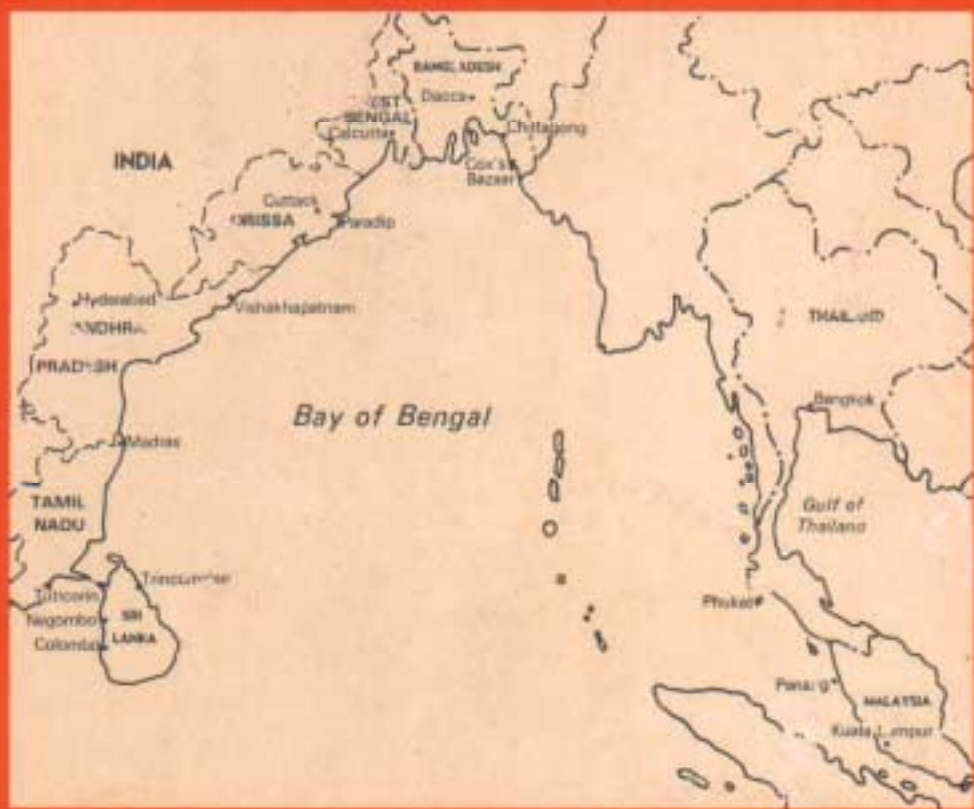


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Report of the Training Course for Fish Marketing Personnel of Tamil Nadu

Madras, India
3-14 December, 1979



SWEDISH INTERNATIONAL DEVELOPMENT AUTHORITY



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

**Report of the
Training Course for
Fish Marketing Personnel
of Tamil Nadu**

Madras, India

December 3-14, 1979

Executing Agency

**Food and Agriculture Organisation
of the United Nations**

Funding Agency

**Swedish International
Development Authority**

**Development of Small-Scale Fisheries in the Bay of Bengal
Madras, India, September 1980.**

P R E F A C E

This document is the report of a 12-day training course held in December 1979 for officials of Tamil Nadu state in South India who are concerned with fish marketing. The course was organised jointly by the Tamil Nadu Directorate of Fisheries and the Bay of Bengal Programme (BOBP).

The report describes the conduct of the course, and discusses in detail the principal method of instruction adopted, the " business game" and the response to it from participants. The report also reproduces the manual supplied to participants containing data for the business game.

The report may be found useful by small-scale fisheries planners, by people engaged in fish marketing, and by organisers of similar training courses and workshops.

The training course was an activity of the Bay of Bengal Programme for the Development of Small-Scale Fisheries, referred to in brief as the Bay of Bengal Programme. Its main aims are to develop and demonstrate technologies to improve the conditions of the small-scale fishermen and the supply of fish from the small-scale sector in five countries bordering the Bay of Bengal-Bangladesh, India, Malaysia, Sri Lanka and Thailand. The Programme is executed by the Food and Agriculture Organisation of the United Nations and funded by the Swedish International Development Authority.

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1. INTRODUCTION

The main objective of the Training Course for Fish Marketing Personnel of Tamil Nadu was to upgrade the management and accounting skills of the participants. The course was the outcome of discussions held between the Bay of Bengal Programme and the Secretary, Forests and Fisheries, and the Director of Fisheries of Tamil Nadu. It was felt that a suitably designed course on modern marketing techniques might be useful in the context of the paucity of trained fish marketing personnel in Tamil Nadu.

It was decided that the type of training most suitable was the " Business Management Game for Marketing of Fish " developed by the White Fish Authority, United Kingdom. Two consultants from the White Fish Authority-John Marjoribanks and Ron Nicholson-were recruited for the conduct of the course. Two other experts were drafted for part-time lectures : fisheries economist Barry V. Lanier, from Los Angeles, U.S.A., who had helped to conduct a similar training course in Sri Lanka ; and Col. Nirmal Singh of the Administrative Staff College, Hyderabad. Mr. M. T. Nathan of the Bay of Bengal Programme functioned as the course administrator.

Participants in the course were 21 middle-level officials from the Department of Fisheries and the Tamil Nadu Fisheries Development Corporation and from fishermen's co-operatives. They were drawn from various districts. All of them were involved in some way or the other with fish marketing problems. (The list of participants and staff is set out in Appendix 1).

The course was held at Hotel President in Madras from December 3 to 14. It began with a brief welcome address by Mr. Lars. O. Engvall, Director of the Bay of Bengal Programme. There was no formal opening ceremony in keeping with the informal nature of the proceedings.

The " business game," which constituted the core of the course, was introduced to participants on the forenoon of December 3 and continued all through the course. Besides the 'business game, there were lectures on marketing management, accountancy, market research and pricing ; films and slide shows on management and accountancy ; and group discussions on current problems. There was one field trip to the fish stall operated by the Tamil Nadu Fisheries Development Corporation at Teynampet, Madras. Appendix 2 details the course programme.

Certificates were distributed to the participants on the concluding day, December 14, by Mr. R. Srinivasan, Joint Director of Fisheries, on behalf of the Director of Fisheries, Mr. C. Chellappan.

The chapters that follow describe the conduct of the business game and the participants' evaluation. Appendix 3 reproduces the manual supplied to participants.

2. DESCRIPTION OF BUSINESS GAME

The business game "played" at the training course was a management exercise specially designed by the White Fish Authority, United Kingdom, to meet training needs in developing countries. It was tried out earlier with success at training courses in Malaysia and Sri Lanka.

In the business game, players assume the role of rival officials in comparable organisations : data is available on the infrastructure, the marketing environment and the organisation's liabilities and assets. The participants now immerse themselves in an imaginary commercial world. If the business game concerns fish marketing, participants buy, store, process and sell fish, all on paper. Their decisions on these matters, and their "balance sheets" are now debated by the total membership of **the** course.

The **raison d'être** of the business game in a training course is the problem-solving and decision-making it requires of participants, which highlights the interdependence of production, processing and marketing. The participants learn from their decisions, as also from their errors and their interaction with other players; they consequently gain in confidence and experience, and are better game-players in real-life marketing situations.

At the Tamil Nadu training course, participants in the business game were divided into five teams to represent five competing fish marketing co-operatives of Tamil Nadu of identical size and status. The teams were expected to improve the finances of the co-operatives, then in a bad shape, through executive decisions on the purchase, marketing, storage and processing of fish.

