The different types of trawl gear like two-seam, four-seam, six-seam and also purse-seine, lobster traps, gill nets, tuna long lines, line hauler etc. developed and popularised by the Institute, were explained to him.

The efforts being made towards improving upon the efficiency of mechanised fishing vessels in the Engineering Division were also explained. A study pursued presently aims at providing a cover for propeller and evolving a new type of propeller with wide tipped blades, both meant for increasing the thrust and hence the pulling power of the fishing vessel.

In the Craft Division the President was told about the studies made and achievements attained in preserving fishing vessels against marine deterioration, evolving newer type of fishing boat materials like fibreglass – reinforced plastic, ferrocement, treated secondary species of timbers etc. and on the development of antifouling marine paint for fishing boats.

In the Biochemistry and Nutrition Division studies on enzyme systems, proteins and amino acids, lipids are being undertaken, in relation to the spoilage characteristics, nutritional value etc. of different species of fish. The various sophisticated instruments and equipments required for these research investigations include the Atomic absorption spectrophotometer, multiphor electrophoresis system, Auto analyser for amino acids, gas liquid chromatograph etc.

At the Microbiology Lab.

ICAR Regional Panel Meets

The Indian Council of Agricultural Research Regional Committee comprising the states of Kerala, Tamil Nadu, Karnataka, Pondicherry and Lakshadweep met in Cochin on September 12 and 13, 1983.

One of the eight Regional Committees set up by the ICAR in 1975, it consists of fifty one members including the Ministers of Agriculture, Animal Husbandry and Fisheries, Members of Parliament, Vice Chancellors of Agricultural Universities. Heads of Departments and voluntary organisations.

In his introductory remarks, Dr. N. G. Perur, Chairman

In the Electronics and Instrumentation Division, the variety of electronic testing and measuring instruments developed and popularised by the Institute were demonstrated. In the development of electronic instruments, the Institute lends support to other national organisations like the Oil and Natural Gas Commission, Bhabha Atomic Research Centre etc. Instruments like the temperature-salinity meter developed by the Division are in use in some of the Research establishments in India. Of particular importance is the Ocean Tele Lab for measurement of ocean conditions related to the behaviour, migration etc. of fishes. An environmental data acquisition system for automatic acquisition of hydrographic data is also of much application.

In the processing and Packaging Division, the samples of fishery products developed by the Institute were shown to the visitor. Presently, the Institute is engaged in evolving methods for commercial utilization of hitherto unutilized species of fish and shell fish for export markets as well as for internal consumption. Frozen minced meat of low quality fishes, frozen clams, mussel, pickled clams, mussel and oysters, dried squid etc. developed and being produced by the industry assume much importance in the future development of the processing industry in the country. Technology developed for speciality products like fish flakes, soup powder, shark fin rays etc. is being made use of by entrepreneures for large scale preparation.

The Institute formulates quality standards for fish products both for export and domestic markets. Testing of products offered by the industry and constant vigil on the bacterial contamination of fish products due to organism like Clostridium, Salmonella, Vibrio parahemomolyticus etc. are also undertaken.

The Microbiology Division of the Institute undertakes studies on the microbial flora associated with each type of marine and inland water fishes. With the advent of fish culture practices actively pursued in India at present, stress is currently made on the study of bacteriology of the inland water fishes too. The Division maintains typical collections of different types of bacteria, both spoilage and pathogenic.

The President was told about the technical assistance rendered by the Institute to the Government of Maldives in 1975 under the ITEC Programme of the Ministry of External Affairs, Government of India, when a team of Scientists of the Institute was deputed to Maldives for preparation of a study report on the suitability of water available at Feliwarn in Maldives for setting up a fish Cannig plant. The Institute is expecting a visit of the FAO Trainees (Inspectors) from Maldives in the last quarter of this year to acquaint themselves with the activities particularly on the quality control and inspection of fish and fish products. □

Dr. N. G. Perur (third from the left) delivers his introductory remarks

and Vice Chanceller of the University of Agricultural Sciences, Bangalore, pointed out that the most pertinent question before the ICAR Institutes and Agricultural Universities at present was to make an assessment as to how far the research education and training programmes undertaken by them are relevant to the various problems faced by the region.

Dr. Perur expressed concern over the long standing vacancies of various posts in different ICAR Institutes, and requested the ASRB to take immediate steps to fill those vacancies, lest some of the important research projects should be dropped for want of competent hands. "The ICAR should very seriously consider how best the qualified hands can be got."

The Regional Committee reviewed problems of agricultural development particularly in relation to plantation crops, and those of fisheries and livestock research, and the efforts by the Agricultural Universities and the ICAR research institutes.

