SMALL FISHERMEN IN TAMIL NADU

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PREFACE

Fishing has been an important occupation in Tamil Nadu with its 1000 km. coast line, which in the days of the Madras Presidency extended to over 2500 km. and which is even today bounded by three seas. The industry has always been run by a large number of small fishermen using catamarans, small fishing boats with sails and long roped large nets. Today there are 2.5 lakhs marine fishermen, of whom 1 lakh are actually on the seas most of the time, using 30,000 country crafts. Over the last decade, some 8,000 fishermen have emerged with mechanised fishing boats. These are small boats 9.8 metres in length which do their fishing in the inshore area where the indigenous non-mechanised boats also do their fishing. To a small extent the mechanised boats also go out to the offshore fishing belt. Over the past three years, the process of mechanisation of the fishing industry has been stepped up. The State's Fifth Plan provides for 2382 mechanised boats for inshore fishing, 54 trawlers for deep sea fishing, and with the help of TIDCO a Rs. 60 · lakh boat yard for the manufacture of trawlers. In April 1974, the State Fisheries Development Corporation was set up with a Rs. 3 crores capital to develop deep sea fishing by using factory type ships. The Corporation is acquiring 4 of the 60 imported trawlers as well as 4 indigenous ones. It is also purchasing 250 mechanised boats a month, with the prospect of increasing this to 500 a month.

This is the backdrop to this monograph which started off with the objective of examining the effects of mechanised fishing on the socio-economic status of small fishermen. In view, however, of the very short time period of the existence of mechanised fishing and the absence of data concerning the identifiable effects of mechanisation, the study has concentrated on the social and economic condition of small fishermen.

That condition is bad. The fishing families are usually concentrated in clusters called *kuppams*, with a relatively short working life, which comprises the age 30 to 50, and a heavy masculine emphasis in the population. The majority of the small fishermen are either illiterate or have had five years of primary schooling, with dropout rates ranging from 30 percent at the primary to 70 percent at the middle and 75 percent at the high school stage. Again the same majority comprising over 80 percent of the fishing families are in the annual income range of Rs. 100—300. This low level income, is shown to be the result of the quality of the traditional boats used for fishing and various institutional factors, including many forms of exploitation from mechanised boat owners, marketing. middlemen, moneylenders and the tardiness in the servicing of the small fishermen by the cooperatives and the nationalised banks.

As a consequence, unlike in the economy generally, where 80 percent of the savings emanate from the household sector, among small fishermen over 80 percent are not able to save anything at all, and among the 20 percent who save, over half save less than Rs. 50 per annum. The small fishermen community has one of the highest dependency ratios in the Country. Out of every 10 members in the community, 8 are dependents.

The community faces problems of marketing of fish which are even more serious than the problems associated with the volume of the catch. There is no organised disposal of the fish brought in by the boats, there are no transport services to carry their fish catch to the market centres, they hardly participate in the export marketing net work, and there is the absence of any semblance of a marketing organisation. The result is that they are at the disposal of middlemen of various degrees of power, and are mostly engaged in distress sales.

The programme proposed to improve the socio-economic status of the small fishermen is a modest four point plan, centring around education, economic status, cooperatives and some general considerations. On education it is proposed that a functional literacy programme be developed in every *kuppam* to eradicate illiteracy during the Fifth Plan, and high schools be established one each in 2 or 3 neighbouring *kuppams*. The fishermen community shou'd be classed as a backward community and made eligible for educational concessions available to that group. This total programme will cost Rs. 20 lakhs as annual recurring cost. This is a small investment to lay the only solid foundation for the fiishermen community raising its living levels over the long run.

On the economic status side, it is proposed that mechanised boats be increasingly distributed among small fishermen, and that they be provided with credit for fitting out-board motors to their sailing boats and improve their catamarans. It is also necessary that government legislation, with the necessary enforcement machinery, clearly demarcate the fishing grounds for small fishermen and those for mechanised boat owners. There is also the need to develop aqua culture—shrimp, mussels, oysters—along the coast line.

This culture fisheries income will add to the income from captive fisheries. Along side of these production improvements, regulated marketing centres, transport facilities including refrigerated road and rail vans and fish marketing unions should be established to ensure an adequate return to the fishermen. This programme for the Fifth Plan will involve an outlay of Rs. 10 crores, which should be provided by the Agriculture Refinance Corporation and nationalised banks.

There is need for a rather serious reorganisation of the cooperative movement as far as small fishermen are concerned. It is recommended that the cooperative movement be diversified and be extended to cover boats

production, nets manufacture and marketing, transport and cold storage facilities. This will require setting up a hierarchy of societies from the *kuppam* to the district level to be financed and supervised by the State Small fishermen's Cooperative. On the basis of working to date, it is also recommended that fishermen's cooperatives be detached from the Fisheries Department and be attached to the Registrar of Cooperative Societies, as a means of improving their professional servicing.

The general factors include improved medical and sanitation facilities, LIG and slum clearance housing schemes, link roads to fishing hamlets, a comprehensive social service scheme, and general development of fishing villages and hamlets. The total programme recommended will cost Rs. 400 lakhs—which is what the State Planning Commission's Perspective Plan envisages.

The study was carried out by Mr. C. Selvaraj, a research officer of the Madras Institute of Development Studies. The cooperation of the Directorate of Agriculture and the Department of Fisheries was valuable. The State Planning Commission requested the district planning officers to help in filling in the questionnaire addressed to fishermen—which is the base of this study. The Institute's facilities were at the disposal of the author. The responsibility for the analysis and views expressed in the study is his. I believe that the study brings out some of the problems faced by small fishermen and the proposed programme will go a long way in meeting their problems. I commend the study to the attention of the government and all those concerned with the well being of our poor majority in this State.

M. S. Adiseshiah

CHAPTER 1

SCOPE AND METHOD

The study started with the purpose of analysing the effects of mechanisation on the socio-economic status of the small fishermen in Tamil Nadu. Mechanisation in the fishing industry covers, on the production side, use of motor and mechanised boats in fishing and its associated distribution infra-structure involving storage facilities, air-conditioned transport and long distance marketing. The small fishermen in this State are those in the fishery industry using catamarans and other country crafts which total 30,000, to whom might be added the 1,600 small mechanised fishing boats. The role of small fishermen is important in inland fisheries which in this State is more than 50 percent in its annual production at 1.3 lakh tonnes, compared to 2.18 lakh tonnes of marine fish production.

As the study progressed, however, it became clear that it would be difficult to undertake an empirical study of the effects of mechanisation on the socio-economic status of small fishermen for two reasons. The mechanisation programme has been in effect for too short a time to be able to trace and measure its spread effects. The Tamil Nadu Fishing Corporation was established in April 1974, the total number of large mechanised boats which first came into use is 1800 and the first deep sea fishing vessel is planned to be acquired in 1976. Under these circumstances, the questionnaire used has not come up with hard facts about the effects of such mechanised fishing as does exist on the living levels of small fishermen. What was obtained was a series of subjective judgments and opinions from the small fishermen which were not based on empirical evidence and which could not be quantified and tested.

A second reason for the difficulty in assessing the effects of the limited mechanisation on the lives of small fishermen is the mixed up and bunched nature of the varied factors which operate with regard to them. The varying elements determining the productivity and social status of the small fishermen are so intensively interwoven with the effects of the competition that they face from the mechanised sector, which is also the large fishermen and, or corporate sector, that it became impossible to disaggregate the determinants in any acceptable manner. The effect of mechanisation on the socio-economic indices pertaining to the small fishermen could not therefore be identified.

This monograph is, therefore, essentially an empirical study of the socio-economic status of the small fishermen in Tamil Nadu. The fishermen population of the State as set forth in this study amounts to 2.5 lakhs and around 50,000 families concentrated in seven of the State's 14 districts in the following manner:

TABLE 1—Marine Fishermen Population

Districts	Fishing population in Tamil Nadu
Madras — —	22,350
Chingleput — —	29,045
South Arcot — —	16,379
Thanjavur — —	48,432
Tirunelveli — —	32,666
Ramanathapuram — —	32,245
Kanyakumari — —	71,912
Total	2,53,029

Source : *State Fisheries Department Papers, Tamil Nadu.*

The sampling of heads of families was then determined to the extent of 125 samples and the fishing population was then divided into five strata as follows :

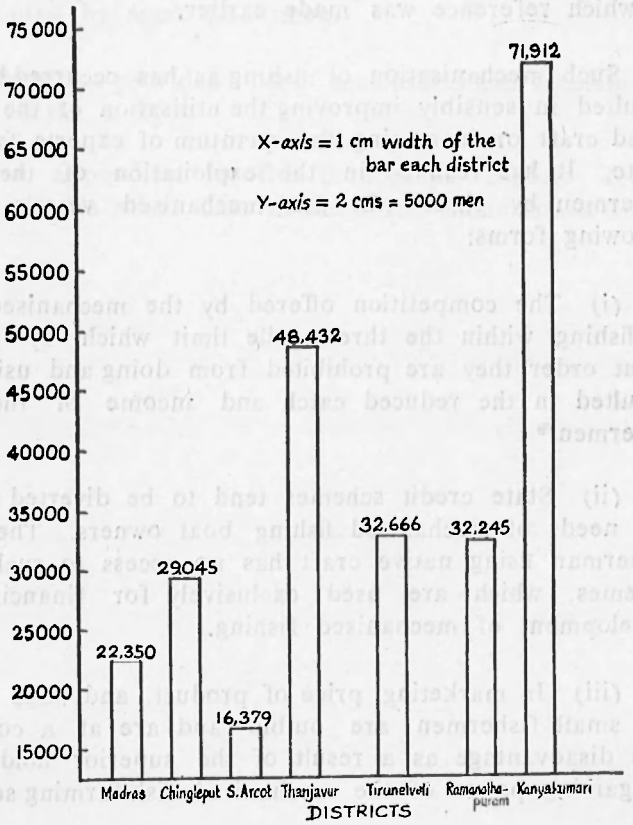

Fig. 1. Marine Fishermen Population.