Each team had to state the "objectives" of its co-operative at the start of the game. Its success in meeting these objectives would be discussed by the five teams at the end of the game. Sample objectives-maximization of profits ; minimization of cost ; provision of jobs.

The manuals given to participants (text in Appendix 3) supplied basic data about the co-operatives besides some geographic and market information. From the manuals, participants learnt about the assets and liabilities of their co-operative, its financial status, its labour force, the capacity of various plants run by the co-operative (ice-making, fish-drying, fish-freezing and cold storage). The amount of fish the co-operative could use in the game, the species of fish (restricted in the game to two, ground fish and shellfish), and the prices of fish were also indicated.

The manual told participants what decisions they had to make concerning the co-operative. Each team was given six opportunities for decision-making ; once before the start of the game, and once during each of five "periods" or stages in the development of the co-operative. The teams had to convey their decisions to the referee (the consultants at the training course) by filling in appropriate "report" forms for each period.

Before the start of the game the teams had to decide on the location of a new fish market, the size of cold storage facilities, the purchase of vehicles and ice boxes, the size of bank loans, if any, the labour force to be hired for maintaining the processing plants and the vehicles.

For the first of these decisions-on the location of a new fish market-the teams could choose from six sites, three rural and three urban. The manual contained the results of " market studies "- tabular data on various income groups in the site areas and on fish preferences of each group. The teams could thereby estimate the likely consumer expenditure on fish at each site.

During the remainder of the game the five "periods"-the teams had to make more complex decisions. A sampling follows :

- Each team (co-operative) could bid for and procure some quantities of fish at fish auctions. This would augment the usual supplies of the co-operative. How much fish should the co-operative buy at the auction ? The teams had to give their answers by filling Form 1, the Fish Availability Report.

- How many new personnel, skilled, and unskilled, should the co-operative recruit ? How many should it retrench ? The teams had to deal with Form 2, the Personnel Report.

--- How should the fish catch be processed ? How much of it should be dried and salted ? Quantities to be processed had to be entered in Form 3, the Processing Report.

-How should the fish be distributed, bearing in mind the number of vehicles and ice boxes available, the capacity of each vehicle, and mandatory requirements on ice-fish ratio for the transportation of fresh fish ? The Distribution Report had to be tackled.

-What would be the marketing strategy.? Which were the best sales outlets? The Marketing Report had to be completed.

At the end of the five periods, reports submitted by the five teams were evaluated by the total membership of the course in the light of the teams' stated objectives.

Thus the business game simulated commercial fish market conditions. Participants entered into the spirit of the game and identified themselves keenly with the fortunes of their co-operative.

3. EVALUATION AND CONCLUSIONS

Course evaluation questionnaires were distributed to participants on the concluding day of the course. Some comments :

-Fifteen of the 21 participants said they had benefited from the training course. Six said they had gained adequately. There was no negative response.

-Duration : Was the course too long or too short ? Opinion was divided about equally between those who would have preferred a longer course and those who felt that the duration was adequate.

-Suggestions for future training courses : Visits to successful marketing organisations in neighbouring states ; a greater focus on marketing management ; more intensive discussion on current marketing problems.

-Participants agreed that the business game was an effective tool of instruction, and provided excellent management training, both theoretical and practical.

Appendix 1

TRAINING COURSE FOR FISH MARKETING PERSONNEL OF TAMIL NADU

List of Participants

Mr. R. Rajamanickam	Chief Executive Officer Fish Farmers Development Agency Madurai
Mr. T. Arumugam	Deputy Manager (Marketing) TNFDC Madras
Mr. N. Karuppannan	Deputy Manager TNFDC Bhavanisagar
Mr. R. Kannan	Assistant Director of Fisheries Madras
Mr. K. Subbiah	Assistant Director of Fisheries Madurai
Mr. S. Pandurangan	Assistant Director of Fisheries (Inshore Fishing Station) Madras-600 013
Mr. T. P. Chandrasekaran	Inspector of Fisheries TNFDC Mandapam
Mr. T. Jayaseelan Jeevanantham	Inspector of Fisheries TN FDC Madurai
Mr. P. C. Ezekiel	Inspector of Fisheries TNFDC Coimbatore
Mr. D. Dhakshinamoorthy	Inspector of Fisheries TNFDC Tirunelveli
Mr. R. Neelakantan	Inspector of Fisheries TNFDC Madras-600 006
Mr. N. Innocent Lee	Inspector of Fisheries inshore Fishing-Station Cape Comorin

Mr. B. Ranganathan	Inspector of Fisheries Madras-600 006
Mr. R. Venugopal	Inspector of Fisheries MDFCF Madras-600 013
Mr. P. Viswanathan	Inspector of Fisheries Fish Farmers Development Agency Trichy
Mr. M. Swamidoss	Co-operative Sub-Registrar Coimbatore
Mr. Ananis V. Rayan	Co-operative Sub-Registrar Tuticorin
Mr. Thangamani Gurunathan	Inspector of Fisheries TNFDC Madras-600 006
Mr. M. V. Kesavelu	Inspector of Fisheries Fisheries Staff Training Institute Madras-600 024
Mr. S. K. Rangaswamy	Sundakkampalayam Coimbatore
Mr. A. Diraviam	Inspector of Fisheries Kanyakumari
<i>Staff : Bay of Bengal Programme</i>	
Mr. M. T. Nathan (RAS/040/SWE)	Fish Utilisation and Distribution Specialist
Ms. L. Venkataraman	Secretary
<i>Consultants</i>	
Mr. John Marjoribanks	Senior Management Training Officer White Fish Authority Industrial Development Unit Hull, UK.
Mr. R. J. A. Nicholson	Management Accountant White Fish Authority Industrial Development Unit Hull, U.K.
Mr. Barry V. Lanier	Fishery Economist Los Angeles, California U.S.A.
Col. Nirmal Singh	Administrative Staff College of India Hyderabad

Appendix 2

TRAINING COURSE FOR FISH MARKETING PERSONNEL OF TAMIL NADU

Programme

03.12.79

08.30 Inauguration :
Introduction and registration
10.00 Presentation of business management game and briefing on game procedures.
13.00 Setting-up period of the business game.

04.12.79

08.30 Business game : Setting-up period (continued)
10.30 Lecture : Marketing Management-J. Marjoribanks
13.00 First period of the business game

05.12.79

08.30 First period of the business game (continued)
10.30 Lecture, Film : Accounting I-R. Nicholson
13.00 Second period of business game

06.12.79

08.30 Second period of business game (continued)
13.00 Lecture/Film : Accounting II-R. Nicholson
15.00 Third period of business game

07.12.79

08.30 Third period of business game (continued)
13.00 Lecture : Consumer preference and demand for fish-Nirmal Singh

08.12.79 Field trip

10.12.79

08.30 Fourth period of business game
13.00 Lecture : Marketing facilities-M. T. Nathan
15.00 Fourth period of business game (continued)

11.12.79

08.30 Fifth period of business game
13.00 Lecture : Sales systems and pricing-B. V. Lanier

12.12.79

- 08.30 Lecture : Market research, with specific reference to
small-scale fisheries-Nirmal Singh
13.00 Evaluation of business game
13.12.79 Group discussions on marketing problems

14.12.79

- 08.30 Course evaluation
11 .00 Presentation of certificates and closing

Appendix 3

A BUSINESS MANAGEMENT GAME FOR THE MARKETING OF FISH

Participants' Manual

The manual distributed to participants in the training course supplied the basic data required for the business game. The manual is reproduced below.