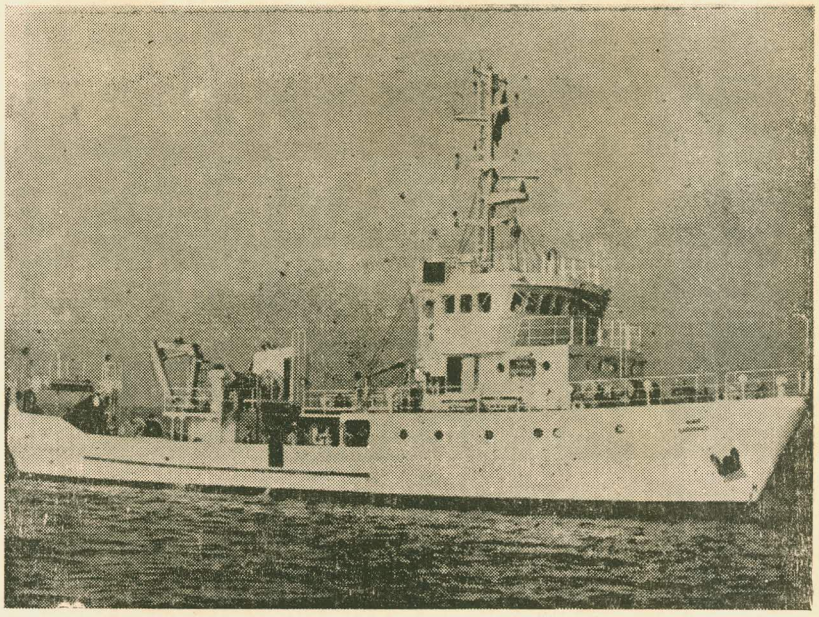
It is reported that an effective system of integrated pestcontrol in cotton has been demonstrated in Tamil Nadu which halved the cost of plant protection cost. The Indian Institute of Horticultural Research, Bangalore, has developed single and multi-disease-resistant varieties of akra beans and peas.

Prawn culture technology, developed by the ICAR Fisheries Institutes, now makes it possible to set up prawn hatcheries and take up prawn culture on a large scale. The Central Institute of Fisheries Education, Bombay, can provide the required training to the staff of the State Fisheries Departments. The ICAR is also undertaking work on the emerging diseases of livestock. A high security disease laboratory is being set up

A view of the committee members

M. V. Saraswati - Training cum Research Vessel

The Central Institute of Fisheries Education (CIFE), Bombay of the I. C. A. R. has acquired a new training-cum-research steel vessel to impart intensive training to the students of the Institute in different fishing operations, onboard hydrobiological data collection and analysis, fresh fish handling and onboard preservation and use of navigational aids. It is a deep sea going single screw vessel with extended forecastle, forward deck-house, rounded fore-stern and transverse stern.



Main dimensions:

LOA	: 36.57 M
Breadth moulded	: 8.00 M
Depth moulded	: 4 40 M
Draught moulded	: 4.40 M
Gross tonnage	: 311 66
Registered tonnage	: 151.95
Cruising speed	: 11.5 Knots
Endurance	: 22 days
Refrigerated hold	: 60M³ net at-30°C
Cruising range	: 5600 nauical miles
Total complement	: 41 persons including crew members.

The vessel was built at the Goa ship yard Ltd. undr the design and direction of the Norwegian Agency for International Development (NORAD) □

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under the Indian Veterinary Research Institute, for this purpose.

The Committee felt that diseases like root-wilt in coconut and yellow-leaf-disease of arecanut, needed immediate attention. The Central Plantation Crops Research Institute, Kasaragod, is already working on most of these problems. ICAR has sanctioned an adhoc scheme for yellow leaf disease, to be implemented at the University of Agricultural Sciences, Bangalore.

The CIFT has developed methods to produce chitosan from prawn shell waste. It is worth while investigating whether chitosan is effective in controlling fungal infections and plant nematodes in plantation crops as some promising results have been obtained in this direction.

Considering the availability of extensive coastal and inland waters, there is scope for increasing duck production both for meat and egg. The ICAR has sanctioned research schemes for improving meat and egg production in duck to be implemented by Karnataka and Kerala Universities. The Regional Committee recommended that research on other aspects of production especially nutrition and health of ducks should be taken up by the Agricultural Universities in the region. □

Model Layout of a Fish Processing Plant*

Even though several methods of preservation have been employed such as dehydration, curing, canning, freezing etc., the freezing preservation of fish has been more popular because the frozen product is subject to least change of quality and shape compared to all other methods of preservation. Of the total export of marine products from our country the frozen products constitute more than 70%.