Madras	—	Strata I
South Arcot	—	Strata II
Thanjavur	—	Strata III
Tirunelveli	—	Strata IV
Ramanathapuram	—	Strata V

A questionnaire in Tamil attached as Annexe I was administered among the 125 selected sample heads of fishermen households, followed by a pilot study in Madras which resulted in the following opinion based hypothesis to which reference was made earlier.

Such mechanisation of fishing as has occurred has not resulted in sensibly improving the utilisation of the mechanised craft or increasing the quantum of exports from the State. It has resulted in the exploitation of the small fishermen by those who use mechanised vessels in the following forms:

(i) The competition offered by the mechanised boats in fishing within the three mile limit which by government order they are prohibited from doing and using has resulted in the reduced catch and income of the small fishermen.*

(ii) State credit schemes tend to be diverted to meet the needs of mechanised fishing boat owners. The small fisherman using native craft has no access to such credit schemes, which are used exclusively for financing the development of mechanised fishing.

(iii) In marketing, price of product, and wage levels, the small fishermen are outbid and are at a comparative disadvantage as a result of the superior holding and bargaining power of the mechanised fish farming sector.

As noted earlier, while the summary of small fishermen's views cannot be quantified or verified, there will be further specific examples and references to them in subsequent chapters.

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* "The hirer (of motor boats) shall not conduct fishing operations within three miles from the shore". Order of Department of Agriculture, Ref. No. 25828-E1-65 dated 18-9-66.

Chapter 2 sets forth the results of the sample survey regarding the socio-economic status of small fishermen.

Chapter 3 outlines the basic problems in marketing confronted by small fishermen.

Chapter 4 provides a set of conclusions and recommendations of the study.

The appendices to this monograph contain detailed stratified statistical data as used and summarised in the study.

CHAPTER 2

SOCIO-ECONOMIC STATUS

The scope of this chapter is to analyse the socio-economic status of small fishermen in Tamil Nadu. In this context both mechanised and non-mechanised categories of fishermen are considered. As noted in Chapter 1, the serious problem confronting the small fishermen is the rapid growth of mechanisation in fishing which is on par with the plight of the small farmer who is confronted with a well-established capitalist farming system which is the resultant of mechanisation in the context of High Yielding Varieties. In ownership pattern, family set up and sociological environment, with the characteristics of low productivity, under-employment, and thin employment, the dominant role of traditional values and social institutions, the small fisherman and the small and marginal farmer present common features.

Family Classification

For the purpose of the present study which is based on micro data, it is necessary to disaggregate factors in order that the characteristics which are implicit can be made explicit. To achieve this aim, families in the fishing sector in the first instance are categorised in the following manner, arising out of and supported by the sample survey. The methodology for this categorization was outlined and adopted in Dr. Warrier's Report on the socio-economic problems of fishermen.*

(i) Families which are comparatively well-off and have stopped fishing who take some interest in the fishing industry

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* *Socio-Economic Survey of Fishermen in Tamil Nadu,* Dr. Warrier, Loyola College, 1948.

by advancing loans to fish merchants and traders. They also make loans to fishermen either against their fishing equipment or on personal security. They rent equipment to fishermen.

(ii) Families which have given up fishing more or less permanently and have taken to other occupations for their livelihood.

(iii) Families which go to sea during their leisure hours to supplement their main income which is derived from other sources. They also let their fishing equipments on the basis of a "share in the catch".

(iv) Families which never go to sea but only fish inland, and in backwaters and lakes. Most of the members of this group are unskilled labourers and when other work is not available, they go in for inland fishing.

(v) Families which do not go in for sea fishing but who hire out fishing equipment and depend for their living entirely on the income derived from this. In such families either the men have become too old or are too young to go to sea or such families are without men. Such families are very few.

(vi) Finally families which depend on marine fishing for their livelihood. These families can further be divided into (a) Families owning catamarans and or boats and two or three types of nets. These families are more or less self-sufficient in fishing.

(b) Families owning only catamarans and depending for nets on others.

(c) Families owning only nets and depending on others for catamarans-boats.

(d) Families owing only catamarans and only one type of net depending on others for other types of nets.

(e) Families which own neither catamarans nor nets but work regularly with one of the above mentioned groups.

(f) Families which own neither catamarans nor nets but work as coolies.

The survey was limited to the sixth and the final category of fishermen families with reference to any of the other categories in so far as they have inter-relationships.

Demographic Features

The demographic characteristics of small fishermen that were sampled relate to the age and sex distribution. The following table shows the age distribution among heads of the households. Tables for individual districts have been furnished in the appendices. The following table is an aggregated presentation.

TABLE 2—**Age Distribution.**

(Sample Heads of Households)

District	Age (in years)				Total
	20-30	30-40	40-50	50-60	
Madras	4	10	8	21	43
South Arcot	2	4	6	—	12
Thanjavur	1	12	9	3	25
Tirunelveli	1	10	5	9	25
Ramanathapuram	4	5	6	4	19
Total	12	41	34	37	124

The modal age distribution among the representative fishermen is in the 30-40 years range. Except in Madras, in

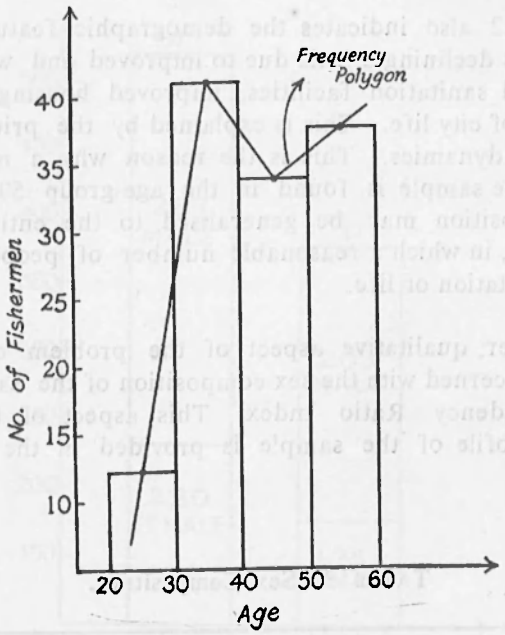


Fig. 2. Age Distribution

all other strata the modal age in the 30-40 years range. In Madras, which is a capital strata, the modal age-group is in the 50-60 years range. In the age-group 20-30 years, it will be noticed that there is the smallest number of heads of households. This is due to two reasons. One is that there is a definite shift in the employment of the younger generation which is no longer interested in fishing. Its scale of preferences is directed towards jobs which provide relatively greater degree of security, rather than the non-profitable fishing industry under existing circumstances. The second reason is the growing unemployment in the fishing community, as part of a general trend of increasing unemployment in the State, resulting from the large number of labour force entrants into the work-force—10,000 young workers per week in Tamil Nadu. This phenomenon of labour migration is mainly due to

transfer earnings of labour in the organised sector as compared to unorganised sectors like fishing.

Table 2 also indicates the demographic feature of the death rates declining a little due to improved and widespread health and sanitation facilities, improved housing and the amenities of city life. This is explained by the principles of population dynamics. This is the reason why a major segment of the sample is found in the age-group 50-60 years. This proposition may be generalised to the entire fishing population, in which a reasonable number of people have a high expectation of life.

Another qualitative aspect of the problem considered here is concerned with the sex composition of the sample and the Dependency Ratio Index. This aspect of the demographic profile of the sample is provided in the following table.

TABLE 3—Sex-Composition.

District	Adults			Children			Grand
	M	F	Total	M	F	Total	Total
Madras	101	79	180	50	41	91	271
South Arcot	35	28	63	26	18	44	107
Thanjavur	60	49	109	43	51	94	203
Tirunelveli	57	41	98	45	30	75	173
Ramanathapuram	34	33	67	39	34	73	140
Total	287	230	577	203	174	377	894

The sex-distribution among the fishermen in the table is in conformity with the overall census calculation.

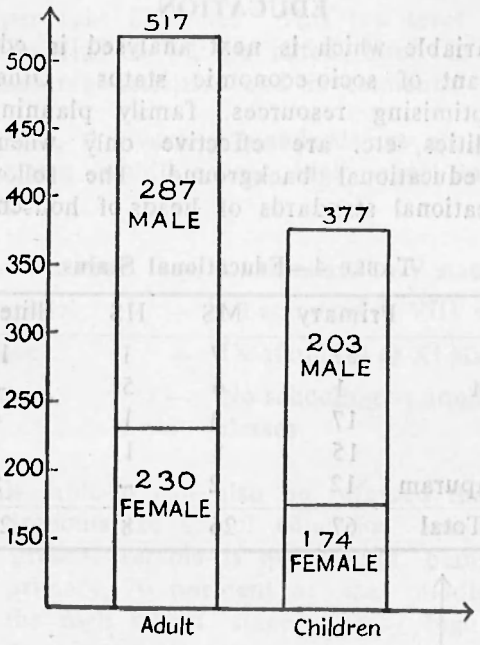


Fig. 3. Sex Composition.

According to the 1971 Census the State and the Country is tending towards a masculine population, with 932 females for every 1000 males. The sample in this study conveys the same inference with the exception of Thanjavur where female children are more than the male ones. This is why there is deviation of the sample.

A further feature indicated by tables 1 and 2 supported by the survey is the strong clustering of the fishermen families. It was also observed that 8 out of 10 families in every strata are engaged in or depend upon marine fishing. This strong cluster of fishermen, particularly in marine fishing compared to inland fishing, has more revenue potential than its counterpart. It also indicates the advantages of such a location in terms of

mutual services and inter-dependent operations in landing, fish net repairs and drying, etc.