1. General Introduction

- 1.1. This is a management training exercise for fish marketing designed to be operated with a number of teams.
- 1.2. The teams, representing the management of competing fishery co-operatives in a far-eastern country (country profile and map on pages 20 and 21 respectively), are required to make executive decisions on matters relating to marketing, storage, placement of sites, purchasing, processing and finance.
- 1.3. The teams are expected to improve the financial position of their particular co-operative. The co-operative is in a poor financial situation due to previous bad management of the marketing and distribution aspects of the business.
- 1.4. Decisions are made once each period. The exercise will last for 5 periods, in addition to which there will be an initial period for the setting up of starting conditions.
- 1.5. Participants should remember that objectives must be formalised prior to the start of the game. Discussions on attainment of these objectives will take place at the end of the game in order to ascertain the degree of success of each co-operative.

Co-operative objectives may take many forms :-

- profit maximisation
- cost minimisation
- maximising market share
- providing food for the lower income groups
- providing employment.

2. Availability and Species

2.1. The total amount of fish available to the co-operative at present averages 400 tonnes per period

2.2. Recently granted loans have enabled the fishing fleet to become more mechanised. This will result in an increasing trend in the catch rate, with an expected availability of 1,000 tonnes in the fifth period. However, it is expected that climatic conditions will result in an approximate 20 per cent drop in the catch during the third period.

2.3. There will be two species of fish in the game. These are groundfish and shellfish. Of the 400 tonnes at present landed per period 355 tonnes are groundfish, and 45 tonnes are shellfish

3. Personnel

3.1. Administrative personnel are not considered explicitly, their salaries being regarded as a fixed cost throughout the duration of the game. The labour force personnel are interchangeable e.g. labour employed in fish markets can be transferred to the drying/salting plant etc.

3.2. The labour force consists of skilled and unskilled labourers. The rates of pay are :

	Rs. per period
Skilled	250
Unskilled	150

3.3. Each plant requires a skilled unskilled ratio 1 : 4.

4. Present Situation

4.1 Markets

4.1.1. There is a wholesale market in the coastal city which sells fresh groundfish and dried/salted groundfish. The market employs 50 labourers, 30 unskilled and 20 skilled.

A rent of Rs. 3,00,000 per period is charged for the wholesale market,

4.1.2. There is also an export market for frozen shellfish.

4.2 Plants

All the plants are situated in the coastal city.

4.2.1. The **ice making plant** can supply all needs during the course of the game. The ice is bought at a transfer price of 1 rupee per kilo. Ice is only used for the transportation of fresh fish and the required weight ratio of ice to fish is 1 : 1.

4.2.2. The **drying/salting plant** deals solely with groundfish. The plant produces 80 tonnes per period, this requires an input of 100 tonnes. The maximum capacity of the plant is 160 tonnes per period, which requires an input quantity of 200 tonnes.

The labour requirement is for one unskilled labourer for every 2 tonnes of input. Hence, for **each** 8 tonnes of input there is a labour requirement of 4 non-skilled labourers and 1 skilled labourer. At present 50 non-skilled and 13 skilled labourers are employed.

The plant has overheads of Rs. 20,000 per period and running costs of Rs. 1 per kilo input.

4.2.3. There is a freezing plant which freezes shellfish. All the produce of this plant is exported.

The plant at present freezes a total input of 45 tonnes per period, all of which is shellfish. The capacity of the plant is 140 tonnes input per period.

The labour requirement is for one unskilled labourer for each tonne of input. Hence, for each 4 tonnes of input there is a labour requirement of 4 unskilled labourers and 1 skilled labourer.

At present 13 skilled labourers and 50 unskilled labourers are employed.

The plant has overheads of Rs. 2,00,000 per period and running costs of Rs. 5 per kilo input.

4.2.4. A cold storage plant operates alongside the wholesale market. The plant has a **capacity** of 200 tonnes and overheads of **Rs. 3,00,000** per period.

4.3 Vehicles

4.3.1. The co-operative owns 2 vehicles which have a running cost of Rs. 1 per kilo carried.

4.3.2. Each vehicle requires 2 drivers who are classed as skilled.

4.3.3. Each vehicle is purchased at a price of Rs. 2,00,000. The vehicles can be sold for Rs. 1,50,000 during the course of **the** game.

4.4 Boxes

4.4.1. The boxes used for transporting the fish have a capacity of 30 kilos, representing both fish and ice.

4.4.2. Each box **costs 5** Rupees.

4.4.3. Two hundred of these boxes can be carried **by each** vehicle.

4.4.4. The co-operative owns 500 of these boxes.

4.5 Financial Position

4.5.1. The co-operative's current financial position is badly affected **by** large wastage figures. This is primarily due to a lack of exploitation of inland sites.

4.5.2. A profit and loss statement for the present position of **the** co-operative is shown below :-

Period 0

Revenue from Sales		Rs.
Fresh Groundfish	(125,000 kilos @ 10 Rupees)	12,50,000
Dried/Salted Groundfish	(30,000 kilos @ 8 Rupees)	240,000
Frozen Shellfish	(45,000 kilos @ 60 Rupees)	27,00,000
		<u>41,90,000</u>
Cost of Goods Sold :		Rs.
Opening Stock		650,000
Cost of Goods Produced :	Raw Material	3,300,000
	Processing Costs	331,500
	Storage Costs	23,500
Wholesale Market Labour Costs		13,000
Closing Stock		<u>1,295,000</u>
		3,023,000
Wastage for Period*		<u>400,000</u>
		3,423,000
	Gross Margin	<u>767,000</u>
Other Expenses :		Rs.
Administration		520,000
Promotion		27,600
Distribution		2,500
Rent for Coastal Site		<u>300,000</u>
		850,100
	Profit (Loss) before Tax	(83,100)
	Tax Provision on Profit	—
	Interest Provision on Overdraft	—
		<u>(83,100)</u>

*Wastage due to stocks being kept for longer than one period should not be entered here, as any wastage of this kind will also appear as part of opening stock.

4.5.3. The co-operative's balance sheet is shown **below** :

Balance Sheet as of Period 0

Liabilities	RS.	Assets	Rs.
Equity	4,897,500	Blast Freezer	600,000
		Cold Store	700,000
		Processing Plant	400,000
		Ice Plant	1 ,000,000
		Vehicles	400,000
		Boxes	2,500
		Closing Stock	1,295,000
		Cash	500,000
	4'897,500		4,897,500

5. Decisions to be Made During The Setting Up Period

5.1. Markets

5.1.1. The co-operative has to make the decision on whether or not to open inland city and rural wholesale markets with cold storage facilities. If the co-operative decides to open the markets then a decision has to be made about the siting of such markets. Note that only one inland and/or one rural market may be chosen.

5.1.2. The city market will be situated in city B and a choice of three sites is available. A map showing the positions of these sites is enclosed.

5.1.3. There exist three rural centres (towns C, D and E) which have yet to be exploited in terms of fish sales. A wholesale market and chill store can be set up in anyone of these three **towns**.

5.1.4. The following descriptions of the six sites are available :

City Site 1

This site is situated on the main road to the coastal city and has, therefore, good distribution links. It is part of a large housing area in the city.

Rent : 13,000 Rs./Period.

City Site 2

This site is situated 2 km from the central railway station, in the city centre. It is also close to the main wholesale meat market and it is believed that competition may occur in both directions, i.e. consumers being drawn from the meat market to the fish market and vice versa.

Rent : 15,000 Rs./Period.

City Site 3

Near the industrial heart of the city, where the majority of the city residents are employed, the site is also in a prime position for access to rural areas with the main central highway passing within 3 kilometres.

Rent : 14,000 Rs.; Period.

Rural Town C

The town is situated in the southern foothills of the Northern Highlands. It is part of the main tea growing area in the west of the island.

Rent : 5,000 Rs./Period.