There are several fish freezing plants of different capacities in our country, and it cannot be said that they are all designed properly. Depending upon the availability of land and the machinery, fish freezing plants with cold storage facilities have been set up. Several requests are received by the CIFT to prepare and supply designs or lay out of a fish freezing plant. After studying the various requirements of a freezing plant of medium size, it has been observed that an economically viable plant should have a capacity of processing about 2 tons finished product per day. Plants of higher capacities such as 4 tons or more can also be considered as viable propositions, Hence, design of a 2 ton plant has been taken up, and the infrastructural requirements have been worked out as follows.

Raw material requirement

In order to produc 2 tons of finished product, 4 to 5 tons of raw material is required. As the raw material may have to be stored for about 5 days in ice before processing the raw material, storage should have a capacity of about 25 tons As the raw material has to be stored in ice, the total storage capacity of fresh fish storage should be 50 tons (25 tons fish and 25 tons ice).

Ice requirement

As it is envisaged to process 5 tons of fresh fish every day, the production capacity of the ice plant should be 5 tons. A 5 tons per day production capacity can be selected. As the ice requirement for the use of fresh fish storage has been fixed as 25 tons at a time the ice storage should have a minimum of 25 tons capacity. During the peak seasons, the plant may have to process very large quantity of fish. In such situations, the above capacity of ice storage may not be suificient. Hence the ice storage capacity has been fixed at 60 tons.

Freezers

The lay out is for freezing 2 tons of finished product per day. The freezer proposed is a double contact plate freezer containing 7 freezing station each station holding 20 blocks of frozen block of 2 2 kg. (5 lb).

Cold Storage

Cold storage should have a capacity of storing the production of a month. As such the capacity should be at least 60 tons.

Water requirement

The quantity of water required for the whole processing operation is estimated to be 10 to 12 litres per kg. of fish. In order to process 5 tons of fish, the water requirement will be 60,000 litre/day. Moreover water is required for ice also i. e. 5 tons or 5000 litres. Hence the total requirement of water will be 65,000 litre/day.

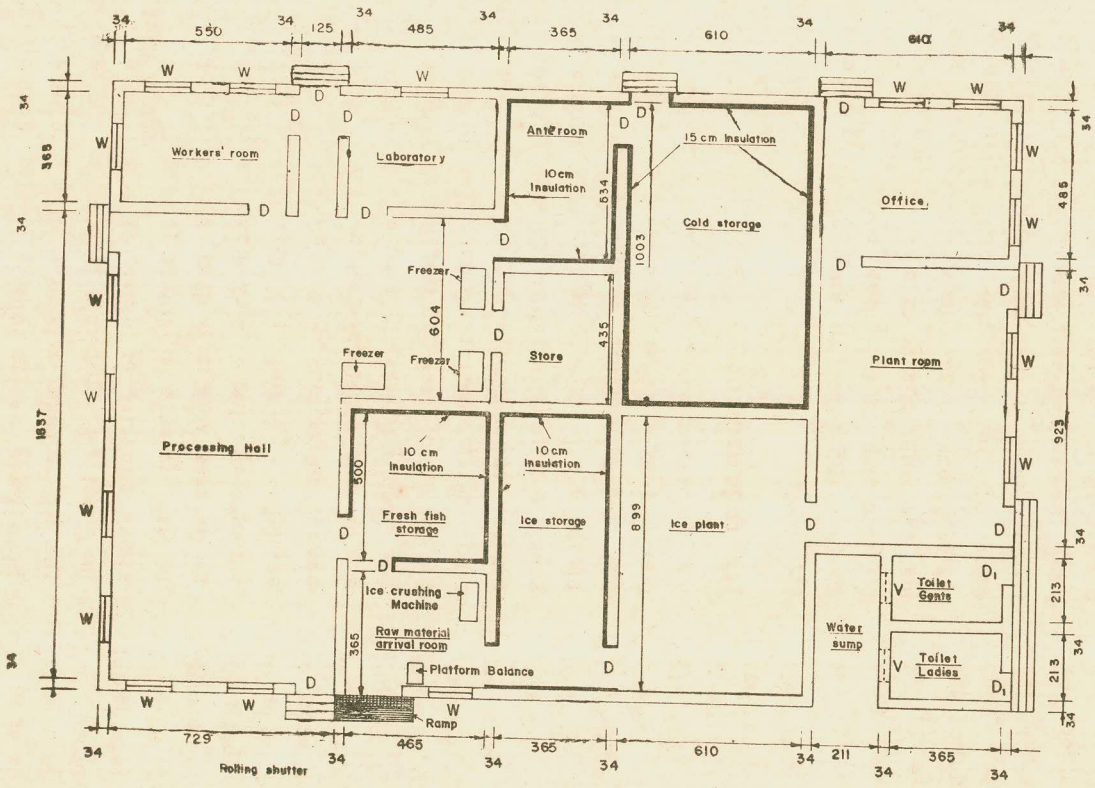
Taking into consideration of all the requirements mentioned above the plant lay out is prepared as listed below:

