

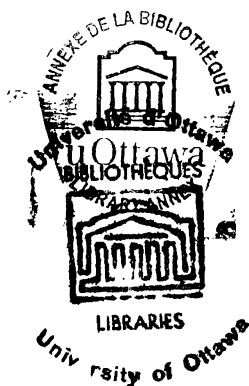
UNIVERSITÉ D'OTTAWA -- ÉCOLE DES GRADUÉS

SOCIAL AND ECONOMIC ASPECTS OF
THE FISHING INDUSTRY IN CEYLON

by

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TABLE OF CONTENTS

	Pages
TABLE OF CONTENTS.....	i
LIST OF TABLES.....	iv
INTRODUCTION.....	v
CHAPTER	
I - GENERAL ASPECTS.....	1
II - STRUCTURE AND ORGANIZATION.....	14
I. Marine Industry.....	14
A. Inshore fishery.....	15
1. Beach seining.....	15
2. Drag nets.....	18
3. Fixed stake nets.....	19
4. Fixed nets with bag.....	21
5. Fish and crab traps.....	22
6. Casting nets.....	22
7. Lagoon fishery.....	23
B. Off shore or Deep sea fishing.....	26
1. Vertical nets.....	26
2. Line and hook.....	33
3. Spear fishing.....	34
4. Scoop nets.....	35
5. Sundry devices.....	35
6. Mechanized fishing.....	36
7. Chank fishing.....	41
8. Pearl fishing.....	43
9. Underwater spear fishing.....	50
C. Inland or Fresh water fisheries.....	51
II. The Secondary Fishing Industry.....	53
a) Drying.....	53
b) Icing.....	56
c) Quick freezing.....	57

TABLE OF CONTENTS

CHAPTER	Pages
III - THE FISH TRADE AND CHANNELS OF DISTRIBUTION...	60
1. The middlemen.....	60
2. The brokers.....	62
3. The local fish traders.....	62
4. Wholesale marketing.....	63
5. Retail marketing.....	64
6. Fishermen's co-operatives and fish sales unions.....	65
IV - HUMAN RESOURCES.....	76
Nature and composition of the fishing popula- tion.....	76
1. The Entrepreneurs.....	86
2. Labour Force.....	91
(a) Labour supply.....	93
(b) Sociological aspect.....	97
(c) Comparison with agriculture.....	98
V - CAPITAL FORMATION.....	102
(a) Income of the fishermen.....	102
(b) Indebtedness of the fishermen.....	104
(c) Capital among the fishermen.....	111
1. Nature and availability of capital.....	112
2. Methods of minimizing risks.....	116
3. Methods of increasing capital supply...	122
A. Domestic Capital.....	122
B. Foreign Capital.....	137
C. Foreign Public Investment.....	141
D. Opportunities offered by Foreign Trade.....	145
E. Creation of Money.....	146
F. Community Development.....	146
CONCLUSION.....	148
BIBLIOGRAPHY.....	156
APPENDIX.....	161

LIST OF TABLES

TABLE	Pages
I. Acreage under cultivation.....	2
II. National Income of Ceylon, Estimated Population and Per Capita Income.....	5
III. Per Capita Income in 1947.....	6
IV. Chanks Exported and Royalty Collected, 1919-1938.....	44
V. Races of Ceylon, 1953.....	77
VI. Monthly Income of 60 Fishermen, 1953.....	103
VII. Consumer Expenditure per Spending Unit and per Person per Month in Ceylon.....	105

INTRODUCTION

This study is mainly concerned with the examination of the social and economic elements of the fishing industry in Ceylon.

Recent decades have witnessed the increasing interest evinced by economists on the study of under-developed countries. Very little progress, however, has been made on the study of either the social or the economic aspects of Fishing Industry, which remains one of the most backward sectors of these countries.

Attention is now being focussed on this much neglected industry by the Government of Ceylon as part of the Post-War Reconstruction Program. The aim of the Government is to increase output by the introduction of more efficient techniques and mechanized methods. In the scheme for any reconstruction, attention must first be paid to the Socio-Economic factors.

Studies of psychological attitudes and social habits of those engaged in this industry, the amount of capital available, the volume of their earnings, savings and investment - these could furnish precious data, valuable for the intelligent formulation of a development program. These would suggest what measures would be welcome and what

INTRODUCTION

vi

opposed by those very people brought up in the inflexible social traditions of their country and how the needs of economic efficiency could best be reconciled with the non-economic values which are so important to this community.

Blind application of the Western fisheries principles to solve the local problems will prove inadequate and futile. It is therefore necessary that each problem has to be studied carefully with special reference to local conditions.

It is generally known that fisheries in Ceylon are characterized by the primitiveness of the equipment, low productivity of the men who operate them in the absence of mechanization. Emphasis therefore ought to be on the human aspect of production. The problem of resources is not so greatly urgent here. There is no doubt considerable scope for the introduction of the modern methods and mechanization. But the urgent problem is not so much technological as social and economic. The real problem therefore is what introduction of the modern methods is judicious at this stage and what would be the effects of such introduction on the existing industry.

There is thus an urgent need for a thorough study of the Socio-Economic factors of the fishing industry in Ceylon. Urgent because the Socio-Economic factors, inter alia, are the most important in the fishing industry, and the most susceptible of direct action. It is also urgent because of

INTRODUCTION

vii

the acute food shortage in the face of a great accelerated population growth.

Very little work has been done on the social and economic aspects of the fishing industry in Ceylon. The earliest attempt was made by Professor B.B. Das Gupta in 1949 in two of his short publications, one "Short Economic Survey of Ceylon", and the "Economic Conditions in Ceylon in 1949". Both contain very little reference to the fishing industry.

"The Economy of Ceylon", published in 1951 by Sir Ivor Jennings, Vice Chancellor of the University of Ceylon, has just one paragraph about the fishing industry but gives a somewhat distorted picture.

Sessional Paper VI, published in 1951, under Ceylon Fisheries, embodies the recommendations of the various experts who visited Ceylon at the invitation of the Ceylon Government. Their stay being too short in Ceylon, some of their recommendations were either too impractical or unsuitable to put into effect.

The Survey of Ceylon Consumer Finance conducted by the Central Bank of Ceylon in 1953, of 960 non-estate household including only 30 fishermen, was embodied in the report of Dr. Ettrup Peterson, the Danish expert, along with the investigation he had carried on in the company of Mr. L.D. Gunasekera of the Ceylon Fishery Department, of the fish production in Kalpitiya, Mannar, Jaffna, Thalayadi, Mullaitivu, Trincomalee, Batticaloa and Hambantota Districts. He had

INTRODUCTION

viii

also incorporated in his Report the results of his investigation carried on with the aid of Mr. A.H. Weerakoon, also of the Ceylon Fishery Department, on the effects of Quick Freezing on the different types of fish like seer, red mullet, grey mullet, horse mackerel, barracuda, blood fish and shark.

These Reports were all piecemeal recommendations with no integrated plan for the development of the industry as a whole.

In 1951, a mission organized by the International Bank for Reconstruction and Development visited Ceylon and stayed ten weeks to study the economic potentialities of the country. Its Report in two parts was published in 1952. Of the 448 pages hardly three pages are devoted to the subject of the economic development of the fishing industry in Ceylon. The lack of proper surveys and statistics was the chief handicap. The Mission was however convinced that the purchase of more trawlers expecting large increase is to "ignore the real problem". It also put its finger at the vital spot when it said "traditionally the Ceylonese are neither fishermen nor seamen".

The Consumer Survey conducted by the Central Bank of Ceylon in 1954 gives the average income per month for hunting and fishing as 106 Rupees.¹ No separate account is made for fishing. Nevertheless the Survey is useful in other respects

¹ Today one Canadian dollar is worth Rs. 5.00 of the Ceylon money.

INTRODUCTION

ix

giving valuable information about income and expenditure of the middle class and rural population.

Outside Ceylon, the earliest study undertaken in this field appears to be that of Raymond Firth, Professor of Anthropology, University of London, whose work "The Malay Fishermen: Their Peasant Economy", which appeared in 1946, contains the fruit of his valuable research among the fishermen of the Malayan peninsula, and is perhaps the most outstanding contribution on this subject.

The Fisheries Committee of the United Nations Food and Agriculture Organization (F.A.O.) met in Singapore in January 1947 and dealt with the various aspects of the task of rehabilitation of the South East Asia fisheries. In October 1948 this Committee drew up a program of Socio-Economic Research into the Fisheries of South East Asia.

Professor Firth's work and this program of Socio-Economic Research outlined by the Fisheries Committee of the F.A.O. have very considerably inspired this study.

In 1957, a very representative gathering of economists from Europe, America and Asia met in Rome under the aegis of the F.A.O. and discussed for the first time the Economics of the Fisheries in general and the underdeveloped countries in particular. The different papers read and particularly the discussion that followed were illuminating and thought-provoking. Unfortunately, after they dispersed, no further

INTRODUCTION

x

work seem to have been done so far by those eminent economists. At least their research, if any, has so far not appeared in print.

The main sources for this study were the personal investigation and interview with fishermen in Ceylon: the Administration Reports of the Marine Biologists and Directors of Fisheries; the Census of Ceylon; the Report of the World Bank Mission; the local Dailies such as the Times of Ceylon, Daily News and the Weekly Jaffna Guardian; the Progress Reports and the F.A.O. publications.

Chapter I deals with the general aspect of the economy in Ceylon and the problem of the development of fisheries. It briefly reviews the present situation.

The structure and organization of the Ceylon fishing industry is outlined in Chapter II. The multiplicity of the fishing appliances and the bewildering nature of their operations are set forth as basic knowledge required for the improvement of the industry. The earliest account of the Beach Seine operation in the Dutch period has been left by Christopher Schweitzer, a German gunman in the service of the Dutch army. Rev. Philip Baldaeus, who laboured in Ceylon from 1656 to 1658, merely calls the seine nets "monstrous nets".

The description of one hundred and fifty different types of fishing appliances used in Ceylon left by Dr. Joseph Pearson, Ceylon Marine Biologist (1923), has been checked,

INTRODUCTION

xi

modified and summarized in this chapter with a few additions.

Chapter III is devoted to the description of the various distribution channels and particularly the function of the middlemen is closely examined.

In Chapter IV, the human resources - the nature and composition of the fishing population, the Entrepreneurs and the Labour supply are analyzed. The sociological aspect and a comparison of the fishermen with farmers completes the chapter.

The final chapter is a detailed study of capital formation. The nature and availability of capital, the methods of minimizing fishery risks and the methods of increasing both domestic and foreign capital are also listed.

This study is by no means complete or exhaustive. There is need for more studies of the economics as distinct from technology of the indigenous fishing industry. The economic aspects of this industry has so far not been approached in an integrated way.

CHAPTER I

GENERAL ASPECTS

Ceylon is a tropical island of 25,330 square miles, situated between 6 and 10 degrees North latitude and 78 and 82 degrees East longitude, just off the South-eastern tip of the Indian sub-continent separated only by a narrow stretch of 22 miles of water. The island is composed of ancient rock and the centre of the Southern half is hilly, the highest peaks ranging over 8,000 feet above sea level.

Of Ceylon's total area of about 16.25 million acres, 6.75 million are considered suitable for agriculture of some form. Tea, rubber and coconut occupy 2.25 million acres. Tea grows on the higher elevations, rubber on the foothills while coconut grows along the sandy coast and the triangular strip between Colombo, Chilaw and Kurnegala. Rice, the staple food of the people, thrives on the alluvial soils bordering the rivers and low-lying clayey fields around the artificial tanks. Rice along with other minor crops occupy 1.25 million acres while 3.25 million acres are estimated to await development.

According to the Ceylon census of 1953¹ the total acreage of cultivation of the principal crops are shown in Table I.

¹ Census of Ceylon 1953, Govt. Press, Vol. I, p. 7, Colombo, 1957.

GENERAL ASPECTS

2

TABLE I

Acreage under cultivation

Principal crops	1946	1954
Tea	552,853	575,504
Rubber	659,553	659,209
Coconut	1,070,942	1,071,942
Paddy	899,970	1,031,611

Source: Census of Ceylon 1953, Govt. Press, Vol. I,
p. 7, Columbo, 1957.

GENERAL ASPECTS

3

This table indicates that except for paddy the increase in other crops is painfully slow clearly showing the trend that the output of tea is approaching its limits. Rubber is facing an uncertain world market and the coconut palm is threatening to diminish. Though there is an increase in the production of rice, Ceylon imports more than half her rice supplies to meet the alarming growth of her population, which in the past seventy-five years has almost trebled. According to the report of the International Bank² "There is a serious deficiency in world rice supply" and this world shortage "is likely to continue for many years". Ceylon cannot go on with her dangerous dependence upon her external sources of food. If she has to avoid the spectre of Malthus overtaking her, she must quickly turn to more scientific and improved methods of cultivation or look for hitherto untapped sources, to feed her mounting population.

The population of Ceylon, according to the last Census in 1953, was 8,098,637 and its galloping rate of increase is said to be one of the highest in the world in recent times. This phenomenal increase may be due to the lowered death rate, and to the virtual eradication of Malaria during and since the World War II owing to extensive spraying of D.D.T. Though

² Report of a Mission organized by the International Bank for reconstruction and development of Ceylon, p. 9, Ceylon, Government Press, Sept., 1952.

GENERAL ASPECTS

4

Ceylon's standard of living is high in Southern Asia, it is pretty low in comparison with the West. The standard of living of a nation is generally measured by the per capita income of that nation.

The gross national product of Ceylon from July 1, 1950 to June 30, 1951 was said to be approximately Rs.4,457 million while the per capita income amounted to Rs.570 equivalent to U.S. 120 dollars. The estimates of national income of Ceylon in terms of money from 1951 together with the per capita income is shown in Table II, according to the Census Report of 1953.

The per capita income has fluctuated and has not as yet reached the 1951 level, but there has been a constant falling in the purchasing power since the war days.

Compared to other Western countries, Ceylon's per capita income is relatively low. When the income is low the savings will be low and very little is left for capital formation. The per capita income of other countries available for the year 1947 is shown in Table III.

This shows that the per capita income in the United States is the highest in the world with Canada coming second. Professor G.L. Bach³ enumerates four factors that have contributed to the high American standard of living, namely productive resources, technology, specialization and exchange.

³ Economics - an Introduction to Analysis and Policy by George Leland Bach. 2 ed., 3rd print (1958).

GENERAL ASPECTS

5

TABLE II

National Income of Ceylon,
Estimated Population and
per capita income

Year	National income in millions Rupees	Population (millions) Rupees	National Income per capita
1951	4,619	7.7	599.9 Rupees
1952	4,507	7.9	570.5
1953	4,491	8.1	554.4
1954	4,772	8.3	574.9

Source: Census of Ceylon 1953, Govt. Press, Vol. I,
p. 7, Columbo, 1957.

GENERAL ASPECTS

6

TABLE III
Per Capita Income in 1947

United States	\$1,453
Canada	870
New Zealand	856
Switzerland	780
Great Britain	773
France	482
Germany (West)	320
U.S.S.R.	308
Italy	235
* Ceylon Rs.574.9 or	121
India	57

Source: G. L. Bach, Economics, 3 ed., 1958, p.4.

* Census of Ceylon, 1953.

GENERAL ASPECTS

7

United States is rich not only in natural resources, but also in her productive resources, that is, her "capital formation and her human resources. For the American worker is considered the most productive in the world. It is only by these four methods that the standard of living of any country can be raised. It is "the combination of these four factors that make the difference between poverty and plenty".

Colin Clark in his "conditions of Economic Progress"⁴ has made a distinction between primary production such as agriculture, fisheries and mining, secondary productions such as manufacturing and tertiary productions such as services and has pointed out that all wealthy countries started with primary production and switched on to secondary and tertiary productions. Ceylon is still in her primary production stage and if she wishes to raise the standard of living of her people she must enter the secondary production stage.

Ceylon's rate of economic development will be determined not only by the availability of her natural resources, but also by the efficiency with which the human resources can be applied to those natural resources. In 1952, 70,000 have been registered as unemployed⁵, but the actual figure may be in the neighbourhood of over 200,000. There is more under

⁴ Quoted by Bach, in op. cit., ch.2.

⁵ Report of World Bank Mission, p. 261.

GENERAL ASPECTS

8

employment than unemployment. Ceylonese labour is generally inefficient and of low productivity and skilled labour of all kind is scarce. The labour inefficiency and low productivity are attributable to low income, consequent poverty and malnutrition.

Another characteristic of the Ceylonese labour is its immobility. The Ceylonese worker wants to remain generally where he was born or where he usually works. This is partly due to his attachment to his family and partly due to social custom particularly the caste system. The caste system though officially discarded still lingers and some of the older occupations that are identified with certain castes that have been labelled "low" and consequently entry into such jobs is marked with great reluctance even when needed for the expansion of an industry.

Ceylon as a consequence had to import large amount of Indian labour to man her major industries such as tea, rubber, coconut, paddy, fishing, and even domestic service. The Indian worker is considered 20 to 30 per cent higher in productivity than the Ceylon worker. Ceylon labour has shown marked preference for Government employment because of the security and status it is supposed to confer.

Another factor that is essential for economic growth, namely technology, is woefully lacking in Ceylon. This is chiefly due to the long period of foreign rule and the educational pattern that was foisted on the native population.

GENERAL ASPECTS

9

Schools were preparing children for the professions, commercial and clerical services. The emphasis was chiefly on the academic aspect and very little practical education was imparted from colonial days and Ceylon had remained a nation of primary producers and suppliers of raw materials. In her attempt at economic recovery Ceylon has to depend heavily upon imported specialist for several years to come.

Specialization in Ceylon has been limited to geographical specialization. Very little research was done in tea, or rubber, or coconut. The rest of the occupations were based on caste and they have stayed loyally in their primary stage with their primitive methods.

As far as exchange is concerned, Ceylon is just emerging from her barter system in her primary industries. Paul Mazur hit the nail on the head when he defined marketing as delivery of a standard of living.⁶ America has a very high standard of living because of her very effective and aggressive form of marketing and it is advertising that makes America hum. The United States spends nearly 10 to 20 billion dollars or 10 per cent of her national income annually on advertising. Comparatively Ceylon is unorganized in her marketing, except perhaps in her export goods, and expenditure on advertising is almost negligible.

⁶ Quoted by H.L. Hansen, in his Marketing, p. 6. Printed in U.S.A., 1956.

GENERAL ASPECTS

10

Ceylon has too long depended on the income derived from the exports of tea, rubber and coconut, and serious variations of price tend to create an unstable economy. Very little attempt was made to obtain some stabilization of prices for these goods.

Ceylon also has no mercantile shipping with the result that she is entirely dependent upon shipping combines and the freight rates fixed by such combines. This situation no doubt creates serious economic difficulties for Ceylon.

The Ceylonese love to live in the past. They have a weakness for tenaciously clinging to the traditions and this has been the greatest obstacle to any economic progress. This is one of the reasons why Ceylon has to depend on outside stimulus for undertaking any program of development.

Faced with these problems, immediately after the World War II and particularly on the attainment of political independence in 1948, the Government of Ceylon launched an ambitious program for the economic development of the Island. The first attack was made on the food front. With the threat of serious over-population still hanging over the Island the responsibility of the Government was to increase food production by improved and scientific methods. With foreign aid several irrigation and multi-purpose schemes like the Gal-Oya Valley project and the Laxapana electric schemes were inaugurated.

GENERAL ASPECTS

11

Spectacular projects in agriculture cannot alone bring about true economic progress. For a balanced program of progress there should be parallel achievements in various sectors. Rice, no doubt, is the staple diet of the people and as such its possibilities should be fully explored. Untapped and unexploited is another source of her food supply, namely the vast ocean that surrounds the Island and teeming with a large variety of edible fish. The improvement of the fishing industry will have the greatest impact on the economy of Ceylon.

The majority of the Ceylonese population is non-meat eating. Fish is the normal accompaniment to rice and fish components give the invaluable major part of the animal protein and much of the fat that is so essential for a balanced native diet. Yet this industry has suffered from most surprising neglect from both scientists and Government.

Fish production amounts only to a quarter of Ceylon's requirements and her annual import of fish and fish products was to the tune of 78 million rupees in 1956. The consumption of fish in Ceylon is only 17.6 pounds per head a year as compared with 70 pounds in Burma and 90 pounds in Japan.⁷ Ceylon, however, was better off than India which in 1948 consumed only 7 pounds per head.⁸

⁷ Times of Ceylon, 18 August, 1956.

⁸ Indian Information, October 15, 1948.

GENERAL ASPECTS

12

The aim of the Government is to increase the output by the introduction of more efficient techniques and mechanized methods. Ceylon has had a plethora of experts. Importing experts is no short cut to progress. There has been a considerable amount of confusion in this field for lack of a clear cut definition of the real needs. The World Bank Mission in its Report⁹ has deplored the haphazard importation of experts, which "has resulted in duplication and overlapping waste or poor use of specialist once obtained, sometimes procurement of the wrong type of specialist or even occasionally of an incompetent or completely unnecessary one". No blame can be attached to the specialists, they had to work on insufficient data. Often they were ignorant of the local background and the resources available. Conspicuously lacking were reliable surveys and statistical data. No program in any direction is possible without being able to see either the path we are treading or the goal which we have to reach. Reliable statistics are the "lamps that light our path on the road we want to walk". It is, therefore, essential that reliable census be obtained first about the human resources, then about the marine resources and finally the technological application of the human resources to the marine resources.

⁹ Report of a Mission organized by the International Bank for Reconstruction and Development. Ceylon Government Press, 1952, p. 39.

GENERAL ASPECTS

13

The fishermen form an important part of our economy. Their importance lies not only in their numerical strength, - for they form a considerable section of the Ceylonese people - but also on their contribution to our economic and nutritional system. Nutritionists consider fish as an important item of diet. Fishing has the promising potential of giving more food and greater nourishment to the people of Ceylon who have been graded as a C-3 Nation by health authorities.

The percentage of malnutrition is high particularly among the rural population of the country. There is widespread dietary deficiency caused by insufficiency of protein food. This deficiency can easily be remedied by the consumption of food like fish and fish products. It has been remarked that "measured by the labour involved, fish is among the least costly of all protein foods. There are no fields to plough and cultivate, no seeds to sow and no cattle to tend in order to reap a bountiful harvest".¹⁰

¹⁰ Indian Information, No. 239, October 15, 1948.

CHAPTER II

STRUCTURE AND ORGANIZATION

The Fishing Industry may conveniently be divided into the primary fishing industry, the secondary fishing industry and the fish trade.

The primary fishing industry is mainly concerned with the catching and landing of fish. The secondary fishing industry is concerned with processing the fish landed, while the fish trade is concerned with the distribution of fish and fish products.

The primary fishing industry may be further subdivided into the marine fishery and the inland or fresh water fishery.

I. Marine fishery

Marine fishery occupies a pre-eminent position in the fishing industry in Ceylon. The major part of the fishing operations is carried on along the 830 miles of coast line. There are four types of fishing grounds¹ around the Island:

1. The rock and coral continental shelf which surrounds the greater part of the Island.

¹ J. Pearson, Administration Report of the Marine Biologist for the year 1927, Government Printers, 1928, p. 22.