Rural Town D

Although in the lowest population density region the town itself is situated approximately 10 km north of the main central highway, thus providing good distribution links,

Rent : 5,000 Rs./Period.

Rural Town E

Situated closest to the coast, town E suffers from bad road surfaces in the monsoon period. Road transportation is possible to the coast for 2.3 of the year. Relatively good links do, however, exist between the town and the inland city.

Rent: 5,000 Rs /Period.

5.1.5. The Government have requested that a Market Evaluation be completed for the six prospective wholesale market sites.

Studies were undertaken to determine the number of people living within two kilometres of each city site and within five kilometres of each rural site. The residents were then categorized into four social classes by income (Table 1). These are thought to be major factors in the determination of fish sales.

Market Research studies have revealed that between 14 and 18 per cent of income is likely to be spent on fish produce although it has been discovered that different income groups have different fish preferences. A table of rankings (Table 2) has, therefore, been included showing, by income group, the relative preference for fish on a preference scale out of 10. Thus, for income group A, fresh groundfish is highest with 5 whereas dried/salted fish has little appeal

It is believed that this information will enable fishery co-operatives to determine estimates of consumer expenditure on fish at all sites included in the study.

Table 1

Income Group	No. of People Within 2 km of City Sites			No. of People Within 5 km of Rural Sites		
	1	2	3	C	D	E
A-above Rs. 1,800 per period	5500	5000	4250	300	240	400
B-Rs 600 to Rs. 1,800 per period	10200	10200	10600	2000	1700	1920
C- Rs. 300 to Rs. 600 per period	13000	14000	14600	6000	6200	5600
D-below Rs. 300 per period	8400	13000	14000	5000	5200	5500

Possible Market Locations In City 'B'

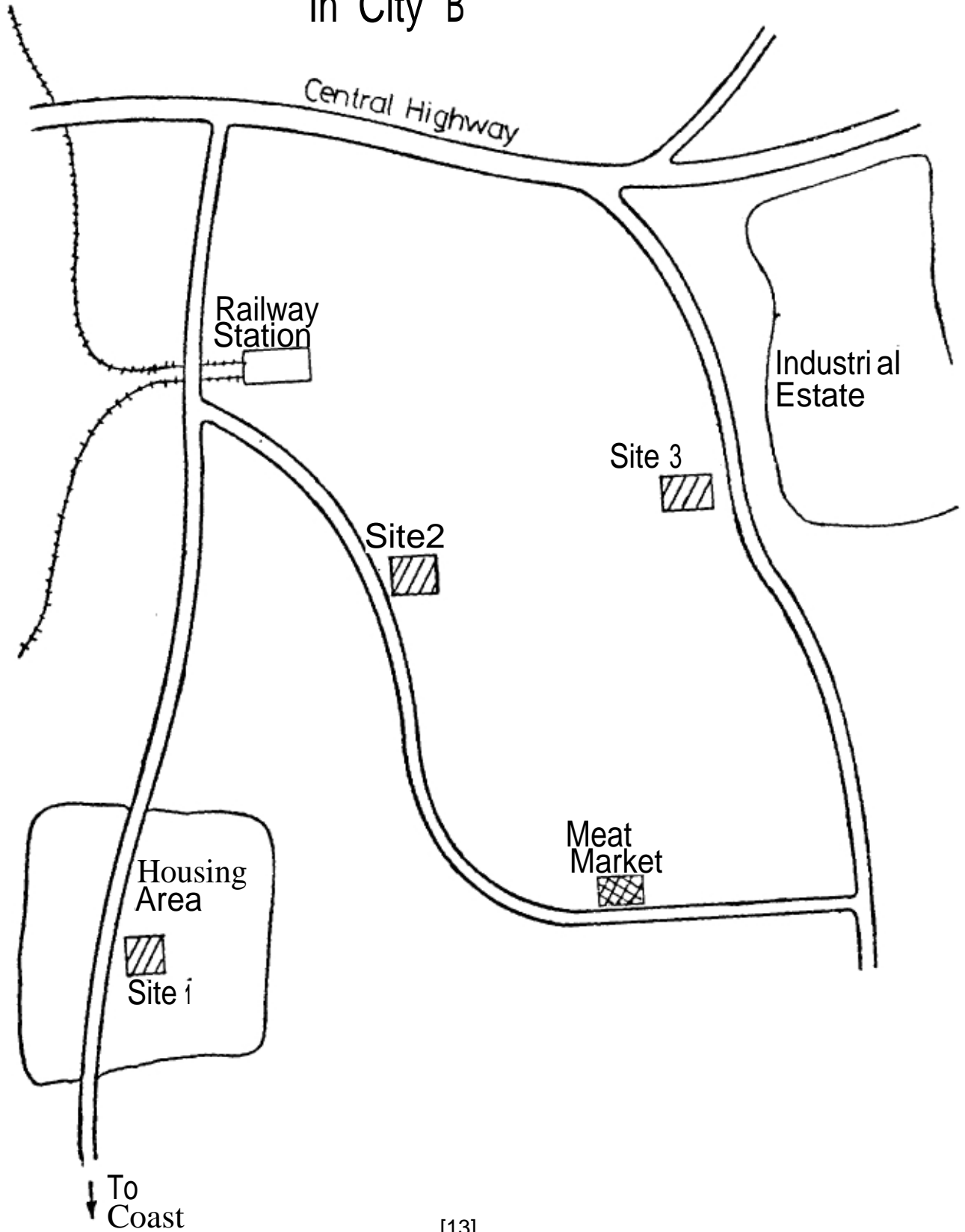


Table 2

Income Group	Banking by Fish Product	
	Fresh Groundfish	Dried/Salted Groundfish
A	5	3
B	5	4
C	6	4
D	6	6

5.1.6. Market Forecasts

The Government have also commissioned a further survey into Market Sales Potential. This takes the form of general market forecasts for the coastal city, inland city, rural areas and export market.

It is believed sales will lie in the following ranges:-

	Coastal City (‘000 Kilos)	Inland City (‘000 Kilos)	Rural Area (‘000 Kilos)	Export (‘000 Kilos)
Fresh Groundfish	100-200	115-250	20-39	—
Dried/Salted Groundfish	10- 20	10- 27	25-37	—
Frozen Shellfish	—	—	—	35-100

it should be noted that the above estimates relate to one co-operative operating in any particular market. However, sales will depend on prices, promotional expenditure, competitive effect of other co-operatives and market fluctuations.

5.1.7. On each of the sites chosen, i.e., on the city site and on the rural site, a chill store is required. A choice is available between three types of store :-

Store	Overheads per period Rs.	Capacity (tonnes)	cost Rs.
a	15,000	50	360,000
b	30,000	100	500,000
c	50,000	200	700,000

Fish may be kept in chill store for only one period, i.e., fish placed in store in one period must be sold in the following period ; otherwise it will get wasted.

Note that there is an opening stock of fish-fresh groundfish, dried salted groundfish-at the beginning of the exercise. Closing stock values for the purpose of the exercise are :--

Fresh groundfish	5.0 Rupees
Dried salted groundfish	7.0 Rupees
Frozen shellfish-	30.0 Rupees

5.1.8. It may be assumed that each site has sufficient space to accommodate a wholesale market and any one of the chill stores.

Labour for each Wholesale Market is fixed at 10 skilled and 30 unskilled labourers which represents a cost of Rs. 6,500 per market period. The labourers are automatically employed when the market is set up.