EDUCATION

The variable which is next analysed is education as a determinant of socio-economic status. Other schemes such as optimising resources, family planning, use of health facilities, etc. are effective only when there is minimum educational background. The following table shows educational standards of heads of households in the strata.

TABLE 4—**Educational Status.**

Districts	Primary	MS	HS	Illiterate	Total
Madras	22	7	1	13	43
South Arcot	1	6	5	—	12
Thanjavur	17	3	1	4	25
Tirunelveli	15	8	1	1	25
Ramanathapuram	12	2	—	5	19
Total	67	26	8	23	124

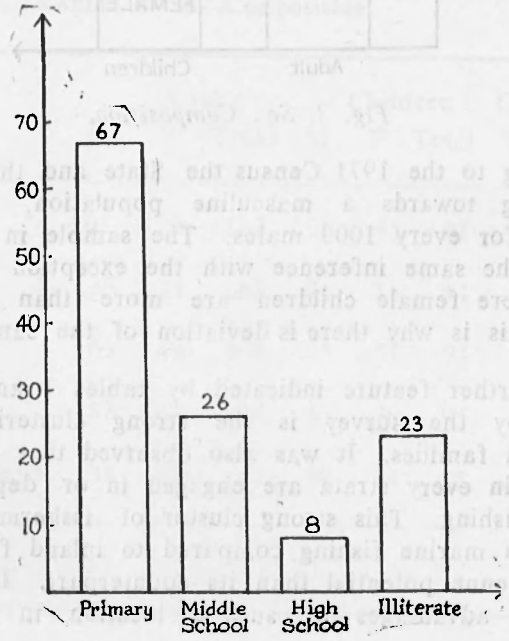


Fig. 4. Educational Status

It may be noted that a majority of the heads of the households, 55 per cent, have primary education, alongside of 18 per cent illiterates. This low level of education is a constraint as will be noted later in fostering income augmenting activities and investments.

In the table, the various standards are grouped under primary education, middle school, high school and illiterates as follows :

(1)	Primary Education	—	I standard to V standard
(2)	Middle school	—	VI standard to VIII standard
(3)	High school	—	IX standard to XI standard
(4)	Illiterate	—	No schooling or adult literacy classes.

From this table it can also be inferred that the percentage of dropouts in school education among fishermen in the present sample is quite high, being 30 per cent at the primary, 70 per cent at the middle and 75 per cent at the high school stage. This high dropout rate is due to several factors.

First most of those who discontinue their school education do so because of the poverty of family circumstances. As will be shown elsewhere in this chapter, the dependency ratio is very high among fishermen. Hence in order to improve the family income position. students drop-out of school and go in for fishing or other allied trades at a very early age.

Second, the absence of educational institutions and incentives for the fishing community also accounts for their low educational attainments. Moreover the sociological environment also determines the educational level of its members. The fishermen community is tradition bound to an extent where educational values occupy a low level in their preference scales.

These factors — economic, sociological and psychological — determine the socio-economic framework. Despite government's limited efforts to expose members to higher education, a large section of the people remain outside its frame.

This educational profile is disturbing because education is a main determinant of labour productivity, measured according to per unit of effort, of the ability to weigh and take risks, and learn modern and profitable methods of fishing, marketing and investment. The main bottlenecks in fishing industry as will be noted later are those of storing and marketing. which need to be carried out scientifically in order to optimise incomes and maximise benefits. But the present educational standards as summarised in Table 4 are a contribuent to a state of perpetual poverty of the community and the domination by middlemen and other economic intermediaries.

At this stage a general statement can be made to the effect that any government policy launched for the betterment of fishermen's economic status, would be successful if and only if their educational infrastructure is raised. Once this is done education would give an additional fillip to the acceleration of rate of growth of income in fisheries.

Income

The income of the fishermen must next be considered. The following table gives an account of the level of income among the fishermen.

TABLE 5—**Income Distribution.**

District	Income (in Rupees)				
	100—200	200—300	300—400	400 & above	Total
Madras	26	12	2	3	43
South Arcot	4	8	—	—	12
Thanjavur	6	14	3	2	25
Tirunelveli	16	4	—	5	25
Ramanatha-puram	12	5	—	2	19
Total	64	43	5	12	124

This table shows the pattern of income distribution among fishermen who are heads of households. There is a wide range of inequality of income between different

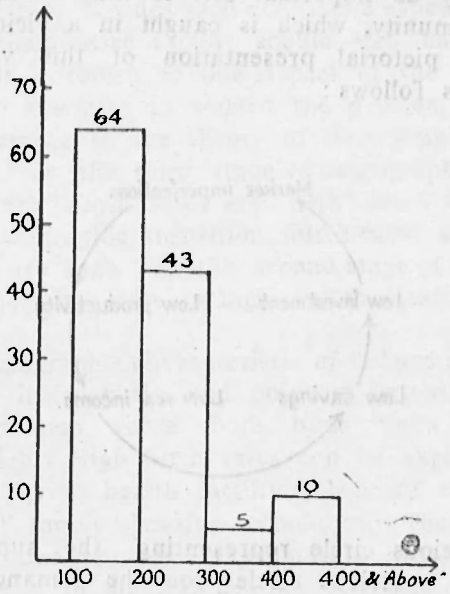
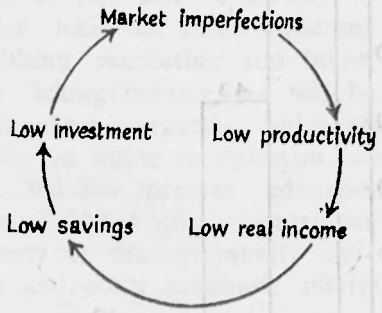


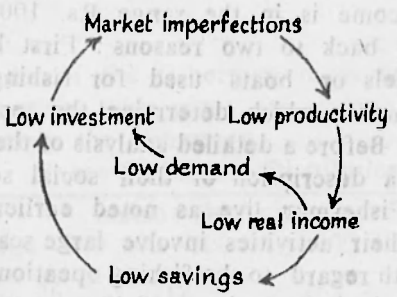
Fig. 5. Income Distribution.

strata and different family groups comprising this sample. The modal income is in the range Rs. 100-200. The low income traces back to two reasons : First lack of availability of vessels or boats used for fishing, second the institutional factors which determine the economic status of fishermen. Before a detailed analysis of these two factors is attempted, a description of their social set up may be undertaken. Fishermen live as noted earlier in community clusters and their activities involve large scale social relationships. With regard to the fishing opeations for example, they divide their income in a 60:40 proportion. That is 60 percent goes to the owner of the craft and 40 per cent to the workers. The owner however gets a double share in the sense, that his share is for ownership of the boat as well as a worker in the fishing operation. The family income includes women's earnings. In the fishing community marketing

is done by the women who take the fish obtained from the auction sale and sell it in the market. Market imperfections play an important role in the low income levels of the community, which is caught in a vicious circle of poverty. A pictorial presentation of this vicious circle would be as follows :



This vicious circle representing the supply side is matched by a vicious circle from the demand side which can be represented as follows.



This illustrates the tautological statement that the fishermen community is poor because it is poor, expressing the low level equilibrium trap which characterises under development.

Due to the interaction of various qualitative and quantitative constraints, the level of poverty among fishermen is also being aggravated. Besides such qualitative aspects considered upto now, quantitative factors should also be considered. This involves a return to one aspect of the demographic factors as it operates to worsen the problem of poverty. Here a reference to the theory of demographic transition is necessary. In the third stage of demographic transition, birth rates and death rates are both low. In the first stage of demographic transition, birth rates are high and death rates are high. In the second stage of demographic transition the birth rate is high and the death rate is low.

The demographic characteristic of fishermen population is that that it is as the end point of first stage of demographic transition where both birth rates and death rates are high. High birth rates can be explained by the absence of having health facilities, lack of education and ignorance of family planning techniques. The reasons for high death rates are due to premature death in the sea, no easy access to medical centres, religious and orthodox customs.

But as noted earlier, there is some evidence that though death rates are high, improved health care is beginning to reduce them for some similar reasons, the mortality rates of children show a declining trend.

Among the qualitative problems affecting the economic status of fishermen, both mechanised and non-mechanised fishing have to be taken into account. The scope of this study is to assess the effects of mechanised fishing on traditional (small) fishermen who use indigenous crafts. But when, as Table 5, indicates, non-mechanised fishermen are poor because of the exploitation and production problems they face, it does not rule out the difficulties in the life of mechanised fishermen. The problems of production of mechanised fishermen are an exogenous factor affecting the income and production levels of non-mechanised fishermen.

The problems in production in mechanised fishing are as follows :

In spite of the practice of fishing by modern mechanised boats, production is not maximised because there are only a small number of mechanised boats and they are concentrated at a few centres. There is, hence, an absence of diversification which affects the production level. There is an imbalance between the overall fishing fleet and the mechanised vessels.

There is an acute shortage of fishing vessels. There is a lack of trained personnel. There is the problem of the high cost of steel and fuel. The high cost of fuel can affect production in three ways : through the number of fishing hours, the duration of fishing trips, and range of fishing area.

Inadequate repair and maintenance facilities and lack of refrigerated storage and road transport facilities.

These provide the background to the impact of production problems on the lives of small fishermen. Table 5 shows that the majority of small fishermen belong to the income group of Rs. 100-200. This is common for all strata except South Arcot and Thanjavur (II & III strata) where most heads of fishing families belong to the income group Rs. 200-300. The exceptions are explained by the fact that they are the nerve-centres of mechanised fishing operations. The modal income range Rs. 100-200 is well below the set limits of subsistence income for the State or for the districts.

In fisheries the income is determined by the quantum of the catch. Both income and catch are subject to violent fluctuations. Given the price level, income can be augmented only by increasing the catch. But this cannot be done so easily, since the productivity of traditional crafts is lower than mechanised vessels and it is at this point

that the exploitation factor enters through certain financial and non-financial intermediaries, whose activities do not permit an increase in the catch and income of small fishermen.