STRUCTURE AND ORGANIZATION

15

2. The small areas of mud and sand which lie off the river mouths.
3. The Palk Strait, a large shallow area of mud, carrying a depth of about seven fathoms.
4. The large flat rock and sand areas known as the Wadge Bank and Pedro Bank, carrying a depth of twenty to one hundred fathoms.

The first three are worked by the local fishermen in crafts and tackle of the most primitive kind.

The marine fishery may further be subdivided into the inshore fishery and offshore or deep sea fishery.

A. Inshore fishery

The inshore fishery is organized into a variety of enterprises ranging in size and varying from a one-man operation to the most comparatively expensive Beach Seine Fishing. The kinds of equipment used are bewildering in their variety and the multiplicity of names in different districts for what may be regarded as the same kind of fishing appliance. There is, however, always some difference between the differently named gear in the nature or quality of thread, the dimensions and the size of the mesh.

1. Beach seining

Of these still the most productive method of fishing is the Beach Seining. In 1953 and 1954, it produced over

STRUCTURE AND ORGANIZATION

16

30 million pounds² of fish per year which is approximately 40 per cent of the Island's total fish catch.

There are seven different Seine nets with wings and bags. The Maha dela and the Katumaran dela used by the Singalese fishermen, while the Kara Valai, Nethali Valai, Tholi Valai, Adasi Valai and Ola Valai are mostly operated by the Tamil fishermen of the Northern and Eastern coasts. The operation of all these Beach Seine nets is almost alike. The inshore Seine net is a drag net of great size. Essentially the net consists of four parts. The cod end, a fine-meshed sack, knit of cotton, or hemp twine. The body, a slightly coarser meshed section, knit of cotton twine, cone shaped and fastened to the bag. Roughly both the bag and body will be about 24 fathoms in length. The body is fastened to two wings on either side. Each wing is a long coarse-meshed curtain of coir-rope netting extending to nearly 200 fathoms. The mesh of the wings gradually decrease in size toward the apex of the bag. To the extremities of the wings are attached two hauling ropes nearly half a mile long, made of coir.

This four part basic design has many variations both in size and structure, depending on the coastal features, the number of fishermen available for hauling and the varieties of fish which the net is designed to take. The method of

² J. C. Medcof, Progress, Report No. 1, Government Press, Colombo, 1955.

STRUCTURE AND ORGANIZATION

17

operation is the same in all beach Seining. The net is taken out in flat bottom boats, Vallams or Paru, some distance from the shore and cast into the sea and hauled back on shore by beach-based fishermen numbering thirty to forty equally divided at the two hauling ropes. The small boat follows the net as it is being hauled and by splashing the water prevent the fish escaping from the bag.

Nearly fifty different types of fish are caught by the beach Seine nets, particularly sardines, herrings, mackeral and a springling of the king fish, cavalla locally known as sier and all of which are of considerable economic importance. The sardines occur in large shoals during the North-East Monsoon, November to April, when they travel from East to West round the coast and are often taken in very large quantities by shore seine nets. For shoal fishing, the beach Seine net has so far never been surpassed. The net is ideally suited to capture shoals. But shoals do not always appear. The Nethali and Tholi Valai are used for the capture of shoals of anchovies and sprats.

The Beach Seining is either "Blind Seining" or "Shoal Seining". "Blind Seining" is carried out without sighting any fish beforehand. In this method of fishing, the net is set at times and in places where experience has shown where good catches could be realized. In the other method, "Shoal Fishing", the nets are set around a surfacing shoal of fish

STRUCTURE AND ORGANIZATION

18

that has been sighted by watchers posted for that purpose either in land or off shore in boats. This, no doubt, requires energetic pursuit of moving shoals and careful manoeuvring that definitely demands a thorough knowledge of fish behaviour such as only the best fishermen possess.

The boats used are non powered and human labour supplies the power required to move the boats for setting the seine and to haul the seine back unto the beach.

Successful beach seining requires a very large amount of cheap labour. The immigration laws recently passed by the Ceylon Government has drastically reduced the available Indian labour and this has considerably affected the inshore seine fishing.

2. Drag nets.

There are nine different kinds of drag nets. The Kuddu Valai, used by the Tamil and Muslim Fishermen in the Puttulam Lake, the Arakkuddi Valai, used in Mannar, the Paddu Valai, and the Thumai Valai, both used in Kayts and Jaffna, the Kulu Dela in use in Panadere, the Kondaddi Valai, used in Batticaloa and Kankesanturai. These are all a kind of trawl nets dragged through the shallow waters by two men. The net consists of a long shallow bag made of fine string, the mouth of which is kept open by a number of stakes each about two feet long.

STRUCTURE AND ORGANIZATION

19

Another type of drag net is the Pala Dela commonly used in the brakish river at Bentota. The net is used in conjunction with ropes 12 to 15 fathoms, and carrying coconut leaves (rena). The net is fifteen feet by twelve feet. Each end of the net is supported by a pole of ten feet long. Four men are needed to operate this net.

A further type of drag net is the Raal Valai used at Kayts for prawn fishing. The net consists of a bag with two pouches and the mouth of the bag is held open by five upright sticks, four feet apart. To each of the two ends of the net are attached two ropes which again are attached to a pole held by a man. The lower side of the net is kept down by a foot rope. The width of the mouth of the net is two and a half fathoms and its height is four and a half feet, while the length of the bag is two and a half fathoms. Two men are needed to operate this net.

3. Fixed stake nets.

There are twelve different types of fixed stake nets. The Kalankaddi Valai, the Arakkuddi Valai, the Kon-daddi Valai, the Kurukku Valai, the Nittu Valai, the Sil Valai, and the Kandi, used in Mannar, Kalpitiya and Jaffna, while the Kattu Dela with wings and bag, the Kulu Dela, the Unaddiya, Akulwetiya and the Jakottuwa are used by the Singalese fishermen in the South.

Of these the Kalankaddi Valai, Arakkuddu Valai, Kurukku

STRUCTURE AND ORGANIZATION

20

Valai, Kondaddi Valai and the Akulwetiya are of some considerable importance. The Kalankaddi Valai is a fixed stake net, consisting of the middle portion known as the madi which is a trap 4 feet high and one inch mesh and on either side is an enormous stretch of net several hundreds of yards long supported by stakes. It is set in the mud in the shallow water and during the flood tide the stakes are not fixed so that the net lies horizontally and as soon as the ebb begins the net is raised so that many fish are stranded. The net is kept usually three days in one place. In the Jaffna Lagoon the area inside the wings is then dragged by means of another net known as Paddu Valai.

The Arukkuddi Valai is similar to the above net but a little more elaborate. At the outer wings are attached long lines or ropes carrying olas, palmyrah leaves. The length of the vertical net is 35 fathoms and the Ola line is about 80 to 100 fathoms. Six men are needed to operate this net.

The Kurukku Valai is a stake net with a complicated arrangement. The eight nets used are 4 feet high and three fourth inch mesh, all arranged in a maze. The fish find their way in but have some difficulty in getting out again.

The Kondaddi Valai is a fixed net with a long bag. The foot ropes of the mouth is placed below the mud. Each side of the mouth is kept open by stakes. Two short wings attached on either side of the mouth are also kept erect by the two

STRUCTURE AND ORGANIZATION

21

stakes at each extremity. The width of the foot rope is 3 fathoms, the depth of bag from foot rope is 5 fathoms and the height of mouth is 6 feet. The mesh of the net is half an inch. The fish are driven into the net by means of a long ola rope which is dragged through the water by two men. Four men are needed to work this net.

The Akulwetiya is used in the Southern Province at the mouth of rivers. Each trap or kraal consists of a vertical rattan barrier, leading into a number of heart-shaped traps. It is a one-man enterprise.

4. Fixed nets with bag.

There are three types of fixed nets with bag. The Manni Valai, the Vidu Valai and the Hondediya. The Mani Valai used in the Puttalam Lake by the Muslim fishermen, is made of medium string consisting of a very long bag 12 fathoms long, the height of the mouth 5 feet and depth of the bag 8 fathoms and the mesh is one and a half inch. Two nets are generally placed side by side and held open by two men while two other men holding a ola rope 100 fathoms long drag it in front of the two bag nets thus driving in the fish. It is a four man operation.

The Vidu Valai used at Kalpitiya, Talaimannar, Kayts and Jaffna, is a net with a huge bag seven and a half fathoms wide and three fathoms deep. It is used in shallow waters as the above net.

STRUCTURE AND ORGANIZATION

22

The Hondediya, on the other hand, is used in the Bentota river. The bag is 30 feet long and 20 feet wide with four inch mesh. The method of use is similar to the Vidu Valai with series of floats on the upper side of the mouth of the bag.

5. Fish and crab traps.

Seven different types of nets are used for trapping fish and crabs. The Parakudai, used at Point Pedro in North Ceylon, is a fish basket with four entrances. At Kayts it has only one entrance. The Kemina, used in the Western and Southern Provinces, is a rattan fish trap. The Koraliya, the Kakula dela, the Karakagediya are different shaped traps found in the South, while the Karappu, the Ora Kudai, and Ooddi Kudai are common in Northern shallow waters.

6. Casting nets.

The casting nets include perhaps the largest variety of nets. There are 23 known casting nets. The Veechu Valai, the Raal Valai, Meen Valai, Suda Valai, Kuttuwa Valai, Chanal Valai, Eerilai Chomal Valai, Koi Valai, Muttukkam Valai, Arippu Valai, Panthagam Valai, Palameen Valai are commonly used in the Northern shallows, while the Wesi Dela, Ahalawuru Dela, Thi Dela, Karala Dela, Wetta Dela, Wara Dela, Ehelamburu Dela, Baru Dela, Wek Dela, Ath Dela, and Korumburuwa Dela are employed by the Sinhalese fishermen in the South.

STRUCTURE AND ORGANIZATION

23

The Casting nets are all almost similar. The most typical example is the Wesi Dela or Veechu Valai. It is the commonest kind of net found in Ceylon. It is a round net with a radius of 8 to 10 feet and half inch mesh. The net is weighted with smooth zink blocks at the edges. Of these nets the Suda Valai of the Northern coast and the Elana Dela of the Southern coast, have the structure of a casting net, but are too big to throw. The nets have a radius of 45 feet when expanded. The mesh one and a half inch,^{is} made of fine white thread. These nets are taken out either in the Catamarans or boats, and bit by bit the weighted edge is dropped overboard till the boat makes a circle.

7. Lagoon fishery.

The Ceylon Lagoon Fisheries are very productive. The most sheltered Lagoons are the Negombo Lagoon, the Balapitiya Lagoon and the Kottiyar Trincomalee Lagoon. In the Negombo Lagoon the Kaddai is used. This consists of a group of three or four trunks of coconut trees fixed in the mud and projecting a foot or so above the water. Around the stakes dead branches are placed, thus affording an attractive shelter for fishes. The Kaddais have been a source of trouble between the Munnakarai fishermen and the Sea Street fishermen of Negombo. The Sea Street fishermen fish in the open sea when the weather is favourable, at other times they practice net fishing in the lagoon. The Munnakarai fishermen are

STRUCTURE AND ORGANIZATION

24

lagoon fishermen and they have regarded the kaddais as their special reserve. This dispute is a long standing one, dating as far back as 1878, when the Assistant Government Agent of Western Province, Mr. Green, caused all Kaddais to be removed and for twenty years after that a few stakes were erected.³ In 1912, the dispute became so serious that an inquiry was held by Dr. J. Pearson, the Marine Biologist, at whose recommendation, by-laws were made which made the Kaddais free to every one for fishing purposes and made it an offence to use any kind of net within the Kaddai area. (vide Appendix I)

Another type of trap used in the Negombo Lagoon in the backwaters of Pitipana and Duwa is the Kottu. The Kottu is constructed of dead twigs and branches in water sufficiently shallow to enable a man to wade out to it. The Kottus are often left unvisited for about a week and in that time attract young fish and prawns. Then the Kottus are surrounded by a stake net of three fourth inch mesh. Two men then enter the enclosure and after removing the branches proceed to entrap all the fish. Owing to the destruction of many immature fish the Kottus were prohibited. (Vide Appendix I)

The Balapitiya Lagoon is made of the main Madu Ganga or lagoon, the Randombe Lake and the River making in all a

³ Bulletins of Ceylon Fisheries, Vol. I.3, p. 122.

STRUCTURE AND ORGANIZATION

25

total of 1890 acres.⁴ The prawns caught in this area support a big off-shore fishery. For the deep sea fishermen of that area depend on this fishery for their bait. A fair portion of the catch is used for local consumption. The present regulations permit the use of the traps or kraals, hook and line and cast-nets, whose mesh is one inch from knot to knot.

The kraals are made up of bamboo screen which leads into a one way trap where the prawns and other fish are caught. The catch is collected at regular intervals. A kerosene lamp is kept in the trap to attract the prawns into the trap. There are altogether 90 traps distributed all over this lagoon area.

The Atoli is another type of trap which has a screen made of a similar material which leads the fish into a rectangular area, where a rectangular net that fits into the rectangular space is fixed horizontally. Two men keep watch at the end and when a fish is seen entering this rectangular area, the end of the net ^{that} is at the bottom is lifted and the fish is thus trapped.

A bag net known as Madi dela is used at the mouth of the river. As regards the productivity of the lagoon fishery, Dr. Ling, the F.A.O. Fish culturist, comparing the Ceylon lagoons with some of those on South East Asia, estimated the annual production of prawns at 50 lbs. an average per

⁴ Progress Report, No. 2. Fisheries Research Station, Government Press Ceylon, p. 5.

STRUCTURE AND ORGANIZATION

26

acre.⁵ If the methods of fish farming obtaining in the Dutch East Indies were adopted it will enable the fishermen to obtain a larger supply of fish with much less labour. In East Java productivity is said to be very high in experimental areas where the catches ranged from 230 to 830 lbs. of prawns per acre besides a normal yield of chanos.⁶

B. Off shore or Deep sea Fishing

There are nearly fifty-two varieties of gill nets used in the off shore of Ceylon. We may conveniently divide them into four big groups.

1. Vertical nets.

These gill nets have floats at the top and weighted at bottom.

a) Drift net in straight line.

There are nine of them. The Sippi Dela, Palluna Dela, and the Kumbala Dela are operated from outrigger canoes by the Sinhalese fishermen of Negombo and South Ceylon, while the Vella Valai, Adasel Valai, Vali Valai, Adasial Valai, Vedi Valai and the Sura Valai are the mainstay of the deep sea fishermen of the North.

⁵ Progress Report, No. 2, op. cit., p. 9.

⁶ Ibid., p. 9.

STRUCTURE AND ORGANIZATION

27

The size of the nets vary from place to place. The length is 12 fathoms to 75 fathoms and the depth 2 to 3 fathoms and the mesh is about two to three inches.

The Sipi Dela is taken out into the deep and paid off from a boat or tepam and the net floats in a vertical position. Six men advance towards it and drive the fish into the net. The Kumbala Dela used in Negombo is made of two pieces attached together, each being 45 yards and 3 yards in depth. Only one Kattumuram is used and paid out. The Vella Valai, on the other hand, is 50 fathoms long and is taken out to the high seas by 2 small non-powered boats and the net is paid out and the men in the two boats retain the ends. In this way the net is allowed to drift. The Vali Valai, used in Point Pedro and Kankesanturai, is 18 fathoms long and 2 1-2 fathoms broad with 4 inch mesh. It is taken out in a single catamaran and lowered in the deeper waters to drift. If it is cast at 7 p.m. it is generally examined at 12 p.m. and 6 a.m.

b) Gill net anchored at one end or both ends.

The Kattu Valai used in Nachchikuda, Jaffna and the Heen Dela are the only two types of this kind. The Kattu Valai is a vertical net floated at the bottom with stones. About 30 nets are joined together. The Heena dela used at Mikkaduwa in the South is a vertical net stretched across the River. Men splash the water and drive the fish into the net where they are caught by the gills.

STRUCTURE AND ORGANIZATION

28

c) Gill Nets anchored but fish not driven into it.

There are eleven such nets. The Elana Dela used at Lunawa, Wak Elana Dela, Kud Dela, Kanni Dela, Katta Dela, Pala Dela and the Elana Dela of Tangalle all used by the Sinhalese fishermen, while the Pachchu Valai, Kaddu Valai, Suramal Valai and Tirukka Valai, are utilized by the Tamil Fishermen.

The Elana Dela of Lunawa is a vertical net bouyed along the upper side. It has a depth of 2 feet and does not reach to the bottom. The other nets used by the Sinhalese fishermen are of larger dimensions and made of stronger string.

The Pachchu Valai used in the North is a drift 50 fathoms long, 2 fathoms high with a 3 inch mesh. This net is cast during the night, anchored at one end. Fish caught by the gills are collected the following day.

The Kanni Valai used in Chilaw and Kalpitiya for shark fishing is a vertical net made of coarse rope and has a mesh of 15 inches. The upper edge of the net is supported by a series of floats. The net is taken out to the open sea and lowered with one end anchored by means of a heavy stone. This net is generally left out seven or eight days, but is examined every day.

d) Gill nets held by men at one end or both ends.

The Koddawa Valai, Nachchi Valai, Wala Valai in the North and the Heen Dela in the South are of this type. These

STRUCTURE AND ORGANIZATION

29

nets are worked by two men. The nets hang vertically and the fish are caught by the gills.

e) Gill nets placed around shoals.

These are vertical nets with wooden floats on the upper side and weighted with stones at the lower side. The Vella Valai 12 by 3 fathoms and 2 inch mesh, is taken in boats when a shoal is sighted and let down around the shoal. It is used in Point Pedro. The Ora Valai used in Kayts is 3 1-2 fathoms long and 3 feet high with 2 1-2 inch mesh. The Amai Valai and the Thoddandi Valai are used for turtle fishing. The Amai Valai is 100 to 150 fathoms in length, 3 to 4 fathoms in height with 1 foot square mesh. This is used in Mannar Point Pedro and Jaffna. It is a vertical net bouyed along the upper side. It is taken out in small boats and allowed to hang vertically in the water and anchored at one end. When the turtles come to breed, the fishermen surround their breeding places with four or five nets. The Point Pedro net is 9 inch square, while the Pariahs of Iranaitivu use a mesh of 1 1-2 feet square.

The Thoddandi Valai used at Kankesantura is 25 by 3 fathoms with 8 inch square mesh. Besides turtles, sometimes dugongs, sharks and purpoises are caught in the two last named nets.

f) Gill nets and boats for circling shoals.

The Suraya Valai, Kumbula Valai used at Puttalam by

STRUCTURE AND ORGANIZATION

30

Muslims, the Siri Dela used in Negombo and Chilaw, the Kuddu Valai, Koduwa Valai and Vali Valai in Jaffna and Erukalampidy, the Suda Dela and Katta Dela of Negombo, are all vertical nets often four pieces joined together are taken out in small Vallams or Cattamarans. Two boats stretch out the net and when a shoal is sighted the two boats encircle the shoal.

g) Gill nets with stake at one end and boat at other end.

The Sippi Valai is a vertical net made of fine white string, floated along the top edge with wooden sticks one foot long and 1-2 inch in diameter, in the shape of oyster shells. (Sippi means Oyster shells).

When a shoal of fish is seen one end of the net is tied to a stake fixed in the mud. The remainder of the net is taken in a canoe and is gradually paid out as the canoe travels in a semi-circle. Then the semi-circle is completed the boat or the canoe makes its way back to the stake thus completing the circle and enclosing the fish. The length of the net is four pieces of 40 fathoms each with 4 1-2 feet depth and 2 inch mesh.

h) Gill nets with boats at each end.

Here the net forms a horse-shoe and the other boats drive the fish into the net. All the four types the Chanal Valai, the Chillu Valai, the Pattu Valai, the Aruta Valai and the Siru Vali are operated by the Tamils in Batticaloa. The

STRUCTURE AND ORGANIZATION

31

Channal Valai is a vertical drift net made of thick string and has floats along the top. The net 100 fathoms long, four feet deep with four inch meshes, is taken in canoes and gradually paid out and finally assumes the shape of a flattened horse-shoe. Then three boats approach the concave side of the net and the fishermen make a noise with their paddles on the side of the boat, thus driving the fish towards the net in the meshes of which they become entangled. The net is then hauled onto the two boats. The other nets though smaller in size are similarly used.

i) Gill nets dragged by boats in a straight line or crescent.

The Suda Dela is the only one thus used in Chilaw and Jaffna. It is a vertical net 30 by 4 fathoms with one inch mesh. It is taken out by two boats and is used in conjunction with the Maha Dela or beach seine net. As the beach seine net is hauled, this net is dragged by the two boats behind thus catching the small fish that escape from the beach seine net.

ii) Unweighted floating Gill nets.

The Parawa valai used in Point Pedro is a net made of very fine string and is bouyed every 15 inches by small floats. The lower part of the net is not weighted. The net is paid out from a Catamaran in 3 or 4 fathoms of water and

STRUCTURE AND ORGANIZATION

32

it floats on the surface. Generally the flying fishes are caught in these nets.

iii) Horizontal Gill nets.

The Pachchu Valai of Jaffna, the Atoli Dela and the Koralaiya Dela of the South are the three known types. The Pachchu Valai is a horizontal net with a long pole attached to each end. The net is five fathoms long and seven feet wide with 1-2 inch mesh. The net is taken in small boats or Val-lams, and allowed to lie horizontally in water. A man holds each end by the long pole so that while the central part lies on the bottom the two extremities are held two feet high. The two other fishermen drag a long ola line toward the net. Some of the fish jump into the net which is then lifted above the surface of the water.

The Atoli Dela used in the South, is a horizontal net, two ends of which are attached to long poles driven in the mud, and are suspended well above the water. Each of the other two corners is held by a man standing on a platform or ladder also driven in the mud. The net lies just below the water and when the fish appear the two men raise the net above the water thus capturing the fish. The Koraiya Dela is similar, but the two men lift the two ends by means of poles as at Ambalangoda.

STRUCTURE AND ORGANIZATION

33

iv) Circular Gill Nets.

There are three such nets. The Suda Valai used by the Tamil fishermen and the Elana Dela and Ahurana Dela of the Sinhalese fishermen. These are larger cast nets with a radius of nearly 45 feet. They are taken out in boats and bit by bit the weighted edge is dropped overboard and the boat meantime describes a circle.

2. Line and Hook.

The line and hook fishing is perhaps one of the oldest type of fishing. The line and hook are attached to a pole and are used to angle fish one by one. It is the mainstay of small scale fishery among some of the coastal people. The size of the fish hook varies according to the fish species.

Besides the single pole and line fishing, there are twenty different kinds of long line fishing. The Thundi Valai, worked with ten lines from a boat, the Kallawallu Yotha, 300 fathoms long with iron barbed hook for capturing sharkes and other big fishes, the Parawa Yotha, 200 fathoms long, the Yothathana Yotha 200 fathoms long, used in Matara, the Thundal Valai with 100 hooks and floats placed between each pair of hooks, the Thundal, Velirai Kiru, Sura Kiru, Thundal Kiru are used by the Tamil fishermen while the Mudulanuwa, Bili Hada, Pahaya Biluju, Kopujawa, Puduwa, Kahaw Bilija, Eyem Bilija, Heen Yotha, Kahawa and Yotha Saha Bilija are the mainstay of

STRUCTURE AND ORGANIZATION

34

the fishery in the South. The shark hook used in Panichchen-keni is a single barbed hook attached to a pole for capturing sharks.

