

FIRST ICA TRAINING COURSE ON STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA : 1986-87

PROJECTS PROPOSALS SUBMITTED BY PARTICIPANTS

1. Guidelines for Preparation of Projects for Integrated Agricultural Cooperatives ..
2. Project on Manikgonj Integrated Rural Development, Bangladesh ..
3. Group reports on above project ..
4. Project on Fruit Processing Factory in Guan County, China ..
5. Group reports on above project ..
6. Duck raising Project in Anxin county, China ..
7. Group reports on above project ..
8. Orange Development in Thalawar Dst., Rajasthan, India ..
9. Group reports on above project ..
10. Integrated Paddy Cooperative Project, India ..
11. Group reports on above Project. ..
12. Project for Potato Marketing by Jahanganj Coop Society, Farukhabad, India ..
13. Group reports on above project. ..
14. Integrated Paddy Processing and Marketing Project ..
15. Group reports on above project. ..



26th December 1986

ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF AGRICULTURAL  
COOPERATIVES IN SOUTH-EAST ASIA

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To All participants

From M.V.Madane, programme Coordinator,  
ICA RO  
prof. V R Gaikwad  
Coordinator, Course Modules by IIMA

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We have come to the end of the phase One of the Training Course. We have tried in several ways how the farmers income could be improved. You have been so far exposed to basic concepts of Integrated Cooperative Systems, (ii) basic management concepts, as applicable to cooperative management, (iii) basic management concepts, techniques and tools useful for planning, and (iv) financial and economic aspects, marketing aspects and organisational aspects in relation to projects for agricultural development.

During your home country assignments (January 16-February 15, 1987) you will prepare a viable project proposal. This will provide you an opportunity to apply what you have learnt during the last two months.

To help you in your home country assignment we have prepared "Guidelines for project preparation" which is enclosed. We will discuss this on 28th December 1986.

After your home country assignment, when you will be reaching IDACA, Japan, on 17th February 1987, you should have your project proposal document complete in all respects. please bring with you 40 copies of your proposal. Your project proposal, will be thoroughly appraised at IDACA between 18th to 24th February 1987. We are enclosing guidelines on the basis of which your project will be appraised.

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26th December 1986

ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN SOUTH-EAST ASIA  
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GUIDELINES FOR PREPARATION OF PROJECTS FOR INTEGRATED  
AGRICULTURAL COOPERATIVES \*

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1.0 General:

During the last two months, you have been exposed to (i) basic concepts of Integrated Cooperative systems, (ii) basic management concepts as applicable to cooperative management, (iii) basic management concepts, techniques and tools useful for planning and (iv) financial, economic, marketing, technological, and organisational aspects in relation to designing projects for integrated agricultural cooperatives.

During your home country assignment (January 16 to February 15, 1987) you will prepare a viable, bankable project proposal. While preparing this proposal you will apply the knowledge and skills you have gained during the last two months of training.

While preparing the proposal you should keep the following guidelines in mind.

2.0 Guidelines:

2.1 Basic Framework:

2.1.1 Integrated Approach:

Design your project keeping in mind the INTEGRATED COOPERATIVE SYSTEMS CONCEPT (Refer: OHP presentation on the subject,  
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\* prepared by prof. V.R.Gaikwad, Indian Institute of Management, Ahmedabad, India, in consultation with Mr M.V.Madane, ICA.

December 1986.

AMSAC slides presentation by prof. V.K.Gupta and V.R.Gaikwad, Guide to Management of Small Farmers' Cooperatives, Chapter II )  
prof. D.R.Oza's presentation on Organisation and Management, and the discussions on overall project approach with the project Coordinator.

- a. Remember You are designing Your project to "INCREASE INCOME OF THE FARMERS";
- b. Your focus would be on OUTPUT, marketing and processing of farmers produce;
- c. You would develop Your project around a strong, viable, economic activity related to marketing processing of a commodity. This will be the Anchor activity around which backward, forward and horizontal linkages will be developed.
- d. You would develop Your project primarily following commodity approach;
- e. The cooperative will be "owned" and managed by the farmers directly and/or through their representatives  
It will not be a government managed/controlled organisation.
- f. Latest viable technology, technically competent persons and professional managers will be employed under Your project.
- g. Your project should be bankable i.e. it must stand the scrutiny of a banker or financial institution. Hence, you have to prove its financial viability.

2.1.2 Country's Developmental Strategy:

You should identify a project that will (a) fit into and support your country's development strategy, (b) meet sectoral objectives and (c) be considered viable both by the government and bank/financial institutions.

2.1.3 Viability:

Your project must meet a prima facie test of feasibility - that technical and institutional solutions are likely to be found at costs commensurate with the expected benefits.

2.2. STEPS INVOLVED:

2.2.1 Identification of project Idea:

(i) To start with you first decide the region (a group of villages or district) for which you would be designing the project i.e. the command area of your project.

(ii) Collect basic statistics about the agricultural situation in the selected region covering the following (refer: planning for Vishnupur province, the Guide, Chapter i)

a. production and productivity:

- cropping pattern,
- landownership (farm size),
- area, production, yield of all major crops for last five years;
- risks and uncertainties affecting production;
- cost of production to farmers and income;
- systems of input supply, credit etc.
- potential for increasing production.

b. Marketing of Farmers produce:

- Existing system of disposal of produce by

farmers (home consumption, seed, marketable surplus)

- How produce is marketed; marketing channels, price spread (price received by the farmer at farm gate; price at different stages of marketing (wholesale, commission agent, consumer levels)
- cost of marketing (handling, packaging, storage, transport, wastage and other losses).
- location of ultimate consumer.

c. processing:

- Existing processing facilities for each major crop:
  - No. of units and processing capacity of each unit
  - ownership of these units (private, cooperative, government),
  - information about technology,
  - investments,
  - availability of plant and machinery,
  - cost of processing,
  - value addition.
- Byproduct processing (collect information as above)
- Marketing of processed goods (all aspects of marketing as given in Section B above)
- potential for further processing.

d. Other Income Generating Activities:

- Existing major off-farm economic activities in which farmers are involved;
- Investment, marketing and income related information about these activities,
- potential for generating other off-farm income generating activities.

e. Organisation and Institutions:

- Farming population (no, location)
- Existing local cooperatives serving farmers-
  - Membership coverage,
  - financial position,
  - functions and activities,

- performance,
- management,
- member participation,
- strength and weakness of existing local cooperative,

(iii) Based on the basis data on the above mentioned items, decide:

- on what commodity/you would concentrate?
- what would be the anchor activity?
- what would be the final coverage (hectares, production and membership) of the project i.e. the command area to suit the requirement of the anchor activity;

(Note : Generally 5 to 10,000 hectares on which at least two seasonal crops or one 12 month crop like sugarcane - are cultivated are found viable for developing integrated society. This is no hard and fast rule).

- whether to take into account the minimum or maximum or average level of production of the selected commodity while considering the coverage?

(Note: The term agricultural farming covers crop husbandry (food crops, plantation crops, commercial crops, horticultural crops etc). animal husbandry (dairy, poultry, piggery, cattle, breeding for milk, meat, wool, leather and such other products); fishery (marine and inland), forestry etc. Your project may cover any of these categories. Appropriate information on the lines given above will have to be collected depending upon the commodity you would be selecting. potential for developing project exists in all these fields . Refer: Note on application of science and technology for Integrated Agricultural and Rural Development).

### 2.2.2 Formulation:

Once you have decided about the commodity and anchor activity you should work out the following:

#### i. Justification for project:

Based on the specific background information collected (as given in para 2.2.1) give justification for the project. How existing conditions do not help much in increasing the income of the farmers in the selected region, and what needs to be done to increase their income. While giving justification be specific, and only refer to the conditions in the specific region or locality and in relation to specific region or locality and in relation to specific commodity. Do not make broad, generalised statements.

#### ii. Objectives:

Clearly and specifically define the project objectives. Do not make a long list covering every possible activity/functions. Be specific and precise.

#### iii. Coverage:

Clearly spell out the coverage of the project (hectares and number of farmers)

#### iv. Identify functions, tasks and linkages:

a. Make a list of all the functions that must be performed to achieve the stated objectives.

b. Identify discrete tasks and sub-tasks that has to be performed under each function.

c. Identify linkages among different functions and tasks for backward, forward and horizontal integration. Give special attention to horizontal integration, i.e. how individual farmers will be linked with the cooperative and how these linkages would be developed.

e. Identify primary task - the task the cooperative must perform to survive. Similarly under each function identify the primary task that must be performed for successful functioning.

### 2.2.3 preparation:

#### i. Identify technical and institutional alternatives:

Identify and compare the technical and institutional alternatives under each function (such as procurement, marketing, processing, extension, input supply etc) and for achieving the project objectives. For example, under processing function alternate technologies, plant capacities, alternate locations

(centralised versus scattered) have to be found out and financial and organisational implications of each alternative have to be analysed before taking the final decision. Thus, preparation of project requires feasibility studies that identify and prepare preliminary designs of technical and institutional alternatives and compare their respective costs and benefits.

ii. Technical Analysis:

a) Check all pertinent aspects of the technologies to be used in the project. Remember, technology is related to the nature of commodity. (Refer: Note on "Some considerations in designing appropriate organisations for integrated cooperatives").

b) Consider various technological alternatives, identify solutions and give expected results. Following this specify:

- physical scale (e.g. rice mill of 20 MT /8 hr)
- lay out and location of facilities (e.g. integrated plant layout for rice mill and bran oil extraction, centrally located large rice mill or a number of small rice mills located at different places).
- technology to be used (e.g. modern rice mills, small RMU, huller, polisher).
- types of equipment and processes (e.g. rubber rollers, instead of stone polishers, dry milling vs par-boiling)
- local conditions and technical standards (e.g. traditional handling and losses due to it, moisture content, degree of polishing, rice standards - percentage of whole rice, and broken etc.)
- approach in relation to provision of services.
- realism of the implementation schedule (e.g. time needed to get plant and machinery after placing order, time for erection of factory, time for trial runs and testing)
- likelihood of achieving expected levels of output.

**Critical Aspect:** Decisions in relation to technical aspects of the project must be based on proper view of cost estimates and engineering and other data. If necessary you should consult technically qualified persons on these matters.

iii) Financial Analysis:

a) You have to justify financial viability of the project. Hence for each component give the estimates/projections of investments and revenues. This should cover the following:

- fixed costs
- variable costs
- cash flows (inflows and outflows)
- working capital requirements.
- break even analysis.
- financial internal rate of return (FIRR)
- repayments schedules for loans.
- budget (Yearwise and consolidated budget for the first five years of the project).

(Refer to prof. Ramesh Gupta's class and material provided for financial analysis topic. If necessary, consult experts who have experience of doing financial analysis).

b) While doing financial analysis give proper justification for the assumptions made about various costs, prices and revenues. Make financial provision for delays in project implementation since delays cost money.

c) Give SOURCES OF FUNDS for the project, such as share capital from members, loan from cooperative banks, other financial institutions, government etc.

iv) Economic Analysis:

- Work out cost benefit analysis for the project,
- calculate EIRR

Give proper justification for all assumptions pertaining to costs, prices and revenues (value of land, taxes and subsidies, direct and indirect benefits, prices of output (market price, shadow price etc.) labour cost etc.) labour cost etc. Also take into account length of project period, time value of money, present worth (discounting), internal rate of return, sensitive analysis and contingency allowances (inflation, replacement costs, sunk costs).

v) Organisation and Management:

a. Design the organisation keeping in mind the objectives, functions and tasks.

- Define the primary activities in relation to the objectives,
- Identify DISCRETE tasks in relation to activities,
- For each task identify sub-tasks.
- Determine workload and nature of each task and sub-task, check if these could be combined a for greater efficiency and effectiveness.
- Identify common needs for various operational systems, personnel, planning etc.
- Divide the work logically taking into account factors such as functinss, product nature, territory, process, technology etc.
- personnel policies to be followed in relation to recruitment (qualifictions, experience, salary etc.) and training.

b) Methods and procedures for involvement of members in the management of the society (member groups, committees etc.) size of managing committee/board, appointment of board members etc.

c) prepare organisation chart.

vi) Summary of project:

prepare a summary of the project.

vii) Recommendations:

Give in brief Your recommendations as to how the project should be implemented. This should include also the likely problems during implementation and how to overcome these.

viii) Appendices :

provide all relevant statistical information, background descriptive information, maps, charts, large tables, and analysis of data as appendices. Give also sources of information and bibliography on technical matters.

2.3 presentation:

a) Your report must be properly organised in terms of sequence of chapters and nicely typed (one side of page, double spacing) The content must be precise and to the point. Do not write about things which are not DIRECTLY relevant to the project. The main body of the report should be around 35-40 pages excluding the appendises which should be around ten pages. Thus the total report should be around fifty pages.

2.4 The structure of Report:

The report should be organised onthe following lines:

Content	Approximate no. of pages
i. Acknowledgement	1
ii. Content	1
Chapter 1 : Summary	2-3
Chapter 2 : Background	
2.1 Overall situation (vit a commodity)	2
2.2 Area of project	1
2.3 problems faced by farmers	1
2.4 Need and justification for the project	2 5-6 pages
Chapter 3 project:	
3.1 Objectives	½
3.2 Area of operation	½-1
3.3 project components	3-4 5-6 pages
3.3.1 List akl components such :	
3.3.2 procurement, processing, marketing, extension, by- products processing etc.	
Chapter 4 Details of Operatims :	
4.1 Give details of each operation	
4.2 related to each component.	10-12 pages
Chapter 5 Organisation and Management	3-4 pages
Chapter 6 Financial Analysis	3-4 "

International Cooperative Alliance

Chapter 7 Budget	1 page
Chapter 8 Recommendations	2 pages
	-----
Total	33 - 40 pages.

Appendices: Map	
Tables	
Diagrams	
Details about calculations	10 - 15 pages
other technical data	
Bibliographical material on technical matters.	

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Total pages	43 - 55 pages.
	say around 50 pages.

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AGRICULTURAL COOPERATIVES IN ASIA

NEW DELHI / BANGKOK / TOKYO / SEOUL

1st November 1986 - 3rd May 1987

PROJECT PREPARED DURING HOME COUNTRY ASSIGNMENT

Project Title: Manikgonj Integrated Rural Development

Country: Bangladesh

Prepared by: Mr Mohd Abdus Samee

Funded by the Government of Japan  
and

Executed by the International Cooperative Alliance  
in collaboration with its member organisations in  
India, Thailand, Japan and the Republic of Korea.