5.2. Vehicles

5.2.1 The co-operative can purchase a number of vehicles at a cost of Rs 200,000 per vehicle.

5.2.2. Each vehicle can make up to five return trips per period from the coastal city to any destination.

5.2.3. Additional vehicles can be purchased during the course of the game.

5.2.4. The vehicles can be sold during the game at Rs. 150,000 per vehicle, irrespective of the vehicle's age.

5.3. Boxes

5.3.1. The co-operative can purchase boxes of the type mentioned in section 4.4.

5.3.2. All fish is transported in boxes but is stored loose.

5.4. Professional

5.4.1. A decision has to be made in the setting-up period as to whether a professional should or should not be engaged (as mentioned in section 3.3.)

5.5. Loans and Overdrafts

5.5.1. Facilities exist for loans to be obtained during the setting-up period to purchase new vehicles and cold storage plants. Any loan obtained is not required to be repaid during the course of the game although an interest levy of 5 per cent is charged each period.

5.5.2. Overdraft facilities also exist and will be incurred automatically should a negative closing balance arise on the cash summary statement. An interest levy of 5 per cent will be charged in the next period on any overdraft.

6. Decisions to be made during the course of the game

6.1. Auction

6.1.1. Quantities of fish may be obtained from an auction. These quantities will **be** additional to those obtained from the fishermen who normally supply the co-operative.

6.1.2. To obtain fish from the auction the co-operative must enter the price and quantity desired on the Fish Availability Report, form 1.

6.1.3. The co-operative offering the highest price above the reserve price will obtain the fish it requires. If its requirement is not for the total quantity, then the co-operative offering the next highest price will obtain its requirement and so on until

- (i) all **the** fish is sold
- or (ii) there is no co-operative left in the auction offering a price **above** the reserve price.

6.2. Personnel

6.2.1. The co-operative should enter on the Personnel Report, form 2, the number of people it wishes to recruit and the number of people it wishes to make redundant.

6.2.2. The recruitments and redundancies will be made before the beginning of the following period.

6.2.3. It should be remembered that there are specified labour requirements for the plants. therefore the co-operative should plan ahead.

6.3. Processing

6.3.1. A decision has to be made on how the catch is processed, i.e., how much groundfish is dried/salted.

6.3.2. The quantities to be processed should be entered on the Processing Report, form 3.

6.4. Distribution

6.4.1. After processing a decision has to be made on the way in which the fish is to be distributed.

6.4.2. In taking this decision the co-operative should remember that there are certain requirements regarding the-ice-to fish ratio for the transportation of fresh fish.

6.4.3. It should also be remembered that each vehicle has a limited carrying capacity and that the co-operative owns only a certain number of vehicles and boxes. The number of vehicles and boxes owned in a particular period are shown on the previous period's Equipment Replacement Report, form 6.

6.5. Marketing

6.5.1. When the distribution pattern has been decided upon a **marketing strategy** should be developed.

6.5.2. The price and promotional expenditure for the various types of fish in the different markets should be entered on the Marketing Report, form 5. It should be noted from the Profit and Loss Report at period 0 how much was spent on promotion for the coastal market during that period. It should be noted that promotional expenditure is in multiples of Rs. 250 only, with maximum expenditure of Rs. 17,500.

6.6. Storage

6.6.1. The opening stock of the chill stores is equal to the closing stock in that chill store in the previous period.

6.6.2. If sales of a type of fish in a particular market are less than the opening stock then wastage will occur. This is due to the fact that fish may only be kept in store for one period. Wastage will also occur if there is insufficient cold storage capacity.

6.6.3. If fish is stored in a chill store then, during the next period, it must be sold in the market adjacent to that cold store, i.e. it cannot be transported after it has been in cold storage.

6.6.4. Fish cannot be stored in the cold store in one period and then dried/salted or frozen in the next period.

6.6.5. Dried/salted groundfish is not stored in cold store and hence no storage cost is incurred.

6.6.6.

FISH STORAGE REPORT FOR PERIOD O

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		FRESH GROUND FISH		DRIED/SALTED ¹ GROUND FISH		FROZEN SHELLFISH	
		COAST		COAST		EXPORT	
		KILOS	Rs. VALUE	KILOS	Rs. VALUE	KILOS	Rs. VALUE
A	OPENING STOCK	130,000	650,000	0	0	0	0
B	QUANTITY AVAILABLE FOR SALE	385,000		90,000		45,000	
C	QUANTITY SOLD	125,000		30,000		45,000	
D	CLOSING STOCK	175,000	875,000	60,000	420,000	0	0
	WASTAGE (SALES OS) (A-C)	5,000		0		0	0
F	WASTAGE DUE TO LACK OF CAPACITY	80,000	400,000			0	0
G	TOTAL WASTAGE	85,000		0		0	

1. Dried/Salted Product does not enter cold storage.

2. If A-C is positive. If C is greater than A, then Closing Stock is B-C and wastage is zero (if there is sufficient cold storage capacity). However, if C is less than A the wastage resulting from sales being less than Opening Stock is A-C and, thus, Closing Stock is B-C-E (if there is sufficient Cold Storage Capacity)

6.6.7. If there is insufficient cold storage capacity the wastage entered on the storage report should be wastage of the fish with the least value i.e. groundfish.

6.7. Equipment Replacement

6.7.1. The number of vehicles and boxes to be bought or sold should be entered on the Equipment Replacement Report, form 6.

6.7.2. Vehicles are bought at Rs. 2,00,000 each and sold at Rs 150,000 each. The loss on sale may be calculated as follows :-

Number of Vehicles sold	=	1
Loss on Sale	=	Rs. 200,000-Rs. 150,000
	=	Rs. 50,000

This figure should be entered on form 8 as shown.

6.7.3. Large boxes are bought at Rs. 5 each.

6.8. Cash Summary Report (form 9)

6.8.1. Sources of Cash

The Opening Cash Balance consists of the Closing Cash Balance from the previous period, Thus, in period 1, the Opening Balance will be Rs. 500,000.

Income from Sales of fish is obtained directly from the Marketing Report (form 5).

Cash Received from sales of vehicles is obtained from the Equipment Replacement Report (form 8).

6.8.2. Uses of Cash

Cost of Goods produced is as stipulated by the breakdown of expenses on form 9. The most important point to note is that "Storage Costs " which are not charged on dried/salted product are charged on all other closing stocks.

Administration overheads consist of Rs. 30,000 for the coastal cold store, Rs. 200,000 for the freezing plant and Rs. 20,000 for the processing plant. Further overhead expenses will be incurred on inland city and rural chill store facilities depending on the size of cold store chosen (see section 5.1.7.) ; also included are market rental charges-Rs. 300,000 for coastal market and appropriate rental for city site 1, 2, 3, and rural site C, D, E. (See section 5.1.4.)

Promotional Expenditure is given on the Marketing Report (form 5).

Distribution Expenses and ice charges are obtained from the Distribution report (form 4).

Interest on any bank loan obtained is payable each period but, as stipulated in section 5.5.1, the loan itself is not repayable during the course of the game.

Rent is payable by period on all sites as detailed in sections 4.1.1, and 5.1.5.

Purchases of new boxes and vehicles are shown on form 8. It should be noted that this does not include vehicles and boxes purchased from loan capital.

Interest payable on any overdraft and tax dues are shown in the Profit and Loss Report from the **previous** period.

Any overdraft which is incurred in the previous period may be repaid in the following period and is hence entered as an expense. The co-operative may, however, decide to repay an overdraft at a later date and so incur further periodic interest charges.

The Closing Cash Balance (if positive) is entered on the Balance Sheet (form 11).

6.9. Profit and Loss Report (form 10)

Total Revenue from fish sales and the Cost of Goods Produced are outlined in Section 6.8.1. Opening and Closing Stocks have been discussed in detail in Section 6.6.