Raw material arrival room

Raw material arrival room with 3.65 x 4.65 metre area has been provided with a platform balance for weighing the raw material and an ice crushing machine for crushing ice after drawing from the adjacent ice storage. The ice fish mixture

LAYOUT OF A FREEZING PLANT

CAPACITY - 2 TONS PER DAY



CENTRAL INSTITUTE OF FISHERIES TECHNOLOGY				
SCALE 1cm = 1m		ALL DIMENSIONS IN CM		
DESIGNED	DRAWN	TRACED	CHECKED	APPROVED
SAO		SAO		SAO
				No. CIFT-001

can immediately be transferred to the adjacent fresh fish storage room.

Fresh fish storage

Fresh fish storage room with 5 metre x 4.65 metre area has been provided adjacent to the raw material arrival room and the processing hall. The fresh fish storage has to be insulated with 100 mm. thick thermocole or any other insulation. The capacity of the storage is about 50 tons (25 tons fish and 25 tons ice.)

Processing hall

The processing hall with 15.37 metre x 7.29 metre area is quite sufficient for processing 5 tons of fish per day. The area wlll be sufficient for processing even double the quantity whenever such occasion arises.

Freezer space

An area of 6.04 metre x 4.85 metre has been set apart for installing the freezers. For freezing 2 tons/day of finished product, 1 freezer will be sufficient. However in the lay out three freezers are shown so that in case of necessity the capacity can be increased to 6 tons per day by installing additional freezers.

Store

The store area indicated is quite small viz. 4.35 metre x 3 65 metre which is meant mainly for storing the cartons. The vacant freezer area can also be used for storing such items like freezer trays, utensils etc.

Ante room

An ante room of 5.34 x 3.65 metre area has been provided so that the cold storage is not directly open to the ambient temperature conditions. The ante room has to be insulated with 100 mm. thick insulasion.

Cold Storage

The cold storage with 10.03 metre x 6.10 metre area has to be insulated with 150 mm. thick insulation and has got a capacity of storing 60 tons finished product which serves the purpose of storing one month's production. The door provided outside is not meant for frequent opening. It is meant only for directly loading to the Refrigerated/ insulated truck from the cold storage.

Ice Plant

The ice plant room with 8.99 metre x 6.10 metre area is quite sufficient to produce 5 tons per day. It has been provided by the side of the ice storage on one side and the plant room on the other side so that the operation is quite convenient.

Plant Room

The plant room with 9.23 metre x 6.10 metre is meant for housing all Refrigeration machinery such as the compressor, condenser, circulating water pump, pump to lift water from the sump to the overhead tank etc. The height of the plant room should be more than that of other rooms: that is, it should be at least 4 metre whereas the height of all other rooms need be about 3 metres.

Apart from the major areas mentioned above, the general requirements such as office, workers' room, laboratory, water sump, toilet for gents and ladies etc. have been marked.

The total plinth area works out to 597.8 sq. m. It has to be mentioned that the specifications given in this lay out is not so rigid. Depending upon the availability of space and site conditions the arrangement as well as area allocations can be varied.

The compound should have sufficient space round the building to meet the specifications of the Municipality / Corporation / Health authorities, sufficient space for installing cooling tower for the refrigeration system, overhead tank for water storage, additional toilet and urinals separately for gents and ladies etc. There should be roadways for taking in trucks and refrigerated trucks both for transporting raw material and frozen products. □

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*Prepared by Shri S. Ayyappan Pillai, Scientist-S2 (Engineering)

A Survey on the Under Utilization of Fish Processing Plants in India - X - All India Estimates 1978 - '81

India has a coastline of about 6000 Kms. Fish processing like drying and curing were practised in this country for centuries. Freezing of prawn for export was started only in 1950's. A humble beginning of export of frozen prawn from India was made during 1953. Since then, there was a rapid increase in the export of frozen marine products from India. Later on, other items like lobster tails, frog legs etc. were added to the list of frozen export items. In 1969, there were hardly 47 plants in india engaged in freezing of prawns. Today, there are 276 fish processing (freezing) plants in India engaged in the freezing of prawn, froglegs, squids etc. With the increase in the number of plants, the total installed capacity also has increased considerably, but the raw material (shrimp) required for processing had not increased to the level of installed capacity. resulting in the under utilisation of plants. As no reliable estimate of the extent of idle capacity was available, an All India Survey was conducted during 1979 to 1982 to estimate the extent of idle capacity existing in the fish processing plants, to identify the factors responsible for the idle capacity and to suggest means to reduce the same because the existence of idle capacity, if it is considerable and more or less of a permanent nature, is a social waste.