3. Spear Fishing.

Spear fishing is another form of deep sea fishing which is popular in Ceylon. The appliances used are the Mandal and Manda of the Tamils and the Malu Kottanakaduwa and the Aulun Biliya of the Sinhalese. The Mandal is a weapon consisting of a wooden handle about 9 feet long with an iron head carrying 9 barbed pointed prongs. Three men go out in a canoe. One at the prow hold the Mandal, the middle man holds the torch made of coconut leaves and the man in the stern paddles.

The Manda is a pole 9 feet long bearing at its end a releasable 2-pronged fork each bearing a single barb. The prongs are about 9 inches long. The Manda is used at night for spearing fish from a canoe. On the canoe a small platform is constructed on which is placed an earthen vessel full of burning wood. The fish are attracted by the bright light, generally two men are in the canoe, one with a paddle sits in the stern while the other stands at the bow holding the manda. The pole is attached by a thin string to pull back the manda after spearing.

The Malu Kottankaduwa is another interesting weapon used at Kalutara. The weapon consists of a slightly bent

STRUCTURE AND ORGANIZATION

35

piece of iron 3 feet long. For a distance of about 15 inches from the end there are 20 barbed hooks set close to each other. The other end of the iron is fixed in a short wooden handle 7 inches long and to which is tied a double rope about 4 feet long which the fisherman ties securely around his waist. Two men collaborate in this operation. One is at the paddle while the other holds a torch. When the fish attracted by the light approach close to the boat the man strikes.

The Aulun Bilija used at Ambalangoda and Kalmunai Eastern Province is a short pole of 3 feet at the end of which is fixed a hook 8 inches long. This is used for pulling large fish onto the boat after being caught on a line.

4. Scoop Nets.

The Pandan Athangowa, the Athangowa, Dello Athangowa and the Kakula Athangowa, are hand nets attached to poles of varying length with which fish is scooped out of the water.

5. Sundry Devices.

The Issan boat is an interesting appliance used by Panadura fishermen for transferring prawns from the river to the sea for bait. It is a boat shaped box, 6 feet long, having wooden bottom and sides and open at the top. In the middle of each side the wood is interrupted and its place is taken by a series of tats which allow fresh water to enter the box and thus the prawns are kept alive. The box is placed

STRUCTURE AND ORGANIZATION

36

beneath the two supports of the outrigger of the canoe and in that way it is transported.

The Rena is the name given to a long rope with coconut leaves attached. It is used for driving fish into the net.

Lamp fishing is done at Weligama at night with the aid of a Kerosene oil lamp. The Paha is a large wicker basket tied to the side of a canoe to carry live baits to sea.

The Kodaicheelai is a rude imitation of a fish made in cloth, and stiffened by three sticks and a weight attached to the end. Fishermen in the Eastern Coast carry two of these in each boat and they are attached by a line one on each side of the prow. The fish are attracted by the white cloth and the fishermen harpoon them with the manda.

The float is another device used at Panichchenken. It is a float made of two pieces of stick which are used in fishing with a hook. The smaller float is 3 1-2 inches and the larger one is 2 feet in length. The hook carries a bait. When fish is caught the smaller float sinks denoting the presence of fish.

6. Mechanized Fishing.

The mechanized fishing is of three types: the trawler fishing, the tuna fishing and the out boardmotor fishing.

The trawler fishing in the Wadge Bank was attempted by the Government Trawlers the 'Lilla', the 'Violet', the

STRUCTURE AND ORGANIZATION

37

'Nautilus', the 'Reglan Castle', the 'Halpa', and recently by the 'North Star' and the 'Canadian'. These were mostly experimental. The only commercial fishing carried on in the Wadge Bank was by the Ceylon Fisheries Company in 1928 with the two trawlers the 'Bul-Bul' and the 'Tongol'. Their success was short lived. Recent studies⁷ made of the Wadge Bank and the Pedro Bank by S. Sivalingam and J.E. Medcof indicate the enormous untapped resources found in these two banks.

The tuna fishing is carried on by the recently formed Ocean Foods and Trades Ltd., a joint Ceylonese-Japanese venture. This company is engaged mainly in exploiting the resources of the upper waters of the deep sea to avoid competition with local fishermen. For this purpose the company has purchased a long line tuna fishing vessel named 'Meegamu Maru', equipped with the latest scientific devices such as echo sounders, fish detectors and long-range-wireless telegraphy. This vessel carries a crew of twenty-five officers and men; and except for six Ceylonese apprentices, the entire crew are from Japan.

The 'Meegamu Maru' has its base in Colombo and goes as far as a thousand miles in search of the pelagic tuna. The technique adopted by the crew is the long line method. The

⁷ Progress Report No. 2, Government Press, Ceylon, p. 2.

STRUCTURE AND ORGANIZATION

38

vessel carries on each sailing nearly three hundred batches of long line, to which are attached thousands of hooks. The lines extend to nearly 30 to 40 miles and are supported at intervals by glass or polythelene floats. The lines after being kept in the sea for about ten hours are drawn in. The entire operation takes almost twenty hours. On the deck the fish are eviscerated, the gills removed and the fish are then stores in refrigerated holds. Within nine months from November 1955 to July 1956, the 'Meegamu Maru' had done fourteen trips and landed approximately 749,000 pounds of fish.⁸ The company sells fish on contract to the Ceylon Cooperative Fish Sales Union which acts as a sole distributor. The fish generally caught by the 'Meegamu Maru' are yellow fin tuna, sail fish and marlin.

The third type of mechanized fishing is the outboard motor fishing, adopted recently by the local fishermen. Hitherto all local fishing was conducted in non-powered crafts. The Cattamaran was the most ancient and primitive craft. Literally it means binding logs together. As a rule three to five planks are lashed together with coir because lashing stands the ever shifting cross stresses as no nail could. The central plank is longer than the others and shaped to a rough bow at both ends, or a stem piece may be added separately at these

⁸ Time of Ceylon, Imperial Visit Supplement, Saturday, August 18, 1956.

STRUCTURE AND ORGANIZATION

39

ends. The wood used is Lunumidella. The Negombo Cattamarans are about ten feet long while those used in Jaffna reach up to fifty feet. Many have mast and a triangle like sail.

The narrow outrigger sailing canoe or 'oru' are made in various lengths and widths to suit different types of operation from rod and line fishing, seining and drift netting near the shore to drift lining, trolling, pole fishing and handling at distances ranging to 25 miles from the shore. The outrigger canoe used South of Colombo rarely run above 20 feet long by 2 feet beam. Both mast and gaff are usually made of bamboo, but the hull is cut out from any tree having the requisite size and strength, but usually of jak or wild bread fruit. (*Artocarpus nobilis*). The booms which carry the outrigger is of domba (*Calophyllum inophyllum*) and the outrigger itself is often of lunumidella (*malaria dulia*). The sail is oblong.

On the West Coast it is the 4-log raft or 'teppam' which is used principally for drift netting. The larger flat bottomed beach seine boat or 'paru' is utilized for carrying heavier nets, in the North East Coast.

The 'Vallam', a carvel built sailing boat of South Indian type is in regular use in the Jaffna area.

The 'Padavu', a larger sailing boat of 30 to 40 feet is used for beach seining in the Northern waters.

The fishermen had hitherto contended themselves with these sailing or rowing or pole-propelled craft for their

STRUCTURE AND ORGANIZATION

40

operations. None of these crafts was equipped with engine.

From the time the fisheries ordinance was passed in 1940, the Central Fisheries Union and members of the Fisheries Advisory Board aggitated for the appointment of a qualified Director of Fisheries. The Post was advertised. Dr. N.M. Carter of Canada⁹ was recommended by the Colonial Office, but owing to the outbreak of the Second World War, the post was left in abeyance for some time and Dr. C. Amirthalingam, who was appointed to act, was later confirmed as Director of Fisheries. It was during his time that a formidable array of experts was got down. First, there was Mr. Hickling, the Colonial Office Fisheries Advisor in 1947, and after him three Danes, Drs. Peterson, Blegrad and Myrup followed Drs. Kestener and Ling of the F.A.O. Fisheries in 1948 and Dr. C.C. John of Travancore, in 1949. Mr. G.L. Kestevan, Fisheries Representative of the F.A.O., arrived in 1950, and each of them made their recommendations in their respective Reports which were released to the public in 1951.¹⁰ It was in 1953 that after several experiments that Mr. Kvaran, Marine Engineer under F.A.O., assisted Mr. Glanville to install a Scandia 10 h.p. marine diesel engine which had been supplied by the F.A.O. in a Jaffna beach seine boat. By 1954, seventeen

⁹ Dr. N.M. Carter is today the Special Assistant and Associate Editor, Fisheries Research Board of Canada, 1959.

¹⁰ Ceylon Daily News, 20 April, 1951, p. i.

STRUCTURE AND ORGANIZATION

41

engines supplied by the F.A.O. were sold to boat owners in the North for half price. In 1955, Canada has gifted 40 engines to the Ceylon Government for sale to fishing boat owners. These ten petter 10 h.p., 15 coventry Victor 7-9 h.p. and 15 coventry 5-7 h.p. marine engines were available to fishermen on a down-payment of one third of the landed cost, the balance being payable in 22 instalments within two years of taking over. The cost is between Rs.2300 and Rs.3200. These engines have been fitted in Jaffna, Negombo and Trincomalee. In Jaffna, they have been fitted to a beach seine boat, 22 carvel built South Indian type 'Vallams' and one dug out canoe.¹¹

Experiments carried on with mechanizing the outrigger canoe or 'oru' has shown that the penta outboard motor with bracket attachments could be successfully introduced.¹²

7. Chank Fishing.

Chank fishing too dates back to very ancient times. The chank most abundant in Ceylon is the turbinella pyrus linne, with a yellowing inner lip. The shell is carved into bangles, and children's feeding spouts. It is also used as a wind instrument. It is hung round the necks of cattle to prevent disease and utilized for various other purposes. The sinistral chank with the whorls directed anti-clock wise

¹¹ Progress Report, No. 2, July, 1956, p. 34.

¹² Ibid., p. 25.

STRUCTURE AND ORGANIZATION

42

is such a rarity that it fetches fancy prices.

Up to 1842, chank fishing was a Government monopoly. This monopoly was abolished and until 1890, the fishing for chanks was regulated by Ordinances Nos. 4 and 5 of 1842 under which divers and boats were licensed. In 1890, in consequence of certain abuses, a new ordinance known as the Chanks Ordinance of 1890 was passed. Under this ordinance, licensing fees were abolished and an export duty not exceeding one cent per chank was substituted. No export of chanks was allowed except through the Ports of Kankesanturai, Kayts, Jaffna and Pesalai. It was further prohibited to fish for chanks in the inshore area of the pearl banks.

In 1929, the Chank Ordinance of 1890 was further amended to permit the collection of chanks within the inshore area of the pearl banks under the supervision of the Marine Biologist. (Vide Appendix I).

In the thirties, about 70 large boats came from Kilarai, South India, Kayts, Nainativu and Jaffna with a crew varying from 6 to 21 in addition to about 80 small canoes. The Divers operated from each boat in pairs. Generally a certain type of oil was poured into the sea to make the vision clear. The average catch per day was only 15 to 20 per diver. The chanks were either sold to contractors at 15 to 25 cents per chank, or sold to merchants at 20 to 40 cents per chank. All chanks sold were taken to Kayts and exported to India as

STRUCTURE AND ORGANIZATION

43

required by the Government Regulation. The figures in Table IV, collected from the Administration Report of the Marine Biologist¹³ for ten years, show the amount of chanks exported and the Royal collected.

Due to a slump in the Chank Shell Market the export decreased and with outbreak of the Second World War and with tighter immigration laws the Indian divers ceased coming and now chank fishing is almost in a moribund state.

8. Pearl Fishing.

The fame of the Ceylon Pearl is as old as History and even goes beyond into the realms of legend and myth. According to a 'Kalvettu' quoted by Sir William Twynam, the legendary Alliarasany's pearl divers established the settlement of Kudiramalai and Silavaturai along the North West Coast. Alli was the paramour of Arjuna of Mahabaratha fame. There is also the legend of this queen having supervised the pearl fisheries Arativu on the Calpentiyn peninsula.¹⁴

The Mahawamsa refers to Vijaya's gift of pearls and chanks to his father-in-law the King of Madura in the 5th century before the Christian era.¹⁵ Vijaya was the first king of Ceylon (483-445 B.C.).

¹³ Administration Reports, Marine Biologist, 1927-1938.

¹⁴ Rasanayagam. C. Mudlr., Ancient Jaffna, Colombo, 1925.

¹⁵ W. Geiger, The Mahawamse, translated, Guildford & Esher, 1912, p. II.14.II.16.

STRUCTURE AND ORGANIZATION

44

TABLE IV
 Chanks exported and Royalty collected
 1919-1938

Year	Chanks exported	Royalty collected	
		Rs.	Cts.
1919-1928	2,305,664	10,770.2	
1930	2,193,967	28,667.14	
1931	1,240,440	16,690.35	
1932	1,326,846	14,684.33	
1933	1,128,564	11,517.42	
1934	1,106,605	10,357.92	
1935	1,256,202	12,085.56	
1936	1,908,325	17,326.49	
1937	1,669,745	26,314.93	
1938	781,083		

Source: Administration Reports, Marine Biologist,
 1927-1938.

STRUCTURE AND ORGANIZATION

45

King Devanampiya Tissa sent an embassy to Asoka with gifts containing eight different types of pearls.¹⁶ Devanampiya Tissa reigned from 247 to 207 B.C.

Pliny in the 6th Book of his "History of the world" refers to Taprobane as "the most productive of pearls of all parts of the world". Ptolemy, Strabo, Athenaus, Aelian and the Author of Periplus of the Erythrean Sea have all recorded the fame of the Ceylon pearls. The Periplus written about the 2nd century A.D. refers to the use of convict labour in the pearl fishing in Ceylon.

The first and the most detailed description of the Ceylon Fisheries given by a western observer was by Marco Polo in 1294. He was followed by Jordanus, who writing in 1330, refers to more than 8000 boats taking part in this fishing and "an astounding and almost incredible" quantity of pearls being collected.¹⁷

With the advent of the Portuguese in the 16th century we have more frequent reference to the Ceylon Pearl Fisheries, perhaps the finest description is by Ceasar Frederick Teixeira in 1608 and Ribeiro in 1685.

When the Dutch arrived in 1658, they too carried on the Pearl fisheries about which Saar, Schwitzer in 1680,

¹⁶ Ibid., pp. 28, 36, 34.47.

¹⁷ Alfred Edward, Ceylon Today, Nov., 1955, p. 6-11.

STRUCTURE AND ORGANIZATION

46

Hespert in 1669, and Frykes in 1692 have left interesting accounts.¹⁸

When Ceylon passed to the British, they too continued the monopoly of the pearl fishery and Percival in 1803 and Cordiner in 1807 have left us very detailed description of this great enterprise.

The pearl oyster is found in Tambalagam Bay in Trincomalee, along the coast near Negombo and Chilaw, but the most famous area for Ceylon pearls is in the Gulf of Mannar. The Pearl Banks or 'Paars' lie 20 to 30 miles west of the coast between Arippe on the estuary of the Aruvi Aru. There are eight well-known 'Paars' namely, the Twynam Paar discovered in 1923, the True Vankalai Paar, Peria Paar Karai, Cheval Paar, West Cheval Paar, Moderagam Paar, and the Peria Paar, all at a depth of 5 to 10 fathoms, where the pearl oyster breeds. Though the breeding ground is second in extent only to that of the Persian Gulf, pearl fishing in Ceylon is characterized by its intermittent and uncertain nature.

During the period of the Dutch, the yields of the pearl banks were inconsequential and uneconomic. Their last pearl fishery was held in 1768, and the British had it in 1796. There was no fishery between 1732 and 1746, also between 1820 and 1828, between 1837 and 1854, 1864 and 1873, 1892 and 1900 and again from 1925 to 1958.

¹⁸ R. Raven-Hart, Germans in Dutch Ceylon, Vol.I, Ceylon, Government Press, 1954.

STRUCTURE AND ORGANIZATION

47

Professor Herdman who was brought to Ceylon in 1902 and his investigations revealed that this irregularity was caused by shifting sands, predacious fish particularly the star fish and overfishing. But according to Dr. Joseph Pearson, the Government Marine Biologist in 1925, declared that though shifting sands did affect the pearl banks, overfishing could not be considered a serious cause of destruction as it was not always possible to denude a pearl bank of all its oysters.¹⁹

Another feature of the Ceylon Pearl Fisheries has been the unvaried methods used to fish for pearls. The pearl fishing has been held usually in March or April. After a preliminary examination of the banks in late October of the previous year, publicity is given in December of the proposed fishery. In February, the area to be fished is examined to make sure that the oysters are there and the banks are charted and buoyed off.

A typical diving day starts at midnight with a firing of a gun. The boats each with about 30 to 40 men set out for the pearl banks to reach the reefs by sunrise. There each boat takes its position on the area marked one for each day's work and on a signal from the guard vessel, the diving operation commences. The divers work in pairs each pair using a single diving stone and descend alternately. The divers break

¹⁹ Ceylon Today, Nov., 1955.

STRUCTURE AND ORGANIZATION

48

the oysters with an iron tool and fill the basket as quickly as possible and ascend for breathing. The basket is then hauled up. At a given signal from the guard vessel at about 12 noon all the boats leave for the shore, after bagging and sealing the bags of oysters, to prevent the crew tampering with the oysters.

On arrival the crew of each boat carried the oysters into the Government enclosure and one-third of the entire catch was given to the divers. The other two-thirds was auctioned and by 9 p.m. the entire enclosure was cleared and made ready for the following day.

In the time of the Portuguese the Divers were allowed one-fourth of the catch and the balance was divided into three equal portions, for the King, the Church, and the Soldiers respectively.

The Dutch too continued the same practice but due to managerial difficulties resorted to leasing the banks each year to the highest bidder.

The British followed the Dutch form of leasing the banks till 1835 when they reverted to the Portuguese procedure and allowed one-third of the catch to the divers and sold the balance. But in 1906, the Pearl Banks were leased to the Ceylon Company of Pearl Fishers for annual payment of Rs. 310,000. The Company requested the Government to terminate the lease in 1912 as they were suffering a serious loss. The

STRUCTURE AND ORGANIZATION

49

Government thereafter renewed the practice of conducting the fisheries under its own auspices. In 1925 was the last fisheries the British had.²⁰

Ceylon received independence in 1948 and in 1958 the Government abandoned the old practice and tried the new dredge method. Two Canadian boats - the North Star (under Skipper Roy Pyne) and the Canadian (under Skipper Barry) carried on pearl fishing operations off Karativu, an island 3 hours journey by launch from Kalpitiya. The boats set out to the pearl banks and commenced dredging operations immediately on arrival at the oyster beds which were marked by buoys that remained till the end of the fishing. The two dredges one working on either side of the boat brought about 15,000 oysters in one hour. Under the old method each pearl diver was only able to bring 400 oysters per day.²¹

The dredge consists of an iron frame 6 feet by 1 foot to scrape the oysters from the beds and a bag made of iron mesh permanently attached to the frame to receive the oysters that are dislodged. The dredge is dragged along the sea bed for about 15 minutes and hauled up by winches in the vessel. A dredge is capable of bringing as much as 5000 oysters at a time.

²⁰ Ceylon Today, Nov., 1955.

²¹ A. S. Mendis, Ceylon Today, March, 1958, p. 14.

STRUCTURE AND ORGANIZATION

50

The two ships returned to base by 6 p.m. and the oysters were transported to Colombo where they were temporarily stored in the new cold rooms of the Mutuwal Fisheries Factory and auctioned the following day. The first bag is said to have fetched Rs.475.

The dredging has no doubt great advantages over the old method of diving considering the rapidity with which the dredge can bring the oysters and the relative cheapness of this mode of operation. But there are several difficulties. First there is the inability of the dredge to operate on uneven ground, for the pearl banks are not consistently even. The beds are covered with rocks, coral growth and other organisms. Secondly, the dredge has the danger of damaging and crushing the oysters.

The fact that the dredge has been successfully used in the pearl beds off Margarita Island in the Carribean sea is no proof that the sea beds are identically even.

9. Underwater Spear Fishing.

Underwater spear fishing was started in Ceylon in 1945 and popularized by Rodney Jonklaas and the Reef-Combers Club. At first armed with only crude face-masks and home made broomstick-spears, the pioneers and such success that the importation of more elaborate equipment brought this sport of underwater spear fishing to the forefront.

STRUCTURE AND ORGANIZATION

51

Spear fishing is said to have originated in the mediterranean coast and has now spread to Norway, Australia, the United States, Central America, West Indies, South America and now in Ceylon.

The equipment used in Spearfishing is very simple. A glass-fronted face-mask, usually a round or oval rubber contrivance with a plate-glass front. A pair of rubber fins worn like slippers on the feet. The weapons used are the crude primitive barbed spears or spear guns which shoot harpoons by means of springs.

The spear fishers have so far been able to capture turtles, lobsters, pompano, spengon, carangids, snappers, spadefishes, reef-mulletts, skates, rays, sharks, estuary perch, grompers and gourmets.²²

The underwater skin diving may be now very profitably employed for pearl fishing as this method has a distinct advantage over dredging which damages and pulverizes the oyster shells, and the most primitive diving methods which are inefficient and expensive.

C. Inland or Fresh Water Fisheries.

Indigenous fresh-water fishes occur in most of the irrigation tanks and other fresh waters of the low-country and form an important source of food supply, particularly in the more remote districts where salt-water fishes are not

²² R. Jonklaas, Ceylon Today, Sept., 1953, p. 19.

STRUCTURE AND ORGANIZATION

52

easily procurable. These fishes are taken in quantity by the villagers during the dry season when the waters are low and frequently innumerable numbers perish during periods of prolonged drought, when the waters are either reduced to a state of liquid mud or become completely exhausted.

Ceylon possesses a large area of inland waters and the total tank area will amount to several thousand acres. The most important tanks are the giant's tank that is leased out annually by auction for fishing; the tanks at Munneswaram and Chilaw are similarly auctioned; the Tissamaharama tank, the Nikaveratiya tank, the Veyangoda tank, the Urubokka lake which are commonly fished. The villagers generally use the conical open end wicker traps (Karak gedda), the casting net and hook and line for capturing fish in the tanks. The most important indigenous fish taken are the vallaya (*wallago attu*), the ara (*ophiocephalus marulius*) and the luhula (*ophiocephalus striatus*) all of which attain a large size and are very prolific. Three other fresh water fishes have been introduced namely, the prussian carp (*Cyprinus Carpio*), the goramy (*osphronemus goramy*) and the Indian carp (*catla catla*). Lake Gregory in Nuwara Eliya contains besides Carp, a large quantity of trout.

The Beirai Lake in Colombo too is well stocked with fish, the largest of which is the modha (*later calcarifer*) which weighs about 10 to 30 pounds, while the dalla, the ravana and the illea weigh nearly 2 to 4 pounds.