The wastage figure entered is composed solely of that amount arising from the lack of capacity of cold storage facilities. It does not include wastage arising from stock being kept for longer than one period as this has already been accounted for in the Opening Stock.

Losses on sale of equipment may be directly obtained from form 8

It must be noted that items 6 and 7 (tax and interest provisions) are purely allowances which are set **aside** to be paid in the next period and should be entered on the Balance Sheet (form 11) as shown. The Net Profit should be transferred **to** the Balance Sheet as Retained Profit. This does **not** occur in the case where losses are made.

6.10. Balance Sheet (form 11)

The co-operative should complete the Balance Sheet incorporating any increase or decrease in assets which have occurred during the period. It should be noted that the value at cost of both vehicles and boxes available for the next period should be entered as shown.

“COUNTRY PROFILE”

TAMIL NADU

1. General Economic Data

Area :	130,069 km ²
Population :	41 .2 million
Total Work Force Employed :	14.75 million
N.N.P. :	Rs. 41913 million

2. Structure and Characteristics of the Industry

Approximately 59% of total fish production in Tamil Nadu comes from marine fisheries. Of the craft used, only 4.6% are mechanised for trawling and the essentially inshore nature of this fishery is emphasised by the widespread use of catamarans (gill netting and drift netting) and sailing canoes (long lining, drift/gill netting, trawl netting),

3. Utilisation of the Catch

About 60% of total marine production is marketed fresh ; 31 % is cured ; 8% is frozen. The balance of 1% is used for manufacture of fish meal, oil, manure, etc. Fish curing is practised all along the coastline of Tamil Nadu on a cottage industry basis and under unhygienic conditions, usually involving salting and drying in the open.

4. State of the Industry

About 80% of Tamil Nadu population eat fish but it is reckoned that there is a huge deficiency between what is supplied and what is demanded amounting to some 400,000 tonnes/year.

Fish is landed at centres along coastline for auction, 25% marketed directly through local retailers close to landing centres. The major part is brought to fish markets situated in towns run by corporations/municipalities or private fish merchants. At times of glut the merchants after dispatching the required quantity for internal marketing in fresh or chilled state, turn over the balance for curing purposes.

There is a fairly large export market, mainly of frozen shellfish, although sizeable quantities of dried fish are also exported.

5. Economic Role of the Fishing Industry

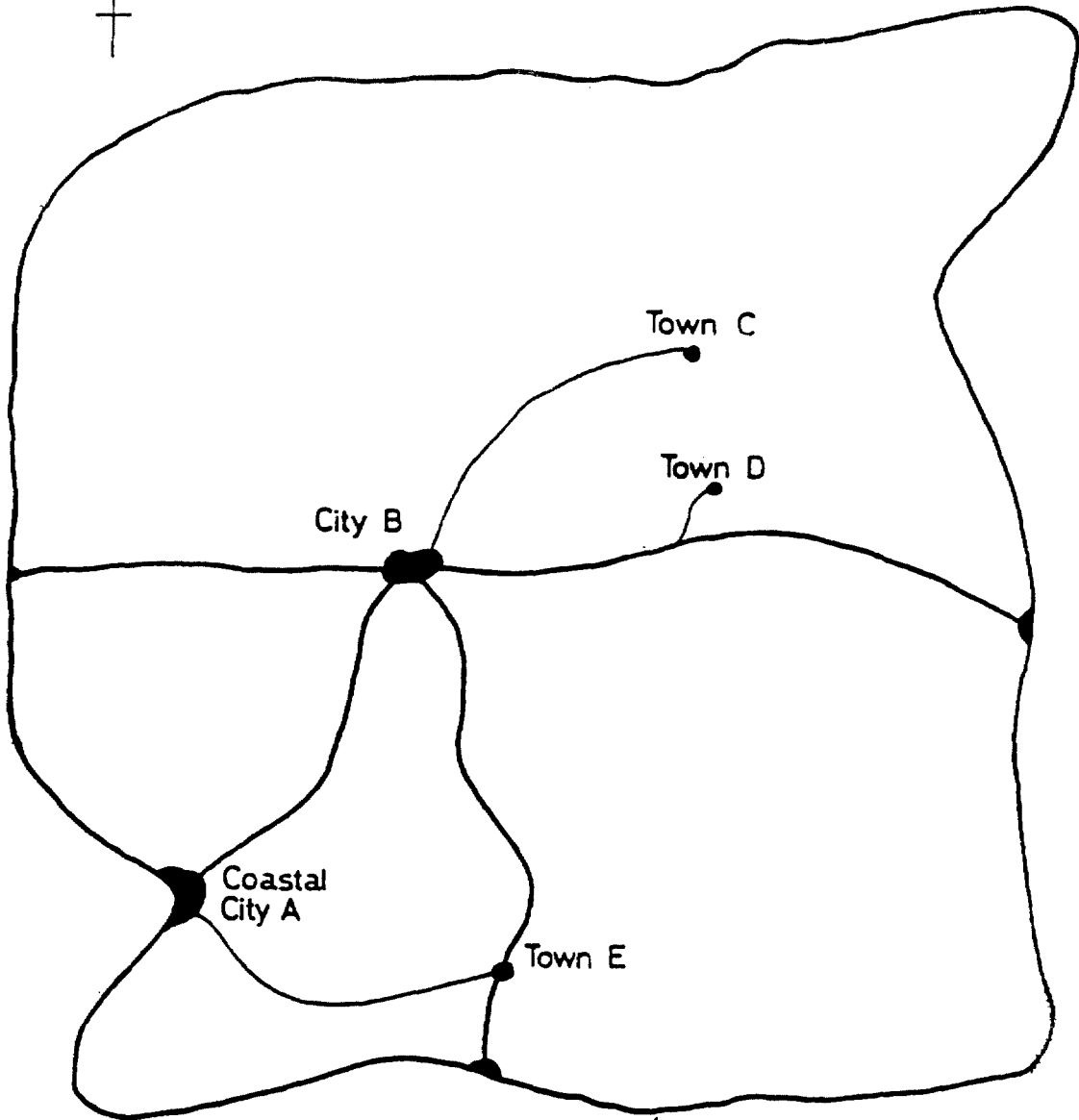
The main role of the industry is as a provider of food and as a source of employment, estimated at about 1/3 million. Marine fishermen are almost all classified as living below poverty line but this may not be true of mechanised fishermen. Most of the mechanised boats are issued under a hire purchase scheme to a group of men who are members of a cooperative; income of such a group (1973) is estimated in regions of Rs. 25,000 p.a. Some 2/3 of disposable income is spent on food and related items, The export market for frozen shellfish is a very important source of foreign currency. Hence, the future development of this market is vital to the country as a whole.

6. Future Development

It is the intention of Government to increase marine fish production to 400,000 tonnes p.a., through construction of mechanised craft, acquisitions of trawlers, establishment of ice plants and cold stores and development of landing and berthing facilities and general infrastructure, It is hoped that this will result in improved nutrition and more employment for the inhabitants of Tamil Nadu and a bigger contribution to export earnings.