In order to estimate the idle capacity of plants in India, a stratified sampling plan was adopted, the strata being plants under 5 tonnes, 5 to 10 tonnes, and above 10 tonnes capacity per day. Out of 276 plants in India, 93 were sampled. Data were collected from the sampled plants for the 4 years 1978 to 1981. The estimate of idle capacity was worked out by taking into account 250 normal working days in a year and double shift per day.

The estimate of idle capacity and stratum-wise idle capacity are presented in Table I. It is quite evident that there was substantial under utilisation of plants, 72 % on an average. The estimates also showed a gradual decrease from 76.6 % in 1978 to 67.8 % in 1981. Among different strata, plants under 5 tonnes capacity per day were found to have comparatively less idle capacity dusing 1980 and 1981. In all the four years, idle capacity was found to be more in plants above 10 tonnes capacity per day.

The constraints faced by the processors for the underutilisation of plants are listed in Table II. Non availability of shrimp for processing was the prime factor responsible for the underutilisation of plants. Among other factors. high cost of production, power shortage and lack of potable water and ice during peak season were also contributing much to the idle capacity of fish processing plants.

Based on the survey, following are some of the recommendations which will help to reduce the idle capacity of plants in india.

(i) Promotion of mass aquaculture of prawns.

(ii) Diversification of products

(iii) A temporary ban on issuing licence to new plants.

(iv) Subsidy on diesel oil to all classes of vessels.

(v) Improved shipping facilities.

(vi) Abolition of purchase tax on raw material.

Prepared by H. K. Iyer, G. R. Unnithan, P. S. Rao, A. K. K. Nair & R. G. Nair.

(vii) Liberalised Bank loans to processors.

(viii) Steady supply of power and water to fish processing plants.

(ix) Exploration of new prawn grounds and introduction of more no. of deep sea trawlers to boost up prawn catch.

(x) Improved cold storage facilities.

(xi) Fixing a floor price for fishery products.

TABLE I — ESTIMATE OF IDLE CAPACITY OF FISH PROCESSING (FREEZING) PLANTS IN INDIA 1978-'81

(Based on 250 normal working days and double shift per day).

	1978	1979	1980	1981
Annual installed capacity ('000 tonnes)	304.6	301.0	306.1	306.1
Estimate of idle capacity ('000 tonnes)	233.4	219.6	219.5	207.7
% idle capacity	76.6	73.0	71.7	67.8
% error of estimate	4.8	5.3	4.3	4.7
Stratum-wise % idle capacity :				
Plants under 5 tonnes capacity / day	75.6	70.7	68.4	64.1
5 to 10 tonnes capacity / day	72.2	67.4	70 1	67.3
Above 10 tonnes capacity / day	81.0	79.4	76.0	71.8

Frozen Storage at Cochin Port

The Marine Export Development Authority has planned to instal initially two large Frozen storages in Cochin and Calcutta. This is part of its phased programme to provide infrastructure facilities in all major parts to handle frozen marine products.

The Cochin Frozen storage located at the Ernakulam wharf has a capacity of 500 tonnes with adequate provision for expansion to meet future needs.

Equipped with modern machinery and facilities the storage will be made available to all registered seafood exporters. Frozen cargo belonging to different exporters are separately stacked with easy access for unloading.

There are 6 chambers, 3 on each floor. Frozen cargo will be taken into the chambers on pallets with the help of handtrolleys. To facilitate loadiing/unloading of cargo on the upper floor, two electric lifts have been provided. □

TABLE II — CONSTRAINTS FACED BY THE PROCESSORS

Sl. No.	Factors	% of plants reported the factor in the sample
1.	Non availability of raw material	87.1
2.	High cost of production	52.5
3.	Frequent power failures/shortage	40.4
4.	Labour troubles	17.8
5.	Unsteady foreign market	8.4
6.	Shortage of potable water	12.2
7.	Cut-throat competition among processors in processing the raw material	7.0
8.	Shortage of ice	13.8
9.	Lack of transport facilities	10.0
10.	Lack of cold storage facilities	5.7
11.	Investment in holding the material up to shipment	1.4
12.	Delay in getting the purchase order	1.4
13.	Lack of technieal hands	0.7

Extension Programme improves hygienic conditions*

Maintenance of hygienic conditions is a premier and important aspect of the processed food industry. This is especially so in fish processing due to the inherent highly perishable nature of fish. Some of the important fishes like prawn which contribute to a large extent in getting foreign exchange by export, demand the maintenance of a high degree of hygienic conditions. Though, the processing industries in India have geared up their technological sophastication to meet the challenge, the contamination starts at the crucial peeling stage which is done at the peeling sheds. Hence, it is necessary to funnel in the technological know how in a systematic way at the crucial stage of peeling to avoid the drawback at the end point. Keeping in view the above facts a systematic intensive extension programme was undertaken at a prawn peeling shed in the vicinity of Cochin.