PROPOSED PROJECT ON MARKETING OF  
PULSES IN MANIKGONJ UPZILLA

by

MOHD ABDUS SAMMEE  
B A N G L A D E S H

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Dated :

The 10th February, 1987.

Md. Abdus Samee

S U M M A R Y

- |   |  |
|---|--|
| 1. Name of the Project                                  | Manikgonj Integrated Rural Development Project   |
| 2. Location   | a) Factory : Manikgonj Upzilla, Sadar<br>b) Office : -do-  |
| 3. Type of organisation                                 | Three tier cooperative   |
| 4. Project cost:  | a) Fixed Cost: Tk. 9.35 million<br>b) Initial Working Capital: Tk 3.75 million<br>c) Total Cost: tk 13.10 million. |
| 5. Funding Plan   | a) Loan: 80%, TK 10.48 million<br>b) Equity: 20% Tk 2.62 million   |
| 6. Debt equity ratio:                                   | End of 1st year /2: 28   |
| 7. Employment generation:                               | a) Direct: 20 persons<br>b) Indirect: 15 persons   |
| 8. Name of the designated Bank:                         | Janata Bank  |
| 9. Name of the Components:                              | Prod. Extension, processing, marketing, coop irrigation, shares and savings.                                       |
| 10. Financing of the components                         | NCB in Coop with B S M S Ltd   |
| 11. Amount of shares and savings                        | Tk. 10 million.  |
| 12. No. of members                                      | 100,000  |
| 13. Production of finished goods                        | 5.69 million, 6.20 million, 6.71 million   |
| 14. Cost of Machinery                                   | Tk 3.75 million  |
| 15. Origin of machinery                                 | India  |
| 16. Quantity of pulse production pre-project time       | 1.42,000 maunds.   |
| 17. Price of pulse per Md.                              | Tk. 100 per maund.   |
| 18. Price of processed pulse                            | Tk. 300 per maund.   |
| 19. Area of cultivation in acre pre-project time target | 20,000 acres.  |
| 20. Quantity of pulse to be processed                   | 36000 mds. 70% capacity.<br>41421 mds 80% "<br>46285 mds. 90% "<br>51428 mds. 100% "                               |
| 21. Proposed production of pulses                       | 1,50,000 maunds.   |

4  
C H A P T E R - 2.00.  
2.00 INTRODUCTION.

2.01 Background :

ABOUT 85 percent of the rural people get their living from agriculture and as such great importance has been attached to the development of agriculture. It has been agreed that Co-operative can play an important role in the overall development of the rural Bangladesh. Cooperative is movement of the people, for the people, and by the people. The inherent strength of the Co-operative is to be found in the material and moral contribution of each member for its success. In Bangladesh the Co-operative environment is not congenial to achieve the desired goals. This is because the rural people are mostly illiterate and as such desired initiative from the people to place the Co-operative movement on a sound footing is lacking. The efficacy of Co-operatives and the idea of better living is to be impressed upon the rural people before they can realize the mutual benefits that may accrue to them from their joint Co-operative in increasing the agricultural production. The Co-operatives can serve varied and numerous purposes and mostly can improve the economic life of any country. In the past Co-operative has played an important role in developing the Socio-economic condition of the rural people through increasing production. In order to understand the importance of Co-operative, one is to understand the significant role that a Cooperative can play in time of national crisis. Let us assume a situation that there is a war and there is no supply of food grain from outside of a country. In this situation the country can survive only through boosting its agricultural production through Co-operatives. More than 50 percent of our farmers are small and marginal farmers. These farmers are disorganized, very poor and their per acre yield is lowest. Co-operative can play a vital role in organizing the small and marginal (many farmers and pool their resources together to boost agricultural production. It is agreed that small peasants are unable to carry out any investment or even buy fertilizer and modern agricultural implements without the financial assistance from some organizations. The financial help thus in the form of credit should be made available to the small farmers and marginal farmers. Such credits should preferably be granted in kind, and it is to be made sure that the peasants are actually using the

4  
C H A P T E R - 2.00  
2.00 INTRODUCTION.

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inputs for the specified purposes. It has been observed that Co-operative is an effective organization for channelizing credit and its supervision to ensure proper use of credit.

Most of the medium farmers are also unable to adopt modern method of cultivation unless they can obtain a loan for that purpose, The necessity of well organized adequately financed and efficient credit facilities for medium farmers can hardly be over-emphasized. In order to achieve national goal of attaining self-sufficiency in food and for improving the standard of living of the farmers adequate credit facilities are essential. For the prevailing system of very small holdings of one or two acres any modernization in agriculture is not possible unless there is a joint planning. It is also not possible to make loans from a central institution to each individual farmer owning only one to two acres of land. No bank could possibly do that. It is necessary that 40 to 50 of those farmers should combine to form a Co-operative which becomes a viable unit of banking it is only through Co-operatives that all types of farmers having little and scattered holding can join together under the umbrella of Co-operative to receive credit and thus to enable them to modernize agriculture so as to boost our agricultural production.

The Farmers are un-organised, illiterate and are unable to increase their farm income through increase of production unless they are helped in this regard, Manikgonj is a pulse growing area and as such to increase the farmers' income there is a need for taking up a project for increase of production, processing and marketing of pulse, Keeping this in view, this project has been selected and formulated. If it can be implemented properly and in time, it is expected that there will be accrual of immense benefit to the member farmers.

## 2.0 Overall situation :

LOCATION : The Manikgonj district is situated in 23° to 52° and 90° east latitude. The district is bounded on the south and west by river Jamuna, on the east by Dhaka district, and on the north by Tangail district. The district is composed of seven Upazilla namely-Daulatpur, Chior, Horirampur, Manikgonj, Shivala, Saturia and Singair,. The new demarked area of the district is 583 sq. miles, the total number of villages according to the statistical report of Dhaka, 1982, is 1938. It is communicated with Dhaka both by road and water ways. The Dhaka Aricha road passes through Manikgonj. There is a regular launch service from Dhaka to Manikgonj through the rivers Dhaleswari and Burigonga.

TOPOGRAPY : The area of the district consist of plain and low lying land which is inundated in varying degree during rainy season by the river Jamuna and many other creeks and streams but yielding fine crops of pulse, Jute and paddy.

SOIL : The soil of Manikgonj district is developed over un-consolidated alluvial sediment. The Jamuna flood plain mainly occupied by broad pattern of ridges and basins, silt loams, city clay loams and generally occur on the different ridges. Almost all the soils in the Jamuna flood plain are gray in colour and weakly mottled brown with some variation in some places. These soils are highly fertile.

CLIMATE: The district is located the tropical belt and enjoys fairly equitable tropical monsoon. The climate is fairly pleasant from November to February.

RAINFALL : The amount of distribution of rainfall also plays important role in the field of agriculture, The maximum and minimum rainfall recorded at Manikgonj was 2630 and 1173 mn. respectively whereas the average was 1878 mn.

UPAZILLA WISE DESCRIPTION

The Government has taken a significant step by upgrading thanas into Upazillas, The population and number of Unions are shown in the table given below :-

Sl.No.	Name of the Upazilla	Area	No of Union	No.of Population
1.	Daulatpur -	87	3	1,39,142
2.	Ghior -	55	7	1,09,137
3.	Harirampur-	95	13	1,62,487
4.	Manikgonj	80	9	1,96,022
5.	Saturia -	62	10	1,36,611
6.	Shivalaya -	75	7	1,17,195
7.	Singair -	81	11	2,10,080
T O T A L :		535	65	10,59,674

Source : Records of Manikgonj Upazilla Parishad .

NUMBER AND AREA OF FARM HOLDING BY TENURE-1986.

Upazilla	(Area in Acres)							
	Total farm holding		Owner holding		Tenant		Owner-Cum-Tenant holding	
	No	Area	No	Area	No	Area	No	Area
Daulatpur	9064	41521	2784	14702	--	--	6280	26818
Ghior	8885	53522	4083	15162	25	29	4750	18331
Harirampur	11722	40337	4915	16572	--	--	6807	23665
Manikgonj	13783	42614	6394	18100	10	25	7379	24489
Saturia	12185	44941	5962	23187	--	--	6223	21754
Shivalaya	8123	37033	3157	14397	20	52	4916	22623
Singair	12659	47598	4952	20144	30	22	7637	27432
<b>Total :</b>	<b>76394</b>	<b>287566</b>	<b>32317</b>	<b>122324</b>	<b>85</b>	<b>126</b>	<b>49992</b>	<b>165112</b>

Source : Record of Upazilla agril.office.

PRODUCTION OF DIFFERENT CROPS & LAND UTILIZATION:

Production in Honds

Area : In Acres

Sl.No	C R O P S	1984-1985		1985-1986	
		Production	Area	Production	Area
1.	Rice(Aus, Amon, Bora)	3481998	322695	4096516	329198
2.	Wheat	221508	14427	359770	21486
3.	Jute	334896	11020	329335	18420
4.	Sugar Cane	993285	2565	1218314	3165
5.	Potato(Different Types)	590756	5093	653915	4363
6.	Pulses -do-	99734	16423	142409	20344
7.	Oil Seeds	134233	18988	146933	17892
8.	Fruits	261622	3117	232575	2710
9.	Chillies	3395	623	3254	670
10.	Onion	38190	1387	39014	1303
11.	Garlic	1775	222	6559	213
12.	Termeric	866	112	1101	73
13.	Ginger	3261	62	4785	85
14.	Vegetable	114921	1975	99826	195

UPAZILLA WISE PRODUCTION OF DIFFERENT CROPS-1985-86

Area wise study of agriculture resources is new for creating industrial structure. In this respect Upazilla wise production of different crops during the period of the year-1985-86 are shown in the table below :-

Production in Mds.

Name of the products	Daulatpur	Ghior	Harirampur	Manikgonj	Saturia	Shivaliya	Bingair
1. Rice	651468	485556	684184	594147	508037	368000	804124
2. Wheat	59661	71729	25346	64659	71121	45954	20300
3. Jute	44725	14910	22310	71235	84175	41490	50490
4. Sugar cane	98571	57151	79603	194901	75670	35470	677448
5. Pulse	17338	18692	18620	46247	11433	14410	15669
6. Oil seed	13167	35372	11550	30711	22576	15854	21325
7. Potato	44146	96162	72158	180607	11403	60130	86209
8. Fruits	23380	28965	61821	24262	12613	41341	38374
9. Chillies	135	225	965	373	161	966	429
10. Onion	2924	4079	6080	2040	1255	9625	13011
11. Garlic	450	1051	1051	1156	417	481	1953
12. Termeric	132	88	31	247	263	247	93
13. Garlic	1375	550	273	900	620	750	315
14. Vegetable	4550	6074	8110	11732	10206	33903	25251

Source : Upazilla Agril. Office.

## 2.03 Area of Project :

The project will cover the whole of the area of Manikgonj Upazilla. All of the farmers viz-better off small and marginal and tenant farmers growing pulse will be covered by this project. There are two types of Co-operatives in the grass root level. These Co-operatives only the traditional Co-operatives will be included in this Project. IRDP Co-operatives will not be allowed to enter into this Project. There are about 10 Union Co-operative Multipurpose Societies(U.C.M.P.S.) and one Central Co-operative Multipurpose Society(C.C.M.P.S. one central Co-operative Bank, 60 IRDP KSS and 40 traditional KSS are operating in Manikgonj Upazilla. All of the traditional KSS, U.C.M.P.S. and C.C.M.P.S. will be covered by this project. The Project will have three tiers Co-operatives viz- U.C.M.P.S. at the grass root level C.C.M.P.S. in the Secondary Level and the apex society/ <sup>Bangladesh Samabaya Marketing Society Ltd</sup> at the national level. The production aspect of the project component will be implemented through U.C.M.P.S. procurement, storing and processing aspects will be done by the C.C.M.P.S. **The final marketing component will be implemented by establishing backward and forward linkages with Bangladesh Samabaya Marketing Society. The Central Cooperative Bank will not be involved at any stage of project implementation. Central Cooperative Multipurpose Society will be the principal executing agency for the Project.**

## 2.04 Problems faced by the farmers :

In spite of its wider fields for operation and greater scope for developing a sound and healthy Cooperative movement there are some bottleneck, 'deficiencies' and weaknesses which impede the way of expansion of the activities of the Cooperatives. These constraints have been discussed here very briefly ;

There are lack of uniform Cooperatives. There are different types of primary societies at the Union and village level. More precisely. on an average, there are twenty primary societies in the area of Union some of these are Union-based some are village-based,

others are group-based. Ironically of all the Cooperatives, there are two types of Cooperatives that are in operation side by side in the same sector of the rural Bangladesh. One type is the Union Cooperative Multipurpose Society (UCMPS) that operates within a Union and is mostly engaged in agricultural credit operation. The UCMPS are supervised by the officers of the Cooperative department. These societies are affiliated to the central Cooperative banks situated, generally at the subdivisional headquarters. The other type is the Krishi Samabaya Samity (KSS) The KSSs are organised on the basis of the Comilla Cooperative model. The KSSs are village-based and are affiliated to the Thana Central Cooperative Association (TCCA)

All of these Co-operatives do not operate in a harmonious way rather one type does not tolerate the existence of others. Thus the Co-operative as an organization set up for the development of the farmers could not solve any problems of the farmers. Production method is still in the primitive stage. Yield per acre is very low. Production inputs are not available adequately and timely. As the farmers are un-organized, they are to buy individually the production inputs from the open market at a very high price. Production costs of pulses are sometimes higher than the selling price. On the other side, they are to sell other produce just after the harvest in the local market, so at a time, there is over supply of a particular item. Demand in comparison to supply falls and as a result prices of the agricultural produces fall below the cost of production. Other problems are given below :-

- (1) Lack of uniformity in agricultural products resulting in inefficiency in the marketing system ;
- ii) Predominance of self sufficiency motives and subsistence farming have the inherent incapability of supplying products according to the needs of the market ;

- iii) Most of our farming is done with non economic motives. As a result, no special effort is made to enhance the commercial value of their output. It has been found that production is not matched with market demand.
- iv) Inadequate transport facilities hinder the growth of efficient marketing system;
- v) Deficient communications limit the range of marketing and thus prevent the growth of specialized marketing agencies;
- vi) Inadequate and appropriate storage facilities are the cause of heavy losses to farmers and result in serious wastage of foodstuffs and increased costs to consumers;
- vii) In the peak period every farmer is to sell some amount of his produce just after harvest, with the result that supply of a particular commodity during the peak period exceeds the demand. Consequently, prices go down sometimes prices go below the cost of production ;
- viii) Lack of uniform weights and measures in different parts of Bangladesh ;
- ix) Adequate and timely finance is not available to the beparies and retailers ;
- x) Procooling or ventilation is lacking in the case of carrying vegetables and ripe fruit resulting wilts and r ts ;
- xi) Co-operative Organization could not achieve adequate success in providing marketing services to its members ;
- xii) Necessary training in the field of agricultural marketing is lacking.