First, exploitation takes place at the time of the purchase of the motor boat. The moneylender joins with the bonafide buyer by sharing the money burden of the purchase, and in course of time buys the boat itself from the fishermen. Second, there is exploitation in the marketing of the fish catch. The middleman buys the fish on shore at a reduced price and takes it to the market, where he sells it at a higher price. Third, exploitation takes place in the wage fixation method, which is discriminatory. The boat owner who is the intermediary gets a double share, as noted earlier, in dividing the fish catch. Fourth, motor boat operations affect the working of catamarans because of the simultaneous fishing operations carried out by the motor-boats in the same area.

As noted in Chapter I despite the government order protecting the fishing grounds of the small fishermen, the motor-boat owners carry on their operations along side of the sea shore, resulting in reduction in the catch of small fishermen. Also, in the course of the mechanised fishing operations, there is considerable damage to the net spread by small fishermen.

Motor-boat fishermen justify their reluctance to go deep-sea fishing on the ground that the boats are not capable of deep-sea fishing due to low horse power. But during the season for high revenue yielding varieties, such as prawns, these same motor boat fishermen go in for deep-sea fishing.

The real reason seems to be their desire to economise on fuel cost and other expenses, which results in fishing operations along the coast reducing the catch meant for fishermen who use catamarans and other indigenous crafts.

A byproduct is that many catamaran fishermen go under in these conditions of cut throat competition and become employees of the motor boat owners There is a further wrinkle to this exploitation phase.

In Rameswaram, which is within the last strata of the current study, there is a triangular mode of exploitation among three groups of people. Some high-scale operations are being performed by fishing vessels which have sophisticated methods of operation. Alongside, there are motor-boats and catamarans. The motor-boat owners exploit small fishermen and in turn motor-boat fishermen are exploited by large fishing vessels. There is a continuous clash between these three groups. The obvious reason for all these events is lack of effective government legislation which would clearly define the fathoms distance for each type of craft. Also there is need for an effective implementing agency to ensure that the three types of fishermen adhere to the fathoms distance laid down for each type.

The role of cooperatives in improving the financial position of small fishermen has not been an effective one. Cooperative loans, subsidies, and other facilities are readily available to motor-boat fishermen. The small fishermen on the other hand are forced to fall back on the moneylender for their credit needs and are obliged to pay him the usual usurious interest rate. Their obligations to the moneylender thus reduce their net income and further ties them into the vicious cycle of poverty referred to earlier.

A word on the asset position of the small fishermen rounds off this income analysis and their creditworthiness. The assets of the small fishermen are his craft and nets. His catamaran is worth Rs. 1,500/-, nets (nylon as well as cotton) Rs. 200/-, and his other fixed assets worth Rs. 100/-. This amount of Rs. 1,800/- is the gross asset formation of the small fishermen as it includes the usual percentage of depreciation.

The backward socio-economic frame of the small fishermen is mainly a function of his low income resulting in poor health, poor education, undernourishment and malnutrition and the obligations to pay the moneylenders just referred to.

Savings

Another crucial variable which determines the socio-economic status of small fishermen, is savings. Savings, being a residual item, determines his livelihood and future levels of living. Table 6 below summarises the situation in this regard.

TABLE 6—Savings Profile.

District	Savings in Rs. 10-50	50-100	100-150	150-200	200-250	Nil	Total
Madras	7	5	1	—	1	29	43
South Arcot	—	—	—	—	—	12	12
Thanjavur	4	—	—	—	—	21	25
Tirunelveli	1	2	—	—	—	22	25
Ramanatha-puram	—	1	1	—	—	17	19
Total	12	8	2	—	1	101	124

Savings generation in this situation, as set forth in the table, is not at all satisfactory. Over 80 per cent of the fishermen are not able to save anything. Even among the less than 20 per cent who save over half save less than Rs. 50 per annum.

In other words, the savings are almost nil among the small fishermen, because the small fishing industry is being executed as a means to subsistence. It is this sub-

sistence fishing plus the other problems of production and distribution which are responsible for low savings.

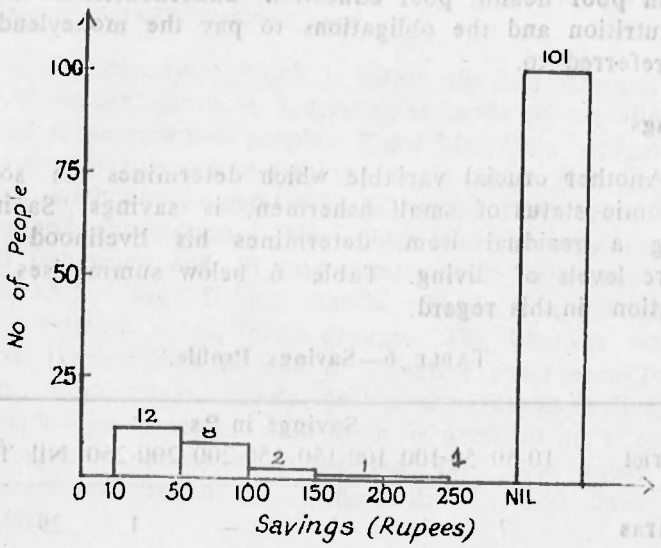


Fig. 6. Savings Profile.

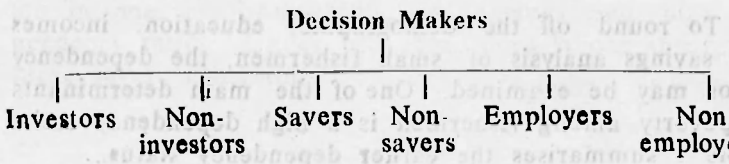
The production constraints of finance, modern implements, entrepreneurial skill together with the marketing constraints mean that the small fishermen cannot change or transform subsistence fishing into a commercial one. This calls for large investments and high scale skill formation.

The propensity to save among fishermen is low because of levels and quality of family consumption. heavy repayments to moneylenders, commission to middle-men, etc., with the probability that the marginal productivity of labour in small fishing is zero, This implies that under the present technological climate in the fisheries industry, the prevalent labour force is above the optimum—any additions to labour in this sector resulting in diminishing returns.

The study also indicates that the propensity to consume and the income elasticity of demand is greater

than unity. As and when incomes of small fishermen go up, there is a proportionate increase in consumption, eventually resulting in the erosion of past savings. Also many fishermen decide their pattern of consumption on the basis of the demonstration effect of the consumption pattern of their more affluent neighbours. To keep up with these neighbouring groups, the poor fishermen spend the very little amount they have on the consumption of those commodities like transistors, nylons, etc., which would seemingly elevate them socially.

Using a methodology classifying decision-makers throws some further light on the savings of small fishermen. The classification suggested is as follows:



On the basis of Investment Decisions

(a) Non-investors (NI)

(b) Own-investors (OI)

(c) Loan-investors (LI)

On the basis of Savings Decisions

(a) Non-Savers (NS)

(b) Savings-Users (SU)

(c) Savings-lenders (SL)

On the basis of Employment Decisions

(a) Non-employers (NE)

(b) Self-employers (SE)

(c) Other employers (OE)

In the current study, it is clear that small fishermen are

(a) Loan Investors (LI)

(b) Non-savers (NS) and

(c) Non-employers (NE)

This may be a plausible explanation of saving-investment decision making in the household sector of fisheries. At times, the households also become loan saving users and self-employers.

Earners-Dependents Ratio

To round off the demographic, edueation, incomes and savings analysis of small fishermen, the dependency ratios may be examined. One of the main determinants of poverty among fishermen is a high dependency ratio. Table 7 summarises the earner dependency status.

TABLE 7—Earners-Dependents Profile.

District	Catamaran Owners		
	Earners	Dependents	Ratio
Madras	38	160	1:4
South Arcot	NA	NA	NA
Thanjavur	45	107	1:2
Tirunelveli	43	56	1:1
Ramanathapuram	33	106	1:3
Total	159	429	1:3

The table shows that in every 10 of the fishermen, 8 are dependents. Dependency ratios vary from 1:4 to 1:1, with information for one of the stratas not being available. The high dependency ratio is due to the prevalence of the joint family system and the low educational levels forcing many into a dependency status. The joint family system coupled with lack of education has not helped in the development of entrepreneurial skills so essential to employment or self-supporting service. At this juncture, a self-supporting person, should be defined as one, who after his needs are met, is able to support the family and maintain its sustenance.

To sum up, the socio-economic status of fishermen who are using indigenous boats is low, as measured by low income, low productivity, low savings, and high dependency ratios Under such conditions labour absorption faces severe constraints.

CHAPTER 3

PROBLEMS OF MARKETING

The problems of marketing are more serious than those of production for the small fishermen. They face many bottlenecks and constraints in marketing their daily catch. Since there is no organised disposal of fish, they are forced to accept the unjustifiably low price quoted by the middlemen. It is an unregulated market based more upon custom and social institutions than on any accepted economic norm. Added to this, the small fishermen have a problem of consolidating their position in the market, where they have to face the competition from motor-boat owners who maintain well planned transport and storage facilities. These also provide them with an opportunity to indulge in speculation of the fish marketed both by them and the small fishermen. The small fishermen's market is unorganised in the sense that there are no objective criteria to dispose of their products. In most cases, disposal of catch is performed on the shore. The price at which they sell is very much lower than the going price in the market centres. Lacking knowledge and motivated by the need for early and quick liquidity, a fisherwoman or man does not transport the catch to sell at the price which would add an extra rupee to their small earnings. They do not realise the extent of the profits made by the middlemen. During the current study, it was noticed that small fishermen are exploited by major producers (mechanised fishermen) also in the sphere of marketing, because of the latters' superior transport facilities which enable them to dispose of their catch as well as the low priced purchase of small fishermen's catch in the market at the market price.