STRUCTURE AND ORGANIZATION

53

The tanks of Ceylon are capable of producing 150 to 300 lb. of fish per acre per annum.²³

Besides the tanks, the rivers in Ceylon too provide excellent fresh water fishes which are generally captured by traps, casting net and rod and line. Almost all the rivers including the longest river, the Mahawali Ganga, possess a variety of fishes mostly the goramy, while the carp and trout are found in the upper reaches among the hills. The Mahsier Tor Tor is supposed to be the largest and the best flavoured of the fresh water food fishes of Ceylon. It usually attains to 15 or 20 lb. in weight.²⁴

The Nuwara Eliya Fishing Club has set up a Hatchery from which the upcountry rivers and lakes are supplied with trout. Special licence is required for the fishing of trout. The well-to-do generally enjoy this sport of angling for trout with their rod and line.

II. The Secondary Fishing Industry.

The Secondary Fishing Industry is mainly concerned with the processing the fish that is landed. The processing methods used in Ceylon are drying, icing and quick freezing.

a) Drying

Drying was probably the earliest method used to

²³ Administration Report of the Marine Biologist, 1935.

²⁴ Ibid.

STRUCTURE AND ORGANIZATION

54

preserve fish over long periods of time. There are two types of drying: (i) simple drying, and (ii) salt drying.

(i) Sun drying was probably found to be the easiest method of preserving fish. In this simple method the fish was washed and dried whole in the sun as in the case of the Anchovies and sprats, while squids are cut open and their eye-balls and mouth-balls are removed, washed and then dried.

(ii) In the case of salt drying, the fishes are longitudinally slit open, degutted, salted and dried in the sun. Generally the bigger type of fish is used for salt drying.

Udappua in the North Western Province and Kuchchavali are two of the most important centres for curing fish. At Udappua, the principal curing industry is the preparation of wet jadied fish. There are about 15 to 20 curers in all concentrated in the village. The fishing season is during the North East Monsoon from October to April. The approximate weight of total catch is 5000 cwt and valued at Rs.35,000 in 1938, and nearly 2500 cwt is converted into jadied fish, 230 cwt into dry-cured fish and the remainder marketed fresh. The average quantity of salt used for curing purpose per season is 1,205 cwt.²⁵

At Kuchchavali, the majority of the fishermen are migrants

²⁵ A. H. Malpas, Administration Report of the Marine Biologist for the year 1938, p. G 6.

STRUCTURE AND ORGANIZATION

55

from the South West of Ceylon for the fishing season from April to October. These consist of about 20 working units in a coastal length of 31 miles. The greater part of the fish caught is sent to Trincomalee in ice by bus and curing is only done when there is surplus fish.

In 1938, the Government proposed establishing fish curing yards on lines similar to those of the then Madras Presidency. But there was opposition to compelling fish curers to go to central fish curing yards. Their main objections were that they would be deprived of the assistance of their wives and family in the work and would also be required to erect buildings in the yard to conform with certain specifications. Where as at present they were able to erect any building they chose and pay a leisurely rental to the owners of the land, on the basis of their profits once in 3 to 4 years and the amount varying from Rs.1 to Rs.20. They also feared that restrictions would be imposed on their working hours. Another difficulty they expressed was the transport of their catch to a central curing yard that may be miles away from place of operation particularly at Kuchchavali.

The Executive Committee of Local Administration abandoned the scheme and decided to issue salt to bona fide fish curers at Rs. 1.20 at Udappua and Rs.1.00 per cwt. at Mannar.

The cured fish industry which was once important and flourishing industry in Ceylon is now declining with the ad-

STRUCTURE AND ORGANIZATION

56

vent of rapid transport facilities and the increased demand for fresh fish. There is hardly any surplus for fish curers except in remote parts of the country. This drying industry can only be revived by such a development of the fishing industry as will ensure a surplus of fish after the demand for fresh fish has been met.

b) Icing

Fresh fish is available only to those living in close proximity to the fishing centres. Generally speaking, the transfer of fish from water to the atmosphere is followed quickly by death and post-mortem changes in the body of the fish begin almost immediately. The commercial processing of fish starts with the first steps taken to restrict or prevent the progress of these changes which are responsible for deterioration and ultimate spoilage of the flesh. Ice was considered the earliest form of preservation of fish or at least to slow down the process of decomposition.

In Ceylon, the first ice company established by a British firm with the turn of the present century supplied ice for the transportation of fish to Colombo from some fishing centres and gradually ice factories began to function under private management in Jaffna, Pesalai, Trincomalee and Mullaitivu. Because of lack of experience in the transportation of ice, the transportation cost was high besides much of the melted away.

STRUCTURE AND ORGANIZATION

57

Fish was generally packed in Sun Light soap boxes with double the quantity of ice and transported by train to the important towns. Today much of the transport of iced fish is done by lorries.

Packing fish in ice has not proved a great success. Often fish reaches its destination in a putrid condition. Spoilage may occur because of inadequate icing or because of too much of ice. The weight of ice can crush the fish or the sharp edges may bruise the fish flesh and thus increase the danger of bacterial invasion of the flesh.

Although ice does not prolong the 'shelf-life' (time interval between catches and noticeable deterioration of quality of fish) certain types of ice have now been found as more effective. Ice made from water to which small amounts of antibiotic substances have been added for example Aureomycin seem to extend the shelf life of fish appreciably.²⁶

c) Quick freezing

This method is followed by the Japanese-Ceylonese trawler the "Meegama Maru", which is fitted with a quick freezing apparatus. The fish landed in the deck are eviscerated, the gills removed and then stored in the refrigerated holds where the quick freezing takes place. The fish in this state when taken ashore remain fresh when reaching the market.

Recent researches conducted by W.A. Lantz and C. Gunasekera demonstrated that fish cooled in chilled brine in a

STRUCTURE AND ORGANIZATION

58

Freon air cooled refrigeration unit²⁷ could be preserved from five to twenty-one days.

On the 2nd of October 1957, the Governor General formally opened the new Fishery Harbour, the Cold Storage and Freezing Plant and the by-products factory and Machine Shop at Mutwal. The new Fishery Harbour was completed at a cost of Rs.5.7 million and provides alongside berthing accommodation for two trawlers and sufficient anchorage for a number of smaller boats. For the Construction of the Cold storage and the freezer plant the Ceylon Government contributed a sum of Rs.1 1-2 million while Canada under the Colombo plan provided the princely sum of 5 million Rupees towards the cost of this plant which is reputed to be one of the most modern in the world. This cold storage plant consists of a fish hoist for unloading the trawlers, a conveyor to carry the fish into the plant, chill tanks for short term storage, a filleting line, freezing chambers operated at a minus 40 degrees capable of freezing up to 15 tons of fish a day, and cold storage rooms with a capacity of 500 tons maintained below zero Farhenheit. There is also a block ice making machine producing 10 tons of ice a day and a flake ice machine capable of producing 12 tons a day.

The by-product plant is equipped to produce shark liver oil required for supplementary dietary requirements, fish

²⁷ Ibid., p. 6.

STRUCTURE AND ORGANIZATION

59

meal either as fertilizer or as animal feed additives and dried fish and canned fish on an experimental scale. There is also a machine shop with facilities to undertake repairs and maintenance of trawlers and other departmental vessels and to provide similar services for the plant.²⁸

All surplus fish is thus frozen at a temperature of about minus 40 Fahrenheit and then coated with ice to prevent drying during subsequent storage and are stored at below zero Fahrenheit. The cold storage plant serves a very useful purpose. All surplus fish could be stored and released to the market when required and in this way ensure a constant supply of good fresh fish.

Foreign visitors to the Island have remarked with no little surprise that such priority should have been given to the erection of such a costly cold storage plant in Mutuwal. Comparatively the Island is so small that fish could be transported in fresh condition within a radius of 200 miles. Ice making factories around the coast in important fishing centres would have proved more beneficial. Japan, for instance, has 1,547 ice-making factories dotted round her coast, with a capacity of 24,000 tons a day. About 57 per cent of ice made is used for fisheries and the rest, 43 per cent, for other uses.²⁹

²⁸ Times of Ceylon Supplement, Dr. C.E. Chaplin, Director Canadian Fisheries Project, October 2, 1957, p. 1.

²⁹ Japanese Fisheries, Asia Kyokai, Tokyo Japan, 1957, p. 78.

CHAPTER III

THE FISH TRADE AND CHANNELS OF DISTRIBUTION

Benefits of modernization are frequently offset by a primitive distribution and marketing system in which fish may be handled by five middlemen before reaching the consumer at inflated prices.

At the moment only 5 per cent of the fish trade in Ceylon is carried on co-operatively. Over 95 per cent is in the hands of merchants who usually operate in one of the following ways:

1. The Mudalali or merchant advances money to the fishermen on the condition that the entire catch during any particular season is sold to him at pre-arranged prices. These are usually fixed at the lowest anticipated level. His agent is present at the landing point to collect all the fish. The Mudalalis organize the packing and transport of fish.

The packing of fish also takes place in the most primitive manner. The fish packing houses are usually small thatched sheds without any flooring. Ice is strewed in pits with a thick lining of saw dust. The fish boxes are of a standard size (about 2 ft. by 1 1-2 ft.) and are mostly made of deal wood planks taken from dismantled packing cases.

FISH TRADE AND CHANNELS OF DISTRIBUTION

61

Soon after the catches are landed on the beach, they are taken in head load to the packing houses and dumped on the bare ground. Without washing or removing the gills and entrails they are arranged in the boxes with alternate layers of crushed ice. The boxes are then closed by nailing down dried palmyrah petioles cut to size. In this form it is loaded on lorries or in hand-push carts to be reloaded in railway waggon^s and despatched to the chief centres of consumption.

The main fish landing places in Ceylon according to the order of importance are Mannar, including Pesalai, Talaimannar, Pallimunai and Vankalai, Puttalam, including Dutch Bay and Kalpitiya, Jaffna including Myliddy, Kankesanturai and Madagal, Thalaiddi and Chembianpattu; Mullaitivu; Batticalao; Madurankuli; Chilaw; Negombo; Tincomalee; Galle; Ambalangoda; Tangalle; Hambantota; Colombo; Point Pedro; Kalkuda; Bentota; Hikaduwa; Galle; Matara.

The main consuming centres are Colombo, Jaffna, Kandy, Kurunegala, Kagalle, Badulla, Ratnapura, Nuwara, Eliya, Matale and Anuradhapura.

Each of the consuming centres could be reached from a landing centre within 24 hours either by lorry or train. A few trains are fitted with refrigeration vans. About 40 per cent of the landings are dealt with in this manner. In the areas where transport is difficult, the merchants salt-cure the catch and send it periodically to the whole_sale market. For

FISH TRADE AND CHANNELS OF DISTRIBUTION

62

there is always a certain demand for dried fish in the tea and rubber estates and other remote places in Ceylon.

2. In other places the fishermen themselves auction their catches individually from sheds provided by the local authorities or by the Roman Catholic Church as in Negombo. The fish is purchased by brokers who supply the wholesale markets in Colombo and the larger towns. The process of packing and transport is similar to those followed by the Mudalalis.

3. Local fish traders are often in a less advantageous position to overbid the powerful outside brokers. However, in some places the local fish traders manage to make the purchases and transport the fish to the local markets either by hand push carts or by bicycles.

These methods of disposing the catches inevitably result in an uneven geographical distribution. Over 50 per cent of the catch is taken to Colombo, the main collecting and distributing centre, while the areas where the fish is actually caught are left with an inadequate supply which commands a very high price. Naturally, the Mudalalis or merchants, in order to maximize profits, concentrate on those markets which offer the best prices, irrespective of local needs. The fish merchants protect themselves heavily against the risk of a trading loss and consequently high consumer prices bring no

FISH TRADE AND CHANNELS OF DISTRIBUTION

63

corresponding benefit to the fishermen; in fact, they remain perpetually in debt to the middlemen to whom a large share of the profit goes and as a result the incentive to increase output and to invest capital is lacking.

4. Wholesale Marketing

Like transport, the wholesale fish marketing facilities are very unsatisfactory. In Colombo, the fish is auctioned by one of several "commission agents" some of whom are the Mudalalis, who charge 6 per cent to 12 per cent for their services. From the commission agents the fish passes to a large number of retail traders, who have stalls in the public markets, and to hawkers who take the fish from house to house in baskets or "pingos", cycles or motor vans.

In centres where fishermen migrate away from their homes the Mudalali advances money to a group of fishermen on the understanding that they will sell their whole catch, or the entire catch of certain varieties of fish, to him or his agents at the pre-arranged prices. As a rule he buys the entire landed haul and pays for it by weight. Often he deducts a discount up to 10 per cent of the weight to make up for water, sand and shrinkage in transit. In the migration centres where the sources of supply are more regular and plentiful, the migratory fishermen are highly skilled. They have the traditional knowledge of the techniques as well as of the fishing grounds and the habits of the fish in the areas where they operate.

FISH TRADE AND CHANNELS OF DISTRIBUTION

64

In the thickly populated areas where the fishermen normally reside, the pattern of distribution is somewhat different. As a rule there are certain well-known places where fish has been landed for generations to which the fish is brought by head-loads or "pingos" from the landing places nearby. In such places there is an auction shed erected by the local authority, or the Catholic Church or by the fishermen themselves. In certain places there are no auction sheds and fish is sold in the open air, often on the sand in the blazing sun at the spot where a boat or a net has landed.

In these places traders in the vicinity, both wholesalers and retailers, congregate and await the landing of the fish. Often a person known as "renter", who may sometimes be an auctioneer too, is also present. He may either rent out from the local authority or the Church the right to recover from each fisherman a certain percentage of the proceeds of the sale. Each fisherman's catch is put on auction as it arrives and sold by heap or basket and not by weight.

5. Retail Marketing.

Retailing of fish is done either by the retail fish stall holders in public markets, or by fish hawkers who with their pingo loads go about from street to street crying out the variety of fish they carry and sell their fish to the housewives by weight and by heap if the fish are small.

All stall-holders, whether wholesale or retail have

FISH TRADE AND CHANNELS OF DISTRIBUTION

65

to pay fees for renting out stalls in the public markets to the local authorities. Hawkers also must obtain from the local authorities a licence to sell fish.

6. Fishermen's Cooperatives and Fish Sales Unions.

As far back as 1938, the Central Fisheries Union of Ceylon had organized the fishermen into 54 fisheries unions,¹ 40 of which later became registered Fishermen's Co-operative Societies.

It was felt that the prevailing marketing system based on the middlemen was detrimental both to the fishermen and to the consumers. The middlemen often exploited the fishermen and were generally up to monopolistic practices and were responsible for the retardation of technical progress among the fishermen. However, the risks connected with storing, packing and transporting and the inherent instability of supply may often justify the high level of prices. Nevertheless it was felt that these risks could be reduced or eliminated in a large-scale state or co-operative marketing organization because of the law of large numbers.

The middlemen were also performing another important function, namely that of providing credit to the fishermen. It was no doubt a social service they were performing in the absence of any other credit organizations, but in return for their services they demanded more than 100 per cent of interest

¹ Seventh Annual Report of the Central Fisheries Union of Ceylon, June 30, 1944, p. 2.

FISH TRADE AND CHANNELS OF DISTRIBUTION

66

on their loans. They took the entire catch and fixed the prices at the lowest possible limit and thus kept the fishermen perpetually in debt and in bondage.

It is also equally true that the fishermen who toil the whole day under the tropical burning sun like to rid themselves quickly of the responsibility for their catch as soon as possible. This naturally offers opportunities for active fish dealers to exert themselves to secure increased proportions of the trade. The fishermen also on their part preferred the sense of security which they derived from the assurance that the dealer was always on hand to provide shelter against any financial storm.

In most of the remote fishing villages it was generally the local boutique keeper who played the role of the middle-man in a variety of ways:

(1) He would advance money or more often goods such as rice, curry stuffs and cloth to the fishermen against the security of their catches.

(2) He would lend money for the purchase of boats and nets or even supply such equipments as sail cloth, nails, fishing hooks and coir copes and strings without charge. In return, he would contract with the fishermen to take their fish at an agreed price, often at price of his own setting, usually below the free market rate.

(3) In times of illness he would lend his cart to fetch the local physician.

FISH TRADE AND CHANNELS OF DISTRIBUTION

67

(4) In case of deaths he would advance money to defray the expenses of the funeral.

(5) When a girl in the village attains puberty he supplies the betel and cigars and the provisions for the function at home.

(6) In times of marriages he would advance the whole or at least part of the dowery.

(7) He would even supply provisions to the barber and dhoby of the fishermen and credit it to the account of the fishermen.

(8) He supplies cadjans, strings and poles to the fishermen to enable them to erect their sheds or "wadies" on the shore.

(9) He would also supply them with kerosene oil and chimneys for their hurricane lamps.

(10) He would regularly replenish their stock of wicks, soap, face powder and a host of other nick nacks.

On the other hand, this system has great dangers:

(1) It gives the middlemen a monopoly with little prospect of the fishermen reaping the advantages of rising market or of even getting more than bare subsistence earnings.

(2) It tends to place their family in his debt with little chance of extricating themselves and building up their own capital.

(3) It often led to interminable litigation that resulted in reducing the fishermen into state of abject poverty

FISH TRADE AND CHANNELS OF DISTRIBUTION

68

with the seizure of their boat and nets and at times even their homes.

It was to furnish some relief from the monopolistic lender, buyer and supplier that co-operatives were to be formed among the fishermen. If the co-operatives were to displace the middlemen they have to perform the same services the middlemen performed.

All early attempts to form co-operatives among the fishermen ended in dismal failures, till the Central Fisheries Union in 1937 held frequent meeting in the important fishing centres round the island and opened their eyes to the appalling conditions in which they were living.

In 1941, the Kollupitiya Fish Stall in Colombo was opened and was run by the Fisheries Welfare Union of Kandythoduwa and Mukkathoduwa and Dr. Edmund Peiris the Bishop of Chilaw was the sponsor of that enterprise which was supervised by the Department of Fisheries and the Registrar of Co-operative Societies.

Within a few months, on the 20th of July 1941, the Mannar Fish Marketing Society decided to open at Wellawatta in Colombo a fish stall which was to be supervised by Dr. Amirthalingam the Acting Director of Fisheries and the Registrar of Co-operative Societies. It was no easy matter. There was a powerful ring of traders who strongly resisted the opening of the fish stall in Wellawatta.

FISH TRADE AND CHANNELS OF DISTRIBUTION

69

During the Second World War the Government initiated action to increase the production of fish and at the same time the rationing of rice and necessary foodstuffs was introduced. The Director of Fisheries was authorized to purchase fish from the fishermen and to issue permits to fishermen to purchase their ration of rice and foodstuffs as well as sail cloth, and thread for nets.

The Director sent his own department inspectors to purchase fish in the landing places. Fishermen who did not give fish to the director began to complain that they were denied the rations of sail cloth, thread and even foodstuffs.

On the recommendation of the Fishery Advisory Board an enhanced ration of rice was allowed to the fishermen who migrated away from homes during the fishing season.

For the purpose of increasing the production of fish more fishermen's societies were organized, loans were granted and a marketing organization established. While these organizations were called co-operatives they were not developed by the fishermen themselves. They were regarded as Government enterprises through which it was possible to procure a loan.

It could not be expected that the fishermen would be interested in or enthusiastic about a movement of which they knew almost nothing. Few understood the function and purpose of such societies and were not interested in whether they survived or not. As a rule Government sponsored schemes are

FISH TRADE AND CHANNELS OF DISTRIBUTION

70

unable to create the enthusiasm and spirit of sacrifice necessary for the success of community projects. Experience in most countries indicate that the Government can assist the people most advantageously by helping people to help themselves. Otherwise, there is danger that state aid will destroy the natural instinct of people to be self-reliant and independent.

Loans were given indiscriminately. Giving a loan to a fisherman without proper control is like giving him a rope to hang himself. The idea of forming co-operatives among fishermen is to replace the middlemen. If only the societies could do the same services as rendered by the middlemen, on lending money on the security of the catch and of the boats and tackle, then there is hope for the improvement of the fishermen. If loans were needed for the purchase of boats or nets instead of handing the money to the fishermen the society should have made the purchases and held the boat or net in its name till the debt was liquidated.

Often the loans granted to fishermen used for unproductive purposes such as giving dowry to a daughter or to have an expensive wedding and not infrequently the money was squandered on drinks and useless expenses. By 1949, the outstanding debt among the fishermen was very high. Most of them were unable to pay back. Some complained that the price given by the Fisheries Department was very much lower than that they would have obtained from the traders. A series of prosecutions

FISH TRADE AND CHANNELS OF DISTRIBUTION

71

began and in 1950 a deputation from the Fishermen's Society of Point Pedro met the Hon. Mr. D.S. Senanayake, the first Prime Minister of Ceylon, and pleaded with him to waive off their debt. They argued that they were doing a national service by supplying fish to the Director of Fisheries. While the farmers were given subsidies during the war for increased production, the fishermen were not given any such aid. As a result of their representation the Prime Minister in consultation with the Minister of Fisheries, Mr. G. G. Ponambalam, decided to stay the prosecutions for a time. Up to date most of the loans are still outstanding.

In 1949, there were 43 co-operative fishing societies, and these were responsible for supplying fish to the value of Eight and Half Lakhs of Rupees.² These societies were mostly Fish Sales Societies. There were no producers societies, nor credit societies. The loans were given direct by the Director of Fisheries. There was a dual control. The presence of the Fisheries Inspector and the Co-operative Inspectors made things more confusing and often contradictory advice was given to the fishermen.

In 1952, through the federation of 40 fishermen's co-operatives, the Ceylon Co-operative Fish Sales Union was formed, its object being to organize the marketing of fish prima-

² Memorandum to the Prime Minister by Sir Philip Rodrigo, Fisher Mudlr., p. 6.

FISH TRADE AND CHANNELS OF DISTRIBUTION

72

rily in the interest of the producer. By 1954, the number of co-operatives which were members of the Fish Sales Union had risen to 55. Under its scheme for financing Fishermen's Co-operative Societies, the Government granted to the Union the loan of Rs.500,000.³

This Ceylon Co-operative Fish Sales Union took over the Government's Fish marketing organization, intending to extend its activities to the marketing of fish landed by the fishermen's co-operatives. It was allowed to use the cold storage unit which had a capacity of 50 to 75 tons and eight retail stalls formerly occupied by the Department of Fisheries in the various Colombo Municipal Markets. In return, the Union agreed to handle the sale of fish landed by the Government trawlers.

The Union had to carry on its business under the prevailing marketing conditions. It was able to assist only twenty societies to market their fish. The usual procedure was that the Union specified the varieties of fish that it would accept from the member societies and fixed the prices it would pay. These prices were fixed a month in advance based on the anticipated market prices. The Union guaranteed to pay the fishermen at fixed rates regardless of any fluctuations in the market.

As a rule, the societies located in the more distant and

³ FAO Report, No. 404, International Fish Marketing Training Centre, Hong Kong, Rome, Italy, Sept., 1955, p. 57.

FISH TRADE AND CHANNELS OF DISTRIBUTION

73

less populated places found the Union's guaranteed prices attractive while those in more populated areas usually got better prices at the local auction.