TAMIL NADU

(Not to scale)

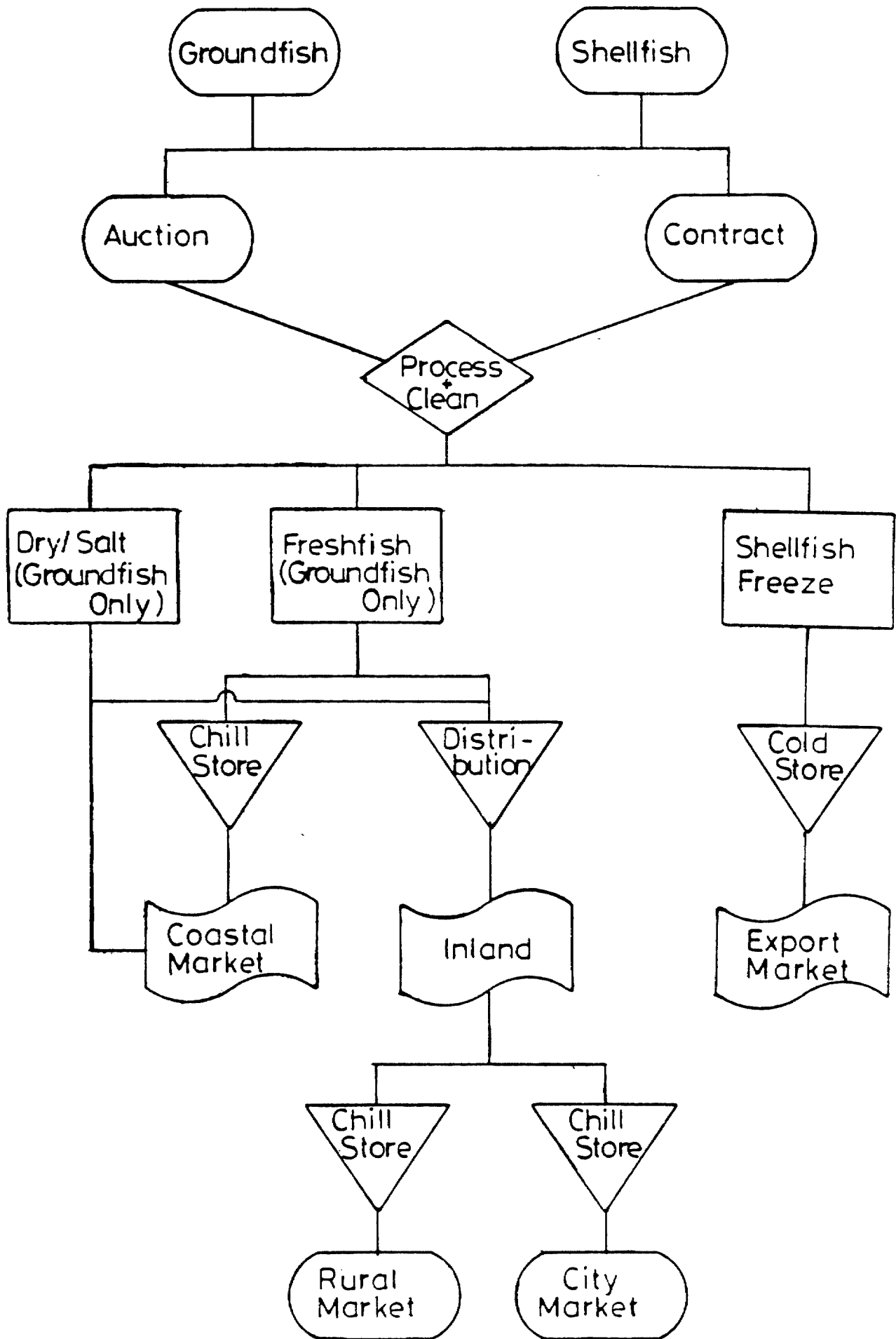


Key

Major Roads
Minor Roads

Road Distances

A-B 96km
A-C :171 km
A-D : 141 km
A-E 85 km
B-C : 75 km
B-D : 45 km
80 km



Decisions to be made prior to commencement of the game

Site Ref No

Site Decision City Site Desired Rural Site Desired

2. Cold Storage

Tick Size of Cold Storage Required

200 Tonnes	100 Tonnes	50 Tonnes
Rs.700000	Ps. 500000	Rs.360000

City

Rural

Total Outlay Required For Cold Storage = Rs.

3. Vehicles

No Required Cost Rs.

Outlay Required For Vehicles = Rs.

4. Boxes

No Required Cost Ps.

Large

Outlay Required For Boxes =Rs.

5. Loan

Bank Loan Required = Rs.

6. Labour

	Present Labour Force		Recruits		Redundancies		Labour Force	
	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled	Silled	Unskilled
Drying Salt. Plan	13							
Freezing Plant	13	50						
Drivers For Vehicles	4							

CO OPERATIVE No.

PERIOD

1. Fish Availability Report

A	B	C	D	E	F	G	H
Quantity Obtained Direct Frm Fishermen (Kilos) *	Total Cost of Direct Fish Rs. †	Auction Price Offered Per Kilo Rs.	Auction Quantity Desired (Kilos)	Auction Quantity Obtained (Kilos)*	Total Cost of Auction Fish Rs	Total Fish Available (A+ E)	Total Cost (B+ F) Rs.

Groundfish

Shellfish

* Entered by Umpire only

Prices to Fishermen / Kilo

Groundfish 5 Rupees

Shellfish 35 Rupees

Cooperative No _____ Period _____

2. Personnel Report

	Present Labour Force		Recruits		Redundancies		Labour Force In Next Period	
	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled
Drying, Salting Plant								
Freezing Plant								
Drivers For Vehicles								

COOPERATIVE No. PERIOD

3. Processing Report

	Quantity Schedule (Breakdown from 1G)	Labour Req'd for Scheduled Quantity		Labour Available †		Output Quantity	Labour Costs	Running Costs	Total Cost Rs.
		Skilled	Unskilled	Skilled	Unskilled				
Fresh Ground fish									
Dried / Salted Groundfish									
Frozen Shellfish									

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Obtained from Personnel Report
 Labour Costs
 Cost of Labour Available

Running Costs
 Freezer Rs.5.0 /Kilo Input(Frozen Only)
 Processor Rs. 1.0/ Kilo Input(Dried Salted Only)

Co OPERATIVE No. PERIOD

4. Distribution Report

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Quantity Retailed at Coast (Kilos)	Quantity to City Site (Kilos)	Quantity to Rural Town (Kilos)	Quantity of Ice to be Purchased (Kilos)	Cost of Ice (at Rs.10 per Kilos)	Quantity of Ice for City Transport (Kilos)	Quantity of Ice for Rural Transport (Kilos)	Total Wt. to be Transported to City (Kilos)	Total Wt. to be Transported to Rural	Number of Boxes Required for City	Number of Boxes R'qd for Rural Town	Number of Vehicles Required for City	Number of Vehicle Rqd for Rural Tawn
Fresh Groundfish													
Dried/Salted Groundfish													
Frozen Shellfish													

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Distribution Costs

Total Wzight on Vehicles	Running Cost (Rs.1.0 per Kilo)	Number of Drivers Employed	Drivers Wages	Total Distribution Cost

5 Marketing Report

	Coastal City				Inland City				Rural Town				Total Promot- ion Expen d iture Ps.	Total Sales Revenue Rs
	Promot- On Expend- itureRs	Price / Kilo Rs	Quantity Sold (Kilos)	Soles Revenue Rs.	Prompt- ion Expend- iture Rs.	Price! Kilo Ps.	Quantity Sold (Kilo) *	Soles Revenue Rs.	Promot ion Expend- iture Rs	Price/ Kilo Rs	Quantity Sold (Kilo)	Sales Revenue Rs.		
Fresh Groundfish														
Dried! Salted Groundfish														

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	Export				Total Promot- ion Expen d iture Ps.	Total Sales Revenue Rs
	Promot ion Expend Rs..	Price/ Kilo Rs	Quantity Sold (Kilos)	Sales Revenue Rs		
Frozen Shellfish						
Grand Total						

