

## 4. COMMERCIAL ACTIVITIES OF THE DEPARTMENT OF FISHERIES

**Marketing.** During World War II the shortage of imported fish and a great increase in consumption due to military establishments caused the Government to organise a scheme of fish distribution and marketing.

At the early stages fish was accepted on a consignment basis. Later all fish produced was bought at fixed prices with Government providing transport to bring fish, packed in ice, to Colombo for distribution. Better packing was introduced using equal weights of fish and ice. For the first time fish was sold by weight and this practice is gradually superseding the old custom of selling fish in numerical quantities or in arbitrary slices. A supplementary ice marketing scheme was undertaken in 1943 which later developed into the setting up of 5-ton ice making plants at Jaffna, Battuluya and Pesalai in 1953 and a 10-ton ice plant at Mutwal in 1957.

When the marketing scheme was handed over to a State controlled Fish Distributors' Union in 1946, the marketing personnel were discontinued. Marketing activities were extended in 1951 with the opening of "fair price" stalls in each of the Municipal markets of Colombo and the supplying of fish to hospitals. In 1952, the project was big enough to be taken over by an independent corporation, the Ceylon Co-operative Fish Sales Union Ltd. This continues to have most of its dealings with Government trawlers and the rest with its 57 affiliated societies.

The Government sponsored marketing and distributing scheme has offered an opportunity to introduce better methods of fish handling to the trade. Progress is being steadily made in this direction even though the quantity of fish supervised and sold through this scheme is a very small proportion of the total Island catch.

**Fish liver oil.** The preparation of oil from fish liver was started by the Department of Industries in 1945 when the world shortage of vitamin oils reduced considerably the amount imported into Ceylon. Production was started on a small scale using shark liver only as experiments had shown these species to have liver rich in oil which separated easily on warming the liver. Output was increased gradually and in 1951 the plant was handed over to the Department of Fisheries. The Fisheries By-Products Factory at Mutwal took over production of oil in 1957.

A small quantity of oil is made by fishermen in a crude manner by decomposing fish liver in the sun, but this oil is used only for waterproofing boats. There is no large or consistent private producer of medicinal oil although occasionally bottles of locally prepared medicinal fish liver oil appear on the market.

**Fish Meal.** This is used as food for animals and in its lower grades as manure. Some of the more unscrupulous importers of meal are suspected of adding dried fish offal and meal prepared from unsold market fish that may have reached an advanced state of decomposition.

The Department of Fisheries attempted fish meal manufacture in 1951 at Muthurajawela using coarse fish from trawlers as their chief raw material, and produced over 100,000 lbs. per year. The project was run successfully up to 1954 when it had to be stopped because all trawler fish were taken over by the Ceylon Co-operative Fish Sales Union Ltd.

The By-Products section of the Mutwal Factory has a fish meal plant which however cannot be run economically until fillets and dressed fish become popular and trimmings and waste are released for conversion into meal.