Because of those problems, hindrances and bottlenecks, the poor farmers cannot improve their Socio-economic conditions. If those problems, hindrances and bottlenecks can be removed the farmers' present status and position in the society would have been improved a lot.

## 2.05 NEED AND JUSTIFICATION OF THE PROJECT:

Manikgonj is a bit low lying area. Winter crops are grown very well in this area. If one wants to improve the socio-economic condition of the people of Manikganj he must develop the agriculture of this area. Specific programmes must be taken to improve the agriculture and modernise it so as to reap the benefit out of it. As winter crop is grown very well in Manikgonj, all emphasize would be given on the increase of production of the winter crops. Only production is not enough. With the increase of production of crops, its processing and marketing are also essential. Keeping this in mind, this project has been taken up for increasing the income of the farmers by taking care of the production as well as marketing of the crops. Without integrated programme no development is possible and as such this project is an integrated approach to rural development through Cooperatives.

Once minimum local resources in different field that are considered necessary for developing project are available, the project planners can identify a basket of projects related to the fulfilment of the minimum needs. In view of the prevalent economic condition of Manikgonj area, the following alternative projects have been listed for removal of poverty, increasing income of the farmers, solving un-employment and under employment problem in the stated area.

- (a) Increasing production of paddy and marketing of its
- (b) Increasing production of pulse and its processing and marketing.
- (c) Increasing production of wheat and its marketing.

Among the above alternatives increasing the production of pulse and its marketing would be the most viable and bankable project because winter crops grows very well in Manikgonj. Lesser efforts will be needed to increase the production of the pulse. On the other hand rice and wheat do not grow well in this area because Manikgonj area is low lying area. It goes under water in the rainy season and about six months the major portion of cultivable land remains under water. So it is not possible to grow rice abundantly there. As Manikgonj is comprised of alluvial soil, Wheat does not grow well there. During the Winter, there is no flood and the soil of Manikgonj is very much suitable for growing pulse and as such production and marketing of pulse has been selected for this study. Manikgonj is well communicated by road with Dhaka. Dhaka market will be used for selling the increase production of pulse. Dhaka city is only 30 miles from Manikgonj and as such there will be no problem of marketing for any amount of increase production of pulse. If the production of pulse can be increased there will be no need of import of this item. considering all aspect of production, distribution, needs of the country, area potentiality, Socio-economic condition of Manikgonj area, this project of pulse production and marketing has been taken up for increasing the income of the farmers of Manikgonj area.

C H A P T E R - 3.003.01 Project :

Manikgonj integrated Rural Development Project is a 10 years area development Project. This Project will be in operation from 1st March, 1988 in Manikgonj Upazilla. The Project aims at Production, Generation of employment, processing and distribution of pulse. It also aims at integrating the poorer farmers with the better off farmers for greater social equality and justice by providing the poorer and weaker farmers an opportunity of direct participation in the development process.

3.02 Objectives :

Main objectives of the project are :

- (a) To increase farm income through increasing production, processing and distribution of pulses.
- (b) to strengthen the planning and management capability at the thana level.
- (c) to improve the transfer of modern agricultural knowledge.
- (d) to offer opportunities to the neglected groups of farmers.

3.03 Scope and area of operation :

This is an area development Project. Manikgonj is a deficit area having many small and marginal farmers with per capita land of 0.30 acre. The Project will aim at only increasing production, processing and distribution of pulses. Production area will be the whole of Manikgonj Upazilla and collection, grading, storing and processing will be done by the C.C.M.P.S. at Manikgonj Town, the Upazilla Headquarters.

Marketing will be done by CCMPs through the apex society, the Bangladesh Samabaya Marketing Society. Of course the main object is to increase the income of farmers by raising production, Productivity, processing of pulses and joint marketing.

#### 3.04 Project Components :

The Project will consist of the following major Components :-

- (i) Production of pulses.
- (ii) Extension Services.
- (iii) Procurement, <sup>Grading</sup> Processing, Storing and marketing.
- (iv) Marketing of finished products & by-products.
- (v) Strengthening of Co-operatives and Agricultural Credit.
- (vi) Irrigation development.
- (vii) Shares and savings programme.

#### 3.05 Description of Project Components :

##### (i) Production of pulse :

The Project component consists of modernization of Cultivation method by introducing power tiller and installation of 50 deep tube wells of 2 cusec capacity and imparting training to the farmers on the balanced use of fertilizer and on the use of insecticide and fungicide. Irrigational equipments will be installed with the help of BADG and power tiller will be procured by the C.C.M.P.S. and will supply to the U.C.M.P.S. on rental basis. Existing yield per acre of pulse is now about 6(Six)maunds per acre and this yield will be increased to seven maunds per acre. Financial assistance in the form of short term loan will be provided to the farmers by the C.C.M.P.S. At least Tk.1,000/= will be provided per acre of land for production purpose.

(ii) Extension Services :

Agricultural extension services will be provided to the farmers through U.C.M.P.S. C.C.M.P.S. will organize training course on Agricultural extension at the U.C.M.P.S. level in collaboration with the government Agricultural Department. With the help of farmers members of U.C.M.P.S. a demonstration plot will be developed and HYV pulse will be cultivated there. All other farmers will be trained in this demonstration plot. In every village, there will be one demonstration plot. Modernized cultivation will be practised in those plots so as to disseminate the improved methods and practices of cultivation.

(iii) Procurement of Pulse grading & processing and Storing.

This component consists of procurement of pulses from the farmers with the help of U.C.M.P.S. and these pulses will be stored in a warehouse to be constructed at the C.C.M.P.S. level at a cost of Tk.10/lakhs. C.C.M.P.S. will be the Central Organization at the mid level and will be responsible for procurement, grading, storing, and processing. The fund for procurement, grading, storing and processing will be provided by the Bangladesh Samabaya Marketing Society on loan basis, warehouse will be built up and pulse processing mill will be set up. The Project cost including technical aspects, marketing aspect and financial aspects has been shown in the chapter-4. In all 80 percent of the total Project cost will be funded by the commercial bank and 20 percent will be equity. At least 30 percent of the total price of the pulse will be paid to the farmers at the time of procurement and the rest will be paid after marketing of the processed pulse subject to the adjustment of the production loan.

(iv) Marketing of Finished products and By-products :

The processed finished products of pulse will be marketed by the Bangladesh Samabaya Marketing Society in the Dhaka city. By-products will be used as a fodder and will be sold in the local market by the C.C.M.P.S.

(v) Strengthening Co-operatives :

In order to make the participation of small marginal and tenant farmers and landless labourers in development programmes effective, Rural Co-operatives would be revitalized through the strengthening of U.C.M.P.S. and C.C.M.P.S. in the whole Project area of Manikgonj Upazilla . The member of U.C.M.P.S. has been projected to reach at one per Union. With the average of 500 members per U.C.M.P.S. the total U.C.M.P.S. membership would finally cover 12,000 households. The Project would also include the provision of about Tk.4.00 crores for short term credit and about Tk.6.00 crores for medium term credit. The Co-operatives would be organized by the Bangladesh Co-operative Union with direct Co-operation of the Co-operative Department and other participating agencies. The Credit facilities would be negotiated by the Bangladesh Samabaya Marketing Society, and it would be channeled to the U.C.M.P.S. member farmers through Janata Bank.

(vi) Irrigation Development :

The Project Component consists of Installation of 20 deep tube-wells of 2 cusec capacity and (ii) Replacement of 50 low-lift pumps of 2 cusec capacity with 1-2 cusec new low lift pumps. The executive agency for this project is the Bangladesh Agricultural Development Corporation is with the

Bangladesh Samabaya Marketing Society. Of the deep tube-wells to be installed, 50% to be installed in the 1st year and the remaining 50% in the subsequent years. During the first two years of the project implementation 50% of the over aged 2 cusec capacity low lift pumps will be replaced by new pumps. The rest will be replaced in the subsequent years.

(vii) Shares and Savings Programme :

There will be atleast 1,00,000 members to be enrolled in the U.C.M.P.S. and there will be collection of Tk.1.00 crore as shares and saving. This amount will be deposited with the C.C.M,P.S. which will in turn will be invested in different Project components.

## CHAPTER : 4

## 4.01 Organisation and Management

The entire projects will be implemented by CCMPs with backward and forward linkages with VCCMPs and apex marketing society respectively. Credit arrangements will be made by the Bangladesh Samabaya Marketing Society. Designated bank will be the Janata Bank. CCMPs will arrange training programme, supply and services in close cooperation with the relevant government department. UCMPs will collect shares and savings from the members and will keep this fund with the CCMPs.

Management of the Co-operatives will be handed over to the Managing Committees to be constituted for this purpose. The Managing Committee will be constituted as per rules and regulation of the Co-operative laws. Sub-committees will be constituted for Management of each components. Thus there will be one sub-committee for each component. For internal management by-laws will be prepared and followed up. The tenure of Managing Committee will be two years. After the expiry of two years, all the members of the managing Committee will automatically retire and a new Managing Committee will be constituted through election. In case of any problems, the matter will be decided by the relevant government departments.

#### 4.02 Technical aspects

Miling of pulses is an important activity as pulses form an important part of our diet. They are the main sources of proteins. The important dals produced in this area are Tur (rather), gram urad, Masur and moong. Depending upon the climatic conditions, different regions of the country produce different pulses. According to the survey conducted by the Small and Cottage Industries Corporation, the total production of various pulses was 1.42 lakh maunds in Manikgonj Upazilla.

About 2 units are at present engaged in processing of various pulses in Manikgonj district and there is no unit of this kind in Manikgonj Upazilla. These mills are very old and are unscientifically planned resulting invariably in higher losses. The pulse milling industry is predominantly a small scale industry and has now been reserved for exclusive development in the small scale sector. There is an obvious need to modernize this industry to increase the productivity and the performance.

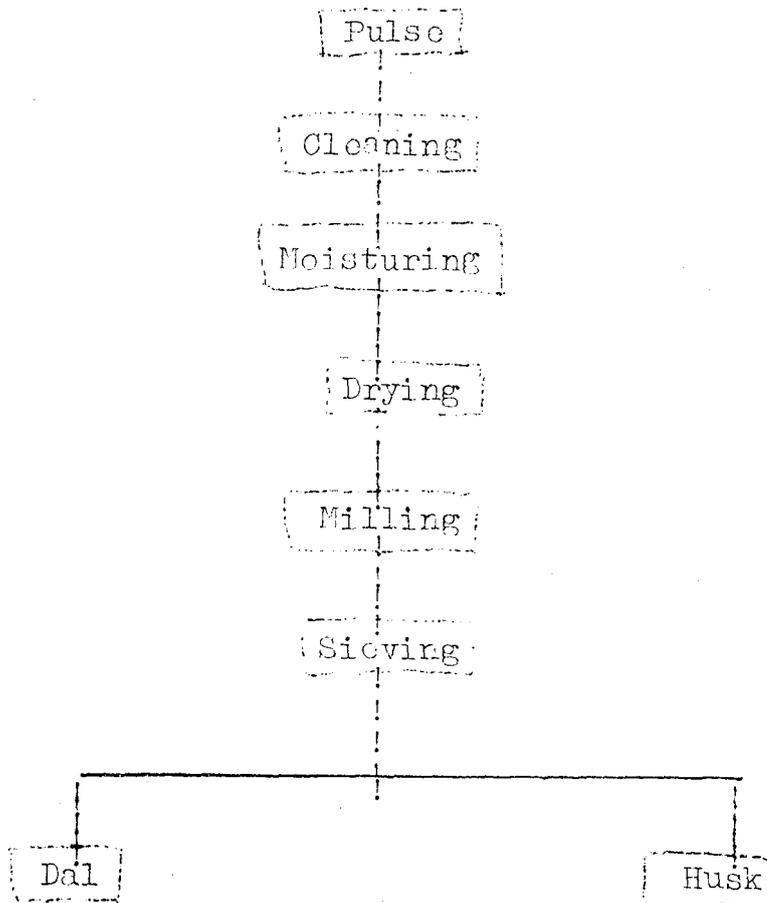
Due to shortage of pulses in the country, the Government has been taking various steps to increase the production by introducing improved quality seeds and insisted upon the farmers to cultivate pulses. It is expected that the production of pulses grains would increase considerably and there appears to be good scope for setting up Dal Mills in the pulse growing areas.

After usual cleaning; moisturing is done and it is dried for 3 sunny days; then 75% milling is done to break the outer shell. Oil mixed with water is sprinkled over Arhar; then dried in the sun for one day and milling is done to separate the dal, and husk.

Red Gram ( Masoor Dal ) :

The process is the same as mentioned above in the process of Arhar Dal.

However in the project report the raw material Gram has been taken as example for the processing of gram, the flow chart of which is given as under :



(ii) Quality specifications are

(iii) Production capacity (Per annum ) at 100% Capacity.

(a) Quantity 51428 Maunds,

(b) Value Tk. 1.8 Millien.

(i) Process Outline :

All the pulse grains ( Whole) have to be milled to remove the outer husk and then to break them into two pieces for edible purposes. For all the grain pulses the same dal mill can be used

with minor adjustment. However the pre-treatment to be done before milling varies from pulse to pulse which is as under.