* Entered By Umpire Only

6. Fish Storage Report

	Fresh Groundfish					1 Dried/Salted Groundfish					Frozen Shellfish	
	Coast (Kilos)	City (Kilos)	Rural (Kilos)	Total Wt. (Kilos)	Total Value Rs.	Coast (Kilos)	City (Kilos)	Rural (Kilos)	Total Wt. (Kilos)	Total Value Rs.	Export Wt. (Kilos)	Export Value Rs.
A. Opening Stock + Auction / Contract												
B. 2 Quantity Available For Sale												
C. 3 Quantity Sold												
D. 4 Closing Stock												
E. 5 Wastage Due To Sales Being Less Than Opening (A-C)												
F. Wastage Due To Lack of Cold Storage Capacity												
G. Total Wastage												

Notes 1 Dried/Salted Product Does Not Enter Cold Storage

5. If A -C Is Positive

2. Quantity Distributed (Form 4). Opening Stock

3- From Marketing Report (Form5)

7. Storage Costing Report

	Closing Stock (Kilos)	Cost of Storage (Rs. 0.1 per Kilo) of Closing Stock
Coastal Cold Store		
City Chill Store		
Rural Chill Store		

Note

No Storage Cost Is Incurred
On Dried/Salted Product

8. Equipment Replacement Report

Vehicles

Current Number Vehicles	Vehicles Bought		Vehicles Sold		Number of Vehicles in Next Period
	Number	Cash Paid (Rs.)*	N	Cash R'c'v'd (Rs.)*	
Total Loss on Sale					

†

Boxes

	Current Number of Boxes	Boxes Bought		Number of Boxes in Next Period
		Number	(Cash Paid) (Rs.)*	
Large				

* Transfer to Cash Summary Report

† Transfer to Profit and Loss Report

9. Cash Summary Report

Source of Cash	Rs.	Rs.
1. Opening Cash Balance and Loan		
2. Income from Sales of Fish		
3. Cash Received from Sale of Vehicles		
(A) Total		
Uses of Cash		
4. Cost of Goods Produced: Raw Mat'l		
Proc'sg Cost		
Storage Cost		
* Mkt. Labour		
(B) Total		
5. Total Administrative Over head (See,Section 6.8.2)		
6. Total Promotional Expenditure		
7. Distribution costs (Drivers + Running Exp)		
8. Ice Purc hased		
9. Loan Interest (5%)		
(C) Total		
10. Purchase of New Boxes		
11. Purchase of New Vehicles		
12. Purchase of Cold Store		
13. interest Paid on Overdraft(From Previous Perid)		
14. Overdraft Repaid (From Previous Period)		
15. Tax Paid (From Previous Period)		
(D) Total		
CLOSING BALANCE (A - B - C - D)		
Overdraft (If Closing Balance is Negative)		

* Rs. 8000 for Coastal Market;
Rs. 5500 for Each Inland Market.

10. Profit and Loss Report

	Rs.	RS.
1. Total Revenue From Sale of Fish	Rs.	
<u>Expenses</u> Opening Stock (Closing stock from previous period)		
+ Cost of Goods Produced -(B)In Summary		
- Closing Stock		
= Cost of Goods Sold		
+ Wastage For Period *		
2. Total		
3. Gross Margin (1 - 2)		
Other Expenses -(C) From Summary		
Loss On Shle of Vehicles		
4. Total		
5 Profit (Loss) Before Tax (3-L)		
6. Tax Provision On Profit (20% to be paid next period)		
7. interest Provi sion On Overdraft (5%to be paid next period)		
Net Profit (Loss) (5-6-7)		

* Wastage due to stocks being kept for longer than one period should not be included hear us any wastage of this kind will also appear us part of Opening Stock

11. Balance Sheet

Liabilities

Assets

	Rs.
Equity	4 8.97500
Loan Capital	
Overdraft	
Tax Provision (See P/L 6)	
Interest Provon(See P/L7)	
Accumulated Retained Profit	
Total	

Cold Stores	Coast	700000
	City	
	Rural	
Blast Freezer		600000
Processing		400000
Ice Plant		1000000
Vehicles (Numberx Rs. 200000)		
Boxes (Number x Value)		
Closing Stock		
Cash		
Tot al		

† Retained Profit From Previous Period Retained Profit From This Period

PUBLICATIONS OF THE BAY OF BENGAL PROGRAMME (BOBP)

Development of Small-Scale Fisheries (GCP/RAS/040/SWE)

Reports (BOBP/REP/...)

1. Report of the First Meeting of the Advisory Committee, Colombo, Sri Lanka, 28-29 October 1976.
(Published as Appendix '1' of IOFC/DEV/78 44.1, FAO, Rome, 1978)
2. Report of the Second Meeting of the Advisory Committee, Madras, India, 29, 20 June 1977.
(Published as Appendix 2 of IOFC/DEV/78 44.1, FAO, Rome, 1978)
3. Report of the Third Meeting of the Advisory Committee, Chittagong, Bangladesh, 1-10 November 1978. Colombo, Sri Lanka, 1978.
4. Role of Women in Small-Scale Fisheries of the Bay of Bengal.
Madras, India October 1980.
5. Report of the Workshop on Social Feasibility in Small-Scale Fisheries Development. Madras, India, 3-8 September 1979. Madras, India, April 1980.
6. Report of the Workshop on Extension Service Requirements in Small-Scale Fisheries. Colombo, Sri Lanka, 8-12 October 1979. Madras, India, June 1980.
7. Report of the Fourth Meeting of the Advisory Committee. Phuket, Thailand, 27-30 November 1979. Madras, India, February 1980.
8. Pre-feasibility Study of a Floating Fish Receiving and Distribution Unit for Dubla Char, Bangladesh. Madras, India, April 1980.
9. Report of the Training Course for Fish Marketing Personnel of Tamil Nadu, Madras, India, 3-14 December 1979. Madras, India, September 1980.
- 10.1 Report of the Consultation on Stock Assessment for Small-Scale Fisheries in the Bay of Bengal. Chittagong, Bangladesh, 7-21 June, 1980.
Volume 1 : Proceedings. Madras, India, September 1980.
- 10.2. Report of the Consultation on Stock Assessment for Small-Scale Fisheries in the Bay of Bengal. Chittagong, Bangladesh 16-21 June 1980.
Volume 2 : Papers, Madras, India, October 1980.

Working Papers (BOBPIWPI...)

1. Investment Reduction and Increase in Service Life of Kattumaram Logs, Balan, R. Madras, India, February 1980.
2. Inventory of Kattumarams and their Fishing Gear in Andhra Pradesh and Tamil Nadu, India. Madras, India, October 1980.
3. Improvement of Large-Mesh Driftnets for Small-Scale Fisheries in Sri Lanka. Madras, India, June 1980.
4. Inboard Motorisation of Small G.R.P. Boats in Sri Lanka, Madras, India, September 1980.
5. Improvement of Large-Mesh Driftnets for Small-Scale Fisheries in Bangladesh. Madras, India, September 1980.
6. Fishing Trials with Bottom-Set Longlines in Sri Lanka. Madras, India, September 1980.
7. Technical Trials of Beachcraft Prototypes in India. Madras, India, September 1980.
8. Current Knowledge of Fisheries Resources in the Shelf Area of the Bay of Bengal. Madras, India, September 1980.
9. Boatbuilding Materials for Small-Scale Fisheries in India. Madras, India, September 1980.
10. Fishing Trials with High-Opening Bottom Trawls in Tamil Nadu, India. Madras, India, October 1980.

Miscellaneous Papers (BOBP/MIS/. .)

1. Fisheries Co-operatives in Kerala : A critique. Madras, India, October 1980.