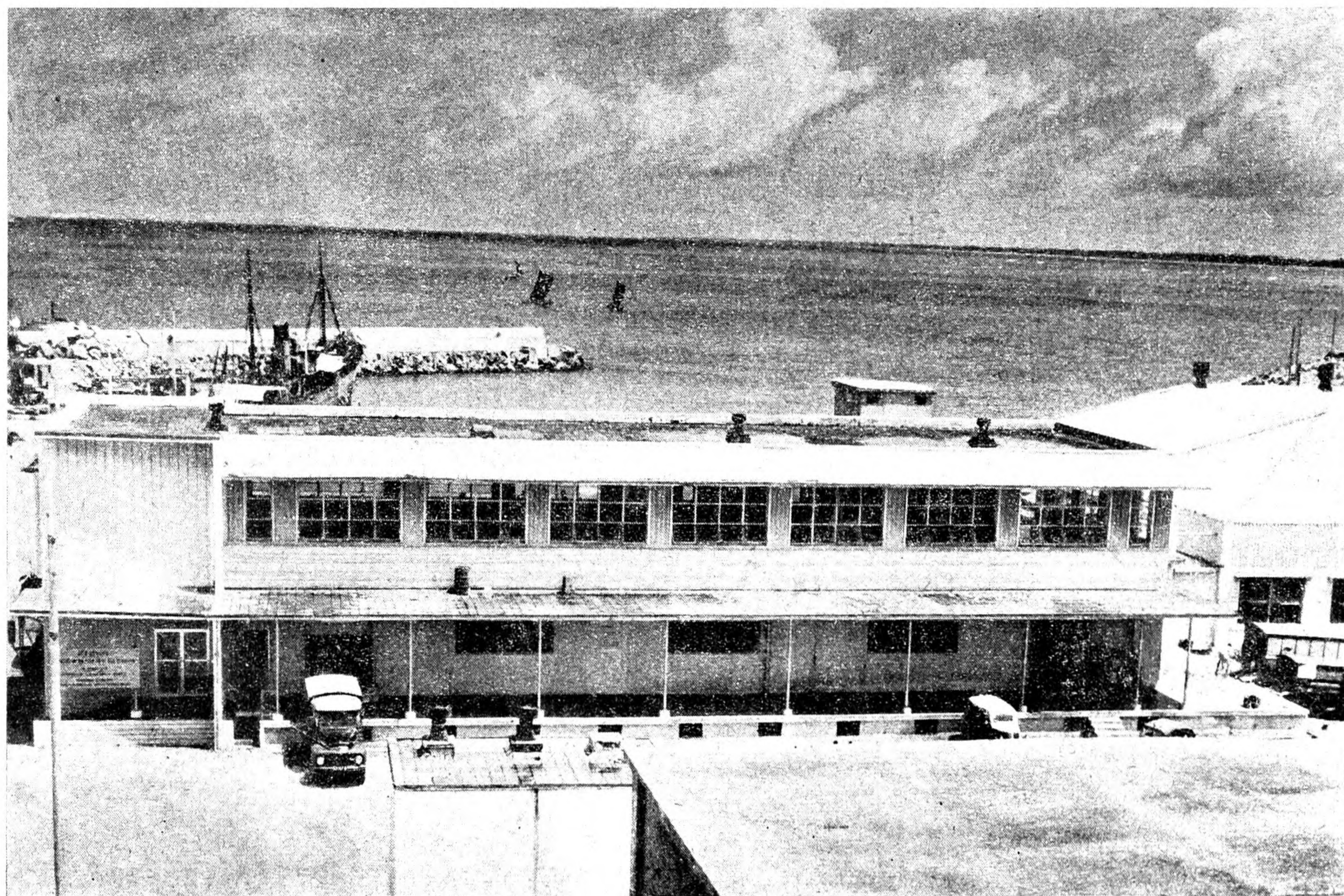
**Cold Storage.** There are three cold storage plants operating in Ceylon besides the new plant at Mutwal which was completed in 1957. Two are in Colombo, one owned by a private company and the other by the Admiralty which also has a storage room in Trincomalee. All three establishments were built for the storage of pre-frozen foods imported into Ceylon.

In 1948, the Department of Fisheries obtained by negotiation with the Admiralty the lease of half the storage space of their 1,000 ton frozen food capacity cold storage plant in Colombo. The space consisted of three cold rooms at 15 to 20° F. and one cool room designed for vegetables, making a total space of about 32,500 cubic feet which were rented for Rs. 72,000 per annum.

As the fish were placed in the rooms without freezing, quantities received into the premises had to be regulated in order to maintain low temperatures. Even so, under actual operating conditions, temperatures in the rooms frequently went up to 28° F. Although trawler fish were stored in the ship's hold with ice at 35–40° F., temperatures rose to 60–65° F. by the time the fish reached the storage rooms so that a catch of say 60 tons had to be unloaded over about 3 days in order not to strain the machinery. It took a further 4 to 7 days in the rooms for the fish to be completely frozen. Further, the fish could not be protected by glazing as the uneven and high temperatures melted the glaze and often caused desiccation by thawing out water from the flesh. Water (from the fish and from ice carried over when transferring from the ship's hold) remained stagnant on the floors due to inadequate drainage and also frosted on the cooling coils, insulating the coils and rendering them ineffective. As a result the rooms had to be cleared of fish periodically for water to be removed and coils defrosted. These operations often seriously held up unloading with consequent deterioration of the catch. The entire process of loading and storage then possible was not conducive to retaining good quality and resulted in poor sales of trawler fish except in times of scarcity.