Gram ( Channa ):

After usual cleaning of gram, it is moistured at 2% then dried for 4 hours thereafter 10% milling is done to break the outer shell. The broken gram is again moistured and conditioned for four hours and then the final milling is done. Thereafter it is passed through sieves of different sizes and dal, Churi and chhilka (husk) are collected from different outlets.

Green (Gram Dal):

After usual of moong, it is milled at 10% thereafter 0.3% edible oil is sprinkled on the broken moong ; then dried for 3 sunny days, after the broken moong is moistured at 5% and then dried for one day. Finally, it is moistured at 2% and milling is done to separate from churi and husk.

Production of pulses, extension services, Irrigation development will be arranged through relevant government agencies and departments various relevant nation building department will look after all of the technical aspects of the components stated above. The remaining components will be implemented through Co-operatives. Un-Processed pulses will marketed directly.

Man power Requirements :

The Project is a labour intessive one and as such about 20 persons will be employed directly on full time basis and about 15 persons will be employed indirectly.

**Marketing Analysis:**

All types of farmers are to sell a certain portion of their production and they are to sell it just after harvest, they generally do not get fair price. In order to ensure a fair price to the farmers and to store foodgrains throughout the country, the government, generally, procure paddy at a fair price. This procurement policy of the government proves inadequate and the small farmers do not get much benefit out of this.

Both local and Dhaka city markets will be used for marketing of processed pulse. Moreover some portion of north Bengal will also be served.

**Competition:**

Virtually there is no competition. Pulse is at present imported from abroad. If production can be increased, there will be reduction of import of this item to the extent of a substantial amount

**Demand and Supply Analysis:**

As per survey report of BSCIS (Bangladesh Small and Cottage Industries) there is a demand of 20 million maunds of pulses per year and there is a production of 10 million maunds of pulses only. Thus there is a gap of supply by 10 million maunds of pulses in the country.

**Prices of Raw Materials:**

Average price of raw materials will be about Tk 100 per maund finished goods i.e. processed pulse. The price will be about Tk 300 per maund.

**Recommendation:**

Considering the above facts it is recommended that the project would be a feasible one from the point or view of marketing aspects.

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Economic Aspects:

Taka in Million:

A. Net Sales at 70% Capacity-		10.00
B. Less : <u>Inter firm transactions :</u>		
Raw-materials -	3.60	
Stores and Spares-	X	
Rent & Taxes, Insurance-	0.04	
Repairs & Maintenance-	X	
Electricity & Fuel-	0.09	
Postage & Telegramme-	0.05	
Stationary & Printing-	0.05	
Selling expenses-	0.02	
Travelling & Conveyance-	X	
Misc. Expenses-	0.04	
	<hr/>	3.89
		<hr/>
		6.11
		=====

Contribution to G.D.P. (A - B) = 6.11

On implementation of the Project, there will create employment opportunities for about 20 persons directly and 15 persons indirectly.

Financial Aspects:

	<u>Incurred</u>		<u>To be incurred</u>		<u>Rs. In Million</u>
	<u>S/C</u>	<u>F/C</u>	<u>L/C</u>	<u>F/C</u>	<u>Total</u>
(a) Land development-			1.00		1.00
(b) Building including Other civil constructions			4.00		4.00
(c) Machinery and Equipment				2.03	2.03
(d) Custom duty clearing insurance etc.					
(e) Internal freight Errection and installation.			1.72		1.72
(f) Furniture & Fixture			0.20		0.20
(g) Vehicles					
(h) Preliminary and preperating (Insullation fee) expert service security deposits etc..			0.10		0.10
Contigency (3% on find cost			0.30		0.30
Total Fixed cost -			7.32	2.03	9.35
Initial working capital-			3.75		3.75
			11.07	2.03	13.10
			=====	=====	=====

Source of financing :

	<u>Incurred:</u>	<u>To be incurred:</u>	<u>Tk. In Million:-</u> <u>Total:</u>
(i) Equity -		2.62	2.62
(ii) Long term loan-		10.48	10.48
(iii) Short term loan-		-	-
(iv) Others-		-	-
Total -		<u>13.10</u> =====	<u>13.10</u> =====

Debt equity Ratio

Loan to be used for :

- (i) Construction of Building
- (ii) Purchase of machinery and for financial working capital.
- (iii) Initial working Capital assessment :

Initial workign capital assessment(At 60% effecttion):

	<u>Tk. In lakh:</u>
1. Local Row materials (1 months)-	3.60
2. Wages (1 Month)-	0.09
3. Other cash expenses(1 month)-	0.06
	<u>Total Tk. 3.75</u> =====

PROCUREMENT, STORING, PROCESSING STATEMENT OF PUSES (PRODUCTION CYCLE)

Period	Existing stock	Purchases	Total	Processed Pulse	Output		Sale		Net stock	
					Pulse	Bypro-duct	Pulse	By pro duct	Pulse	By pro duct
March 88										
1st week	..	5,000	5,000	..	..	..	..	..	5,000	..
2nd week	5,000	5,000	10,000	..	..	..	..	..	10,000	..
3rd week	10000	5000	15000	..	..	..	..	..	15,000	..
4th week	15000	5000	20000	..	..	..	..	..	20,000	..
April										
1st week	20000	4000	24000	..	..	..	..	..	24,000	..
2nd week	24000	4000	28000	..	..	..	..	..	28,000	..
3rd week	28000	4000	32000	..	..	..	..	..	32,000	..
4th week	32000	4000	36000	..	..	..	..	..	36,000	..
May	36,000	..	36000	4250	3930	320	1000	..	31,750	2930
June	31750	..	31750	4250	3930	320	1500	500	27,500	5360
July	27500	..	27500	4250	3930	320	1500	..	23,250	7790
August	23250	..	23250	4250	3930	320	2000	500	19,000	9720
September	19000	..	19000	4250	3930	320	3000	600	14,750	10,650
October	14750	..	14750	4250	3930	320	3000	..	10,500	11580
November	10500	..	10500	3500	3240	260	5000	500	7000	9820
December	7000	..	7000	3500	3240	260	10000	..	3,500	3060
January 89	3500	..	..	+2500	2310	190	5370	530	..	..
Total	36000			35000	32370	2630	32370	2630		

== Shortage of 1000 maunds about 3% of the total stock handled.

**Cost and Price Analysis of Pulses:**

**A. Average wholesale price of pulses per maund Tk 277.78**

**Cost of Pulse per maund:**

<b>i. Raw materials</b>	<b>Tk. 100.00</b>	
<b>ii. Processing and administrative costs</b>	<b>Tk. 57.50</b>	
<b>iii. Others including storing, interest on loan etc.</b>	<b>Tk. 50.20</b>	
		<b>-----</b>
		<b>207.70</b>
<b>Profit per maund</b>	<b>70.08</b>	<b>-----</b>
		<b>277.78</b>

<b>B. Consumer Price:</b>	<b>Tk. 300.00</b>
	<b>-----</b>
	<b>- 277.78</b>
	<b>-----</b>
	<b>22.22</b>

**Distribution margin: Wholesaler Tk 6 per maund.**  
**Retailer Tk 16.22 per maund**  
**(inclusive**  
**of transport)**

.....

Office and Administrative Overhead:

Estimated office and Administrative Overhead

a) <u>General and Administrative Expenses:</u>	<u>Taka In Million:</u>		
<u>Particulars:</u>	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>
Salary -	0.17	0.17	0.17
Postage & Telegram & Telephone-	0.05	0.05	0.05
Printing & Stationary	0.05	0.05	0.05
Travelling & Conveyance-			
Depreciation of Furniture & Fixture 10% D.A.	0.02	0.02	0.02
Preliminary expenses written off	0.05	0.05	
Miscellaneous expenses-	0.04	0.04	0.04
Total :	<u>0.38</u>	<u>0.38</u>	<u>0.38</u>
b) <u>Estimate selling Overhead</u>	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>
Selling Expenses	0.02	0.02	0.02
General & Administrative Overhead	<u>0.38</u>	<u>0.38</u>	<u>0.33</u>
c) Total General Administrative and selling expenses(a+b)	0.40	0.40	0.35
	=====	=====	=====

Estimated Factory Overhead

Taka in Lakhs

<u>Particulars</u>	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>
1. Utilities	0.09	0.09	0.09
2. Repairs & maintenance Machinery Building		.10	0.10
3. Stores & Spares-		0.10	0.10
4. Rent, Taxes & Insurance-	0.04	0.04	0.04
5. Depreciation on Factory Building Machinery.	0.38	0.38	0.38
6. Miscellaneous-	0.10	0.10	0.10
Total :	<u>0.61</u>	<u>0.81</u>	<u>0.81</u>
	=====	=====	=====

= : 30 : =

Cost of goods sold:

	<u>Taka in Million</u>		
	<u>Ist Year</u> 70%	<u>2nd Year</u> 80%	<u>3rd Year</u> 90%
1. Raw materials-	3.60	4.11	4.62
2. Wages	1.08	1.08	1.08
3. Factory overhead- cost of production.	0.61	0.61	0.61
	<hr/>	<hr/>	<hr/>
	5.29	5.80	6.31
4. Office 4 Admin & selling expense.	0.40	0.40	0.40
	<hr/>	<hr/>	<hr/>
5. Total Cost	5.69 =====	6.20 =====	6.71 =====

Project Income statement.

Tk. In Million:

<u>Particulars</u>	<u>Ist year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>	<u>5th Year</u>
1. Capacity Utilization 70%		80%	90%	90%	90%
2. Sales Revenue-	10.00	11.43	12.86	12.86	12.86
3. Less cost of goods produced	5.29	5.80	6.31	6.31	6.31
4. Gross profit :	4.71	5.63	6.55	6.55	6.55
5. General Adm & selling overhead.	0.40	0.40	0.35	0.35	0.35
6. Net profit before tax & Int.	4.31	5.23	6.20	6.20	6.20
7. Interest-	-	-	1.30	1.13	0.86
8. Net profit before tax	4.31	5.23	4.90	5.09	5.29
9. Income Tax-	Tax holiday for seven years.				
10. Net profit-	-	-	-	-	-
11. after tax & interest.	4.31	5.23	4.90	5.07	5.29

= : 33 : =  
32

REPAYMENT SCHEDULE OF

Loan amount Tk. 10.48

Rate 10% P.a.

Taka In Million:

No. of Instalment	Amount outstanding	Principal amount due	Interest		Total Instalment cash
			Amount		
Ending 2nd year	14.38	-	-		
3rd Year	12.49	0.89	0.67		1.56
4th Year	11.60	0.89	0.63		1.52
5th Year	10.71	0.89	0.59		1.48
6th Year	9.82	0.89	0.54		1.43
7th Year	8.93	0.89	0.50		1.39
8th Year	8.04	0.89	0.45		1.34
9th Year	7.15	0.89	0.41		1.30
10th Year	6.26	0.89	0.36		1.25
11th Year	5.37	0.89	0.32		1.21
12th Year	4.48	0.89	0.27		1.16
13th Year	3.59	0.89	0.23		1.12
14th Year	2.70	0.89	0.19		1.08
15th Year	1.81	0.89	0.14		1.03
16th Year	0.92	0.89	0.09		0.98
		0.96	0.04		1.00
					0.96

The term loan will be repaid in 16 half-yearly instalment in a period of 10 years including a grace period of 2 years; Interest during the grace period will be capitalized and will be realized within ten years.

Cash Flow

Taka In Million:

<u>Sources of fund :</u>	<u>Cost</u>	<u>1st Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>	<u>5th Year</u>
Paid up capital-	2.62					
Net profit before tax & interest		4.31	5.23	6.20	6.20	6.15
Depreciation & write off		0.45	0.45	0.40	0.40	0.40
<u>Bank Loan :</u>						
Capital finance-	10.48					
<b>Total source</b>	<b>13.10</b> =====	<b>4.76</b> =====	<b>5.68</b> =====	<b>6.60</b> =====	<b>6.60</b> =====	<b>6.55</b> =====
<u>Application of fund :</u>						
Capital Expenditure	9.35					
Deferred Revenue Expenditure	-					
Increase in current assets	-	3.75				
Repayment of term loan-		-	-	1.78	1.78	1.78
Payment of interest on term loan		-	-	1.30	1.15	10.86
<b>Total application of fund</b>	<b>9.35</b> =====	<b>3.75</b> =====	<b>-</b> =====	<b>3.08</b> =====	<b>2.91</b> =====	<b>2.64</b> =====
<b>Opening balance</b>	<b>- 3.75</b>	<b>1.01</b>	<b>5.68</b>	<b>3.52</b>	<b>3.69</b>	<b>3.91</b>
<b>closing balance</b>		<b>3.75</b>	<b>4.76</b>	<b>10.44</b>	<b>13.96</b>	<b>17.65</b>
	<b>3.75</b> =====	<b>4.76</b> =====	<b>10.44</b> =====	<b>13.96</b> =====	<b>17.65</b> =====	<b>21.56</b> =====

Balance sheet as at

Tk. In Million:

<u>Assets</u>	<u>Coms.</u>	<u>Ist Year</u>	<u>2nd Year</u>	<u>3rd Year</u>	<u>4th Year</u>	<u>5th Year</u>
1. Cash in hand.	3.75	4.76	10.44	13.96	17.65	21.56
2. Sundry Assets.		3.75	3.75	3.75	3.75	3.75
3. Fixed Assets.	9.35	8.90	8.45	8.05	7.65	7.25
4. Capitalized Interest.	-	-	3.90	3.90	3.90	3.90
	<u>13.10</u> =====	<u>17.41</u> =====	<u>26.54</u> =====	<u>29.66</u> =====	<u>32.95</u> =====	<u>36.56</u> =====

or

Equity & Liabilities:

Bank Borrowing :

Term Loan-	10.48	10.48	14.38	12.60	10.82	9.04
Paid up Capital.	2.62	2.62	2.62	2.62	2.62	2.62
Retained Earnings.	-	4.31	9.54	14.44	19.51	24.80
	<u>13.10</u> =====	<u>17.41</u> =====	<u>26.54</u> =====	<u>29.66</u> =====	<u>32.95</u> =====	<u>36.56</u> =====