Transport being one of the major constraints in fish marketing of small fishermen, the small fishermen cannot increase their incomes by selling their catch in the market centres. They engage in distress sales. This gives place to large scale activities of middlemen who take advantage of the fishermen's ignorance of market movements. They take as much as 50 per cent of the net sales proceeds from the small fishermen for their services.

There are four ways in which the catch may be disposed of—first selling it on the shore, second through the cooperatives, third in the markets proper, and lastly selling the catch to the moneylenders. The income of the small fishermen is lowered by the fact that they resort to the first and the last method of sale. That is, they sell their catch either on shore or to the moneylender who happens to be the seller in the market.

Except in certain places like Nagercoil, Tirunelveli, and Thanjavur, there is no fish export marketing. In the three centres just mentioned, a large number of motor vessels are operated along the coast and these mechanised fishermen in Nagercoil, Tirunelveli and Thanjavur work in cooperation with exporting merchants in Kerala. But even this is being done to a limited extent, partly due to the unproductive nature of motor-boats, and the uneconomic operations of these boats.

Viewed in a global perspective, the marketing problem presents a more complex picture. With the requisite investments in the infra-structure, the introduction of large fishing vessels to exploit the deeper waters and expansion in the processing capacity in different coastal areas of the State, exports of marine products can be stepped up considerably.

The Tamil Nadu exporter of marine products will have to face both internal and external competition in

selling his product in U. S.. Japan or for that matter in any foreign market. He suffers (i) from want of financial institutions exclusively meant for the fishing industry, as are available in other maritime countries, and (ii) lack of marketing organisations and market research facilities.

Another problem coupled with transport is that of storage. A study of the sample indicates that there are no cold storage facilities offered to the small fisherfolk. Therefore, these fishermen are not able to reap the benefits of high price. When production bottlenecks are relieved, the next step is to remove the constraints in the trade flow. Only this would result in the maximisation of incomes among the fishermen.

In this context, the absence of fish-canning in the State and Country, due to the absence of regular supplies of fish lack of good and cheap containers, and the short canning season may be noted. Fish is preserved by dessication with or without salt, and by the use of antiseptic preservatives such as brine and vinegar. The small fishermen in India practise dessication by drying fish in the sun as the process is simple and handy. During the monsoon, when sun drying is difficult, salt is used. Canning is the best method applied for preserving sardines, mackerel, and prawns and is practised on a limited scale in one strata only, Madras. The fish are decapitated and thoroughly washed after which they are put in saturated brine and then dried. In the last stage. fish are packed in cans filled with oil. Further, as fish is a perishable commodity, coupled with the fact that the climate is subtropical, the absence of ice-cold storage and processing and canning facilities are further marketing constraints. At present because of the transport shortages. fresh fish is consumed in areas located near the coast. or in the neighbourhood of landing places. Refrigerated railway wagons and freezing facilities for movements of fish in good condition to consuming areas will ensure a balanced relationship between demand and price.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

This chapter in the first part summarises the main conclusions arising from the current study of the socio-economic status of small fishermen in Tamil Nadu and in the second part sets forth the recommendations for action by the government in relation to the community. The conclusions are grouped under three categories : production, income and distribution.

CONCLUSIONS

Production

In the sphere of production, small fishermen face serious obstacles : they are exploited by the motor-boat owners. The landings by the catamarans are poor and inadequate to maintain the small fishing families even at the subsistence level. Most of the small fishermen have financially limited means and have neither their own resources nor access to financial institutions to improve their productiou equipment.

There are no full-fledged, committed cooperative societies to serve small fishermen. There is not one society which provides nets and other fishing equipment to the small fishermen who need them for their subtenance. The cooperative societies concentrate on the mechanised boat owners and service them. The role of cooperatives must therefore be intensified along with a diversification of their activities. The scope of loan advances must be expanded and enhanced. The cooperative financing agency should relieve small fishermen of the burden of high rates of interest charged by money-lenders.

One of the findings, during the course of the present enquiry was that co-operative societies dealing with fishermen should not be attached to the Fisheries department but to the office of the Registrar of Co-operative Societies. The small fishermen feel that this would result in greater speed and efficiency in meeting their financial and technical needs.

The small mechanised fishermen are also not without problems. Their major grievance is that the government seizes their boats if they do not repay the instalments due on their loans on time. But once their boats are confiscated, their only means of livelihood goes. Hence non-payment is perpetuated. Their other problems include the high cost of fuel. There is a demand that the fuel oil should be subsidised to some reasonable extent considering the cost -- benefit situation. Further the government's policy of giving a mechanised boat to three persons results in frequent mis-understandings and some reduction in production. This system must be modified if not eliminated altogether.

There should be a slow and steady change in production techniques in fisheries. The small fishermen must be helped to improve their unproductive and traditional indigenous crafts.

Income

There is a wide and widening divergence between motor boat owners and catamaran fishermen in respect of their income levels. This is due to the varying productivity of their crafts. Since the indigenous crafts are obsolete and cannot go to the deep seas as the motor-boat does, the income of the small fishermen is maintained at a certain level with which it is wellnigh impossible to run the household. The low income of the fishermen is not only due to the production bottlenecks but also due to the high scale exploitation they suffer. In Chapter 2 the various forms of exploitation were outlined. Motor-boat owners are taking full advantage of these constraints faced by catamaran fishermen. Hence

suitable policies must be developed so as to reduce the gulf between the standards of living of these two groups of the fishing community.

Distribution

The problem of distribution is but the other side of the production problem. These two problems have to be solved simultaneously because they are complementary to each other. Small fishermen suffer equally from distribution constraints. They do not have a well-knit transport system and as they are not attached to the urban market centres their pricing system is weak and subject to wide fluctuations at a very low level.

Their distribution problems are further aggravated by the existence of financial and non-financial intermediaries who operate in an unethical manner. So the surplus which is disposable in the market is dissipated. That is to say it goes into the hands of middlemen who again sell it in the urban market and thereby reap large profits.

If there is to be an improvement in the present economic status of small fishermen they should also be furnished with good storage facilities. Cold storages must be set up to preserve their products.

Recommendations

On the basis of the foregoing analysis the following recommendations are made. The recommendations relate to the following categories :

(a) Education ;

(b) Economic Status :

(i) Production ;

(ii) Finance ;

(iii) Distribution ;

(c) Cooperatives and their role;

(d) General.

These recommendations are derived from statistical facts, general observations and analysis.

The structure of employment, output, income and consumption, amount of capital, per capita income, fertility and mortality rates, literacy—these are documented statistically.

On the other hand factors like, "poor" credit and marketing facilities and " poor " housing or " low " levels of technique and " old fashioned " methods or " inadequate " transport facilities are the result of general observations.

Education

One of the most neglected aspects of life in this sector of the economy is the education of the small fishermen. Illiteracy rates are significantly high. This coupled with the arresting of education at the primary level seems to be the stumbling block to further development. Many fishing *kuppams* lack a full fledged high school. Hence some of the boys on their own accord go outside to the town for high school education. Most others lose their interest in education due to the many obstacles in obtaining a reasonable amount of education. This feature also prevents them from entering into technical trades. They are thus kept at the status quo, unskilled positions which worsens the situation.

Therefore it is recommended that high schools be established at least one for two or three adjacent *kuppams*. This is an urgent need for small fishermen particularly those who live in Tirunelveli and Ramanathapuram. It is recommended that ten high schools in these two districts be established starting in the school year, June 1975.

Another important factor raised by a large number of small fishermen is that their children should be eligible for the privileges and concessions that are provided to backward classes. This is a legitimate demand in the sense that it is justified by the economic and social backwardness of the small fishermen community, which lives in poverty. Educational

programmes for them would be nullified if there is no such provision of educational concessions. There is need for further assistance at the high school level which is free for all persons. The question of free education arises in the area of collegiate education where students from this community should be eligible for freeships. Both at the school and college levels it is recommended that these concessions should be in the form of clothing, meals and hostel facilities for college students. This will also stop the misdirection of funds allotted to their educational development.

Adult illiteracy in the sample strata shows a rather low 20 per cent of the heads of families level. But if all members of the family are taken into account particularly wives, mothers and girls, the illiteracy is at the State average of 60 per cent. It is recommended that one functional literacy centre be opened in each *kuppam* with a view to making all adults, men and women, functionally literate that is educated around the necessary fishing production and marking skills. Also to deal with the problem of dropouts, the primary and middle schools and the high schools to be established should provide for multiple entry and exit and for those who are working on the sea or in the distribution network, evening classes, preferably with a functional curriculum related to their aspirations.

The Fifth Plan budgetary implications of the educational recommendations are:

High schools	Capital costs (Rs.)	Recurring costs (Rs.) Annual
Building (library equipment, laboratory)	20,00,000	
Staff		70,000
Student facilities		2,00,000
College student facilities		2,00,000
Non-formal education		2,00,000
Adult literacy centres		5,00,000
Total	20,00,000	11,70,000 × 4 46,80,000

ECONOMIC STATUS

Production

Since the competition between the motor-boat owners and catamaran owners is growing it is recommended that the government accelerate the production of mechanised boats and distribute them among the small fishermen; provide credits for small fishermen, fitting outboard motors to their sailing boats and finance improving the working efficiency of catamarans, so that their competitite strength will be increased and improved. As a sequel to this, the costs incurred in fishing operations may be minimised by the government, reducing the financial strain.

In this regard it is recommended that fuel oil be subsidised by the government, in the first instance for small fishermen through reduced excise duties. This will relieve their heavy burden in operating the improved crafts. It is also recommended that fish-net making plants be established and credits be made available to the small fishermen to purchase the nets they need and replace those that are outdated and worn.

In places like Tirunelveli, it is recommended that government should remove rocks along the coast to facilitate fishing for the small fishermen. This would also induce small fishermen to go in for mechanised fishing.

It is also recommended that suitable government legislation with adequate enforcement machinery to prevent the encroachment by mechanised boats in various other places than their own be established. Small fishermen should be compensated by the mechanised boat owners for the loss they suffer when their nets are damaged and destroyed.