Initially for a few days an observational survey was undertaken to study the present methods followed at the peeling shed to maintain the hygienic conditions. This was followed up by a discussion with the peelers and the manager to get more details.

The facts collected were analysed keeping in view different aspects of hygiene to be maintained at the peeling shed to turn out a good product. The analysis of the facts collected yielded certain gaps which were the problem areas to be taken note of. Thus, the following major gaps which had a bearing on the quality of the final product were identified.

a. The water used for cleaning purposes was of poor quality and no precaution was taken to improve it.

b. Though the peeling shed was cleaned after the days work by water and bleaching powder, foul smell would emanate.

c. The prawn peelers were regularily involved in peeling. Due to this their hands had developed blisters. This resulted in a lot of discomfort to the peelers due to pain, slowing down their pace of peeling apart from harbouring many organisms, ultimately affecting the quality of the product.

Considering the problems and the alternatives available a plan of work was prepared which indicated the teaching methods to be used, time of teaching, technologies to be demonstrated and the learning experience to be provided etc. This was arrived at after a discussion with the clientele group.

The programme was executed with mainly group discussion, method demonstration and result demonstration at the teaching methods. The learning experiences were provided on the following aspects, to overcome the problems identified.

1. Preparation of chlorinated water at proper concentration and its use.

2. Preparation and use of deodorant solution.

3. Preparation and use of antiseptic ointment after

★Written by Dr. G. R. Desai, Mrs. K. Ammu, Dr. P. N. Kaul & Shri M. K. Kandoran

Lets' Talk it Over

Asst. Director of Fisheries, Tuticorin

Are there any specific tests available with CIFT for establishing the purity of ambergris on "Fish Amber".

CIFT: There are no speeific tests for establishing the purity of ambergris. However, ambergris has following parameters of quality, the measurement of which could be used as test for identifying it.

M. P.	— 60-65°C
Softening point	— 45-55°C
M. P. of other extract	— 82-86°C
Saponification value (other extract)	— 17-35

M/s. Orissa Maritime And Chilka Area Development Corporation Limited

Please help us by furnishing some designs for Ferrocement Fishing boats suitable for coperation in Chilka lake.

CIFT: We do not have at present any designs for ferrocement boats. You may please contact Mr. J. P. Fyson, Department of Fisheries. Food and Agriculture Orgnisation (FAO) Via delle Terae di caracalla, Rome, Italy, who, under an FAO Project, has designed and built a number of fishing boats for developing countries. The length and draft of sum of the shallow water fishing vessels designed and built by FAO are given, below.

Length (m)	Draft (m)
7.50	1.15
10.00	1.46
11.00	1.40

You may also contact the Head of the department of Ocean Engineering and Naval Architecture, Indian Institute of Technology, 11T. Port, Madras on Department of Naval Architecture, 11T, Kharagpur, who may take up designs of ferrocement crafts for shallow water operations on a consultancy basis. □

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the days work by the peelers.

The whole programme was demonstrated on a particular day involving all the workers, peelers, the peeling shed managers etc. Further the technological application was supervised for the next fortnight. All questions were encouraged and the doubts cleared.

Initially, the programme was thought to be a hinderaance to the daily routine work which the peelers and the shed owners were following. Later their reactions were favourable looking to the improved product turned out. The peelers were quite hesistant in the early stages to use the antiseptic ointment, but later as they watched fifteen peelers who had too many blisters being cured by the ointment, everyone patiently waited after the days work to get the ointment. The innovatons that were first thought to be hinderance, became a part of their work culture within a short span of time. □

Gleanings from Other Journals

Fuel Saving Device for Fishing Operation

The Fishing and seafood industries have been voicing their concern for quite some time now over the slackness in fishing efforts and consequent short landing in shrimps, the major seafood export item. As already pointed out by us, our shrimp landings have considerably declined and we have been pushed back from the number one position enjoyed by us for several years.

We had cautioned the authorities that the shrimp landing would suffer as fishing was becoming uneconomical due to the hig cost of Diesel oil. We had also pleaded for a subsidy on Diesel oil supplied to the mechanised fishing vessels to offset the increased cost of fishing. Suffice it to say that all these pleading have fallen in deaf years and the fishing industry continues to operate uneconomically.