**Scheme for Expansion and Unification.** Under the Colombo-Plan Canadian Aid Fisheries Project in Ceylon, a programme for the development of the industry was outlined in 1950, following which Canada sent Ceylon the trawler "Maple Leaf" and two boats "Canadian" and "North Star" and approved the erection of a cold storage plant. The scheme was later expanded to include not only cold storage facilities but also a full scale by-products factory, a machine shop and financial aid for construction of a fisheries trawler harbour. A separate harbour was recommended because available berthing facilities within the Colombo Port Premises were subject to various restrictions and delays inevitable in a port dealing with all types of shipping.

Under the scheme Canada provided all imported materials and machinery and qualified engineers to supervise construction and installation while Ceylon provided local labour and locally available building materials. The project was completed in 1957 and combined the commercial activities of the department into one integrated unit.



The Mutwal Project

**The Mutwal Project.** The fisheries harbour is situated between the Colombo Port premises and the local fishermen's landing centre at Mutwal. It is small and has an area of  $3\frac{1}{2}$  acres and a depth of 20 feet below low water. The entrance is 250 feet wide and the quay has a berthing space of 240 feet sufficient to accommodate the two trawlers. There are protective projections (moles) which shelter it from both monsoons. A crane on the quayside unloads fish from the hold into an adjoining conveyor belt which takes the fish directly into the sorting room of the cold storage plant.

A certain amount of market fish is released for immediate sale while unpopular varieties such as shark, skate and catfish are taken away for curing. Fish to be held for a short time of up to 10 days go into one of two chilled brine tanks at  $32^{\circ}$  F. which together hold up to 12 tons of fish.

Fish for long storage are packed in layers on trolleys which are wheeled into the glazing room maintained at  $40^{\circ}$  F. The room contains three freezing stalls or tunnels each capable of taking in about 2,000 lbs. of fish on 3 trolleys. In the tunnel the fish are frozen in 4 to 5 hours by a blast of cold air at a temperature of about  $-30^{\circ}$  F. Frozen fish are glazed by dipping into brine, especially if they are to be stored for a period of several months. After glazing they are placed in one of three cold storage rooms which are maintained at  $-10^{\circ}$  F. The fourth storage room contains the flake ice machine and further ice storage space. A fifth room holds block ice. There is storage space for 500 tons of fish in the plant.

The rooms of the cold storage plant are refrigerated by cold air moving in channels (ducts) constructed under the floor and inside the walls. The air in the rooms remains static and this helps to reduce dehydration of fish. Each room has its own blower unit to circulate air past a refrigerating coil and then through the ducts. When defrosting it is only the refrigerating coil which needs to be defrosted and not the room. This can be done without taking out the fish stored in the room. There are two types of ice making plants at the factory. The main one is a block ice plant capable of producing  $10\frac{1}{2}$  tons per day of half-hundredweight blocks of ice and the other is a flake ice machine which can turn out half-ton per hour of ice in the form of  $\frac{1}{8}$ " thick shavings or flakes.

Fish liver from the two trawlers and from private fishermen are processed in a well equipped fish liver oil plant.

As the quantity of shark liver received is less than could be handled by the plant, liver of any large fish is also accepted for processing. Liver of fish other than shark also contain vitamin oil of satisfactory potency but usually in such small quantities that their processing would be uneconomic except when added to shark liver to make up a suitable quantity to be processed.

A steam rendering process is used for extracting the oil. The vitamin A potency of the oil is determined in the laboratory. Vitamin D is not tested for as it is present only in extremely small quantities, unlike in cod and halibut liver oils.

The liver oil is then mixed with a pure deodorised vegetable oil (groundnut oil) to bring its vitamin A potency down to 3,000 I. U. per gram which is the standard maintained for sale to the public. At this potency the daily dose can be recommended in teaspoonfuls which is more convenient than drops. The residue is treated to obtain a second extract of oil. This oil is blended with vegetable oil to 1,000 I. U. per gram and sold as veterinary oil. The plant produces about 3,000 gallons of medicinal oil and about 650 gallons of veterinary oil a year.

The machine shop deals with minor repairs to trawlers and undertakes a great deal of the engineering work required by the department. There is also a large stores section to handle the requirements of the factory and the trawlers.