What is needed is that the mechanised boats must be made to go deep sea fishing leaving the coastal fishing to small fishermen. The government can help these small fishermen and motor-boat fishermen by instructing them as to the places in which they can fish. This should be done by establishing an agency which would undertake sea surveys periodically.

Mechanised boats must be distributed one per head instead of the current practice of one for three people. This had resulted in the non-payment of loan amounts. The financial implications of these production recommendations for the Fifth Plan are :

	Plan outlay (Rs. in lakhs)	Plan target
1. Out-board motor on catamarans	30.00	1000 nos
2. Preservation of craft material	14·25	6 units
3. Boat yards for non-mechanised boats	9·00	3 nos.
4. Provision of highboard motors for indigenous crafts	125.00	500 nos.
5. Service centres and boat building yards		
Capital cost	30·00	
Recurring cost	5·00	
6. Construction of and supply of mechanised fishing boats	1226·00	9.8 metres 100 nos. 13·8 metres 350 nos
7. Fish-net making plants	Private sector	
8. Housing	200.00	10000 units
Total	1,639·25	

Distribution

Marketing has been one of the acute problems faced by small fishermen. In order to eliminate intermediaries it is recommended that the government establish a marketing system which would achieve a smooth flow of fish from the source of production to the marketing centres, thereby small fishermen can reap the benefits of market price and avoid selling their catch to the middlemen at an unjustifiably low price. This means the government establishing a system of marketing of the small fishermen's catch through setting up regulated markets as in the case of agricultural products.

Another problem closely related to marketing is that of transport facilities to meet the needs of small fishermen. It is recommended that fish transport facilities including refrigerated road and rail vans be expended significantly to achieve better marketing including containerisation.

Transport facilities are not only for the distribution of fresh fish for immediate consumption but also for the popularisation of various processed commodities especially frozen and canned fish to the internal markets. For this purpose it is recommended that (a) the transport facilities and the channels of distribution be improved and (b) a survey of the fish trade within the State and in other States be made to prospect new markets and to cater to the consumers preferences. Retail fish markets in important consumer centres should also be established.

The Department of Fisheries must provide a larger fleet of vans some of them insulated and refrigerated for transport of fish from the landing centres to the markets. The need to improve the transport facilities both by rail and road with the view to carrying the fish quickly from the landing centres to the consuming centres has been referred to earlier and adequate provisions must be made in the plan frame. There is a suggestion from fishermen in Tirunelveli that the government take over the prawn trade to avoid conflicts between motor-boat fishermen and small fishermen. If this is done, it would also help in regulating the fisheries market.

It is also recommended that the fish marketing union specially organised for undertaking fish marketing and formed into district federations and a State Marketing Society be given financial assistance so that they can diversify their activities. This would meet part of the problem of fish marketing which is at present in the hands of private traders.

The financial implications of the distribution recommendations for the Fifth Plan are :

	Plan outlay (Rs. lakhs)	Plan target
1. Establishment of cold chain	60·00	12 units
2. Big ice plants		
Capital cost	35·00	3 plants
Recurring cost	5·00	
3. Assistance to cooperative marketing societies	25·00	
4. Refrigerated Railway vans	30·00	
5. Demonstration fish processing	10·00	
Total Rs.	1,65·00	

Financing the Programme

To date finances for fisheries schemes have been provided almost entirely by the government. This has several limitations. The fihing industry can develop only if the financial institutions like commercial banks come forward to advance loans for the small fishernmen's recommended programme. The response from the nationalised banks and other financing institutions to financing the fishing industry has so far been poor. In this regard fisheries should be considered on a par with agriculture, So far small fishermen have not benefitted financially from either government or other financial institutions to any reasonable extent. Small fishermen still depend upon the unorganised financial intermediary whose interest rates are exhorbitant and whose terms of lending are in effect anti-development. It is recommended that institutional finance be made available to the small fishermen to execute the recommended programme. In order to relieve the financial burden hire-purchase schemes should be intensified in these areas and certainly in the case of buying boats. The present necessity is to build up a strong and self-reinforcing financial infrastructure.

Co-operative Movement

It was noted that structural problems in fisheries can be met by setting up cooperative agencies with diversified func-

tions. This would help in eliminating middlemen in the rural sector of fisheries. Small fishermen are in such a position that they cannot repay the loan amount and interest due on time. This is partly due to the high level of rate of interest prevalent in fishing *kuppams* fixed by the moneylenders. Furthermore well-to-do people buy mechanised boats through small fishermen at a subsidized rate and employ these small fishermen in 'their' boats. Such malpractices which ultimately undermine the schemes contemplated by the government must be controlled and eliminated. Some of these short comings are due to certain lacks in the cooperative sector. The cooperative units must be geared to help small fishermen achieve an 'economic equilibrium'.

It is recommended that the Cooperative Movement be diversified and extended to undertake such activities as production of boats, financing of net manufacture and purchases, marketing and transport and cold storage facilities.

Traditional methods of fishing practised by these small fishermen call for special assistance because of the number of people involved, the volume of catch contributed by these men to the total catch of the State, need to improve the earnings of these men and of contributing to their social betterment. Secondly, special schemes to preserve the crafts so as to enhance their durability, to fit them with out-board motors, sail cloth with improved materials, to supply insulated boxes with ice, and bringing tubs for salt curing, to provide modern gear and material all these must be financed by these cooperative societies. Along with this forest plantations of trees suitable for cutting logs for catamarans must also be developed.

In the marketing sphere, cooperative societies can play a dynamic role in stepping up market activities. If the market presents a positive trend then small fishermen would deliver their landings in the market centre. This, of course, calls for a satisfactory system of transport. In this regard cooperatives can also perform the dual function of advancing loans as

well as marketing. They can thereby keep a check on the flow of the catch into the wrong channels. At every level the cooperatives should also be engaged in market surveys and research.

On the organisational side it is recommended that specialised small fishermen's cooperatives be set up at the primary level that the spatially related and contiguous *kuppams* be serviced by District Small Fishermen's Cooperative Societies which will in turn be financed and supervised by the State Small Fishermen's Cooperative.

The important suggestion regarding the administrative structure of Cooperatives referred to earlier should be recalled. Many fishermen during the course of the survey pointed out that cooperative societies in this sector should no longer be under the jurisdiction of the Fisheries Department. They should be attached to the office of the Registrar of Cooperative Societies. This, it is hoped, will raise the administrative efficiency and expedite loan advances. Cooperative societies in which small fishermen are members need to be regulated and improved.

General

Finally some social welfare activities for the benefits of fishermen are also recommended.

It is recommended that medical and sanitation facilities be augmented in the fining *kuppams*. This will provide a healthy climate and reduce birth and death rates. Fishermen's poor housing conditions have been referred to earlier. It is recommended that the State Housing Board include in its LIG schemes as well as it does in its slum clearance programme the building and the improving of housing condition in fishing *kuppams*. One other disturbing feature is that fishing *kuppams* suffer soil erosion as a result of the advancing of sea level. The PWD and Rural Works Programme should urgently undertake measures to check further coast line and soil erosion facing the *kuppams*.

In the matter of roads the Highways and Rural Works Department, it is recommended to integrate their plan for construction of roads with the requirements of feeder and link roads to fishing hamlets. So too in regard to water supply. The Water Supply and Drainage Board must allocate separate funds to meet the needs of the fishing hamlets.

Other measures recommended for the social uplift of the small fishermen include : formulation and execution of comprehensive social security and life insurances schemes for small fishermen on the basis of experience in similar schemes operated by the State government for government employees and more recently for the low income group.

Preparation and implementation of a scheme for intensive development of fishing village. Study of the feasibility and scope of establishing different cottage and subsidiary industries in the fishing hamlets including production of the by-products fish oil, fish meal, fish manure, fish maws and shark fins.

In view of their sea-faring qualities fishermen are equipped for service in the navy and should be given preference in recruitment for the service. Publicity about developments and information relating to fisheries, fishing grounds, fish catches, prices-etc., should be periodically broadcast over the All-India Radio.

On the financial implications of all these recommendations and suggestions the estimates of the Perspective Plan for Tamil Nadu are adequate, allowing for some adjustments consequent on the price rise during the last two years. The total package recommended in this study for improving the socio-economic status of small fishermen in the State is computed at Rs. 400/- lakhs for the Fifth Plan and Rs. 475/- lakhs for the Sixth Plan. Considering that a little less than four years are left for the Fifth Plan the estimate of Rs. 400/- lakhs may be maintained to allow for the price rise and the consequent upward adjustment of the costs of the various

recommendations. For the Sixth Plan, as at the end of 1974 prices, a further Rs. 100/- lakhs will have to be added to the estimate of Rs. 475/- lakhs for the full and satisfactory execution of the programmes proposed in this study. It is also recommended that the financing during the two plan periods be divided between the State and the Union, in the ratio of 4:1.