The Union handled the entire catch of the two trawlers owned by the Government, at a contract price agreed in advance. Their combined catches in 1953 amounted to about 2 1-2 million lbs.⁴

In November 1955, when the Ocean Foods and Trades, a joint Ceylonese-Japanese venture began tuna fishing with the "Meegamu Maru" the entire catch of the company was sold on contract to the Ceylon Co-operative Fish Sales Union. From November 1955 to July 1956, the "Meegamu Maru" landed approximately 749,000 pounds of fish.⁵

The Union has the following avenues of sale: (i) Government Hospitals; (ii) some hotels and institutions which purchase in bulk; (iii) ten retail stalls in the municipal markets of Colombo and one in Kandy; (iv) ten sales vans operating in Colombo and its suburbs, and (v) certain retail dealers, known as "agents" of the Union.

Sales are made at fixed prices to the retailers in the public markets and to other dealers in fish, without restriction or discrimination. The wholesale and retail prices are advertized in the daily newspapers and sometimes over the radio.

⁴ FAO Report, No. 404, op. cit., p. 58.

⁵ Times of Ceylon, Saturday, August 18, 1956, p. 4.

FISH TRADE AND CHANNELS OF DISTRIBUTION

74

During the first year the Union handled some 1,200 tons of fish valued at Rs.2,000,000, of which only 25 per cent came from the societies, whilst the other 75 per cent came from the Government trawlers. For the first year the Union realized a profit of Rs.271,300, part of which was returned to the societies in proportion to the fish supplied, the rest being added to the Reserve Fund.⁶

The Union has also established a fish-curing yard able to handle 5 tons every day. It had been designed in such a way that it could easily be adapted to deal with ten tons. This yard is generally kept busy with the curing of shark, catfish and leather jackets which cannot be normally sold fresh.

The Union is managed by a board of directors consisting of nine persons, of whom five are elected by the member societies and four are nominated by the Registrar of Co-operative Societies.

Under the Colombo Plan, a co-operative consultant from Canada was appointed. His job is to advise the fishermen's co-operatives already formed, and to assist in the establishment of others, so that the fishermen may benefit adequately from the proceeds of their catches.

With the opening of the cold storage plant and by-products factory at Mutwal on Wednesday the 2nd of October 1957, the Ceylon Co-operative Fish Sales Union will have enough

⁶ FAO Report, No. 404, op. cit., p. 58.

FISH TRADE AND CHANNELS OF DISTRIBUTION

75

storage facilities. The supply of fish too has been augmented by the two fishing vessels, the North Star and Canadian, which were built in Vancouver and sent with Canadian crews, a fisheries expert and a biologist to Ceylon. Canada has also gifted to Ceylon the Trawler Maple Leaf, purchased in Britain under the Colombo Plan. All the fish brought by the Maple Leaf is handed to the Ceylon Co-operative Fish Sales Union.

There were two Canadians provided by Canada under the Colombo Plan Technical Assistance Programme with full-time duties connected with plant operation: Mr. G.W. Crane of Vancouver, B.C., and experienced plant manager, and Mr. A. Barbe, Chief Engineer, also of Vancouver. Today the project is directed by Mr. Louis Berube, of Ste. Anne de la Pocatière, Quebec. The Ceylonese personnel is being trained in the modern methods of freezing, processing and short-time preservation of fish. The Mutwal factory at present handles about 4 per cent of the island total annual catch of 75,000,000 lbs.⁷

⁷ The Ottawa Journal, May 6, 1959, p. 21.

CHAPTER IV

HUMAN RESOURCES

Nature and Composition of the Fishing Population

The fishermen in Ceylon are a heterogenous group composed of different races, different castes and different creeds. According to the 1953 census of Ceylon, there are ten different races as shown in Table V.

According to the World Bank Report of 1952, "fishery occupies some 120,000 persons distributed about the entire coast". In this group may be found all the races enumerated in Table V engaged from the simple rod and line fishing to the modern trawler fishing, but the bulk of the fishing is carried on by the Low Country Sinhalese, Ceylon Tamils, Ceylon Moors and Malays. But inland fishing in rivers and lakes is wholly carried on by the Kandyan Sinhalese, the Vaddhas and the other races either as their main or subsidiary occupation or for sport as is done by the Burghers or Europeans.

Those engaged in fishing also belong to different religions. There are to be found among them, Buddhists, Catholics, Hindus, Protestants, Muslims and Animists as Veddhas. A few of them may be even atheists.

They also align themselves with different political parties. Among them are the M.E.P. (Mahajana Eksath Perumuna);

HUMAN RESOURCES

77

TABLE V
Races of Ceylon, 1953

Races	Males	Females	Total
1. Low Country Sinhalese	1,803,588	1,665,924	3,469,512
2. Kandyan Sinhalese	1,123,122	1,024,071	2,147,193
3. Ceylon Tamils	462,111	422,592	884,703
4. Indian Tamils	531,378	442,720	974,098
5. Ceylon Moors	245,125	218,838	463,963
6. Indian Moors	39,093	8,369	47,462
7. Burghers and Eurasians	22,840	23,840	45,950
8. Malays	13,409	12,055	25,464
9. Veddhas	396	407	803
10. Others	24,251	7,988	32,239
Grand Total	4,268,730	2,829,165	8,097,895

Source: Census of Ceylon, 1953.

the U.N.P. (United National Party); the NLSSP (Nava Lanka Sama SAMAJIST PARTY); the V.L.S.S.P. (Viplavakara Lanka Sama Samaja Party); the C.P. (Communist Party); the F.P. (Federalist Party); the T.C. (Tamil Congress); the newly formed J.V.P. (Jatika Vimukti Peramina), and some of them may be even Independants.

The fishermen of Ceylon also belong to different castes. Foreign writers ignorant of the different communities engaged in fishing, classified them as "fisher caste" and erroneously gave them an inferior status, though many of them belong to the higher caste. Even a person like Dr. Jennings, who had been in Ceylon for a few years, writes thus in his *Economy of Ceylon*:

In many countries with a sea board as long as that of Ceylon and a sea less fruitful than the Indian Ocean, agriculture and fishing go together. When the fisherman is not at sea he is looking after his crops; when the agriculturalist is not looking after his crops he is at sea. The two would fit very well in Ceylon, when the monsoons restrict the fishing season. Unfortunately, social tradition prohibits this marriage of the two industries. Fishing is by social tradition limited to certain castes and the fishermen generally do not own or cultivate land.¹

That was all that he was able to say about the fishermen of Ceylon in his book devoted to the *Economy of Ceylon*.

¹ Ivor Jennings, *The Economy of Ceylon*, Oxford University Press, Oct., 1951, p. 56.

HUMAN RESOURCES

79

If Dr. Jennings had taken some trouble to study the composition of the heterogenous ethnical groups that formed the fishing population of Ceylon he would have painted a different picture.

There are several places in Ceylon where the fishermen own or cultivate land. Take for example Mullaitivu, Batticaloa, Hambantota, and Vankalai. If cultivation is not done by the fishermen in other places it is not because "social custom prohibits" them from cultivating but due to so many reasons. (1) They may be living in towns where land is not available for cultivation; (2) Where there is land available, the land may be unfertile and unfit for cultivation; (3) Those who have suitable land may not have the time to do cultivation as, for instance, in the northern part of the island where there is fishing right through the year; (4) Those who migrate from the West coast to the East Coast during the South West Monsoon from May to October cannot hope to cultivate land even if the land is available; (5) and those who do not migrate during the monsoon do cultivate land if they have land or do not cultivate because they are too poor to own a cultivable plot of land.

Neither is fishing limited by social tradition to certain castes. For we find the fishermen of Ceylon belong to almost every caste. Among them we find the Karawas, the Barathas, the Salagamas, the Goigamas, the Duravas, the

HUMAN RESOURCES

80

Timilas, the Pallivilles, the Mukkuvas, the Kadayars, the Nalavas, the Pallas, and Parayas carry on marine fishing while inland fishing is carried on by a number of other castes.

Even the Kings of Ceylon and the Kshatriyas of old were not averse to fishing. The Sinhalese Kings of the Kaven Tissa's line seem to have retained the "Fish" emblem, for Neville writes: "The inscription in Henane Gala, Lower Bintenne, Eastern Province is followed by the arms of Cavanno Tisso's family cut elaborately on a large scale... where the FISH is clearly drawn with pectoral and dorsal fin, eye and gill".² It is also found as the sole emblem on Nissanka Malla's lion throne in the Colombo Museum. The Kalvettu or Rock inscription on the Koneswara Temple at Trincomalee has the emblem of a double fish said to have been the emblem of the Tamil King. When the temple was destroyed by the Portuguese, the slab containing this inscription with the double fish emblem was fixed to the right wall of the entrance to the Trincomale Fort, which can be seen even today.

Fr. Gnanapragasar, the eminent historian and philologist, writing in the Catholic Guardian, says: "As for fishing itself, for a matter of that, the ancient Kshatriyas themselves could have had fishing as their usual occupation barring times of war. Fishing like hunting was in ancient times

² H. Neville, Taprobana, December 1885, p. 39.

HUMAN RESOURCES

81

a Royal pastime".³

The Brahmans who form a very negligible portion of the population of Ceylon were originally set apart for the priesthood and their functions are summed up in the "Thuravaram" section of their sacred book "Thirukural". The educated orthodox Hindus have often pointed out that the prohibition of killing and eating flesh meat is found prescribed in the "Thuravaram" which outlines the virtues to be practised by the Brahmans. No such prohibition is imposed on the laity in the section dealing with "Illaram" or domestic virtues to be practised by the laity. The Dasabrahmana Jatika definitely states that the Brahmans had various occupations including fishing and hunting.⁴

There is a village in Ceylon called Pamunugama. Tradition of the place is that it was once known as Bamunu Gama meaning village of the Brahmans. Today its inhabitants call themselves Goigamas and they carry on an extensive and well-developed inshore fishing. The neighbouring villages like Capungoda and Induruva, are inhabited by the Goigama Community, which is likewise engaged in fishing. The major portion of the inshore seine fishing carried on in the fertile fishing grounds off the island of Karativu, is owned by the Goigama people of Pamunugama.

³ Jaffna Catholic Guardian, April 30, 1921.

⁴ Who are the KuruKulama of Jaffna, Colombo, p. 1.

HUMAN RESOURCES

82

Similarly in the North there are places in Batticaloa and in the Islands off Jaffna, fishing is the chief or part-time occupation of the people of the Vellala caste.

At Pallimunai in the Mannar Island, there is an entirely distinct ethnic group which goes by the name of Cannadias, and is mainly engaged in fishing.

On the other extreme, we have the Paraiyas of Irranaitivu whose main occupation is fishing turtle, but during certain seasons they all migrate to Illuppakadavai in the main land to do cultivation or harvesting.

Then there is the religious prejudice that in Buddhist countries from Ceylon Eastwards, fishing is regarded as ignoble, since it involves taking of animal life. Most of the fishermen living in the Southern coast of Ceylon and those engaged in inland fisheries are Buddhists. If you ask them, they will tell you "We do not kill. We only capture the fish. Fish die by themselves". Some of them are very good Buddhists. They have their shrines and their priests. It is by breaking down these prejudices that one can hope to raise the living standard of the fishermen.

Poverty and lack of education may have been responsible for relegating them to their present plight. The fishermen are poor because they are ignorant. They are ignorant because they are poor. In most of the fishing villages, some of the children do not go beyond the primary school because (1) the

HUMAN RESOURCES

83

parents are too poor to afford a higher education, in spite of the free education scheme that has been introduced in Ceylon from the Kindergarten to the University stage. The incidental expenses for books, clothing and stationary are a heavy burden on poor parents. (2) For economic reasons the education of the child is terminated early because a boy working or assisting in the hauling of the inshore seine net is entitled to half share, that invariably augments the family income. (3) Or to enable the boy to get an early training in his father's trade.

Though only 120,000 are engaged in fishing, the fishing industry comprises a much larger number of people who are gainfully employed, directly or indirectly in the industry itself. According to the Standard Industrial Classification of all Economic Activities in Ceylon,⁵ issued by the Department of Census and Statistics in 1953, the fishing industry should include:

A. All those actively engaged in the following economic activities:

1. Offshore Fishing
2. Inshore Fishing
3. Chank and Pearl Fishing
4. Fishing (not elsewhere classified) Other fishing such as inland fishing, fishing for Beche-de-mer, Corals and sea weeds.

⁵ At the request of the Govt. of Ceylon, the I.L.O. sent an expert, D. John I. Saks, to Ceylon, in July, 1951, to

HUMAN RESOURCES

84

B. The unpaid family workers, i.e. persons doing a stated minimum amount of work without pay in an enterprise operated by another member of the household, should be included in the group of economically active persons and classified in the industry group of the enterprise to which they belong.

In most of the fishing centres in Ceylon when the fishermen reach the shore, the whole catch is left in charge of a member of his family, usually his wife who supervises the auction and sale of the fish. If the catch is large the whole family is at work, as it happened in 1940 at Vidattativu, there was such a tremendous catch that the entire village was out on the beach and salting the fish in all available boats.

C. Processing and manufacturing:

1. Drying
2. Manufacture of ice
3. Packing and icing
4. Quick freezing

D. Marketing:

1. Auctioneers
2. Brokers
3. Wholesalers
4. Retailers
5. Co-operative fish stall holders
6. Pingo hawkers

E. Distribution and transportation:

1. Rail transport

carry out a man power survey. His classification is based on the International Industrial Classification of the U.N. Colombo, 1953.

HUMAN RESOURCES

85

2. Water transport:

- (a) by Kattamarams
- (b) by Outrigger canoes
- (c) by Vallams
- (d) by Pada boats
- (e) by boats fitted without board motors

3. Road transport:

- (a) by Bullock carts
- (b) by hand carts
- (c) by lorries
- (d) by vans
- (e) by cycles
- (f) by head loads

F. Ancillary undertakings:

- 1. Manufacture of fibre and coir
- 2. Manufacture of rope, string and twine
- 3. Manufacture of yarn and sail cloth
- 4. Stitching and tucking
- 5. Manufacture of salt
- 6. Manufacture of tar and pitch
- 7. Manufacture of packing boxes
- 8. Manufacture of baskets
- 9. Manufacture of mats for packing dried fish
- 10. Manufacture of ganny bags for salt
- 11. Manufacture of plywood
- 12. Manufacture of nets from hemp, cotton and nylon
- 13. Carpentry
- 14. Boat making
- 15. Timber sawing
- 16. Boat repairing
- 17. Building construction
- 18. Shipyards and boat yards
- 19. Marine construction such as dredging, underwater rock removing

G. Manufacturing industries:

- 1. Fish oil manufacture
- 2. Fish meal manufacture
- 3. Sea weeds manufacture
- 4. Tortoise shell manufacture of combs, boxes and buttons
- 5. Specialized marine engine manufacture
- 6. Manufacture of fishing hooks

H. Supply industry may be also included:

- 1. Supply of rice and provisions to fishermen

HUMAN RESOURCES

86

2. Suppliers of Kerosene oil, and clothes to fishermen
3. The barbers
4. The Dhobies at the service of the fishermen
5. The doctors, lawyers and the priests serving the fishermen

All these constitute those economically active in the Fishing Industry. To this impressive figure if the number of consumers of fish is added, the magnitude of the fishing industry can then be realized.

The most important in the breakdown of those actively engaged are (1) the Entrepreneurs, and (2) the labour force.

1. The Entrepreneurs.

Each of the 156 fishing appliances described earlier is employed by a number of entrepreneurs. But the main types of enterprise are:

(i) Single entrepreneur

Very large segment of the industry is organized on the basis of small and very small boat-owners units, the boat and net being the property of a single person. Here the entrepreneur may use the round about method of production and acquire the equipment necessary to improve his productivity. But the risk he takes is entirely his. He faces the uncertainty of the catch and the uncertainty of the price. On certain days he may have a lucky catch; on other days he may return empty handed.

He generally does the mending of the net and repair of his boat but he has this advantage he could launch out at any time, in any place and as often as he wished. He is independent.

HUMAN RESOURCES

87

His catch he could sell on the spot or retail it through his wife.

(ii) Partnership

This type of organization is very common among the long line fishermen or those who operate the fixed nets or drift nets. Here the risk is borne by both and the profits and losses shared between them. If one falls ill the fishing operations may either be postponed or an additional hand hired.

(iii) Large scale single entrepreneurship

The most representative large scale operation is the inshore seine fishing. The business is owned by small capitalists who are locally known as "Sammaddies" in the North and "Mudalalies" in the South. They hire out men generally 25 to 30 and may follow different patterns of remunerations.

(a) Wage system.

The labourers are paid a monthly wage plus three meals a day, with a free supply of tobacco and betel and an occasional drink of tea. In the case of migrant fishermen, the "Mudalali" pays an advance and the travelling fare. This involves a greater risk. It is a contractual wage, the "Mudalali" has to pay the stipulated amount irrespective of the catch and the prevailing prices. Occasionally some labourers may decamp with the advance received after a few days work.

This system prevails in Pesalai, Muylaitivu and Trincomalee, where the migrant fishermen are mostly found. The

HUMAN RESOURCES

88

Mudalalai erects sheds or Vaadies on the shore to accommodate his men. He supplies the provisions and cooking is done in turns among them. He also looks after their health, and gives them a day off on Sundays and feast days. The normal wages varied from Rs.20 for bachelors to Rs.40 to those with a family. They all work like a team.

The Mudalalai also generally has his icing and packing sheds separately erected and a lorry or a van transports his fish to the nearest railway station direct to the consuming centres. For that purpose he has a special team of skilled or trained workers.

(b) Share system.

Under this system the proceeds from the sales of the catch is shared in the following manner; if there are 12 operating the seine net the proceeds from the sale of their catch is divided into 15 parts. One share is for the sammatti, 2 shares for the boat and net and the rest is equally divided among the 12 who worked. Boys generally got only half the share. This mode of sharing profits is mostly followed in Jaffna, Mullaitivu and Talvupadu. In this group of enterprise the crew is often composed of relatives or friends of the sammatti and the labour contracts are rather informal.

This form of share system has very definite advantages, namely:

(i) it provides great incentive for better production

HUMAN RESOURCES

89

for the crew are prepared to increase the hours of operation.

- (ii) it gives incentive for careful handling of catches.
- (iii) this system encourages cost-minimization in respect to things charged against the share.
- (iv) risk shifting.
- (v) both fishermen and their fish handlers are difficult to discipline on factory lines, so that a system of 'incentive by share' is more successful in persuading them to work hard.
- (vi) the share system makes use of the 'psychology of the big packet' in a way that a fixed wage cannot do.
- (vii) A keen crew means a competitive advantage where there is much competition between boats and boat owners.
- (viii) When a fish is sold by auction the sharing system gives the fishermen a clear view of supply and demand conditions and they know the ruling prices.
- (ix) The fishing industry is unique in that there is a heavy reliance on workers doing the best possible job. There is a direct dependence on individual initiative. This is provided by the share system.

The share system also provides owners with an assurance that wages would vary with the degree of prosperity, and this naturally encourages investment. Under this system investment

could be encouraged; such investment may have two alternate effects. If the investment is successful the return to the sammatti would be less than the marginal productivity of capital, for a larger share would go to the others. If the investment is unsuccessful, the sammatti would bear less of the cost. These two situations are possible; which would be dominant will much depend on the nature of the investment.

(c) Daily Wage System.

This system is followed among the smaller fishing units which mostly engages casual labour. The pre-war wage for casual labour was 75 cts. per day. Today it fluctuates between Rs.1.50 and Rs.3.00.

(d) Salary and Share System

The only commercial fishing carried on in large scale is owned by the Ocean Foods and Trades (C & J) Ltd., a joint Ceylonese-Japanese venture. This company pays the captain and the crew of the "Meegamu Maru" who are mostly graduates, a very handsome monthly salary. The crew is composed of 25 officers and men, six of whom are Ceylonese apprentices who are given a monthly allowance. Most of the Japanese officers are share holders of the company and as such they receive, besides their monthly salary, a share of the net profits.

(e) Sole Salary System.

This system prevails in the Government owned Fishing

HUMAN RESOURCES

91

Vessels, the North Star and Canadia, and the trawler the Maple Leaf. The first two are skippered by Roy Pyne of Lockeport, Nova Scotia, and Aubrey Barry of Beaver Harbor, New Brunswick. They are paid under the Canadian training program. The rest of the Ceylonese crew is paid normal Government salaries.

2. Labour Force.

In Ceylon very large segments of the industry are organized on the basis of small-scale enterprises. These do not follow the usual pattern of labour-management relations, of employers and employed as already pointed above. The decisions as to timing, place and method of fishing are generally taken jointly and the "sammatti" or "mudalali" (the skipper) does not receive a higher share in the proceeds than do other crew members although as owner of boat and net he receives also a share going to his boat and net. We cannot therefore expect to find in this sector trade unions in the sense of organizations promoting the interests of workers against those who employ them. But there are other organizations like the Central Fisheries Union, the North Ceylon Fishermen's Welfare Unions and the Jaffna Maritime Association through which owners and the crew jointly defend their common interests.

Even in the case of the wage system there is a very close and intimate relation between the capitalist manager and those who work under him. Here too trade unions do not exist, but both the manager and the wage earner are members of

HUMAN RESOURCES

92

above welfare unions.

It is only in the sector of "industrial fishing" where large scale units of operation exist, it is possible to have a clear cut distinction between capital, management and labour. Here one may expect little or no personal link between owners and the crew. Trade unions may be possible among the crew of the different large scale operational units with the specific aim of defending their interests against those who are their employers.

In Ceylon, as was observed above, there are only two types of large scale trawler fishing. The one belonging to the Ocean Foods and Trades Ltd., and the other, the Government owned and operated trawlers. Trade Unions do not exist here either.

The commonest and wide spread labour relation prevalent in the remote villages is that the fisherman is usually in the employ of a wealthy capitalist who lends him money and boats and then either purchases his catch at low rates, or obtains free a fixed percentage of the daily catch either as interest or as payment for the loan of gear or both.

There are also a large number of independent fishermen who may either carry on fishing operations singly or conjointly with one or more male members of their family. Labour is also provided by the females of the family for the marketing and sales of their catch or for the helping in the salting and drying process if there is any excess of fish that cannot be

HUMAN RESOURCES

93

sold. They also have the economic benefits of support from their relatives and friends.

(a) Labour Supply.

It is generally believed that the underdeveloped countries have an abundant supply of labour force. The abundance of cheap labour tends to reduce the incentive for technical improvements. But in Ceylon the problem is one of acute shortage of labour. Population has been decimated by the ever recurring scourge of Malaria. As in agriculture, labour force had been wiped out in many fishing villages.

The Government had recruited Indian Labour that was plentiful, for the tea and rubber plantations. The farmers and fishermen too availed themselves of that opportunity to import labour from South India. Ricardo may have had the Indian labourer in mind when he argued that "wages are determined by the standard of living to which the worker is habituated". The Ceylon labourer was habituated to a higher standard of living than the Indian labourer. That is one reason that had compelled the Ceylon labourer to refuse the very low wages offered by the newly opened rubber and tea companies, because the wages offered were below their standard of living and they preferred to remain unemployed. The Indian labourer's standard of living was lower and so they accepted the wages offered in Ceylon to enable them to raise their standard of living.