Zahangir/=

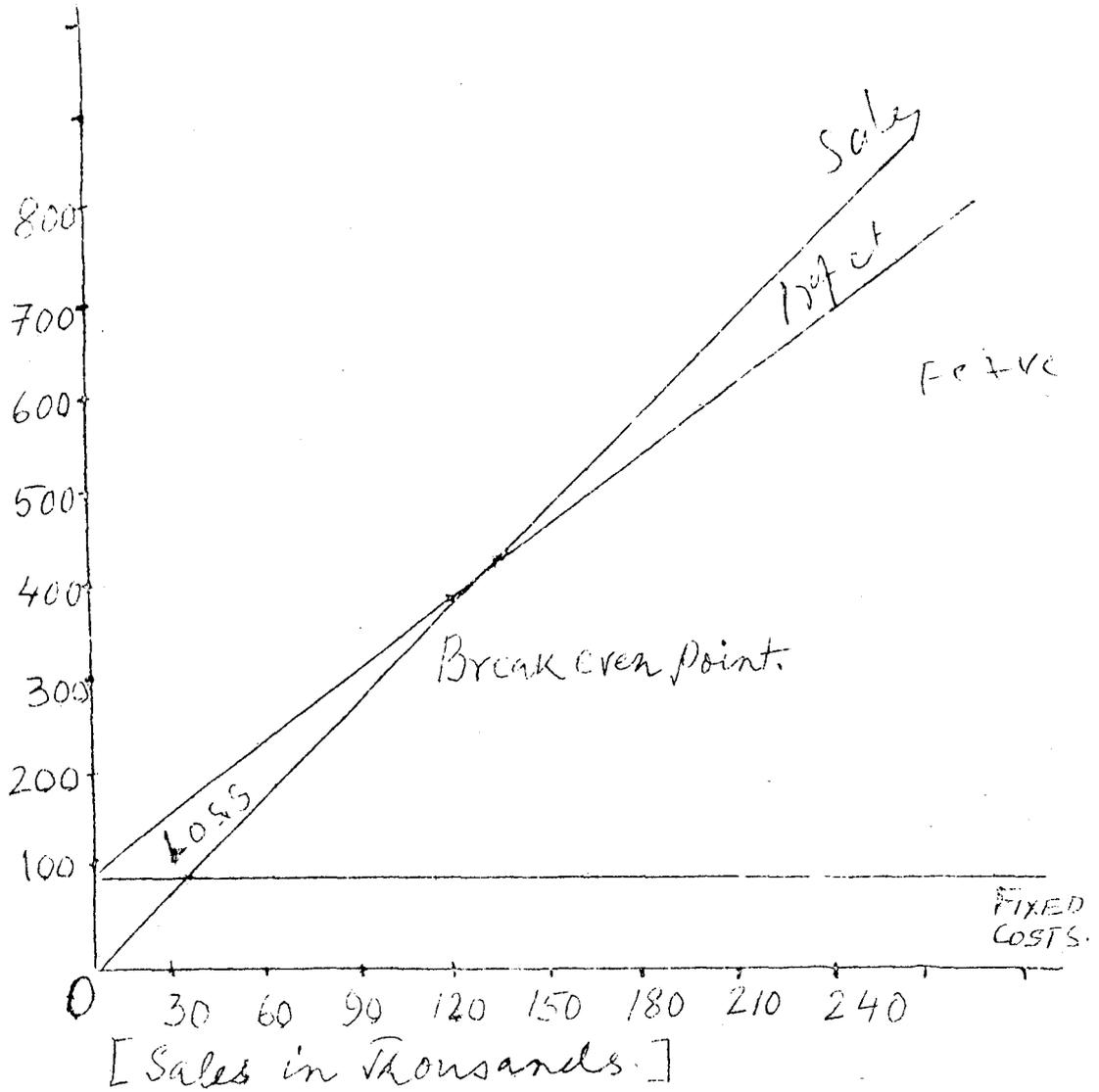
Break-even Analysis:

Taka In Million:

a)	Total sales Analysis -	10.00	
		=====	
b)	<u>Variable cost :</u>		
	Raw materials	1.80	
	Direct-	0.09	
	Utilities -	0.19	
	Stores and spares	0.10	
	Selling expenses-	0.02	
	Repairs & maintenance-		
	Others -	3.73	
		-----	
	Total Variable cost :	5.83	
c)	<u>Fixed costs :</u>		
	Depreciation -	0.38	
	Administrative expenses-	0.38	
	Interest :		
	Rent, Taxes & Insurance-	0.04	
		-----	
	Total fixed cost-	0.80	
		=====	
d)	Break-even Sales volume-		Break even point
	Break-even capacity(%)	0.80	-----
	<u>Formula for Break-even Capacity :</u>	1 - 5.83	
		-----	
	Break-even Sales	10.00	

$$\text{BEP} = \frac{\text{FC}}{1 - \frac{\text{VC}}{\text{Sales}}} = \frac{0.80}{0.42} = 1.90 \text{ million} = 19\% \text{ i.e. } 6840000$$

Income and Costs in Thousands of ~~dollars~~  $\frac{\text{dollars}}{1000}$



IN THOUSANDS.  
 Fixed Costs. : 80'00  
 Variable Costs. : 583'00  
 Total Sales. : 1000'00

Break even point. at 190.00 of Sales i.e. 1.9 million  
 19% of total sales. 19/100

CALCULATION OF IRR

Tk. In Million:

Period	Investment cash	Net Cash flow	D.F at 40%	PV. of net cash flow at	DF at 45%	PV. of net cash flow at
0	13.10					
1		4.76	.714	5.40	.689	3.27
2		5.68	.510	2.90	.475	2.69
3		6.60	.364	2.40	.328	2.16
4		6.60	.260	1.71	.226	1.49
5		6.60	.185	1.22	.156	1.02
6.		6.60	.132	0.87	.107	0.70
7		6.60	.094	0.62	.074	0.48
8.		6.60	.067	0.44	.051	0.33
9.		6.60	.048	0.31	.035	0.23
10.		6.60	.034	0.22	.024	0.15

14.09	12.52
+ 0.99	(-0.58)
<u>15.08</u>	<u>11.94</u>

$$\begin{aligned}
 \text{IRR} &= 40 + 5 \frac{0.99}{1.57} \\
 &= 40 + 3.15 = 43.15\%
 \end{aligned}$$

Important Indicators

	<u>Taka In Million:</u>		
	<u>Ist Year:</u>	<u>2nd Year</u>	<u>3rd Year:</u>
1. Returns on total investment-	33.00%	40.00%	38.00%
2. Return on fixed investment-	46.00%	50.00%	52.00%
3. Return on Sales -	43.00%	46.00%	38.00%
4. Fixed asset turn Over(time)-	1.12	1.35	1.59
5. Debt service coverage ratio-	-	-	4.68
6. Debt equity ratio -	60.40	84.46	25.75
7. IRR	43.15%	-	-
8. Break even point Tk.	1.90 and 19% Million		

4.5 4.05 Recommendations :

The proposed Project will produce pulse of especial type. The project appears to be a good one needed by the society. Financial analysis reveals that the project has an IRRS of 43.15 percent which is reasonable one. The profitability ratios are satisfactory. The Project has break-even sales at 19%. Debt service coverage ratios are quite satisfactory. considering all of these factors, the Project may be considered viable from the view point of financial aspects. The Project also has been found technically feasible. The Project may be provided with financial assistance by the bank.

MAP OF MANIKGANGA DISTRICT.

N

DHAKA CITY



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FIRST  
ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA

NEW DELHI / BANGKOK / TOKYO / SEOUL

1st November 1986 - 3rd May 1987

PROJECT PREPARED DURING HOME COUNTRY ASSIGNMENT

Project Title: , Duck Raising Project in Auxin County

Country: China

Prepared by: Mr Aiguo Guan

Funded by the Government of Japan  
and

Executed by the International Cooperative Alliance  
in collaboration with its member organisations in  
India, Thailand, Japan and the Republic of Korea.

ICA FIRST TRAINING COURSE ON STRENGTHENING MANAGEMENT  
OF AGRICULTURAL COOPERATIVES IN ASIA

1986 : 1987

PROJECT PROPOSAL ON

Duck Raising and Marketing  
in ANXIN COUNTY, CHINA

prepared by

Aiguo Guan,

Participant from China.

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2. BACKGROUND
3. PROBLEMS FACED BY THE FARMERS AT ANXIN COUNTY
4. NEED AND JUSTIFICATION FOR THE PROJECT
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7. FEASIBILITY OF THE PROJECT
8. ENFORMING OF THE PROJECT
9. CONCLUDING REMARKS
10. AN EXTRA PROJECT  
WHICH SCHEME SHOULD BE CHOSEN

SUMMARY

This project is directed at Anxin county's situation of rearing ducks which is that raisers are suffering from rising of fodder. Key question of the project is neither processing nor marketing that is to teach farmers to use a new technique which is to feather foods alive so that raisers can get profit from rearing ducks. Project chart i.e. rearing chart is as follows;

Year	No. of ducks reared by one farm household (average)	Total ducks reared by 400 farm households	Cost of per duck	Income of per duck	Net income per duck	Total net income of one farm household	Total net income of 400 farm household
First year	500	200,000	56.542	53.5175	-3.0245	-1512.25	-604,900
Second year	500	200,000	55.542	66.8425	11.3005	5650.25	2,260,100
Third year	500	200,000	56.942	54.336	-2.606	-1303	-521,200
Fourth year	500	200,000	55.542	68.175	12.633	6315.5	2,526,600
Fifth year	500	200,000	55.942	67.667	11.725	5862.5	2,345,000
Sub-total	500	200,000	280.51	310.538	30.028	15,014	6,005,600

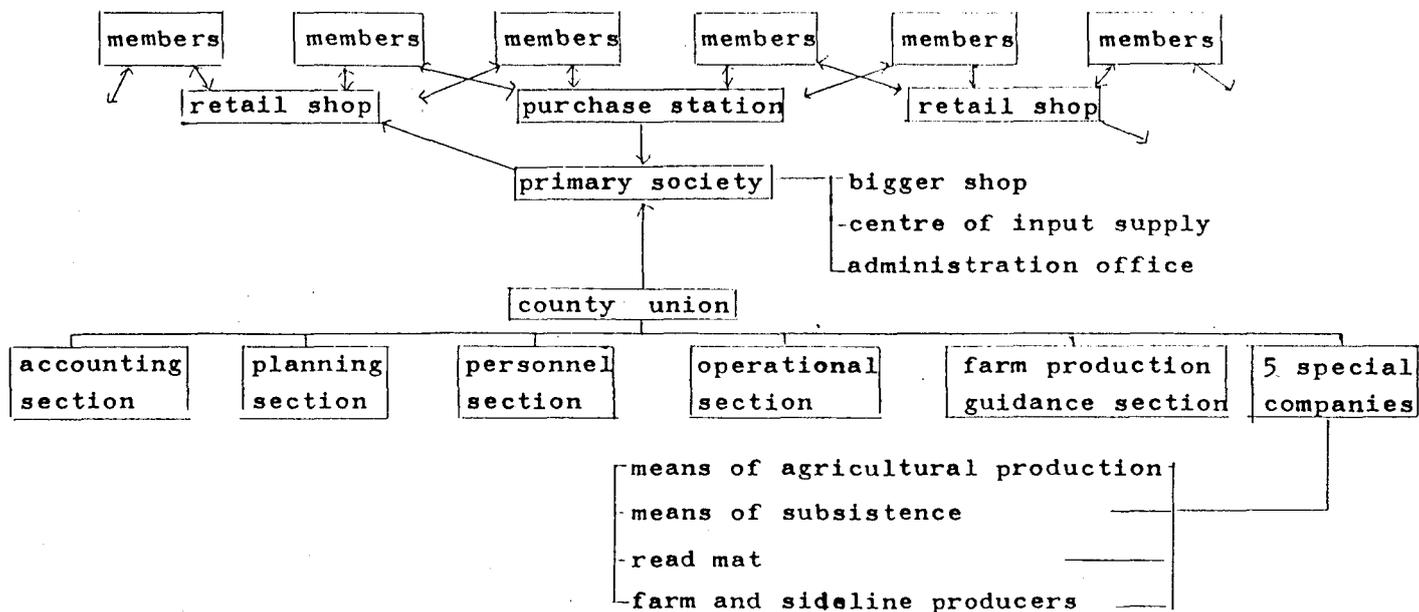
In general, Chinese farmers do not acquire the ducks in installments but they acquire the ducks at a time a full flock. Therefore, it has been proposed that at a time 500 ducks will be required and this flock will be replaced after 2½ years. So in the III years 500 new ducks will be obtained.

## BACKGROUND

Anxin County of Hebei Province is about 140 kilometres from Beijing. Its area covers approximately 1053 thousands mu, of which cultivated area of 466 thousands mu and water area of 450 thousands <sup>mu</sup> that including reed area of 120 thousands mu. Total household is 80115 with total population of 340 thousands. Anxin County not only is main reed mat-producing area in our country, but also is a place of fine breeding duck. Anxin's duck is well-known as big in body, good in prevent epidemics and adaptability and much in laying egg and down. Planting crops in Anxin, generally are wheat and corn with a output of grain of 1 billion kg a year and net income is 560 yuan per farmer in 1986. Income of farmers, basically depends on planting reed, running household industry and raising poultry because per capital yield of grain is only 280 kg and consumed by themselves.

Anxin County Union of Supply and Marketing Cooperatives consist of 20 grass root level primaries, with a membership of 69.7 thousands individual households,

making up 87 percent of total households in the whole of county. It also own 46 retail shops and 17 purchase stations of farm and sideline produce and employ 1970 staff members and workers. Organizational chart of the supply and marketing cooperatives is under;



By the end of 1986, property of the Supply and Marketing Cooperatives at Anxin is as follows;

1. Fixed capital                      4018 thousands yuan
2. Owned capital                    8193 thousands yuan  
of which funds of supporting commodity production                      64 thousands yuan
3. Share capital                      360 thousands yuan

Main business of the existing supply and marketing cooperatives of last five years is as follows.