APPENDIX I

Marine Fishermen Population with Crafts—Districtwise Census 1963—64

District	Fishermen Population	Boats	Catamarans	Boat seines	Nets	Shore seines	Other gill nets
Madras	22,350	129	2,230	1,500	400	109	251
Chingleput	29,045	236	3,270	2,400	700	141	624
South Arcot	16,379	200	2,450	650	300	100	800
Thanjavur	48,432	900	300	160	8,500	140	5,500
Tiruneiveli	32,666	400	1,500	2,500	4,500	615	2,200
Ramanathapuram	32,245	1,600	900	700	7,500	450	11,500
Kanyakumari	71,912	1,250	10,025	2,500	5,000	600	10,500
Total	253,029	4,715	20,675	10,410	26,900	2,155	31,375

Source : *Tamil Nadu Fisheries Department's Paper.*

APPENDIX II

Comparative Statement of Marine Production for 1962—'63 to 1969—'70

(in tonnes)

District	1962-'63	1963-'64	1964-'65	1965-'66	1966-'67	1967-'68	1968-'69	1969-70	Percentage in 1969-'70
Madras	4,492.644	6,366,208	7,358.537	7,035.666	8,541	9,353	13,053	11,304	5.61
Chingleput	15,551.460	25,546,960	26,434,016	29,021,960	31,879	38,571	39,845	30,609	15.19
South Arcot	12,980.711	6,616.538	7,420.606	8,163.974	8,120	11,287	11,159	15,384	7.64
Thanjavur	27,056.141	19,372.095	19,339.579	22,418,248	27,812	35,542	34,185	29,364	14.57
Ramanathapuram	15,591.780	45,171,516	45,671.812	40,449 852	40,964	47,532	49,890	52,395	26.00
Tirunelveli	20,006.910	18,445 030	19,747,482	20,672,968	20,614	24,100	27,573	25,866	12.84
Kanyakumari	38,355.625	32,087.367	34,246.576	37,632.972	37,137	38,351	36,300	36,559	18.15
	1,34,035.275	1,53,605.714	1,60,218.608	1,65,395. 640	1,75,067	2,04,916	2,12,005	2,01,481	100.00

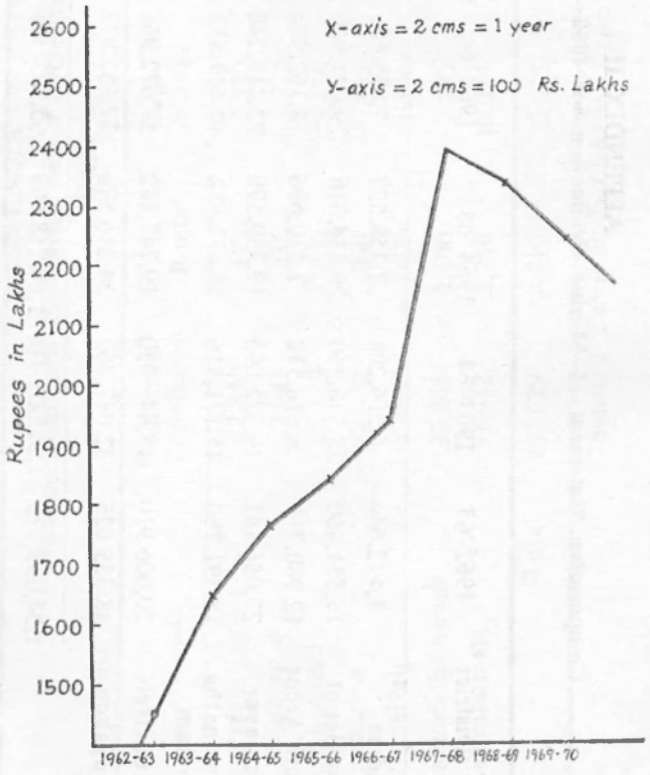
Source : *Fisheries Department Papers: Government of Tamil Nadu.*

APPENDIX IIA

Total Value of Production

Year	Total value of production (Rs. in Lakhs)
1962—'63	1,061.40
1963—'64	1,629.96
1964—'65	1,785.34
1965—'66	1,859.04
1966—'67	1,969.50
1967—'68	2,395.39
1968—'69	2,385.00
1969—'70	2,267.00

Source: *Fisheries Department Papers; Government of Tamil Nadu.*



APPENDIX IIIA

Inland Water Resources

Sources		Area of water spread (Hectares)	Production (1970–71) (Tonnes)	Average per hectare (Kg.)	Potential yield 1974 (Tonnes)	Potential yield 1984 (Tonnes)
Reservoirs	...	48,960	700	7	1,500	2,500
Tanks, Perennial	...	97,690	45,000	460	75,000	1,00,000
Tanks, Seasonal	...	1,27,430	25,000	196	40,000	60,000
Ponds	...	30,000	16,000	533	30,000	60,000
Rivers, Streams and Canals	...	—	28,000	—	35,000	45,000
Estuaries and Back Waters	...	46,750	3,200	68	15,000	25,000
Miscellaneous	...	—	2,100	—	3,500	7,500
Total	...	3,50,830	1,20,000		2,00,000	3,00,000

Source : *Task Force on Fisheries; State Planning Commission; Government of Tamil Nadu.*

APPENDIX IIIB

Marine Fish Supply Sources

The following table is from data furnished by Indian Council of Agricultural Research for a working group. This is quoted by the Task Force Report on Fisheries by Tamil Nadu State Planning Commission :

(i)	Total Surface area (million km.)	(ii) Estimated yield	Million Tonnes
		Demerzal fish	7·5
Indian Ocean	74·917	Schooling pelagic fish	6·0
Estimated yield	14.05 Million Tonnes	Tural and skip jacks	0·3
		Crustaceans	0·25
			14 05

According to Ministry of Agriculture, following yield for Tamil Nadu has been furnished :

Region	Area of continental shelf in square km.	Catch per square kilometre (in Tonnes)	Potential catch (in Tonnes)
India	—	—	9·92 (million)
Tamil Nadu	34,820	25·00	8,79,920

Source : *Task Force on Fisheries; State Planning Commission; Government of Tamil Nadu.*

APPENDIX IV

Fish Production in Tamil Nadu during Plan Period

YEAR	Inland			Marine			Total	
	Weight in Tonnes	Rate per Tonne (in Rs.)	Value in Rs. (lakhs)	Weight in Tonnes	Rate per Tonne (in Rs.)	Value in Rs. (lakhs)	Weight in Tonnes	Value in Rs. (lakhs)
1951—'52	36,000	450	162.00	45,700	700	319.90	8,17,000	481.90
1952—'53	36,800	455	167.44	48,200	740	356.68	85,000	524.12
1953—'54	38,400	460	176.64	52,300	765	400.10	90,700	576.74
1954—'55	38,700	465	179.95	56,500	800	452.00	95,200	631.95
1955—'56	36,000	470	169.20	57,000	855	487.35	93,000	656.55
1956—'57	39,200	460	180.32	60,900	830	505.47	1,00,100	685.79
1957—'58	40,900	485	198.37	68,600	860	589.96	1,09,500	788.33
1958—'59	41,200	500	206.00	73,900	865	369.24	1,15,100	845.24
1959—'60	42,400	515	218.36	81,900	870	712.53	1,24,300	930.89
1960—'61	43,130	580	250.15	91,120	875	803.50	1,34,250	1,053.65

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YEAR	Inland			Marine			Total	
	Weight in Tonnes	Rate per Tonne (in Rs.)	Value in Rs. (lakhs)	Weight in Tonnes	Rate per Tonne (in Rs.)	Value in Rs. (lakhs)	Weight in Tonnes	Value in lakhs
1961—'62	48,490	615	298.39	93,280	882	822.50	1,41,770	1,120.89
1962—'63	52,300	616	322.20	1,34,100	791	1,061.40	1,86,400	1,383.60
1963—'64	93,280	500	466.39	1,53,600	1,061	1,629.96	2,46,880	2,096.35
1964—'65	99,568	557	555.07	1,67,219	1,114	1,785.34	2,59,087	2,340.41
1965—'66	86,555	561	485.56	1,65,395	1,124	1,859.04	2,51,950	2,344.60
1966—'67	1,04,908	618	648.33	1,75,067	1,125	1,969.50	2,79,975	2,617.83
1967—'68	1,15,936	631	731.17	2,04,916	1,125	2,305.31	3,20,852	3,036.48
1968—'69	1,19,784	650	778.60	2,12,005	1,125	2,385.00	3,31,789	3,163.60
1969—'70	92,816	650	600.05	2,01,481	1,125	2,267.00	2,93,797	2,867.15
1970—'71	1,07,903	650	701.37	2,09,984	1,130	2,373.00	3,17,887	3,074.37
1971—'72	1,09,476	650	722.54	2,12,937	1,130	2,406.19	3,22,413	3,128.73
1972—'73	13,500	...	...	2,18,307			3,53,307	
1973—'74	...	...	...	...				

APPENDIX V

Strata I—MADRAS

(i) Age Distribution of Fishermen in MADRAS.

(Only Heads of the Households)

Age (years)	Number of fishermen	Percentage
20—25	3	7 0
25—30	1	2·3
30—35	4	9·3
35—40	6	14.0
40—45	3	7.0
45—50	5	11 6
50—55	7	16·3
55 and above	14	32·5
Total	43	100·0

(ii) Sex Composition of Sample Size in MADRAS.

Category	Males	Percentage	Females	Percentage	Total
Adult	101	66·9	79	65·8	180 66·4
Children	50	33·1	41	34.1	91 33.6
Total	151	100·0	120	100·0	271
	55·7	...	49·3		100·0

(iii) Educational Status among Fishermen in MADRAS.

Educational Status	Number of persons	Percentage
Primary	22	51·2
Middle School	7	16·3
High School	1	2·3
Illiterate	13	30·2
Total	43	100·0

(iv) Income Distribution among Fishermen in MADRAS.

Income (Rs.) per month	Number of fishermen	Percentage
100—200	24	55·8
200—300	12	27·9
300—400	4	9·3
400 and above	3	7·0
Total	43	100·0

(v) Savings among Fishermen in MADRAS.

Savings (Rs.)	Number of fishermen	Percentage
10— 50	7	16·4
50—100	5	11·6
100—150	1	2·3
150—200	–	—
200—250	1	2·3
250 and above	–	—
NIL	29	67·4
Total	43	100·0

(vi) Earners-Dependents among fishermen in MADRAS.

Category	Earners	Dependents	Total
Catamaran owners	38	160	198
	(19.2)	(80.8)	100.0

APPENDIX VI

Strata II—SOUTH ARCOT

(i) Age Distribution among Fishermen in SOUTH ARCOT.