As a silver lining in the darkening clouds has now come the report that a fuel saving device has been evolved. According to the report an experiment was conducted at the Central Institute of Fisheries, Nautical Engineering and Training in Cochin Mr. Alexander Kohane, F A O co. sultant conducted the experiment. The Marine Products Export Development Authority, the Central Institute of Fisheries Technology and Integrated Fisheries Project also participated in the experiment. As the experiment proved a great success, the MPEDA is making efforts to promote this technology among the fishermen.

The device known as "Kort Nozzle" to be fitted to the propeller of the mechanised fishing boat will cost Rs. 12,000/-according to the Director, CIFNET and this will result in saving of 30 litres of Diesel oil costing Rs. 120/- during 12 hour operation.

A laudable achievement, this promises to be a boon to the struggling fishing industry. Immediate follow up action is necessary. If all the 16,000 mechanised vessels operating in India adopt this device, it would not only result in substantial savings to the fishing industry, but would also result in considerable savings in foreign exchange to the nation.

While we congratulate those responsible for successfully conducting the experiment we urge the MPEDA, the Government of India and the State Governments to formulate a scheme to promote this device, if necessary, with a subsidy on the cost of the device.

Electric Colour Separator

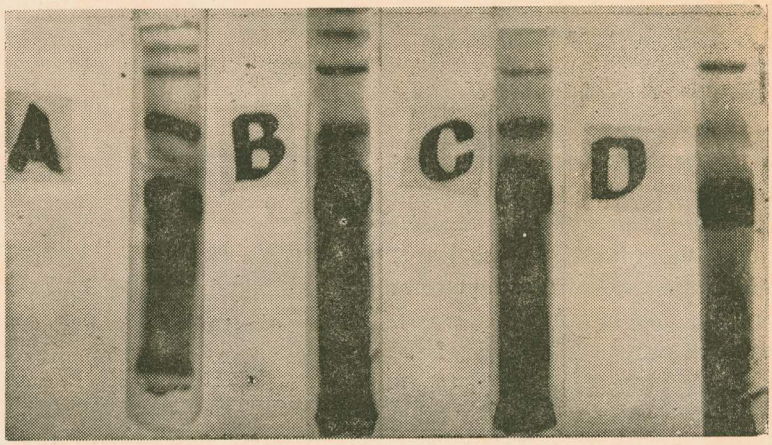
A firm in Holland has developed an electronic colour separator, Mini Hydrosort, which is now used in several Norvegian shrimp - producing factories.

In the shrimp-production lines the shrimps are passing first the peeler, the washer and separator. After that the shrimps are going through the Mini-hydrosort to separate, because of colour difference, the unsufficient and unpeeled shrimps out of the good ones.

For further details, contact: Mr. G. P. De Hass, pettelaaseweg 591, 5216 BN 'S-Hertogenbosch, Holland ph (31) 73-139745. □

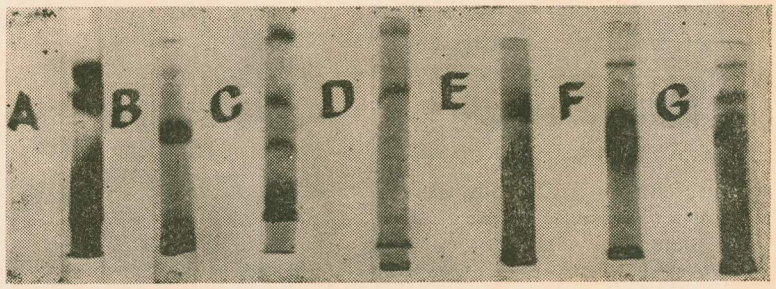
Can you identify the fish species from the fillet?

When the fishes like a Seer, Tuna, etc. are marketed as fillets, there always exists the possibility of doubtful authenticity. Fillets of cheaper species may be put in place of similar high quality table fishes to confuse the consumer. In such cases electrophoresis of the water soluble proteins from the fillet can be used as a simple, and sure method for species identification.



Changes of electrophonetic patterns of water soluble protiens of Prawns stored in ice M. dobsoni. A — 0 day in ice. B — 5 days in ice. C — 10 days in ice. D — 15 days in ice. Patterns remnins unaltered. Intensity of staining of bands shows a slight decrease after prolonged storage in ice.