Unit: 10 thousands yuan

Items \ years	1982	1983	1984	1985	1986
1. Purchase of farm and sideline produce	1658.6	888.4	1788.4	1693.2	1649.9
Of which: Purchase of reed mat (10 thousands piece)	325.5	167.3	350	319.2	216.7
2. Salvage of waste materials	32.7	11.9	15.6	8.6	496.8
3. Supply of inputs	427.1	483.4	557.3	464	630
4. Total sales of means of livelihood	1316.5	1747.9	1681.6	1636.7	1677.3

There are many commercial, and about 5 thousands <sup>companies</sup> private traders which run agricultural means of production, means of livelihood and farm and sideline produce besides the Supply and Marketing Cooperatives at Anxin County, but the Supply and Marketing Cooperatives all along makes an important position in the economic strategy of Anxin. It, for example, makes up about 75 percent of total supply inputs, of which 82 percent of fertiliser, 100 percent of insecticide and 31 percent of the total marketing of farm and sideline produce and about 40 percent of the total sales of means of livelihood.

## PROBLEMS FACED BY THE FARMERS AT ANXIN COUNTY

Anxin County is located at the largest fresh-water lake -- Beiyong Din in North-China Plain. As the proverb says: On the mountain one lives off the mountain, near the water one lives off the water-- one has to make use of whatever resources available. Formerly, one third income of farmers came from Beiyong Din Such as fishing, raising duck and planting reed etc.

But Beiyong Din was drying gradually after 1980 and it had dried up by the end of 1986, which brought a series of problems for farmers.

1. fishing site has been lost and output of fish reduced by a wide margin in recent years, for example, it was reduced from 4000 tons in 1979 to 1795.4 tons in 1982 to 617 tons in 1985. Direct losses of former is about 20 million yuan. Now there are about 2000 fishermen who have to go fishing on the sea or at the other places.

2. Because of lake of resources of water, quantity

One duck has two period of laying egg per year, of which, one is from March to June, the other is from September to December with a capacity of about 200 eggs. Of course, drake is necessary for raising ducks. Generally, the ducks and the drakes are in the ratio of 9 to 1. In addition, under normal conditions rate of dying of duck is by 8 per cent. Hence, on the average, laying egg of one duck per year is as follows:

$$200 - (200 \times 10\%) - (200 \times 8\%) = 164 \text{ eggs}$$

In accordance with regular circumstance, 30 per cent is sold as breeding egg at the market at 50 cents each, 70 per cent egg is processed to preserved egg to sell at 30 cents each so

revenue:

$$164 \times 30\% \times 0.5 \text{ yuan (50 cents)} = 24.6 \text{ yuan}$$

$$164 \times 70\% \times 0.3 = 34.44 \text{ yuan}$$

$$\text{total} \quad \quad \quad 59.04 \text{ yuan}$$

How much is the cost?

At the period of laying egg, it is usually mixed fodder of 200 grams of providing per duck and the other time -- the period of stopping egg, per duck only need coarse fodder of 125 grams. The cost of one duck per year is as follows:

1. Befor rising in price:

a. mixed fodder:

$$8 \text{ months} \times 30.5 \text{ days} \times 200\text{g} \times 0.23 \text{ yuan}/500\text{g} = 22.448 \text{ Yuan}$$

b. coarse fodder:

$$4 \times 30.5 \times 125 \times 0.12/500\text{g} = 3.66 \text{ yuan}$$

c. Fee of prevent epidemics, oil and electricity

charge and the other fee 13.6 yuan

d. Cost of labour 4.2 yuan

e. cost of preserved egg processed 11.48 yuan

total 55.388 yuan

2. After rising in price:

a. mixed fodder

$$8 \times 30.5 \times 200 \times 0.32/500\text{g} = 31.232 \text{ yuan}$$

b. coarse fodder

$$4 \times 30.5 \times 0.22/500\text{g} = 6.71 \text{ yuan}$$

c. the other cost is the same to before rising in price.

total 67.222 Yuan

If it is before rising in price, farmer raising duck can get a net income of 3.642 yuan each per year (total revenue of 59.03 yuan <sup>deducts</sup> ~~total~~ cost of 55.388 yuan), and now loss of 8.192 yuan.

Such being the case, it stands to reason that farmers should not raise duck.

#### NEED AND JUSTIFICATION FOR THE PROJECT

Eleven farmers who reared ducks were visited at Anxin and basic information is as follows;

No.	NAME	No. of Population	Cultivated area (mu)	Net income			No. of raising ducks before september 1986	No. of raising ducks at present
				1985		1986		
				Per person (yuan)	An average of farmers of the county	An average of farmers of the county		
1	Kong chida	5	6	814	471	-2,200	560	500
2	Li Nanming	6	9	510	471	310	560	Nil
3	Kong Wenshen	3	4.2	710	471	572	560	Nil
4	Wang Fenwu	5	9	469	471	484	560	510
5	Chen Zhi	4	6.4	472	471	493	560	Nil
6	Zhong Min Fu	6	9.4	535	471	290	560	532
7	Wang Goulen	5	7.7	528	471	604	560	Nil
8	Kong Anyen	3	3.5	718	471	318	560	200
9	Chen Wenhua	5	8.6	515	471	532	560	433
10	Zhong Huaqin	4	5.5	612	471	540	560	Nil
11	Wang Tianshen	4	6.2	584	471	462	560	Nil
Total		50	75.5	588.36	471	218.64	560	2,175

It is can be seen, these farmers crying need to be supported. For price of fodder is rised farmers want to get profit from raising ducks and condition must be changed i.e. it is not depend on income of selling duck egg only. On the other hand, in spite of the Supply and Marketing Cooperatives make an important position in farmers' farm management and living at Anxin, a series of problems also faced by the cooperatives now due to Beiyoung Din has dried up. Because the most important farm produce run by the cooperatives is reed mat, reed mat or reed production is good, the cooperatives' surplus is good, too, but the converse also true. The cooperatives practice in recent years proved to the hill that is true.

The mutual relation between cooperative's surplus and reed mat is as follows.

(Unit: ten thousands piece  
ten thousands yuan)

Items	1984	1985	1986
1. Purchase of reed mat	350	319.2	216.7
2. Marketing of reed mat	366.3	355.5	171
3. Cooperative's surplus	71.6	74.6	50.2

So, how to guidance farmers to develop production is not only related to improving of farmers' life but also related to the cooperative business itself. Moreover, it is clear that it is unable to further support farmers fishing and planting reed mat because they are limited by water condition.

#### PROJECT

So, in order to increase income of farmers and improve the quality of their life, the supply and marketing cooperative at Anxin must adopt new method to support the farmer who reared ducks i.e. to teach farmer a new technique that is feather alive.

#### 1. Scope of operation of the project

to support 400 farm households with population of 2,000 to raise ducks with number of 20 thousands.

#### 2. Objective of the project

to increase income of these 400 farm households and improve quality of their life.

#### 3. Feasibility of the new technique

in order to know this new technique in detail. Mr. Yugouhna an expert of the feather industry who works at the All China Federation of Supply and Marketing Cooperatives was visited. About this new technique feasibility is as under;

- (1) for thousands of years, Chinese farmer have slaughtered poultry for down, the new technique has been developed to feather fowls alive and farmers will no longer have to kill their ducks and geese to get down. Moreover, when farmers kill their ducks and geese, they get down only once, but if they feather fowls alive, the down grows back. Duck can be feathered 10 times a year and geese eight. Egg duck can be also feathered two to three times of utilizing period of stopping egg. So the new technique is beneficial to farmers because even number of raising ducks are not increased and income can be increased.
- (2) formerly, down articles were regarded as highclass goods they have been growing popularity in recent years with the improving quality of life of people. However quantity of down is limited and quality poor, which don't satisfy the growing demands of internal and international market for it.
- (3) the old technique not only wasted animal lives, but also destroyed part of the feathers' elasticity because the process used hot water. It was also difficult to separate the colour of down in the process. Down produce with new technique can be sold at price 30 percent higher than that produced with the old technique.
- (4) the new process also preserves the egg-producing ability of the poultry. But the new technique suit Chinese farmer's character because it can be used easily.

WHICH FORM IS THE OPTIMUM ? WHAT IS THE OPTIMUM DURATION OF RAISING DUCK ?

In order to make further identification of feasibility of raising duck at Anxin. Section of aquatic product, other business department and eleven farmers who raised ducks were visited. A good information was got that price of preserved egg is risen by 16.7%. A large amount of historical and existing materials were gathered. Through analysing a basic data of raising duck following at Anxin was mastered.

1. Anxin County's duck, generally is about 3,000 grams. An average of 60 grams of feathers can be plucked from one duck every time with rate of down by 35 percent. In accordance with current price it is sold for 3.44 yuan.
2. rate of dying of raising ducks, generally is by 7.6 - 8 percent. (following calculating according to 8 percent to be more reliable)
3. Fee of prevent epidemics, charge of oil and electricity and the other charge are 13.4 yuan each per year.
4. Labour cost of one duck per year is 4.2 yuan which includes cost of feathering of 0.2 yuan.
5. at period of stopping egg one duck basically needs coarse fodder of 125 grams.
6. There are three main forms of raising according to quantity of mixed fodder feeded by farmers at the period of laying egg i.e. feeding of 175 grams, 200 grams and 250 grams each every day, the mutual relation between quantity of mixed fodder and laying egg is as follows;

eggs periods	forms	A	B	C
		175g	200g	250g
1. First period of laying egg		48	60	60
2. Second period of laying egg		97	115	125
3. Third period of laying egg		97	115	125
4. Fourth period		88	110	115
5. fifth period		80	100	103
6. sixth period		65	85	87
7. seventh period		50	70	71
8. eight period		40	60	60
9. ninth period		20	30	30

Note. First period of laying egg is from beginning of duck first laying egg.

Since numbers of laying egg are different at different periods and different form, what is the optimum time of raising duck? Which form is the optimum?

Based on the data provided above analysed following:

If we take half a year as a **stage** of calculating, which

includes a period of laying egg and a period of stopping egg.

I. cost of Form A is :

a. mixed fodder

$$4 \text{ months} \times 30.5 \text{ days} \times 175\text{g} \times 0.32\text{yuan}/500\text{g} = 13.664 \text{ yuan}$$

b. coarse fodder

$$2 \times 30.5 \times 125\text{g} \times 0.22/500\text{g} = 3.355 \text{ yuan}$$

c. Fee of prevent epimedics, oil and electricity and the

other 6.7 yuan

d. cost of labour 2.1 yuan

Total cost 25.819 yuan

2. Cost of form B

a. mixed fodder

$$4 \times 30.5 \times 200\text{g} \times 0.32/500\text{g} = 15.616 \text{ yuan}$$

b. coarse fodder

$$2 \times 30.5 \times 125\text{g} \times 0.22/500\text{g} = 3.355 \text{ yuan}$$

c. the other cost is the same to Form A 8.8 yuan

Total cost 27.771 yuan

3. Cost of Form C

a. mixed fodder

$$4 \times 30.5 \times 250 \text{ g} \times 0.32/500\text{g} = 19.52 \text{ yuan}$$

b. coarse fodder

$$2 \times 30.5 \times 125 \text{ g} \times 0.22/500\text{g} = 3.355 \text{ yuan}$$

c. the other cost is the same, too 3.8 yuan

Total cost 31.675

If we want to know what time is the optimum by raising duck, firstly we must know how many eggs must be layed by one duck to profit. As we know, a duck can be feathered one times with income of 3.44 yuan at the period of stopping; egg, which is fixed, in addition, 30 per cent of eggs, generally is sold as breeding egg at 0.5 yuan each and 70 per cent is processed to preversed-egg to sold at 0.25 yuan each (note: deduct cost of processing of 0.1 yuan each). On an average of 0.325 per egg sold, now if we assum that eggs is X, so break-even point of a stage of three forms respectively is as follows:

1. Form A

$$\text{Break-even point} = (0.325 \times X(1-10\% - 8\%) + 3.34) - 25.819$$

$$0.2665x = 25.719 - 3.44$$

$$X = 83.6 \text{ (eggs)}$$

2. Form B

Break-even point:

$$0.2665 X = 27.771 - 3.44$$

$$X = 91.298 \text{ (eggs)}$$

3. Form C

Break-even point:

$$0.2665 X = 31.675 - 3.44$$

$$X = 105.947 \text{ (eggs)}$$

After break-even points known respectively, what is the optimum duration of raising duck can be understood such as Form A and Form C, the durations are two years, but duration of Form B is two years and a half. That is to say, the duck that is being continued to raise is to lose money if go beyond the limits of duration. This is the reason that some raiser losed money with raising ducks. Of course, it's not to say that no mather which form can get profit because number of laying egg at the first period of laying egg are all below the break-even point. Following is the income and cost of the first stage i.e. from the duckling to the end of first period of laying egg. We can make Form B as example of calculating because number of egg of Form B at the first stage is the nearest break-even point.

income : a. egg  $(60 - (60 \times 18\%)) \times 0.325 = 15.99$  yuan  
b. duck down 3.2 yuan  
19.19 yuan

cost : a. fodder  
First month 75 g  $\times 0.32/500$  g  $\times 30.5 = 1.464$   
Second month 100 g  $\times 0.32/500$  g  $\times 30.5 = 2.44$   
Third month 150 g  $\times 0.32/500$  g  $\times 30.5 = 2.928$   
Forth month 175 g  $\times 0.32/500$  g  $\times 30.5 = 3.416$   
Fifth and sixth month 200g  $\times 0.32/500$ g  $\times 61 = 7.808$   
Sub total 200 g  $\times 0.32/500$  g  $\times$  18.056 yuan  
b. Fee 6.7 yuan  
c. Labour cost 3.015 yuan  
d. duckling 1 yuan  
total 28.771 yuan  
deficit 8.581 yuan

(Note)

- 1) mixed fooder must be feeded at the first stage.
  - 2) quantity and quality of duck down is affected by the seasons, so in general feathering from duck each time can get income of 3.8 yuan in winter and income of 3.2 yuan only each time in summer.
  - 3) It is proposed to purchase duckling, 1 yuan/one duckling therefore, no cost of hatching the egg has been taken into account. So, break-even points of the raising duration each form must be computed in the light of their optimum duration
- 1 Form A            Break-even point

$$83.6 \times 4 = 334.4 \text{ (eggs)}$$

in fact, 330 eggs can only be layed per duck at the duration.

It may be seen that some farmers raising duck lose money due to unreasonable fodder is feeded.

2. break-even point of Form B

$$91.298 \times 5 = 456.49 \text{ (eggs)}$$

How many eggs can one duck lay at the duration?