HUMAN RESOURCES

94

When the Donoughmore Constitution came into force, the Nationalist Board of Ministers put a stop to the immigration of Indians. The consequence was disastrous both for the agricultural and fishing industries. In previous years, Indian labour was employed by the local land owners and sammatties, i.e. fishermen who owned nets and boats but depended on hired labour for fishing. But owing to the stricter measures adopted by Government against persons with temporary resident permits and other illicit immigrants, the proportion of people engaged in these occupations has seriously been affected.

Owing to the immobility of the Ceylonese labour, the "sammatties" found it difficult to attract labour with sufficiently high inducements. In utter desperation some of them have managed to evade the vigilance of the coast guards, and have succeeded in smuggling a sufficient number of Indian labour to enable them to carry on their fishing operations.

There is at present no significant unemployment, that is there is no substantial body of workers normally depending on wages who are without work for any extended period. There is a high degree of under-employment, especially in the rural areas where the population is much larger than is necessary for the efficient use of the present cultivable lands. Fishing is not attractive enough to induce them to leave their homes to which they are deeply attached. Besides fishing is a hazardous and excessively strenuous occupation and hence man

power is necessarily restricted by consideration of its strength and endurance. It involves some form of physical hardship.

A study of the age in the fishery population in the world reveals that "only men in the prime of life are engaged in the particularly arduous fisheries of the Arctic and North Atlantic, while older men and youths are engaged in fishing in the near and inshore waters where fishing is less strenuous and where part-time employment in agriculture and other branches of economic life is possible".⁶

One of the outstanding features of the fishing industry is the high degree of uncertainty attached to estimates of the proceeds of the catch. There is first the uncertainty of the quantity and the uncertainty of the price. The total catch of a whole fishery may vary from one season to another or because of the difference in the catch of one boat on successive trips. The quantity of catch may fluctuate from a boat load to an empty net for days on end.

Fishing operations are also affected by fluctuations in the prices and the risk involved because of the perishability of fresh fish. Fluctuation in the prices of factors of production - the wages for labour, the interest on capital,

⁶ Monthly Bulletin of Agricultural Economics & Statistics, Rome, F.A.O., May, 1953, p. 2.

HUMAN RESOURCES

96

and the prices of strings, twine, and nets can also affect the industry.

Fluctuations in supply have also a strong impact on the labour situation. The total labour force required to handle peak landings is correspondingly high while during the lean months much of the labour has to be kept idle. The quantity landed has repercussions on the labour engaged in packing, transporting and marketing.

A sudden increase in operating cost can have sudden and disastrous effects on the various fishing enterprises because of the elastic demand for fish. The fluctuating demand for fish can also influence the labour market. There are 600,000 Catholics in Ceylon. Their religious observances such as lent, fast and abstinence, and meatless Fridays, have a significant bearing on the increase in demand for fish.

A shortage of other foodstuffs such as meat or eggs may also stimulate an increase in demand for fish. In general, marketing of fresh fish is characterized by its extreme sensitivity to various fluctuations which occur not only seasonally, but also daily and even hourly especially in the highly urbanized consuming centres like Colombo. For the Colombo fish market today dominates the fish trade and prices.

In the face of these uncertainties one cannot expect the local "sammatties" to apply labour-intensive devices. Their profit margin must be pretty high to attract a sufficient

labour force. Other economically advanced countries like Brittain and Norway may be able to achieve this. Thus, the boat owners in the Norwigan cod fishery off Greenland, have to promise their men employment in the winter herring season.⁷

In Ceylon the fishing boat owners are reluctant to promise a guaranteed minimum wage, and the workmen are themselves reluctant to accept the share system. The fishermen are thus inefficient because they are poor and poor because they are inefficient, and thus caught in a vicious circle from which they can only escape through more capitalized activities. The unattractiveness of the fishing industry has resulted in the present tendency of the younger generation in the fishing villages to migrate to the larger towns to take up more lucrative work. Organization of the industry on modern lines and a good scientific fishery education can only stop this exodus.

(b) Sociological aspect.

As seen earlier, three technical levels or sectors can be distinguished in the Ceylon Fishing Industry as a whole.

- A. Offshore and near-sea fishing
- B. Inland fishery
- C. Deep-sea or longer-range fishing.

The offshore fishing is purely local and primitive and to a great extent mere subsistence-type of activity and can be regarded as a peasant economy. The inland fishery is also primitive and is a peasant economy. The third type, the

⁷ The Economics of Fisheries, F.A.O., Rome, 1957, p.II.

deep-sea fishing is more or less an urban economy. Owing to the proximity of the market, fishermen living in towns have many economic advantages and they are generally wealthier. They venture out deep on their out-rigger canoes or migrate during the monsoon for inshore seine fishing. Mechanization among this sector will be more profitable than with the off-shore or inland fishermen.

A similar pattern pervades the South East Asian countries. The offshore type predominates heavily in South and South East Asia, in the centre; The inland and fish culture activities in the North Eastern parts to Hongkong and China; and the more highly organized deep-sea activities in Japan. In these parts the degree of capitalization is lowest in the offshore fishing, rising through inland fishing to deep-sea fishing. In Ceylon, however, the process is somewhat different. Comparing the local crafts, the degree of capitalization is highest in the offshore fishing, descending through deep-sea fishing to inland fishing. But with the advent of the trawler, deep-sea fishing has now the highest degree of capitalization.

(c) Comparison with Agriculture.

The Ceylon fishing economy has very close resemblance with the peasant or agricultural economy, but shows many divergences:

HUMAN RESOURCES

99

1. The agricultural yield is seasonal whereas the yield from fishery is one of daily increments. Each day's labour gives its return on the spot.

2. The farmer received the majority of his crop in bulk at one time. He can plan in advance, decide what he will retain, and what he will sell. He can also estimate his margin of saving against his consumption months ahead and contract or expand the one at the expense of the other in terms of bulk supplies in hand. The fisherman, on the other hand, with his daily income, often very irregular, must calculate against greater uncertainty. He must think of saving in smaller increments; he cannot set aside so much in bulk and divide for daily consumption the remainder into appropriate fractions.

3. For the agriculturalist saving lies in abstention from drawing on the store already there. The fisherman's saving also lies in abstinence. But for him it is the abstinence in order to accumulate a store.

4. As regards the problem of storage, the farmer's seasonal crop normally needs more space; whereas in the case of the fisherman, his catch if it is to be stored, needs more labour and outlay in equipment for its preservation. Hence the tendency to a greater development of middlemen who take these matters off his hands.

5. The farmer's main crop is usually also his stable food. The fisherman, on the other hand, does not live on fish

HUMAN RESOURCES

100

alone. He must also have rice or similar vegetable food as his staple. Hence for him exchange of his product is a necessity. Full-time fishing tends to be more definitely associated with an exchange economy than does full-time agriculture.

6. There is more scope for complete family activity at all stages in agriculture; where as in fishing the work at sea is primarily restricted to men, though women and children often participate in the secondary process on shore.

7. There is less scope for permanent day to day co-operation in large groups in agriculture; whereas there is more scope in a fishery for permanent day to day co-operation in moderately large groups.

8. Investment in agricultural lands has a permanency though agricultural implements and cattle are more likely subject to sudden damage and loss; whereas there is no permanency of investment in fishing enterprises, for fishing boats and gear though durable are subject to perpetual damages.

9. There is in both agriculture and fishery much opportunity for the entry as well as exit of the marginal worker-even casual worker.

10. Both the farmer and the fisherman depend largely on the middlemen for their fixed and circulating capital, guaranteed by their crop or catch.

11. From the point of view of increasing food supplies, fishery has a short production period whereas agriculture

took at least three to six months.⁸

12. Both agriculture and fishing are subject to diminishing returns, and in both the operation of this law could be postponed or delayed by the application of more mechanized methods. Just as intensive and extensive cultivation may be applied to agriculture so intensive and extensive fishing is also possible.

13. The supply of land is limited in the case of agriculture; whereas the fishing grounds are unlimited.

14. The fisheries have two remarkable advantages; they demand no increase in acreages and they need not call on international division of labour since they can utilize the internal resources of the nation.

15. The labour-intensive methods of fishing have the same practical difficulties as those found in agriculture. If much labour is used in any particular type of production, the marginal rate of saving is likely to be low and is detrimental to the progress of the fishing industry.

16. The fisherman pays no rent, while the farmer may have to pay rent.

⁸ R. Firth, Malay Fishermen: Their Peasant Economy, London, 1946, p. 184.

CHAPTER V

CAPITAL FORMATION

Capital is the life blood of business and of economic activity. Purchasing power is needed for buying equipment, to build boats, to make or purchase nets. Funds are required to hire men as well as to purchase consumption goods. Where does the fishermen get the money for all these?

(a) Income of the fishermen

There is no adequate information on this subject. Statistics given of other countries will be instructive and illuminating.

In Malaya the average net income per head would approximately be 135 Malayan dollars per annum, that is just about 11 dollars per month. (In Malaya, 1 dollar equals 2s 5d Sterling equal to 33 cents in American money). Cash incomes by drift nets is an average of 75 cents per man per day.¹

Figures in Ceylon are merely conjectures. However, in the Survey of Ceylon Consumer Finance conducted by the Central Bank of Ceylon in 1953, of the 960 non-estate household selected, only 30 fishermen were examined and Table VI indicates this monthly income.

¹ Raymond Firth, Malay Fishermen, London, 1946, p. 27.

CAPITAL FORMATION

103

TABLE VI

Monthly Income of ⁴~~30~~ Fishermen, 1953
30

Income per month		Persons
Rs.	0 - 25.	0
	25.- 50.	4
	50.- 75.	5
	75.-100.	5
	100.-125.	8
	125.-150.	3
	150.-175.	3
	175.-200.	0
	200.-250.	1
	300.-350.	1

Total number of fishermen examined: 30

Source: Survey of Ceylon Consumers Finance, 1953.

CAPITAL FORMATION

104

Table VI gives a very distorted picture. It is important to have more precise knowledge of the total fishermen's incomes, and of average incomes per head for the whole of Ceylon and in different parts of it as an element in the study of the national income.

The range of incomes vary from place to place. Income also depends on local resources, seasonal conditions, marketing facilities, types of equipments used and also in different methods of putting capital into the work and dividing the proceeds.

It must be admitted, however, that the range of incomes varies considerably. Some fishermen live on the margin of subsistence, barely able to make both ends meet. Others are able to earn a comfortable income in terms of the standard to which they are accustomed and the few who were fortunate enough to fit out board motors to their small crafts or use nylon nets have been able to reap a bountiful harvest and almost double their incomes.

(b) Indebtedness of the fishermen.

Table XII of the Survey of Ceylon Consumer Finance gives the consumer expenditure per spending unit and per person per month. This gives a fairly accurate or at least an approximation of the fisherman's monthly expenditure as shown in Table VII.

CAPITAL FORMATION

105

TABLE VII

Consumer Expenditure per Spending Unit
and per Person per Month in Ceylon

	Consumer Expenditure per spending unit	Consumer Expenditure per person	Percentage of total exp.
	Rs.cts	Rs.cts	
A. Food			
1. Rice	28.43	5.96	17.58
2. Wheat Fl.Bread	9.76	2.05	6.03
3. Other Food	0.65	0.14	0.40
4. Meat	2.25	0.47	1.39
5. Fish	7.60	1.59	4.70
6. Eggs	0.93	0.19	0.57
7. Vegetables	10.98	2.30	6.79
8. Condiments	8.84	1.85	5.47
9. Cooking oil	2.42	0.51	1.50
10. Milk	3.09	0.68	1.91
11. Milk products	0.67	0.14	0.41
12. Coconuts	5.97	1.25	3.69
13. Fruits	1.22	0.26	0.75
14. Beverage	3.21	0.67	1.98
15. Sugar	6.97	1.46	4.37
16. Other food	3.91	0.82	2.42
Sub-total	96.90	20.31	59.91
B. Clothing			
17. Clothing	12.13	2.54	7.50
18. Footwear	0.67	0.14	0.41
Sub-total	12.80	2.68	7.91
C. Housing			
19. Rent & Repair	5.81	1.22	3.59
D. Medical			
20. Medicine, etc.	2.12	0.44	1.31

CAPITAL FORMATION

106

TABLE VII

Consumer Expenditure per Spending Unit
and per Person per Month in Ceylon
(Continued)

	Consumer Expenditure per spending unit	Consumer Expenditure per person	Percentage of total exp.
	Rs.cts	Rs.cts	
E. Miscellaneous			
21. Beverage Alc.	4.13	0.87	2.55
22. Betel	2.56	0.54	1.58
23. Tobacco	3.51	0.74	2.17
24. Education	3.27	0.69	2.02
25. Trade Union contr.	0.29	0.06	0.18
26. Personal spending	3.15	0.66	1.95
27. Recreation	2.08	0.44	1.29
28. Transport	4.20	0.88	2.60
29. Personal saving	1.16	0.24	0.72
30. Religion	3.00	0.62	1.85
31. Litigation	0.60	0.13	0.37
32. Laundry	2.22	0.46	1.37
33. Gifts	2.95	0.62	1.82
34. Fuel & Light	3.25	0.68	0.37
35. Others	1.15	0.24	0.71
Sub-total	37.52	7.87	23.20
F. Durable Consumer Goods	5.11	1.07	3.15
G. Taxes, income tax	0.32	0.07	0.20
H. Interest on Debt	1.16	0.24	0.27
Grand Total:	161.74	33.89	100.00

Source: The Survey of Ceylon Consumer Finance,
1953.

CAPITAL FORMATION

107

This survey of Table VII took a stratified random sampling of 960 households and may reflect a middle class consumption expenditure. Most of the items of expenditure are common to the fishermen, but there are inevitable divergences, as for instance in the matter of dress and the type of beverage consumed. The fisherman normally after a hard day's toil under the burning tropical sun craves for his drink of Toddy, a cheaper beverage tapped from the coconut and palmyrah palms. In its fresh stage, toddy is considered very nourishing, but unfortunately, by the time the fishermen lay down tools for the day, the toddy has turned stale and intoxicating. Toddy was sold in taverns which soon became scenes of drunken brawls. In order to check this abuse, the Government abolished the taverns and introduced the Tree-tax system. Under this system a tax was imposed on every tree that was tapped and men were allowed to drink on the spot under the tapped trees. This had the salutary benefit of keeping the men at home where a dominant wife controlled the quantity of toddy consumed.

On feast days and holidays, the more expensive beverage known as arrack that is distilled from toddy was consumed. Some of the poorer class have taken up to the distilling of "pot-arrack" which is a much more pungent and injurious drink the manufacture of which has been forbidden by Government.

The fishermen also incur other expenses such as undertaking annual pilgrimages. The Catholic fishermen usually go

annually with their family to the Sanctuary of Madhu in the Mannar District, to St. Anne's, Talawila in the Chilaw District and those in the North also do not miss their annual pilgrimages to Pullavali near Elephant Pass, to Palativu Island, and to Sinna Madu at Kayts.

The Buddhist fishermen may go to Adam's Peak or to Nainativu in the North. The Hindu fishermen also have their places of pilgrimages. Some go to Kataragama in the South of Ceylon, also to Madu and St. Anne's, Talawila. The Muslim fishermen usually go to Beruwala, or to Adam's Peak, to Madhu and to St. Anne's, Talawila.

The Catholic fishermen also contribute much more to their churches. While other Catholics give Rs.3.00 a year, the fishermen donate one tenth of their daily catch. The system of collecting their contribution is known as the Tithe System or the Rent System. Generally, on the day of the Church festival the fishermen assemble under the presidency of their parish priest. The rent is then publicly auctioned. The highest bidder is given the contract of collecting the rent. In places like Pesalai, Mathagal, Point Pedro, Chilaw and Negombo, the rent may rise to over Rs.50,000 a year. Then the highest bidder who gets the contract deposits on the very day one per cent of the total and pays the rest daily or monthly before the end of one year.

This system had been introduced by the Dutch who in-

creased their annual revenue with the tithes collected from all fishermen. The English continued this system up to 1850, and when it was abandoned the Catholic Church took it over and has continued it ever since. With the rents so collected the fishermen were able to put up huge churches, schools, convents and presbyteries. In some villages, however, the amounts collected are below the Rs.50,000 mark. This money was used for the building and maintenance of the Church and schools, and part of it was spent as relief for fishermen in times of distress.

In places like Negombo part of the rent collected is disbursed, in the following manner by the unanimous agreement of the Church Council composed of the representatives of the fishermen and their parish priest:

- (a) Maintenance (extended to the family) when the fisherman is prevented from going to sea, by illness, bad weather, etc.
- (b) Assistance for medical aid.
- (c) Assistance for the repair of boats, nets, etc.
- (d) Assistance for the education of their children.
- (e) Allowance on occasions of death in the family.

The amount allowed in each case is examined and passed by the above church council.

The standard of living of the Catholic fishermen is higher than that of the non-Catholic farmers or of the non-

CAPITAL FORMATION

110

Catholic fishermen. Their religious observances, attendance in church, some daily, and all on feast days and days of obligation, bring them more in contact with the rest of the congregation and generally the family is well dressed and bejewelled. To many the church has been the centre of education and instruction.

The non-Catholic fishermen and the farmers may lack these social advantages. Their annual pilgrimages or visit to their temples once a year may not involve much expenditure on the family dress.

Thus various factors have driven the fishermen to live above their means and consequently we find a large part of the fishing population unable to balance their budget and hence live in perpetual debt.

But the occupational indebtedness of the fishermen is a far more serious problem. A distinction must however be made between the ordinary fishermen who are independent and those who are employed in the services of the "sammatti" or "mudalai" the local capitalist. The latter group falls into two categories viz, those who are on the share basis and those on wage system. The wage earners are the poorest among the fishermen. Those working on a share basis are very much better off and some of them are even in a better position than the small independent fishermen.

It is the sammatties or boat and net owners that are

CAPITAL FORMATION

111

heavily indebted to the middlemen. The Government tried to extricate these men from their debts. Loans were given through cooperative societies to individual fishermen by the Department of Fisheries. But the abuse of the loans compelled Government to stop issuing loans to individual fishermen from August 1948. Of the loans issued only Rs.5,470 as principal and Rs.998 as interest were recovered on the outstanding loans. The defaulting debtors were 618 in number. This number was reduced in 1948 to 592 and 335 lawsuits were filed of which 154 were pending.²

Indebtedness as a permanent feature is detrimental to any prospect of fishery development. It kills production incentive because the fisherman fears constantly that any increase in his effort will be immediately appropriated by the middleman, either in the form of repayment of debt or through lowering of the price. The solution of this incentive problem and the problem of the indebtedness of the fishermen which are so intimately connected is thus of very great importance.

(c) Capital among the Fishermen.

It is now admitted that there is a general shortage of capital in the poor and underdeveloped countries. But in the fishery sector of the economy of these countries capital is very very deficient. In Ceylon the position of capital among the fishermen is worse.

² Times of Ceylon, August 18, 1948.

CAPITAL FORMATION

112

1. Nature and availability of Capital.

Capital among the fishermen consists essentially of three items, namely: craft, gear, and the means of subsistence. The amount of fixed capital involved is very considerable in terms of local income levels. The fishing boat may cost about Rs.5 to 8,000 while the net and accessories may amount to Rs.6,000, a sum far beyond the means of most ordinary fishermen.

Besides these, liquid capital is needed for the initial outlay and to meet the cost of over heads such as:

- (a) Net dye
- (b) Twine and coir strings for repairs
- (c) Paints
- (d) Caulking materials for boats.

The capital for financing all these is found in the following manner:

(1) By indigenous money lenders.

The commonest method of obtaining a short-term loan is by pawning jewels. There are in every fishing village some Pawn Brokers who are prepared to lend money on the security of jewels. Generally, short and urgent loans are obtained in this manner. The jewellery worn by men such as gold rings, earrings, the silver waist chain and the gold chains, are pawned first. Then if further capital is needed the jewellery of the women and girls - the rings, the bangles, the gold chains, the earrings, the necklace and only in extreme dire necessity, the wedding necklace or "Thali" will find its

CAPITAL FORMATION

113

way to the pawn brokers house.

The amount of loan given will be less than the value of the jewel pawned. The loan had to be returned with an interest fixed by the pawn broker. If the loan was not returned within the period fixed, the jewels left as securities were sold and the money realized by the pawn-broker.

(2) By middlemen.

The pawn-brokers had only limited funds available for loans. For the purchase of boat or net, the only credit facility available to the fishermen was the boutique keeper or the middleman who was ever ready to advance the capital on the security of the catch. The fishermen had no proper accounting. The prices of the catch were fixed by the middleman and he would keep on giving advances till he reduced the fishermen to a state of perpetual bondage from which they have no hope of extricating themselves.

No doubt these middlemen, in the absence of any banking facilities were doing an economic service to the fishermen. Even the fishermen living in towns, where there were banking facilities, could not hope to get any loans from the banks because of the difficult conditions imposed or required by the banks. They too had to fall on the ^{advances} generosity of the middlemen.

(3) By the "CHEETU" system

The "CHEETU" system is something unique and had been another source of capital for the fishermen from time imme-

CAPITAL FORMATION

114

morial. Under this system ten to twenty families get together and draw lots. The first two numbers were taken by the organizing family, which may exchange with a family in need of urgent money. Each family would pay Rs.10 or Rs.20 per month up to the number of months drawn. The whole sum was collected by the organizer and given to the members according to the number they had drawn. By this means a family was able to raise Rs.200 to Rs.400 at once. Under this system there was no interest to be paid and hence this system has great advantages over all other forms of financing. Some were able to draw even two numbers and thus increased their capital. In the pre-war colonial days the money thus raised was sufficient to meet both the fixed and circulating capital. Today the amount is hardly sufficient to cover the overhead expenses.

(4) By the "PANA CHADANGU" system.

This system of financing is also very peculiar among the fishermen. Generally on the day of the launching of the boat for the first time, the owner held what is known as a "financial wedding". He invited friends and relatives. Each one entering his house hands him some money wrapped in betel. The amount may be Rs.10 or even Rs.25. The total amount he receives will depend on the number of visitors and the amount they gave. Often the sum realized was sufficient to repay part of his loans incurred in connection with the purchase of

CAPITAL FORMATION

115

his boat. The money he received was not considered as a gift but as a friendly loan which he would have to repay when the donors held similar "financial weddings".

These so-called "financial weddings" were held also on other occasions such as marriages or functions held in connection with the puberty ceremonies. This was a very profitable and flexible form of capital circulation in the village or the town.

(5) By the relief fund system.

Those Catholic parishes that have the tithe or rent system as described above, give out money for the repair of boat or net, or even to purchase a new net in the event of accidental loss of net at sea. He also receives other benefits in times of deaths or marriages.

(6) By the mortgage System.

Driven to the wall the fisherman may mortgage his house and property to liquidate his debt or to purchase his boat and tackle. Invariably the interest goes on mounting till they are sold or seized by the money lender.

(7) The Jaffna Diocesan Provident Fund.

This was established about 30 years ago in the Diocese of Jaffna for all Catholics. The fishermen in some parishes have availed themselves of this facility. They contribute Rs.1.00 every month. It is a form of life insurance. When the fisherman dies, his wife is entitled to a month's

subscription of all the members.

(8) The Karayoor Marriage Provident Fund.