Electrophoresis is an analytical technique, separating the muscle protein into various fractions depending on their net electrical charges. The proteins after electrophoresis on a gel (poly acrylamide gel) can be stained with a dye to give band pattern. When the water soluble proteins of different species of fish are thus separated, each one gives a distinct characteristic pattern which is species specific. This pattern is not affected by storage of fish in ice or in frozen condition. So it can be used as a convenient method for species identification. The pattern from the proteins of the fillet in dispute can be compared with the standard authentic pattern of the species claimed or suspected. This is now an accepted method for species identification in fish toxonomical studies. □



Electrophonetic patterns of water soluble proteins from different species of fish on acrylamide. A — Tilapia B — Barbus C — Mullet D — Lactarius E — Mackeral F — Oil Sardine G — Prawns

Prepared by the Scientists of Biochemistry & Nutrition Division, C. I. F. T.

May we hope that this would not remain a paper scheme and that appropriate action would be taken without any loss of time to reach the benefit of this valuable ivenntion to the relief of the fishing industry. □

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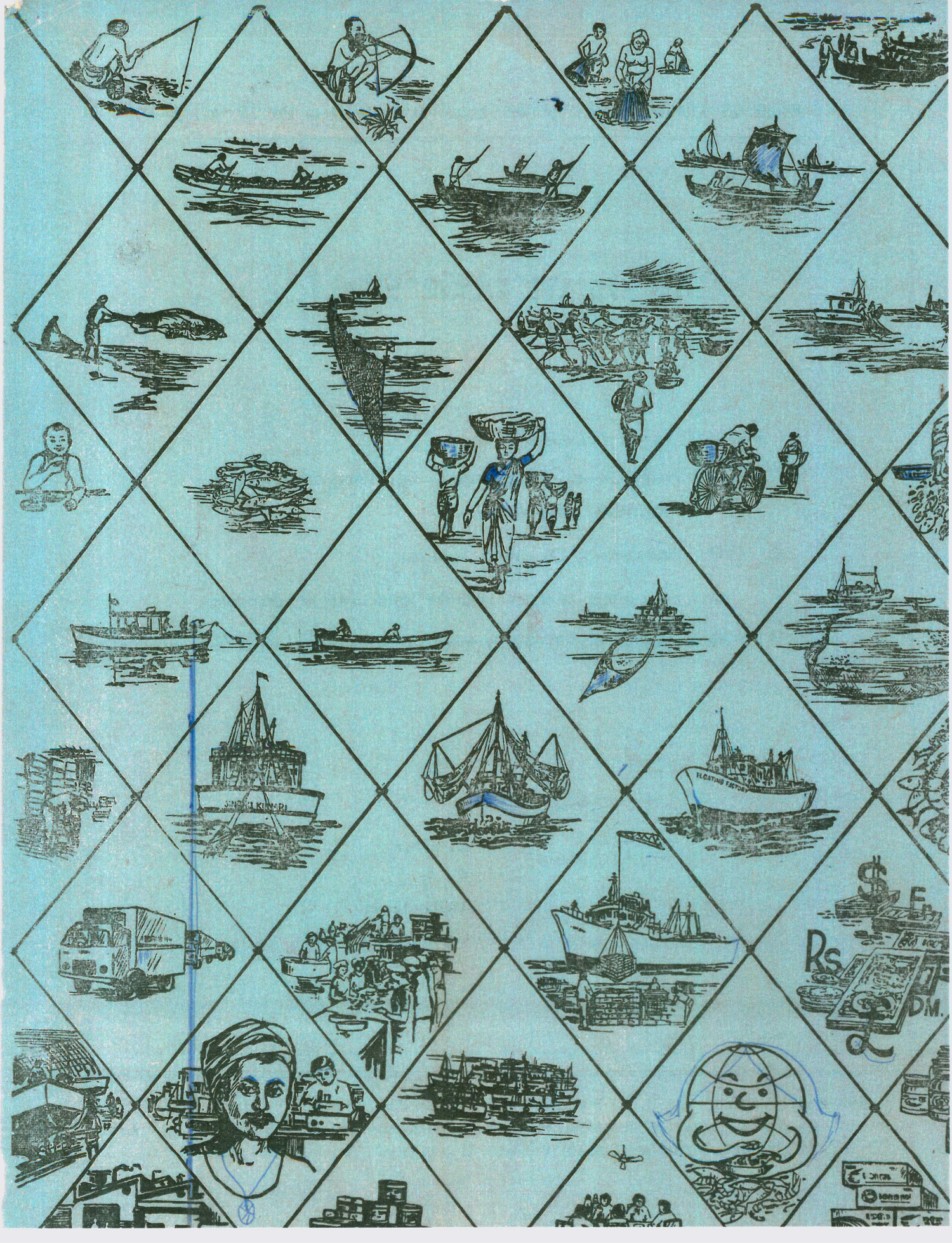
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