$60 + 115 + 115 + 110 + 100 = 500$  (eggs). Therefore, as long as raiser use the new technique that is to feather

fowls alive and ducks are be killed to sell after raising two years and a half, who can profit from raising ducks.

3. break-even point of Form C

$$105.947 \times 4 = 423.788 \text{ (eggs)}$$

number of laying egg at the duration is 425 eggs. though form C can get profit, it has only a meagre profit.

To sum-up, Form B is the optimum. How many profit can be got by Form B?

$$500 - 456.49 = 43.51 \text{ (eggs)}$$

$$(43.51 - (43.51 \times 10\% + 43.51 \times 8\%)) \times 0.325 = 11.5954 \text{ yuan}$$

In addition, a duck will be killed to sell which can get money

of 4,416 yuan at the ending of the duration in accordance with current price and it's weight. Duckling cost of 1 yuan is deducted, so total profit of raising duck is;

$$11.5954 \quad 4.416 - 1 = 15.0114 \text{ yuan}$$

$$15.0114/2.5 = 6 \text{ yuan}$$

Profit of one duck a year is 6 yuan on an average.

If one farm household raise 5 hundred ducks in the lights of Form B, he can get net income of 3,000 yuan a year. Which is a considerable income to Chinese farmer.

Thus it can be seen rearing duck is profitable business to farmers. Key question is to teach farmers to use this new technique that is to feather fouls alive.

Note: A size of raising ducks is determined by water area owned by farmers. General speak, appropriate size is to raise 5 hundred ducks in accordance with farmer existing technique and production.

#### FEASIBILITY OF THE PROJECT

This project is feasible because there are some reasons following:

1. It fits into and supports Anxin County's development strategy. At the period of seventh-five years plan, Anxin county's development strategy includes; a) to repair Beiyong Din, b) to support farmers raising duck, c) to strategy management and construction of reed area, d) to develop the household industry.
2. It is unnecessary that fixed assets and other assets are increased due to duck cotes, machine and other tools were preserved.
3. It is not in need of much money invested. In general, raising 500 ducks only need investment of two thousands yuan. At the same time, favourable policy of agricultural bank of China is provided to farmers raising poultry with loan intrest reduced by 28.7 percent than other side occupation.

(Note: raising poultry is belong to side occupation in our country)

4. The Union own a duck farm in which there is a hatch shop with a capacity of 20 thousands duckling. It can help some raisers who have difficulty of hatching oneself.
5. At present, duck products which includes breeding egg, preserved egg, down are all in short products besides duck meat.  
(Note: Chinese farmers, particularly North-China farmers p  
chicken to duck meat)

#### ENFORMING OF THE PROJECT

In order to understand farmer's idea about this project, seven farmers who raised ducks were visited. Some of them are willing to raise ducks if the cooperative helps them to grasp the new technique and some doubt the new technique's feasibility and afraid of failing again.

How to put the project into practice ?

#### 1. Steps will be taken

Several appropracial steps will be taken to enforce this project in accordance with existing circumstances.

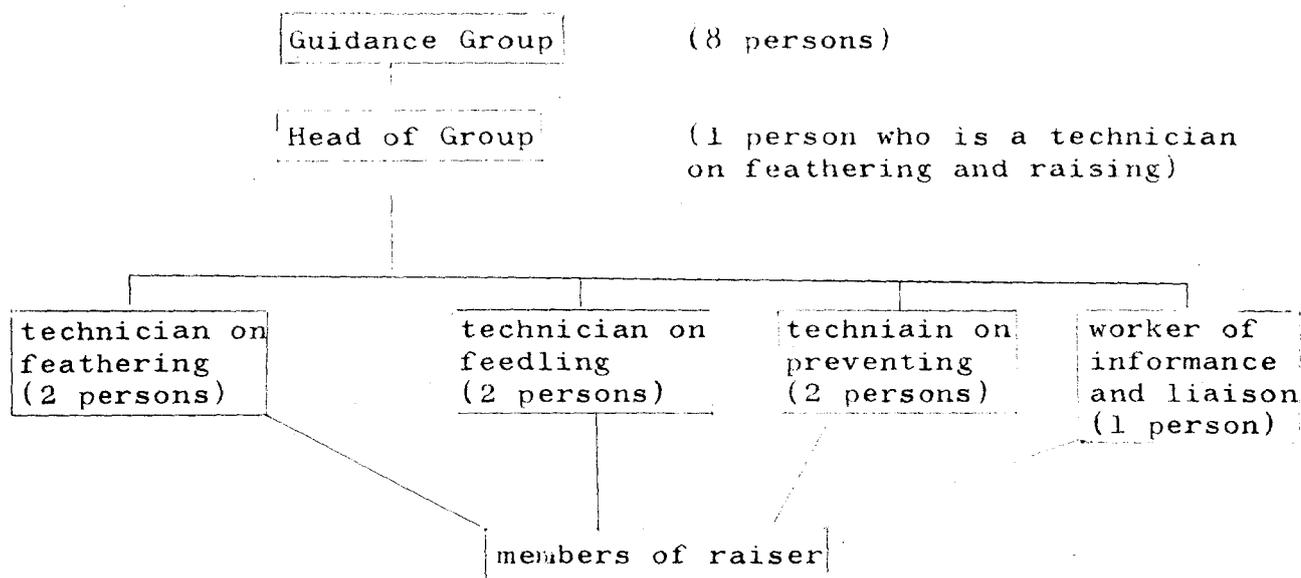
- a. Two training classes this year will be conducted in the coope-ratives duck farm in which about one hundred farmers will be provided with the new technique that is to feather fousls alive. Meanwhile, five hundreds of materials on it will be printed for farmers.
- b. to lay emphasis on supporting several households raising duck this year and let them play an exemplary role because Chinese farmers were affected by feudalistic ideology and it is not easy that let them accept a newly emerging things. So the Union should make use of the experience of a certain unit to promote work of the whole area.

It's expected in the next year about four hundreds farm households will be organized to raise duck with ducks of more than 200 thousands and on an average increasing net income about 1200 thousands yuan per year. These four hundred farm households with total people of 2,000 or so will be canalised to move towards to rich.

## 2. budget and organisation

For the sake of attaining it's goal, 10 thousands yuan which is provided to education and materials with free of charge for farmers will be invested by the Union of the Supply and Marketing Cooperatives.

"Guidance Group of Raising Duck" will be reorganised to teach farmers to feather from the birds, to canalize raiser to feed reasonably to prevent epidemics at the union. "Guidance Group of raising duck" chart is as below.



## 3. Supply and Marketing

At the same time, the operation section of the union will supply a part of fodder that shouldn't be bought by raisers themself and purchase some duck products when the problems of selling duck products faced by farmers.

If we make eleven farmers noted former as example, their income in 1988 is in comparison with other farmers as follows;

Name	No. of raising ducks in 1988	per person net income (yuan)	strategy target of Anxin county (yuan)
1. Kong Chida	1,000	1,471	700
2. Li Nanming	500	878	700
3. Kong Wenshen	500	1,320	700
4. Wang Fuhua	500	880	700
5. Chenzhi	500	910	700
6. Zhong Minfu	800	860	700
7. Wang Guolen	500	943	700
8. Kong Anyen	500	1,150	700
9. Chen Wenhua	500	925	700
10. Zhong huagin	500	940	700
11. Wang Tienshen	500	920	700

#### CONCLUDING REMARKS

On February 7, 1987, Kong Chida, a raiser was taught to feather fowls alive who is first farmer in Anxin to use this technique, that time he plucked 31 kilograms of feather from ducks and sold them for 1785 yuan. Lately, he was told this ducks is doing well and he is planning to enlarge his size with raising ducks of one thousands.

Yu Guo-hua who is an expert of feather industry planned to go there in person teach farmers to feather fowls alive. The broadcast station of Anxin agreed to propagating this new technique.

Next objective of the Union will set up a factory to process duck down and manufacture down garment because rate of profit by 13 percent to 32 percent can be got from processing of duck down and making of down garments. Assumption 500 thousands down garments can be manufactured a year, in general gross output value is about 30 million yuan and profit is about 900 thousands yuan. Moreover it is only need investment of 1 million yuan, of which

1. site and building 300 thousands yuan
2. machinery and other facilities 300 thousands yuan
3. current capital 400 thousands yuan

This item could not be finalised due to manufacturing technique and facilities with limited. Meanwhile we are warm welcome that cooperativing granted by Japan and other countries particularly in the field of technique. If these key questions could be solved, this item has a bright future.

Note: 1 mu = 0.067 hectare = 0.1648 ac  
1 yuan = 0.27 US dollar = 41 yen  
1 yuan = 100 cents

AN EXTRA PROJECT

In order to help some peasants who want to be rich but haven't got better way and provided the good duck for the members. Anxin county ~~the~~ Supply and Marketing Cooperatives invested 100 thousands yuan to have set up a duck farm and a forest farm in 1985. They employed one manager and absorbed eight members of farmer. By the east-  
~~the~~ side of forest farm, there are uncultivated land which is over 40 mu. They haven't been utilized but it is difficult that individual farm household cultivate them. At the end of last year, the Union consult the Village Committee and decided to rent the wasteland. The duration will be 15 years. The condition is to pay the land charge of one thousands yuan a year.

What should be done for the 40 mu? The County Union have already discussed. But there are two main points of view. One suggestion is for planting the fruit trees, the other view point is to dig fish pond for fish culture. But most of them thought a high efficiency can be

achieved for fruit trees. What on earth should be **chosen** ?

It happens that I was in Anxin and they hoped me to make a comments. In order to help them make a proper selection I have analysed following :

First, to compare the market of **these** two products.

This county is a lake area, so they haven't got substantial fruits. A great deal of fruits here to

It is estimated that fruits flowing in account for 33% of the consumption. Aquatic products are even the same because there is no water in Bai Young Din Fallow lake. The fish output are dropped down dramatically. Now the Consumption of the fish by 21 per cent rely on the import from other area. So both products have the potential markets.

Second, the funds' comparision. No matter which scheme to be chosen, the investment couldn't be over 100 thousands yuan. The financial problem can be solved partly

through the **supporting** production Funds of the cooperative or applying for loan from Agricultural Bank of

china. Meanwhile, it is unnecessary to set up any buildings because it is not very far from the duck farm and the forest farm.

third, about technology. Planting fruit trees or raising fish, technology are not used much, and still there are nine technicians in the cooperative on fruit trees, raising duck, fishculture etc.

Under these circumstances, which scheme is chosen depends on their economic efficiency and income's increase of the members.

first of all let's take a look at the schemes of planting peach trees:

The land of 40 mu can plant 1000 peach trees, but it can be harvested five years later. Suppose the output of each tree is about 75 KGs annually. Now the purchase price is C.70 yuan/kg. The main investment of this scheme are as follows:

1. Fixed assets	21,500 yuan
a. digging pit	500 yuan
b. sapling	1,000 yuan
c. digging on well	10,000 yuan
d. machine and tools etc	10,000 yuan
2. Current assets per year:	2840 yuan
a. fertiliser	1600 yuan
b. watering	240 yuan
c. incidesides	1,000 yuan
3. Cost of labour per year	3,840 yuan
4. rent of 40 mu land	15,000 yuan
Total cost of 15 years:	136,7000 yuan

how many revenue can be got by 15 years?

Output of peach trees is as follows:

$$1000 \text{ trees} \times 75 \text{ KGs} = 75,000\text{KGs}$$

$$75,000 \times 0.70 \text{ yuan} \times 11 \text{ years} = 575.5 \text{ thousands yuan}$$

*Total profit*  $575.5 - 130.7 = 440.8 \text{ thousand yuan.}$

If they chose the scheme which plant peach trees, They

can get profit of 440.8 thousands yuan in 15 years.

How about the scheme of digging fish pond for fish culture? The main investment of this scheme are as follows:

1. Fixed assets	90,000 yuan
a. digging fish pond	60,000 yuan
b. digging two well	20,000 yuan
c. machine pipe and fish tools etc	10,000 yuan
2. Current assets	25,500 yuan
a. fry per year	2,500 yuan
b. diesel oil	18,000 yuan
c. bait feeds	5000 yuan
3. cost of labour per year	2,880 yuan
4. pent of 40 mu land	15,000 yuan

Total cost of 15 years of this scheme: 530,700 yuan

If they chose the scheme, by estimate, the fish output of each mu per year is about 350 Kgs, of which 80 percent of carp. Now the purchase price of carp is 4.4 yuan/Kg and general fish is 1.6 yuan, on an average, the purchase

price of 4 yuan/Kg.

Total revenue of the scheme of raising fish is as follows:

$$350 \text{ Kg} \times 40 \text{ mu} \times 15 \text{ years} \times 4 \text{ yuan} = 840,000 \text{ yuan}$$

$$\text{Total profit} = 840,000 - 530,700 = 309,300 \text{ yuan}$$

(Note: some elements haven't been taken into consideration for these two projects' calculating. a. depreciation of the Fixed capital haven't been calculates. But there is no influence for the counting method because the time is fixed. b. One thing is very difficult to evaluate that is the price. We only suppose that the prices are stable or rising up at the equal proportion. c. the selling of the products on increasing the income for the members and cooperative haven't been considered because both products are sold by cooperative.)

Of course, if we make a choice compared with these two projects: We prefer planting fruit trees to raising fish. I draw inspiration from Thailand Cooperatives. If we make full use of the water surface of 40 mu for raising ducks,

Using duck manure fish, don't you think this is a benign circulation and can bring even greater efficiency? At the same time, the peasants here have the customs of raising the duck. So I have designed another scheme for them. the total net revenue of this project is as follows:

1. raising fish 309,300 yuan

2. Using duck manure raise fish which can save bait feeds of 4,000 yuan per year. The total saving of 15 years is:  
 $4000 \times 15 = 60,000$  yuan

3. 2000 ducks can be raising at 40 mu water area according to raising 50 ducks per cent mu. Six groups duck can be raising to according to one duration of two years and a half in 15 years.

The total net income is:

$2000 \times 6 \times 16.115 = 193,380$  yuan

If they choose this project that I designed for them, they can get the total profit is as follows:

$309,300 + 60,000 + 193,380 = 562,680$  yuan

By all appearances, this project is the more advantageous than the preceding projects of planting fruit tree and raising fish pusely, but choosing this project can more absorb member of 10 farmers.