This was started about 20 years ago in the Parish of St. James, Jaffna, by a layman, Mr. L. S. Rasanayagam, a member of the parish. Under this scheme the parents contribute Re.1.00 every month on behalf of their daughters from the age of seven. On the day of their wedding they are entitled to one month's contribution of all the members. This is the only one of its kind in Ceylon and has functioned successfully and is even today providing doweries for the girls not only of the parish of St. James, but has now spread to the families of farmers and clerks of other parishes.

The fishermen cannot hope to raise their standard of living unless they improve the present methods they employ. Technical progress has proved that the present equipment used is not the most efficient unit and production can be increased and better returns obtained only by the use mechanized vessels. But transition from the old to the new type of fishing craft involves a heavy capital outlay. Similarly technical progress has revolutionized the type of gear used in modern fishery. This also needs capital.

2. Methods of minimizing risks.

As observed earlier, fishing operations are fraught with many risks. It is not therefore surprising that few individuals have been able to assess and accept the financial

risk involved in investing capital. The magnitude of this risk might be gauged from the fact that the latest long-distance European trawlers and the United States tuna vessels cost as much as 500,000 U.S. dollars to build and equip while operating costs may be in the region of 750 dollars per day's absence.³

In most countries the investment of private capital in fishery industries has depended very largely on profits earned at earlier stages rather than on the attraction of foreign capital. This has usually retarded progress compared with other industries in the same countries. The formation of regular commercial fishing companies has usually evolved from the skipper-owner stage through various forms of family ownership eventually taking the form of private or public companies.

In an underdeveloped country like Ceylon, the cost of improvements by way of better boats, engines, fishing equipment, handling, storage, processing and transport facilities are quite beyond the resources of the private undertakings. The boat and net owners are themselves heavily in debt. The commercial risks involved are too great for private investors to accept.

E. S. Kirby and E. F. Szczepanik, on "the special pro-

³ Monthly Bulletin of Agricultural Economics and Statistics, F.A.O., Rome, May 1953, p. 4.

blems of fisheries in poor countries",⁴ have suggested the following methods for the reduction of inherent risks as the primary condition for improving the flow of capital to fisheries in the poor countries:

- "(1) Spreading of information obtained by oceanographic, meteorological and biological research, as well as by the study of the methods of fish finding and catching, is the first way. It substantially contributes to the reduction of fishery risks but does not entirely eliminate them.
- (2) Combination and compensation of risks come next. Various examples of this way of dealing with risk can be quoted; fishing for different species by the same unit; combination of deep-sea fishing with coastal fishing; fishing with different methods by the same enterprise, etc. All these examples point to one common principle, viz, that through the operation of the law of large numbers, unfavourable events may be compensated by favourable events. From the economic point of view, this principle amounts to the establishment of an obvious case in favour of a large fishing enterprise.
- (3) Thirdly, there is insurance. It is not applicable to all kinds of fishery risks. No insurance company will guarantee the price or volume of catches; but craft can be insured, as well as gear and the life of the fishermen. This method, moreover, could be made available not only to large fishing units. Even small fishermen can use it if proper insurance facilities are organized. (Japan is quoted as an exemple).....
- (4) Although price is not subject to insurance, the degree of price fluctuation can also be diminished. One way is to use storing as a sort

⁴ The Economics of Fisheries, F.A.O., Rome, 1957, pp. 96, 97.

CAPITAL FORMATION

119

of buffer stocks policy. Another way is to spread market information; in Japan, for example, fishing units at sea are in radio communication with a number of markets and direct their fish to the markets with highest prices, thus levelling the price all over the country at a fairly stable figure."

Of these four methods of reducing fishery risks, the spreading of information, at present, neither the oceanographic, nor meteorological, nor the biological research conducted in Ceylon, has advanced far enough to be of any practical use for the local fishermen. Experimental fishing carried on in the Wadge Bank and the Pedro Bank has so far not attracted local capital. The information collected by the Ceylonese-Japanese owned trawler may provide useful guide for other similar ventures.

The method of combination and compensation will no doubt have very beneficial effect, but it involves a very large scale fishing enterprise. If capital could be found, there is a possibility, however, to combine the present in-shore fishing with deep-sea fishing.

As regards insurance, a scheme of fish-boat insurance similar to the one introduced in Japan in 1937, may be adopted in Ceylon. It consists of a system of mutual insurance of boats and fishing gear and is run by the fishing boat insurance associations which are formed by the boat owners themselves. The Government maintains a special fishing boat re-insurance account which re-insures 90 per cent of the total insurance

CAPITAL FORMATION

120

sums. In case where fishing boats are submerged or damaged on account of disaster or accidents, they are insured under the Government re-insurance system in accordance with the Fishing Boat Loss Compensation Law. It is compulsory for smaller fishing boats of less than 100 gross tons to be insured under certain conditions and a certain part of the premium is paid by the Government.⁵

Fishermen also suffer serious damage from recurrent cyclones and other natural disasters every year. No statistics is available regarding the annual casualties at sea. The only figures available are from the Administrative Reports of the Marine Biologist for 1937 and 1938. The number of fishing disasters between the year 1926 and 1936 is a total loss of 101 lives and 57 canoes and kattamarans. The greatest danger is off the Mannar reef. There were in 1937 in Mannar casualties 33 lives and 19 canoes lost. In Jaffna, there were 13 lives and 5 canoes lost, while in Galle, 12 lives and 3 canoes were lost.

Such casualties are usually the result of sudden squalls which the Observatory is generally unable to forecast and hence the fishermen are not forewarned in time.

In times of distress, rescue parties of experienced fishermen go to their comrades' assistance. In some cases, the Catholic priest or a Government officer may represent

⁵ Japanese Fisheries, Asia, Kyokai, Tokyo, Japan, 1957, p. 185.

matters to the Master Attendant in Colombo, who takes action whenever possible.

The local canoes seldom carry even a bamboo to cling to in case of emergency and the mortality would doubtless be heavier except for the fact that the outrigger canoe generally floats even after turning turtle.

In 1931, the whole crew of fishermen who were encamped on a small island off Talaimannar disappeared when the whole island submerged.

On September 4, 1938, a fresh disaster occurred when a fishing boat containing 3 men was wrecked off Weligama in a storm. The local fishermen after desperate attempt in a high sea, succeeded in rescuing two of the fishermen, but the third was drowned.⁶

There are many more casualties in sea that have never been recorded. There should be some form of life insurance for the fishermen, where the Government could ensure loss compensation to banking institutions and a part of interest on the loans for repair of damaged crafts could be defrayed from the national treasury as is done in Japan.⁷ As regards the risks involved in price fluctuation, the opening of the cold storage plant in Mutwal will go a great way to level off the prices of fish.

⁶ Administration Report, Marine Biologist for 1937 and 1938, p. 8.

⁷ Japanese Fisheries, op. cit., p. 185.

3. Methods of increasing capital supply.

The reduction of fishery risks, the insurance of fishing boats, gear and the lives of the fishermen may not provide a radical remedy for the overall shortage of capital available for fishery development in the underdeveloped countries like Ceylon. Other potential sources of capital must be explored.

A. Domestic Capital.

(1) Savings.

It is now commonly recognized that the existing marketing system based on middlemen has failed to provide the fishermen with opportunities for saving and investment. The remedy for the inadequacy of opportunities for saving among the fishermen lies in radical institutional changes particularly in the field of marketing. Marketing reorganization will no doubt greatly increase the earnings of fishermen and also their savings.

The Ceylon Co-operative Fish Sales Union should not only eliminate the middleman, but should also provide a sound system of compulsory savings for the fishermen as is done in Hong Kong.

(2) Taxes and Levies.

The savings of the fishermen may not be adequate. Hence other methods must be devised to augment the capital required. One method may be to impose taxes on the middlemen.

But an increase in the taxes imposed on middlemen may result in the shifting of the incidence of the tax onto either the fishermen or the consumers. However, there is another method of imposing levies on the middlemen from time to time for the specific purpose of building up a fishery development fund.

(3) Loans and portfolio investments.

The Government could also raise internal and external loans for this purpose. Certain amount of such bonds could easily be placed among the middlemen and the fishermen's co-operatives. In addition, the firms providing various types of fishery equipment could also be considered as potential subscribers.

Foreign investors could also be attracted to have shares in the bonds floated by Government for fishery development. Just as in colonial days the opening of the Railways was financed by foreign portfolio investments, fishery development could be made to appear a going concern to attract such investments.

(4) Commercial Banks.

The commercial banks of the country could also be induced to grant loans for big enterprises as is done in Japan. The equipment fund is financed by two long-term credit banks and the operational capital is supplied by other banks.⁸ These banks also finance small fisheries enterprises which are more or less stabilized. The banks lend them money

⁸ Japanese Fisheries, op. cit., p. 155.

solely because it pays.

(5) Fishery Finance Corporation.

In Japan, The Agricultural, Forestry and Fisheries Finance Corporation was established in 1951 to finance the medium and small scale fisheries entrepreneurs and organizations operated by them and to give long-term and low interest credits to the operators of these industries so that they may maintain and increase their productivity.

(6) Development Bank.

Also in Japan was established in 1951 the Japan Development Bank which "aims at expediting reconstruction of economy and promotion of industry by supplying long-term fund, while supplementing and encouraging the financing carried out by the general financing organs."⁹

The Japan Development Bank had financed the Fisheries in the following fields:¹⁰

1. Whaling - In order to earn foreign currency by export- whale oil, the loan was made to facilitate the factory and catcher boat.
2. Pelagic Tuna Fishing.
To facilitate construction of factory for salmon and trout fishing in the Northern sea.
3. Refrigeration and cold storage facilities.
To expand the refrigeration and cold storage facilities which are needed for refrigerating fish for export and cold-storing the fish to be canned.

⁹ Ibid., p. 168.

¹⁰ Japanese Fisheries, op. cit., p. 160.

(7) Small Fishing Enterprise Financing Association.

It is the small enterprise that encounters more difficulties in raising funds. Because they are small scaled, the banks will not trust them. Secondly, since the loans are in small amounts and the number of cases too many the banks will not naturally welcome them, and thirdly, the banks may not have sufficient funds to meet the demand. Japan had solved this problem by the "Small Fishing Enterprises Financing Guarantee Act" (Law No. 346, 1952) by which the small fishing enterprises and the fishermen make an investment in the form of fisheries rights bonds, etc., forming a fisheries credit fund association in every Prefecture. The related public organizations can also become members and participate in the activities of the association. This association gives guarantee to the smaller fishing enterprises' loans from the financial organs. The Government re-insures the guarantee of the association. At the same time was enacted the "Special Account for Smaller Fisheries Financing Guarantee Act" for carrying out the insurance business and the fund necessary for it was carried over from the general account now reaching 600 million yen.¹¹

(8) Co-operative Finance.

It was to extricate the agricultural peasant from the clutches of the monopolistic village money lender the Co-operative movement in Ceylon came into being.

¹¹ Ibid., p. 168.

CAPITAL FORMATION

126

As early as 1912, the first of a series of Credit Co-operative Societies was established. That was mostly among the farmers. The outbreak of the first World War retarded the growth of this movement. At the early stages these Co-operative Credit Societies fell under the control of the richer peasants and so gave very little aid to those for whom they were intended.

By 1940, there were 1,302 credit societies with a membership of 34,404, and by 1951, the number of credit societies 36,553 and the membership to 70,000. The total asset stood then at Rs.5.3 million.¹²

The loans are advanced to members on the basis of character and need and on reasonable terms not exceeding 9 per cent per annum and often at 6 per cent. Each society determined the limit on individual loans which are usually between Rs.200 and Rs.300.

Most of the loans are given for productive purposes such as for cultivation and harvesting. A small portion less than 4 per cent is given as unproductive loans for ceremonials and repayment of old debts.

There were no properly organized credit co-operatives among the fishermen. The 55 fishermen's cooperatives which are members of the Ceylon Co-operative Fish Sales Union are merely fish marketing societies. Efforts to form producers

¹² World Bank Report, op. cit., p. 46.

societies among the fishermen have so far proved abortive either because of lack of capital or because of political intrigues. The co-operative credit societies are practically non existing among the fishermen. The loans that were given to the fishermen through the societies were more or less direct loans from the Fisheries Department.

Ceylon at present is in possession of a well-developed and vigorous cooperative movement. Her consumer societies movement has now grown to be a model in the East with pyramidal arrangement of the Consumer Stores Societies at the base, with the District Stores Unions leading up to the Co-operative Federation at the Apex.

Yet in spite of rapid growth within the past decade the Island is not adequately covered especially by credit co-operatives and by marketing and producers societies.

The Credit Societies grant loans to individual members but the amount is small. In addition to the funds that come from the shares and deposit of members, these societies are also able to borrow from the nine Provincial Co-operative Banks and a Central Co-operative Federal Bank.

(i) The Antigonish Movement.

The Fishermen's Credit Societies should be established along lines developed at Antigonish, Nova Scotia. The outstanding characteristics of the Antigonish movement is that it uses the development of Credit Unions, Consumer Co-operatives,

Producer Co-operatives and Housing Co-operatives among the fishermen, miners and farmers of Nova Scotia and the other Maritime Provinces "as an educational vehicle first, and only secondly as a means of economic emancipation."¹³

The story of the Antigonish movement is the story of the struggle and final victory of the fishermen. The fishermen of Eastern Canada had endured series of great depressions during which they had lived in abject poverty and appalling misery. They were living in insecurity and fear a semi decent life. The system of barter was then prevalent. The fishermen accepted the price fixed by the middlemen to whom they were perpetually indebted. Nothing could be done to change this attitude of despair that hung over them. They were reconciled to their lot as something inevitable.

A number of people in Eastern Nova Scotia began to interest themselves in a possible program which would improve the deplorable condition of this country. But they were mostly individual thinkers with no definite idea of the permanent from their efforts should take.

In 1910, Dr. James Tompkins, the Vice-President of St. Francis Xavier University, at Antigonish, had returned from the British Empire University Conference in London that had discussed Oxford's Adult Education Report. He came back

¹³ P. H. Casselman, The Co-operative Movement and some of its problems, Philosophical Library, New York, 1952, p.13.

CAPITAL FORMATION

129

fired with the new thought that something should be done "to bring some measure of useful education to the great majority who stand and must remain outside of our colleges". He said that the colleges in Nova Scotia "cannot serve 100 per cent of the constituency from which they secure their money and students, unless the heart of the college beat with the heart of the community, especially the heart of honest toil."¹⁴

Earlier, Dr. Hugh MacPharson not content with the "Ivory Tower" type of education attempted to "take the University to the people". When these ideas were being sprayed, the World War I over took them. The Post-War problem of the Veterans from 1918 to 1921 kept them preoccupied. By 1921, Dr. Tompkins had crystallized his ideas and embodied them in a booklet the "Knowledge for the People" and launched his famous "Peoples School" in the University Campus.

Groups of people with varying educational attainments were brought to the Campus for a period of six weeks and given instructions in various fields of knowledge. But the greatest difficulty that faced such a system of adult education was that only a small percentage of adults could be reached in this manner and therefore it was felt that the benefits of the University should be brought to the people rather than have the people to come to the institution for instruction. Hence in 1924 the People School was abandoned.

¹⁴ Mary Ellicott Arnold, Father Jimmy of Nova Scotia, Chicago 4, U.S.A., p. 2.

Fr. Tompkins was transferred to Casino, a fishing village, difficult of access and in a state of economic decline. The region around Casino and little Dover depended mainly on fishing for a livelihood. Fish was sold on the wharfs to the commission merchants. The price paid for fish was pitifully small. Traditionally these fishermen used small boats. Then the trawlers owned by Americans and Canadian companies began to appear and drag the sea bottoms, scraping the fish, and bringing their large catches into a fishing port and flood the market till the price fell to a ruinous level for the small fishermen. Indignation smouldered while the children of local fishermen went hungry.

On the 1st of July, on the occasion of the Diamond Jubilee of the Confederation in 1927, Dr. Tompkins held his historic meeting of the fishermen at Canso and urged them to send telegrams to the Government authorities expressing their sad plight and asking for some remedial action. The Halifax papers gave ample publicity and focussed public attention.

After the annual Retreat of the Clergy that year, Dr. Tompkins electrified the priests and when they returned to their respective parishes they got their parishioners to send telegrams to the Members of Parliament. The upshot of the bombardment by telegrams was the appointment of a Royal Commission in 1927. Dr. M. M. Coady appeared before the Royal Commission and put forward a tentative program viz.:

CAPITAL FORMATION

131

1. The fishermen should be educated
2. The fishermen should have a voice in formulating policies concerning the fisheries
3. A program of producer and consumer organization along with basic education.

The Extension Department of St. Francis Xavier University was opened in 1928 with Dr. Coady as its first Director. It was his conviction that the people of Nova Scotia could be lifted to a new life through education. He felt that hitherto education had been purely a "skimming process". Primary and secondary, education was an "escape mechanism by which the bright and vigorous few got away from the lowly classes in which they were born to join the elite of the nation."¹⁵

The aim of education has been to attainment of good jobs. The educational literature of the past was filled with this 'bread and butter' concept. Educators too helped out this ideal that was founded on the false philosophy that 'there is always room at the top'.

These ideas were further promoted by the parents who believed that college education was an "escape from the drudgery they themselves had endured; the result of this philosophy was that the best brains were drained off into various professions leaving behind a great mass of people who could not afford a University education.

According to Dr. Coady, "Education is the release of

¹⁵ M. M. Coady, Fundamentals of Social Action, 1958, p. 2.

human energies on purposeful activities. "We must give integrated ideas to the people and help them to release their energies on worthwhile activities".

That is why the Antigonish movement places education before co-operation. It gives more emphasis to adult education in co-operative affairs, by the greater use of the study circle, by forming co-operators before establishing co-operatives.

The six basic principles of the Antigonish Movement are:

1. The Primacy of the Individual
2. Social Reform must come through education
3. Education must begin with the economic
4. Education must be through group action
5. Effective Social Reform involves fundamental changes in social and economic institutions
6. The ultimate objective of the movement is a full and abundant life for everyone in the community.

Dr. Tompkins kept on repeating to the fishermen of Casino and Dover: "Read. Think about what you read. Ideas have hands and feet. They will work for you".¹⁶ Weekdays and Sundays he talked to them about ownership. Co-operative ownership. Build their own factory. Process their lobsters. Slowly, very slowly the idea took root. But who would give them credit. They found a way. They would save their pennies.

¹⁶ Mary Ellicott Arnold, op. cit., p. 8.

CAPITAL FORMATION

133

(ii) Credit Unions.

Alphonse Desjardins had brought the credit union to French Canada from Europe in 1900 and he had carried the idea into the United States. Edward A. Filene had returned from India fired with the idea of spreading the idea of co-operation and had hired Roy F. Bergengren. It was this Mr. Roy F. Bergengren who was brought down to Nova Scotia to tell them about Credit Unions. It was he who drafted the Credit Union Law in 1931 and the bill was put through the Legislature in 1932. The idea began to spread from coast to coast.

The fishermen of Canso had saved their hard earned pennies, dime after dime, until they had a capital of \$128. In two years time the lobster plant took shape. The first season's catch came in and was processed and the lobster fishermen of little Dover and Canso, no longer destitute and afraid, found themselves in possession of a debt free plant valued at \$5,280 and in addition had paid themselves 1-4 of a cent a pound over and above the current price of lobsters. Co-operation they found was a going concern.¹⁷

Another outstanding example of the triumph of the fishermen is at Port Bickerton, a fishing village of ninety families on the Eastern shore of Nova Scotia. This community for a hundred and fifty years was under the domination of a big fish company from the Jersey Islands. "Abject poverty

¹⁷ Ibid., p. 9.

CAPITAL FORMATION

134

and a standard of living that in many cases approached degradation unworthy of a free people."¹⁸ They formed a Fishermen's Co-operative with only forty-five active members. Their average income was only between \$200 to \$300 a year. By 1958, they had an average gross income of \$10,500. Many of them have built their own houses and today the whole place has become a model town.

In the Grand Etang-Cheticamp area there are about 900 families. They were all very poor. But today, thanks to their Credit Union, they have taken over and paid \$25,000 for a government cold storage; they have established two new co-operative stores, and in 1958 their turn over was \$650,000. They also have a plant for the manufacture of fish meal, which gives them a clear surplus income of \$20,000. The Credit Union at Cheticamp has \$250,000 in assets and the one in Grand Etang, \$75,000. No region in North America has experienced in a few years such a complete reconstruction of their society.¹⁹

The Credit Union of Prince Rupert on the Pacific Coast, seventy miles South of Alaska, is a small city of 15 to 20,000 people. The fishermen formed a Credit Union ten years ago. Today they have a wonderful store, a large fleet of boats, many of them worth \$50,000, owned by the individual fishermen. They also own and operate a plant for the manufacture of fish

¹⁸ M. M. Coady, op. cit., Part VI, p. 8.

¹⁹ Ibid., p. 8.

liver capsules and have tried out a new invention for smoking Alaska cod. The asset of their Credit Union is \$1 million.²⁰

(iii) Credit Union League.

With the expansion of the Credit Unions, the Nova Scotia Credit Union League was formed of the various credit unions in 1934, and the League became corporate body by an Act of the Legislature in 1938. The League is a federation of Credit Unions and Co-operatives in Nova Scotia. Basically the League has four main objects:²¹

1. To promote, organize and develop Credit Unions and to encourage co-operation among Credit Unions.
2. To disseminate information concerning Credit Unions and to foster the common good and welfare of Credit Unions.
3. To improve the internal management of Credit Unions and co-ordinate their operating methods and practices.
4. To maintain uniformity in bookkeeping and to arrange for a system of bonding so as to protect Credit Union funds against loss and to provide such services as are of mutual advantage to Credit Unions, their members and the League.

The Nova Scotia Credit Union League is a central Credit Union. The member unions and co-operatives deposit surplus funds with this League or borrow from the League to meet loan demands of their members or for their business needs. This

²⁰ Ibid., p. 9.

²¹ Nova Scotia Credit Unions League, 1952, 1-16.

CAPITAL FORMATION

136

arrangement prevents funds from lying idle. The League pays interest on funds deposited with it and charges interest on loans.

(iv) The CUNA.

The League has also become affiliated with the Credit Union National Association commonly known as the CUNA. The CUNA grants two types of insurance to its members, namely Loan Protection and Savings Insurance.

a. Loan Protection:

- 1) Covers the loans of all members who have not reached the age of 70.
- 2) The Credit Union pays the premium, amounting to 65 cents per \$1,000 per month for death and disability, or 55 cents per \$1,000 per month for death protection only.
- 3) The limit of protection for one member is \$10,000.
- 4) This insurance wipes out the outstanding loan balance of a Credit union member at the time of death.

b. Savings Insurance:

- 1) It covers the savings of all members up to the age of 55, with decreasing protection between 55 and 70 and no coverage for savings after the age of 70.
- 2) The Credit Union pays the premium amounting to 65 cents per \$1,000 per month.
- 3) The limit of protection for one member is \$1,000.
- 4) The insurance pays a Credit Union member's family life insurance dollar for dollar with his savings up to \$1,000 within the limits stated above.

Such an integrated scheme could be introduced in Ceylon.