Age (years)	Number of persons	Percentage
20—25	—	—
25—30	2	16.7
30—35	3	25.0
35—40	1	8.3
40—45	2	16 7
45—50	4	33.3
50—55	—	—
55. and above	—	—
Total	12	1000

(ii) Sex Composition of Sample Size in SOUTH ARCOT.

Category	Male	Percentage	Female	Percentage	Total
Adult	35	57.4	28	60.9	63 (58.8)
Children	26	42.6	18	39.1	44 (41.2)
Total	61 (57.0)	100.0	46 (43.0)	100.0	107 (100.0)

(iii) Educational Status of Fishermen in SOUTH ARCOT.

Educational Status	Number of fishermen	Percentage
Primary	1	8.3
Middle School	6	50.0
High School	5	41.7
Illiterate	—	—
Total	12	100.0

(iv) Income Distribution among Fishermen in SOUTH ARCOT

Income (Rs.)	Number of fishermen	Percentage
100—200	4	33.3
200—300	8	66.7
300—400	—	—
400 and above	—	—
Total	12	100.0

(v) Savings among Fishermen in SOUTH ARCOT.

Savings (Rs.)	Number of Fishermen	Percentage
10—50	—	—
50—100	—	—
100—150	—	—
150—200	—	—
200—250	—	—
250 and above	—	—
NIL	12	100.0
Total	12	100.0

(vi) Earners-Dependents in SOUTH ARCOT.

Category	Number of earners	Number of dependents	Total
Fishermen	21	86	107
(South Arcot)	(19·6)	(80·4)	(100·0)

APPENDIX VII

Strata III — Thanjavur

(i) Age Distribution among Fishermen in THANJAVUR.

Age (years)	Number of persons	Percentage
20 — 25	–	–
25 — 30	1	4
30 — 35	2	8
35 — 40	10	40
40 — 45	1	4
45 — 50	8	32
50 — 55	3	12
55 and above	–	–
Total	25	100

(ii) Sex Composition of the Sample Size in THANJAVUR.

Category	Males	Percentage	Female	Percentage	Total
Adult	60	50.8	49	49.8	10) (53.7)
Children	43	49.2	51	51.0	94 (46.3)
Total	103 (50.7)	100.0	00 (49.3)	100.0	203

(iii) Educational Status of Fishermen in THANJAVUR

Educational status	Number of fisherman	Percentage
Primary	17	68
Middle School	3	12
High School	1	4
Illiterate	4	16
Total	25	100

(iv) Income Distribution among Fishermen in THANJAVUR.

Income (in Rs.)	Number of fishermen	Percentage
100—200	6	24
200—300	13	52
300—400	2	8
400 and above	4	16
Total	25	100

(v) Savings among Fishermen in THANJAVUR.

Savings (in Rs.)	Number of Fishermen	Percentage
10—50	4	16
50—100	—	—
100—150	—	—
150—200	—	—
200—250	—	—
250 and above	—	—
NIL	21	84
Total	25	100

(vi) Earners-Dependents in THANJAVUR.

Category	Number of earners	No. of dependents
Catamaran owners	45	107
	(29·6)	(70·4)
	45	107

APPENDIX VIII

Strata IV — Tirunelveli

(i) Age Distribution among Fishermen in TIRUNELVELI.

Age (Years)	No. of persons	Percentage
20—25	1	4
25—30	—	—
30—35	6	24
35—40	4	16
40—45	3	12
45—50	2	8
50—55	6	24
55 and above	3	12
Total	25	100

(ii) Sex Composition of the Sample Size in TIRUNELVELI.

Category	Male	Percentage	Female	Percentage	Total
Adult	57	55·8	41	57·8	98
					56·6
Children	45	44·2	30	42·2	75
					(43·4)
Total	102	100·0	71	100·0	173
	(58·9)		(41·1)		

(iii) Educational Status of Fishermen in TIRUNELVELI.

Educational Status	No. of Persons	Percentage
Primary	15	60
Middle School	8	32
High School	1	4
Illiterate	1	4
Total	25	100

(iv) Income Distribution among Fishermen in TIRUNELVELI.

Income (in Rs.)	No. of fishermen	Percentage
100—200	16	64
200—300	4	16
300—400	—	—
400 and above	5	20
Total	25	100

(v) Savings among Fishermen in TIRUNELVELI.

Savings (in Rs.)	No. of Fishermen	Percentage
10—50	1	4
50—100	2	8
100—150	—	—
150—200	—	—
200—250	—	—
250 and above	—	—
NIL	22	88
Total	25	100

(vi) Earners-Dependent in TIRUNELVELI.

Category	Earners	Dependents	Total
Catamaran owners	43	56	99
	(43.3)	(56.7)	100

APPENDIX IX

Strata V—Ramnathapuram

(i) Age Distribution among Fishermen in RAMANATHAPURAM.

Age (years)	No. of persons	Percentage
20—25	1	5.3
25—30	3	15.9
30—35	2	10.5
35—40	3	15.9
40—45	2	10.5
45—50	4	21.2
50—55	1	5.3
55 and above	3	15.9
Total	19	100.0

(ii) Sex Composition of the Sample Size in RAMANATHAPURAM.

Category	Males	Percentage	Females	Percentage	Total
Adult	34	50.7	33	49.3	67
Children	39	53.4	34	46.6	73
Total	73	100	67	100	140

(iii) Educational Status of Fishermen in RAMANATHAPURAM.

Educational Status	No. of persons	Percentage
Primary	12	63.2
Middle School	2	10.5
High School	—	—
Illiterate	5	26.3
Total	19	100.0

(iv) Income Distribution among Fishermen in RAMANATHAPURAM.

Income (Rs.)	No. of Fishermen	Percentage
100—200	12	63.2
200—300	5	26.3
300—400	—	—
400 and above	2	10.5
Total	19	100.0

(v) Savings among Fishermen in RAMANATHAPURAM.

Savings (in Rs.)	No of Fishermen	Percentage
10—50	—	—
50—100	1	5.4
100—150	1	5.4
150—200	—	—
200—250	—	—
250 and above	—	—
NIL	17	89.2
Total	19	100.0

(vi) Earners-Dependents in RAMANATHAPURAM.

Category	Earners	Dependents	Total
Catamaran owners	33	116	149
	(22.2)	(77.8)	100

Questionaire Used for the Present Study (in Tamil)

சென்னை வளர்ச்சி ஆய்வு நிறுவனம்

சிறு மீனவர்களின் பொருளாதார நிலைமை — சென்னைக்கான ஓர் சிறப்பு ஆய்வு

வினாப் பட்டியல்

கீழே உள்ள வினாக்களுக்குச் சில பதிலகள் தரப்பட்டுள்ளன. உங்கள் பதிலகள் அதில் இருந்தால் அதற்கு நேராக (✓) குறியிடவும்; இல்லையெனில் அந்தப் பகுதியை எழுதவேண்டும்.

தேதி :

இடம் :

(1) பெயர்

(2) வயது

(3) எவ்வகுப்பினர்

(4) கல்வி

I படிவம்
II ,,
III ,, } ஆரம்ப படிப்பு
IV ,,
V ,,

VI படிவம்
VII ,, } நடுநிலை படிப்பு.
VIII ,,

IX ,,
X ,, } உயர்நிலை கல்வி
XI ,,

எழுத்தறிவு இல்லை

(5) குடும்ப உறுப்பினர் விவரம்

	ஆண்	பெண்
குழந்தைகள்		
வயது வந்தவர்கள்		
ஊதியம் பெறுவோர்		

(6) ஊதியம் பெறுவோரின் வேலை விவரம்

(7) குடும்பத்தின் மாத வருமானம்.

ரூபாய்

100—200
200—300
300—400
400, அதற்குமேல்

(8) ஊதியம் எவ்வாறு நிர்ணயிக்கப்படுகிறது?

(9) விசைப்படகில் வேலையில் இருந்தால் நீங்கள் செய்யும் வேலை யாது?

மீன்பிடி விசைப்படகுகளில்
வேலைக்கு ஆட்கள் தேவை
படுகின்றனரா ?

ஊதிய விவரம்—நாள்
ஒன்றுக்கு / வாரமொன்றுக்கு

(10) விற்பனை விவரம்
கரையிலவிற்பது

கூட்டுறவு அங்காடிகள்
மூலமாக விற்பது

மார்க் கெட்டில் விற்பது

கடன் கொடுப்பவர்களிடம்
விற்பது.

(11) கடன் வாங்கிய விவரம்

வாங்குமிடம்

வாணிப வங்கி
கூட்டுறவு வங்கி
தனியார் கடன்

(12) கடன் எவ்வாறு திருப்பித்
தரப்படுகிறது?

(13) கூட்டுறவுச் சங்கங்களால்
என்ன நன்மைகள் ஏற்படு
கின்றன?

(14) நீங்கள் விரும்புவது கட்டு
மரமா ? விசைப்படகா ?
விசைப் படகு வாங்குவதில்
உள்ள கஷ்டங்கள் என்ன?

(15) உங்கள் சேமிப்பு எவ்வளவு?
எங்கு சேமிப்பை வைத்து
இருக்கிறீர்கள்?

(16) உங்களைப் பற்றிய வேறு
விவரங்கள்.

(17) மீனவர் வாழ்க்கை செம்மை
யுற நீங்கள் விரும்பும்
உதவிகள் எனன?

விசை படகு கார்கள் மட்டும் பதில் தர வேண்டும்.

(1) படகு நீளம்
இயந்திரத்தின் பெயர்
குதிரை திறன் ( )

(2) படகின் விலை விவரம்:

(3) எண்ணெய் செலவுகள்
அரசு உதவி உண்டா?

(4) ஆட்களுக்குச் சம்பளம்
அளிக்கும் விதம்

(5) மாதத்தில் மீன் பிடிக்கச்
செலவும் நாட்கள்
எத்தனை ?

(6) சராசரி மீன் பிடிப்பு

(7) ஏற்றுமதி வியாபாரம்:

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