The United Maritime Fishermen's Union founded in 1930 in conjunction with St. Francis Xavier University has promoted co-operative lobster canneries, the number of which in Eastern Nova Scotia rose from three in 1932 to seventeen in 1937, and for the Maritime as a whole thirty-five.²² The fishermen have gained notably thereby. Prices to members have been doubled and trebled. The fishermen have also gained remarkably from the co-operative purchase of gasoline.

All this show that domestic capital could be raised through the establishment of Co-operative Credit Unions among fishermen. Conditions are very similar in Ceylon and therefore she could profitably follow the example of the Antigonish movement which is entirely independent of Government control.

B. Foreign Capital.

Governments of poor countries like Ceylon are themselves poor and must turn to foreign countries for funds to finance their development programs. Foreign capital may come from private or public sources.

Private foreign capital is of two kinds: (1) Direct Investment and (2) Portfolio Investment.

(1) Direct Investment is one in which a foreign firm or country invests directly in its own industry, either by financing a new industry or a subsidiary.

²² Dr. Coady, op. cit., p. 10.

CAPITAL FORMATION

138

Obstacles and circumstances which discourage domestic investment also discourages direct investment by foreign enterprises. A fish trawling company known as the Ceylon Fisheries Company was floated at the end of 1926 with 27 per cent of the capital subscribed by the Ceylonese. The Company owned two trawlers, the "Bul-Bul" and "Tongol", but nothing is heard of the company or of the trawlers after 1928.

Fishing is an industry fraught with so much of risk and uncertainty that foreign capital is not easily attracted. There are other deterrents to foreign investments:

(i) The uncertainty of international politics, economic and financial relationships.

(ii) Measures taken by Government often discourage foreign investment in Ceylon. There are regulations which compel foreign enterprise to admit substantial participation by local capital and personnel. The national Government has also passed legislation to restrict immigration.

These restrictions on foreign capital are mainly due to national sentiments and especially the fear of political domination and exploitation.

Direct foreign investment may not be advantageous in the case of fisheries. The fisheries carried on by foreign companies may give work to many and increase their income and in a way pave the way for domestic capital formation. It may even increase domestic skill, but the greatest danger is that

CAPITAL FORMATION

139

it may deplete the fishery resources. The foreign companies may leave the country after exhausting the fishing grounds.

Great benefits may be derived if foreign companies were to establish secondary industries such as canning, fish oil extracting, the manufacture of fish manure, fishing hooks and nets.

Another possible benefit that may be derived from foreign investment is the establishment of firms or subsidiaries which could supply capital goods needed for the fishing industry such as outboard motors, nylon nets, fishing hooks, cables and cordage.

(2) Direct Investment in partnership.

This type of investment has also very great advantages for the local shareholders will have some interest in the business and will be able to acquire skill and training needed to take over the concern, as is being done now by the Ocean Foods and Trades Ltd., which is a Ceylonese-Japanese venture. The formation of more of such joint fishing companies should be encouraged.

(3) Portfolio Investment.

The portfolio Investment involves the purchase of securities or bonds floated by the Government. Just as in the colonial days when Britain attracted foreign capital to finance public utilities like the Railway a similar attempt could be made to induce foreign investors to participate in the Govern-

CAPITAL FORMATION

140

ment floated bonds for the development of fisheries which would easily yield a better return.

Uncertainty of the fishery development projects and the difficulty of assessing the merits of the venture undertaken some thousands of miles away tend to scare away any foreign portfolio investment in Ceylon.

Direct investment has this advantage over portfolio investment that the earnings from direct investment can be reinvested in expansion or modernizing the industry where as this is not generally true for portfolio investment.

Another difference is that direct investment is serviced by dividends which are related to profits whereas portfolio investment is serviced by fixed interest charged on bonds. This naturally places less of a burden on the borrowing country's balance of payments.

The flexible return of direct business investment is also an advantage over the rigid interest attached to public foreign loans. Direct investment helps to induce more domestic investment either in partnership with foreign capital or into local ancillary industries which foreign enterprise indirectly establishes.

Finally direct investment creates a real addition to the productive capacity of the capital importing country where as portfolio investment is diverted to unproductive uses. But the problem of repatriation of direct investment will still remain.

CAPITAL FORMATION

141

C. Foreign Public Investment.

Public foreign investment comprises public loans and grants from foreign Governments or international agencies. Under the Colombo Plan foreign aid has come to Ceylon from various countries but Canada has contributed the largest share for the development of the Ceylon Fisheries, amounting to Rs. 17 1-2 million. Canada provided Rs.517 million for the construction of the harbour and pier; Rs.5 million for the equipment and installation of the cold storage plant at Mutwal that has a storage capacity of 500 tons, along with a by-products factory. Canada has also gifted to Ceylon two fishing vessels, the "North Star" and "The Canadian", along with the trawler, the "Maple Leaf".

In addition, Canada has supplied a number of experts who are training Ceylonese. It has also donated 27 inboard diesel engines which have been sold to the fishermen in Jaffna for mechanizing their boats for long-line fishing. Few officers of the Fisheries Department had been also trained in Canada under the Colombo Plan.

United Kingdom has provided training facilities for 4 Ceylonese and supplied one marine engineer to Ceylon.

Australia provided a biologist who trained the Ceylonese officers in taxonomy and prepared a program of research in in-shore and estuarine fisheries. Mr. Ian S.R. Munro of the Fisheries Division of the Commonwealth Scientific and Inter-

CAPITAL FORMATION

142

national Research Organization arrived from Australia in 1951 under the Colombo Plan, and his 856 page book on the "Marine and Fresh Water Fisheries of Ceylon had been published at the expense of the Australian Government. Australia also has provided films on fisheries to Ceylon.

Japan has provided educational facilities for students abroad. Ceylon had sent altogether eight students for fishery training in Japan. The training lasts six months.

The F.A.O. had gifted three marine engines that had been fitted in the Jaffna fishing boats. This new era of inter-governmental financing began somewhere in 1929.

1) The Colonial Development Fund set up in England in 1929 provided funds for the colonies. In 1936 Ceylon obtained a grant of Rs.85,000 from this fund for the erection and equipment of the Fishery Research Station in Galleface, Colombo.

2) The Export-Import Bank was established in 1934 in the United States as a Government agency to finance transactions and projects that would directly or indirectly promote United States foreign trade. It operates on a commercial basis and its loans carry a rate of interest 3 1-2 per cent and for periods of 1 to 20 years. These loans are for specific purposes generally granted directly to Governments or Government corporations. Ceylon may well tap this source for her fishery development.

During the Post-War period the United States Government has also made grants to underdeveloped countries to the tune of Rs.2.6 billion. Ceylon too had her share for the multi-purpose Gal Oya Schemes. Nothing was obtained for fishery development.

3) The Commonwealth Development Finance Corporation was established in England in 1953 for the purpose of granting loans to British colonies. In the first year of its operation it had invested about 5 million pounds in the major enterprises, namely electricity and cellulose pulp production in the Union of South Africa and natural gas development in Pakistan. Ceylon could well have got a loan for her fishery development project.

The prospects of getting loans from foreign countries are complicated by various political considerations. The general trend is in favour of loans granted by international financing institutions, which would not attach undesirable political "strings" to the loans. Ceylon should attract the attention of these institutions to the demand for fishery development.

4) International Financing Institutions.

Among these institutions are:

(i) The International Bank for Reconstruction and Development. This Bank is authorized to make or guarantee loans for development projects, both with its own capital

CAPITAL FORMATION

144

funds and through private capital and is provided with a financial structure under which the risks of such investment are shared by all member Government. The loans made or guaranteed by this Bank are only for productive purposes and to finance the foreign exchange requirements of specific projects.

A 12-member mission with Sir Sydney Caine as chairman visited Ceylon in September 1951 and stayed ten weeks to study the economic potentialities of the country and recommended a loan from the International Bank for Reconstruction and Development, for a development program the Mission had outlined. Ceylon had received \$19 million from this Bank and is devoting for the development of electric power, transport and communication. Only a small portion has been directly for agriculture or fisheries.

(ii) The International Finance Corporation.

This was established in 1956 as an affiliate of the International Bank for Reconstruction and Development because of its limitations to finance private undertakings. This Corporation can invest in private undertakings, in association with private investors and it can provide not only fixed-interest loans but also venture capital without government guarantee. Loans are made at low interest rates of 3 to 5 per cent and with relative long periods of repayment.

This Corporation should provide capital for private foreign or local companies for fishery operations.

All these International Agencies have not fully utilized for the development of the fisheries in Ceylon. As these loans are limited to "self-liquidating" projects, fisheries will be eminently suited for benefit by such loans.

(iii) The United Nations Organization recently proposed the establishment of a United Nations Agency to make grants-in-aid or low cost loans for economic development of the underdeveloped countries. Grants-in-aid may be granted for specific purposes such as for research and education public health programs, subsidization of medium - or short-term credit to farmers and fishermen and improvement of rural public works.

This will be a great blessing for the fishermen if Ceylon Government moved to get these grants-in-aid.

D. Opportunities offered by foreign trade.

Ceylon can offer a number of goods produced such as tea, rubber, copra, in exchange for foreign products. The larger the potential export surpluses, the greater are the possibilities of earning foreign exchange for the purpose of buying capital goods necessary for fishery development. Fishery products like liver oil, canned sardines, fish meal, oysters, crabs, glue, corals, beech-de-mer, chanks and pearls, etc. can be also used for earning foreign exchange. Such products are comparatively light and valuable and could reach the markets as distant as possible. Japan has already embarked on this

CAPITAL FORMATION

146

line of fishery export development. In 1956, alone Japan exported 10 million cases of canned products.

E. Creation of Money.

Fishery can also be regarded as a powerful income-generator because it stimulates the growth of a very large number of subsidiary industries, such as boat making, ship building, repairing, fishing gear production, ice manufacturing, cold storage, transport, etc. In some countries, fishery has contributed to the development of several new industries, such as those connected with artificial fibres or electronics. Japan provides the best illustration of this.

Fishery development may even be a suitable ^{instrument} ~~target~~ of ^{fiscal} ~~an~~ inflationary policy. Therefore, one of the main advantages of a growth in fish production would be as a defence against inflation.

F. Community Development.

Schemes such as the construction of landing facilities, formation of fish ponds, building of markets can be financed by public authorities on a moderate scale, from inflationary sources.

Thus, there is a great variety of ways and means to secure the flow of capital for fishery development in Ceylon. However, there must be first of all knowledge of what is wanted and secondly the will to achieve these aims. In other words,

there must be a dynamic factor initiating and sustaining fishery development.

It is generally recognized that in the capitalist countries the driving force of economic development is the innovating entrepreneur. As N. Kaldor has pointed out, "he is a promoter, a speculator, a gambler, the purveyor of economic expansion generally, and not just of the new techniques of production".²³ The entrepreneurship is primarily an art which requires an adventurer's mind. Such minds, full of courage and imagination, are lamentably lacking in Ceylon. It is also a matter of training and education but unfortunately of all types of education in connection with fishery, the education of fishery entrepreneurs is the most neglected.

²³ N. Kaldor, "Economic Growth and Cyclical Fluctuations", *Economic Journal*, March, 1954, p. 71.

CONCLUSION

1. The primary problem for Ceylon is therefore to increase food production. Ceylon is importing about 78 million Rupees worth of fish and fish products. The development of fisheries would directly increase the output of food and also stimulate a number of labour-absorbing industries. As most of the people in Ceylon are non-meat eaters the deficiency of animal protein can be met only by increasing the production of fish.

2. Increased production cannot be achieved unless the inefficient fishing boats and gear are improved. Increasing the output of fish, however, may be realized in two ways. One, the Government could purchase a number of fishing trawlers and increase the fish supply. The other, the Government could help the fishermen to improve their boats and nets so that they may increase the fish supply.

The first method is perhaps quicker and more efficient. But the problem of the 120,000 people engaged in fishing will not be solved. These along with their dependants and those engaged in the processing, transporting and marketing and other ancillary industries connected with the fishery, constitute a substantial portion of the population. Their case must claim all priority.

CONCLUSION

149

It may be, however, beneficial to retain one or two fishing trawlers owned by the Government merely to serve as a price stabilizer and not to glut the market and depress the prices in Colombo.

3. Before introducing better methods of fishing the present methods must be fully exploited. At present one of the greatest obstacles encountered by the fishermen is the lack of quick transportation of their catch from the fishing grounds to the market in time. The introduction of motor boats in most important fishing centres round the Island will be able to expedite the landing of fish so that it could reach the consuming centres in a fresher and more palatable condition. Besides additional Refrigerated Railway vans could be attached to carry the bulk of the catch, and refrigerated trucks could also be used as is done in Japan. Due to the perishable nature of fish, care must be taken so that (1) the commodity must be transported as quickly as possible; (2) the freshness must be maintained as much as possible by increasing and improving the cold storage cars and (3) the handling technique must also be improved.

4. The fishermen must also be trained to better methods of degutting and packing in ice or to methods of quick freezing. Much of their efforts and toil are lost when fish reaches the market in a putrid state due to imperfection in the packing process.

CONCLUSION

150

5. Organizational weakness has hitherto been a hindrance to the improvement of the lot of the fishermen. The efficient organization of the industry, especially on the distribution side is hindered by presence of the middlemen. The wholesale marketing system based on middlemen is detrimental both to the fishermen and to the consumers. These middlemen could be replaced by the Fishermen's Cooperative Societies. The Ceylon Fish Sales Union that was formed in 1952 should be encouraged to expand its activities and enroll as many fishermen's unions as possible, and to provide fish transport facilities to its member societies, and as in Hongkong, retain compulsorily a certain percentage of the sales as savings of the fishermen.

6. Public retail markets also must be modernized by providing more spacious and airy accommodation for stallholders. The Ceylon Fish Sales Union should open more fish retail stalls in Colombo as well as in other inland towns in Ceylon.

7. The existing consumer co-operatives should be encouraged to undertake the sale of fish since its sale to consumers at reasonable prices would increase the consumption of fish, and co-operative selling would also act as a check on profiteering by retailers. At present fish is sold in retail fish stalls in the markets. If plastic wrappers could be imported, the sale of fish in such containers could be under-

CONCLUSION

151

taken by the various consumer co-operatives in Ceylon.

8. The consumers' taste also must be trained to other varieties of fish. People generally prefer to eat fresh fish or no fish at all in larger fish consuming towns. Very few people have tried to eat frozen fish. For some time it was difficult to persuade people to eat tuna. The Ceylon consumer is averse to eating tinned fish or fish paste. An intensive program of propaganda and demonstration of fish food preparations may be the only answer.

9. If the co-operatives among the fishermen are to replace the middlemen they must be prepared to adopt the same techniques as the middlemen except that of exploitation, the societies should provide facilities for savings. More credit unions should be organized among the fishermen on lines similar to that obtaining in Antigonish; an integrated form of credit unions federating into the Credit Union League and with the CUNA on the top. The CUNA has now become a world organization and has extended its services from the United States to Canada, to Chile and Brazil in South America, to the Fiji Island, to West Indies, to Spain and to distant Australia. As membership is open to any recognized Credit Union, Ceylon may well avail of these facilities for the Fishermen's Credit Unions. For CUNA transcends all national barriers and is rich enough to supply the funds.

10. Owing to the high risks involved the cost of

CONCLUSION

152

capital available for financing fishery development is generally pretty substantial. Education in the methods of dealing with risks and the provision of insurance facilities, would greatly improve the situation. Major capital outlays can be financed only by Government. For this purpose a number of measures could be taken by Government such as levies on the middlemen, floatation of internal bonds, loans from commonwealth countries, and international institutions and investment by foreign firms supplying capital goods for the fishing industry. A degree of money creation through the machinery of the central bank combined with various community development like the building of landing piers in remote fishing centres and construction of roads leading to landing places.

11. It is not enough to have potential sources of finance. More important, however, is the knowledge of what kinds of investment are desirable and the will to undertake them under an efficient administrative machinery.

12. Ceylon fishing industry also lacks the "functional foremen" or the innovating entrepreneur. Lack of initiative is mainly due to the existence of the middlemen system and the indebtedness of the fishermen. The entrepreneurial scarcity may be overcome by training and education among the most enterprising fishermen. Leaders with talents can always be discovered in almost every fishing village in Ceylon.

CONCLUSION

153

13. Instead of labour-intensive methods, capital-intensive methods must be adopted. Productivity will increase much more slowly if labour-intensive methods were adopted instead of capital-intensive methods. Mechanization of boats has resulted in larger and substantial increase in output.

The question now arises. How far can deep-sea fishing be encouraged? At present about 30 fishing boats have been fitted with outboard motors and are able to venture out in the deep. The only appliance available for them is the long-line. No nets of any kind could be operated on such small crafts. The production has doubled and even trebled. Only the surface and mid-surface fish is capturable by the long-line method.

Heavy fishing cannot be expected outside the continental shelf except perhaps in the Wadge and Pedro Banks. This is beyond the reach of the ordinary fisherman. Perhaps when the co-operative fishermen's societies have sufficient funds it may be possible to purchase a trawler or two. At present, there is no evidence to show that the inshore fishing has reached its limits nor is there proof of any overfishing in the continental shelf. The inshore fishery forms the backbone of the fishing industry and it is capable of quick response if properly developed. Any attempt to improve the deep-sea fishing can only be confined to the younger generation. The older men should be helped to continue in their traditional methods with improved marketing facilities which would greatly

CONCLUSION

154

increase their earnings and their saving and so facilitate the repayment of loans.

14. A Fisheries Bank should be established to enable the fishermen to borrow money for purchase of new boats or to repair the old, or to purchase new nylon nets. The introduction of the nylon net has proved very successful and the fishermen who have begun to use it have reaped a good harvest every time they pay out the net. In Jaffna the fishermen have paid Rs.200 for each piece or Rs.20 per pound of nylon net. They need ten pieces for making a whole net. They also need 400 floats made of compressed fibre and the long thread for support which costs them 12.00 rupees a pound, and the thread used is kurlon.

The diesel engines they have bought cost them Rs.5500 to 6000. The small crafts used are 37 to 40 feet long and 4 1-2 feet wide, while the larger "padavu" used to carry the inshore seine net is 37 feet long and 7 1-2 feet wide. The smaller one may cost Rs.3000 while the "padavu" may go up to Rs.5 to 5000.

A fisherman must raise at least Rs.12,000 to undertake a small scale fishing operation. The co-operative societies should purchase these for them and recover daily from the catch.

15. The fishermen's co-operatives should have funds necessary for the establishment of a co-operative net-making factory. Cheap loans on the security of the machinery and

CONCLUSION

155

buildings should be made available to them.

16. The establishment of a co-operative canning plant will also prove very profitable. Fish like sardines, tunny, macheral, seer, shark and turtles are ideal for canning. They are plentiful around the Mannar sea and the Mannar island is very suitable for the establishment of a canning plant.

17. The establishment of fishery schools in every province is a desideratum. Japan has 56 Fishery High Schools with considerable number of courses on fisheries and advanced courses are provided in most of her 228 universities. Similar educational pattern could be introduced in Ceylon. The importance of fisheries has been very inadequately appreciated and hence a lack of understanding of the problem as a whole. Piece-meal approaches can rarely succeed.

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APPENDIX

PROHIBITIONS AND RESTRICTIONS OF FISHING IMPLEMENTS IN CEYLON

I. Ordinances Nos. 4 and 5 of 1842

Under these ordinances chank fisheries were controlled. Divers and boats had to be licensed and chank required to be landed at a port named in the licence.

II. Proclamation No. 6 of 1869

Prohibited the use of the Vali Valai (drift net) within one league of the shore along the Northern coast of the Jaffna Peninsula.

III. Prohibition of the use of Katte in 1872

By Mr. Green, the A.G.A. of Western Province as a result of dispute between the Muneswaram fishermen and Sea Street fishermen.

IV. Ordinance No. 6 of 1890

Sect. 6 licenses to be issued to possess salt to persons who are established fish curers. All licences to be endorsed "Fish Curing only".

V. Proclamation of April 12, 1907

Prohibited the use of the Arakkuddu Valai and Vali Valai in certain parts of the Jaffna Lagoon and of the sea between Jaffna and Mannar.

VI. Prohibition of December 17, 1909

Of the use of Kalu Dela or Ren Dela or Ara Dela in Panadure, Angulu Eliya and Panadure lagoon and also in the Bolgoda Lake.

VII. Game Protection Ordinance No. 1 of 1909

New rules for the Sanitary Boards as follows:

1. The territorial waters were included
2. Boats were not to be registered, only nets
3. Baru-del and Yoths were to be registered as well as Ma-del.

VIII. Proclamation of September 13, 1912

Under Talpe pattu fishing rules, Akulwetiya or Jakotuwa or Kraals were forbidden to be erected in navigable rivers or canals within 50 yards of each other.

IX. Proclamation of November 8, 1912

The use of Baru Dela was forbidden in the Kolonnawa Canal.

X. Proclamation in Gazette of December 5, 1913

Forbids the use of the Suda-dela as no net with mesh of less than 2 ins. is permitted. Prohibits also the use of the Siri-dela or Siru-Valai and the Kottu as they were responsible for the destruction of large number of immature fish. By-law was made which made the Kaddais free to every one for fishing purposes and made it an offence to use any kind of net within the Kaddai areas.

XI. Ordinance No. 30 of 1928

An Ordinance to control Whale fishing in Ceylon waters was passed in 1928 by the Legislative Council.

XII. Ordinance No. 9 of 1929

By which the chank ordinance of 1890 was amended so as to permit a rule being made by the Governor in Executive Council making it lawful for chank fishing to be carried on at certain seasons of the year.

XIII. The Rule was made on November 30, 1929

amending the Ordinance of 1928 permitting the area of the Pearl Bank between Mannar and Moderagam Point and Vankalai sea to be opened for chank fishing.

XIV. Whaling Ordinance of 1930

The Marine Biologist was appointed Whaling Officer under this Ordinance.

XV. October 27, 1933, Rules passed under section 27 of the Game Protection Ordinance No. I of 1909 regulating fishing in Chilaw District.

XVI. By-laws regulating sea fishing in 1934
can be framed under:

1. The Game Protection Ordinance of 1909
2. The Local Government Ordinance No. 11 of 1920
3. The Village Committee Ordinance No. 24 of 1889

XVII. Regulations relating to the use of fishing nets in 1935
were framed under the Game Protection Ordinance of 1909:

1. The use of fishing nets in the waters adjoining Weligama Koral and Wellaboda pattu in the Matara District
2. Regulations relating to the use of nets and Kraals in the Delara-Bolgoda water system
3. Regulations relating to the Jaffna Lagoon and Karaveddy Lagoon (under construction)
4. Municipal regulations which prohibit fishing in the Beirai Lake, Colombo.

XVIII. Fisheries Ordinance No. 24 of 1940

An Ordinance to amend and consolidate the law relating to fisheries and to the taking and protection of fish in Ceylon waters, to provide for the registration of fishing boats, for the better regulation of the fishing industry and for purposes incidental to or connected with the matters aforesaid. By this same Ordinance the first Fishery Advisory Board was formed.

Note: Dr. J. Pearson commenting on the prohibition of the use of some nets remarks: "It has been found that when the use of certain named net is prohibited in a district, the fishermen will make some slight modification of the net to justify a new appellation and then proceed to evade the law." Bulletin No. 3, 1922, p. 65.

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