Finally, they all agree to choose the project that I designed for them.

FIRST  
ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA

NEW DELHI / BANGKOK / TOKYO / SEOUL

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PROJECT PREPARED DURING HOME COUNTRY ASSIGNMENT

Project Title: Fruit Processing Factory in Guan  
County

Country: China

Prepared by: Mrs Xinzong Liu

Funded by the Government of Japan  
and

Executed by the International Cooperative Alliance  
in collaboration with its member organisations in  
India, Thailand, Japan and the Republic of Korea.



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1. Summary

Basing on the investigations about the agricultural production and the performances of the primary supply and marketing cooperatives as well as their county union in Guan county, the suggestion is made that a fruit processing factory should be established, which is owned by the supply and marketing cooperatives of the Guan county.

The proposed processing factory is expected to play anchor role in promotion of fruit production, marketing and processing, in order to increase the farmers' income.

The proposed factory is intended to achieve the better economic result on the relatively lower investment cost, so the local condition, such as natural resource and manpower resource, should be fully considered.

In Guan county, the annual production of fruit amounts to 20,000 Tons and vegetable 75,000 Tons that are mostly sold in the market soon after the harvests.

The proposed factory will process annually 1648.5 T fruit into tinned fruit, juice, jam and preserved fruit and process 1149T vegetable as supplement, the total output after processing per year reaching 2014 T.

The proposed processing factory is recommended to be

erected in a site located in the town of the Guan county, occupying 15600 M<sup>2</sup>. The proposed place for the processing factory is connected with the highway and belong to the cooperative, which will reduce the investment cost of purchase land.

The proposed processing factory is composed of a weigher house, a energy center, two storage cellars, two workshops, one warehouse, one garage, equipped with required facilities and processing lines. The total investment will be 1435.5 thousand Yuan.

It is estimated that the total annual sales will amount to 3,972,138 Yuan, generating net profit of 222,866 Yuan ( after the income tax ). It is proposed to rise 11% profit over aggregate profit of the supply and marketing cooperatives in Guan county, as the figure shows that the profit in 1986 from the cooperatives is 1.83 million Yuan.

The proposed processing factory will be applied demoncratic control and manager responsibiliy. The SMC Fruit Production Committee composed of board members of county union, the factory, primary societies and growers decides the management police, while the manager should submit the working report regularly.

The farmers who make the contracts with the processing

factory to sell their produce to it, are organized into groups by the primary cooperatives, which will ensure them with inputs supply, provide farm guidance, procure and transport fruit and vegetable to the factory. Meanwhile, they will return a proportion of profit to the contractors on behalf of the processing factory.

## 2. Background

### 2.1 Overall Situation

The recent years have seen a big development in fruit production in China. The national statistics show that total area of fruit plantation has been expanded from 199.7 million ha. in 1981 to 273.6 million ha. in 1985 and the output has increased from 78.01 million Tons in 1981 to 116.39 million tons in 1985.

The changing situation in fruit production and marketing is characterized and summarized as following:

a) The economic reform policy of the government relieved the price control on fruit procurement, wholesale and retail and allowed private traders and other departments to handle fruit trade business, which used to be monopolized controlled by the supply and marketing cooperatives on procurement and wholesale.

b) Keeping with the increasing demand of the fruit consumption, the fruit selling price doubled during five years, which stimulates farmers to grow fruit trees and develop fruit production.

c) Since the agricultural responsibility system was adopted

in Chinese rural area, the fruit production reduced the management size to the farmer groups or to the farmer households, without changing the collective ownership of orchard. The farmers make the contracts with the village committee to run the orchard during the fixed term generally lasting 15 to 30 years.

d) As the result of changed management method, the farmers have incentive to promote fruit production, because the visible economic benefits are closely linked with their work. On the other hand, many individual farmers lack skill and knowlege on fruit cultivation to create high yield, particularly in the villages where the whole fruit trees are equally allocated to every household. The better method seems that a group farmers who have the fruit cultivated skill contract the orchard with the village committee.

e) The abundant harvests of fruit always bring about the problems, such as shortage of transport, storage and processing facilities and lack of marketing information, which cause a large quantity of waste. Even though in the ordinary condition, the wastage ratio of marketing fresh fruit is 14 percent.

f) Though the suoply and marketing cooperatives reduced

their share of fresh fruit procurement in the overall market, they have been setting up many cold storages and processing factories and increase the transport facility.

## 2.2 Area of the Project

The Guan county is located in the Huabei plain of Hebei province with the agricultural population of 327 thousand formed <sup>into</sup> 69,588 households. The total cultivated land is 43,788 ha., of which the fruit area is 3,968 ha, accounting for 9 percent of total cultivated land. The variety of fruit produces are apple, pear, peach apricot, hawthorn, jujube and strawberry and the output in 1986 amount to 21,216 tons.

The Guan county is divided into 16 townships, among which the output of fruit in 8 townships is above 1,000 tons. In the most of these places with large area and high yield of fruit trees, dozens of fruit trees are allocated to every household; in other places the fruit trees are managed by the group of farmers.

Each township has a primary supply and marketing cooperative (SMC), altogether 16 cooperatives being the membership of the Guan county union. The functions of the SMC is to supply farmers with farm inputs and consumer goods, provide farm guidance

and marketing farm products. The SMCs initiated industrial and processing occupations in recent years and 65 processing workshops are being operated, employing 352 workers.

The SMC appropriated 710 thousand Yuan loan without interest to support fruit production. 6 agronomists specialised in fruit production are employed by the SMC, giving farmers fruit production guidance. They run training courses every winter without any charges.

The SMC in 1986 supplied 167 tons fertilizer and 8.65 tons pesticide used in fruit cultivation, and marketed 2,000 tons fruit. They are planning to market 5,000 tons fruit in 1987. The area of the indigenous cellars for storage fruit is 1791 M<sup>2</sup> with 440 tons capacity.

### 2.3 Problem Faced by Farmers

a) It indicates low productivity of fruit production by the fact that per hectare output in this county is 5.8 tons, which should be 3 to 4 times higher than that.

b) Though the irrigated land of the county accounts for 80 percent of total cultivated land, only 15% of fruit land can be irrigated. The growers are short of long term loan and organization to initiate the irrigation project.

c) Many farmers lack fruit cultivation skill, such as pruning and applying fertilizer and pesticide.

d) Few farmers store fresh fruit, even using the indigenous cellars and they are lacking transport facilities. As the local SMCs market 10 percent of their total output, farmers mainly depend on the traders from outside to market fruit. The price of the fruit purchased in the field is one half in the retail markets that is only 40 km away in the peak season. In the slack season 3 months after harvest, the price of fresh fruit is going up 3 or 4 times.

c) there is no fruit processing factory in this county. Farmers every year buy large quantity of processed fruit products transported by the SMCs from outside.

#### 2.4 Need and Justification for the Project

The Guan county is rich in fruit resource, but it has not brought more benefit than that they sell fresh fruit soon after harvest. A fruit processing factory supplemented by processing vegetables are suggested to be established.

a) The farmers' annual consumption in processed fruit products in Guan county amount to about 375 tons, which all are purchased and transported by the SMC from other places.

The proposed processing factory will provide the processed fruit commodities at lower price, because of **saving** transport fees.

b) Though the cold storage can add the value of fruit, it may need higher cost of investment and sophisticated technology. The annual capacity of this proposed factory need raw materials 1618.5 tons fruit and 1149 tons vegetable, generating net profit 222,866 Yuan. It means after the processing per ton of fruit and vegetable on average will increase value by 73.15 Yuan. In fact, the local growers will be refunded: profit without any additional cost.

c) The raw material 21618 tons fruit the proposed factory need accounts for 8% of the annual output of this county. The fresh fruit still has good market in most cases, so the focus of procurement is <sup>based on</sup> ~~in~~ 8 townships where the annual output of each is below 400 tons. Low quality fruit in these newly developed areas makes farmers loss good markets, as the traders are reluctant to purchase fruit from there. A part of low quality fruit can be collected by the factory for processing fruit juice and jam, of which the output is 1100 tons per year.

d) Over 80 percent of finished products are supposed to sell ~~be sold~~ out of this county. The survey dose not show the sale problem, as there is no fruit processing factory in this district

and big cities Beijing and Tianjing are 50 km away.

For example, in Beijing 3,600 tons preserved fruit per yera is purchased from outside places for city consumption.

### 3. Project

3.1 The objectives of this proposed processing factory are aimed at:

- a) To fully utilize the local resource processing fruit and vegetable, in order to increase farmers' income.
- c) To meet the local demand on processed fruit consumption.
- c) To increase the SMC's economic and financial power for further support fruit production.
- d) To strengnen the horizontal integration by developing the linkage between the primary cooperative society and farmers, such as procurement, inputs supply and farm extension
- e) To strengten the vertical integration by developing the linkages among the county union, processing factory, primary societies and farmers.

### 3.2 Area of Operation

The operation of the project mainly covers 8 townships with total fruit area 557ha. and total output in 1986 amount to 2080.41 tons.

*with 38 village  
to 58 households*

Name of township	Area of fruit ( hectare)	<i>gross yield</i>	Output (ton in 1986)
Suqiao	93	5	217.1
Liuquan	113.9	7	305.9
Pongcun	60.7	5	330.3
Nioutou	53.2	5	225.9
Qugou	64.6	5	287.5
Duliu	28.1	2	205.96
Mazhuang	121	8	294.9
Lirangdian	22.8	2	212.85
	<u>557.3</u>	<u>38 (110 gross yield)</u>	<u>2080</u> 4/1

These townships are all newly developing their fruit production and backward cultivation skill cause low output. The management method is most in the way that the farmers' group contracts the orchard with the village committee.

### 3.3 Project Components

The proposed processing factory needs fruits as raw materials, of which:

apple 638 T, pear 429 T, peach 186 T, apricot 171 T, hawthorn 212.5 T, jujube 40 T.

The output of 8 townships:

apple 874 T, pear 433 T, peach 351 T, apricot 193.76T, hawthorn 227 T, jujube 1.5 T.

These shows that the fruit output from the 8 townships can basically meet the requirement of the processing factory.

a) The processing factory in the beginning of the year

make the procurement contracts with the primary SMCs, then the primary societies make the contracts with the farmer groups, as the primary societies are familiar with the local fruit production. There are 38 farmer groups in the 8 townships which are responsible for their villages' orchards.

b) The SMC's agronomists will help the 38 farmer groups to set their cultivation schedule and performance records giving them detailed farm guidance, according to their different land conditions and tree ages. The training course will be run every year.

c) The primary SMCs ensure the fertilizer and pesticide supply to these 38 farm groups for fruit production. In special case they can sell them on credit and the payment can be realized after the sales of fruit.

d) During harvest, the farmers pick fruit and put into the standard woven baskets which are prepared by the factory. The first sorting is done in the field before packing. Every primary society has one lorry, which can directly transport fruit from field to the factory. The road is good enough for lorry to every village and the farthest way from village to the factory is about 30 km.

e) Every basket of fruit is weighed before transport. The staff of the primary society will check fruit quantity and

quantity and tie a label on each basket showing weight, grade and variety. The expenses of container and transport are paid by the factory, which are calculated into the production cost.

f) The SMC county union owns a transport team with 54 lorries that can help to transport fruit in peak season.

g) When arriving to the processing factory, the fruit quality and quantity are rechecked in the weigher house, on which the payment is realized by the factory through the primary society to the farmer groups.

h) The good quality fruit can be processed into tinned fruit and preserved fruit, while low quality is processed into jam and juice. The juice can be further made into different soft drinks.

i) The working days of processing spread whole year around, so as to fully use the capacity and save storage. The finished products consist of 5 varieties and 5 kinds of vegetables as supplementary raw materials can be easily collected from the field nearby.

j) The net profit estimated 222 thousand Yuan per year from processing can be distributed in the way decided

by the county fruit production committee. The suggestion is made as following:

- 40 percent is refunded to the farmer groups.
- 30 percent is for the factory to expand production.
- 30 percent is used for investment in fruit irrigation and land improvement projects organized by the primary societies.

#### 4. Detail of Operations in the processing factory

##### 4.1 Storing

There are two storages in the factory, one underground storage for apple, pear, hawghorn and part of vegetables, one ice storage for apricot, peach and strawberry.

Underground cellar: length×width×high= 35×18×16

under ground 15 m

pillars support every 5 m in the center ~~line~~

line.

The ceiling is covered with mat, rice straw and soil 0.6 m thickness. The temperature is keeping 4°c.

The ice cellar is the same size as the underground cellar, but filled with ice blocks during the winter and sealed for summer use.

The factory storage cannot meet the needs in peak season,

but the other SMC's cellars near the county town can be used.

#### 4.2 Sorting

All fruits are sorted before processing by hand work into 3 grades. The first grade fruit is processed into tinned fruit: the second grade into preserved fruit, and third grade into jam and juice.

#### 4.3 Processing lines

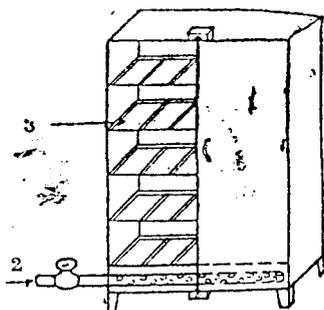
There are two workshops in the factory one equipped with tinned fruit and preserved fruit processing lines, the other equipped with fruit jam and juice processing lines.

Tinned fruit processing line

sorting → washing → cutting → oxygen proof process →  
boiling → weithing → containning → adding sauce →  
air extracting → sealing → checking

The main facilities:

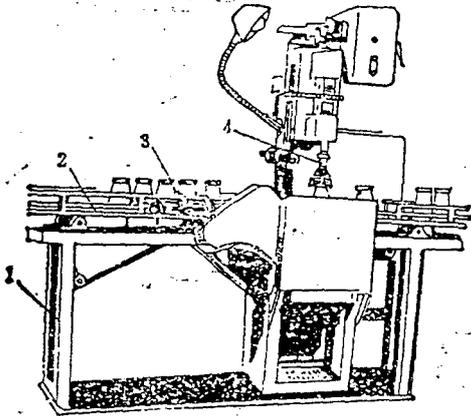
- a) washing bottle machine
- b) air extract box



- 1) door
- 2) steam enter
- 3) frame

c) sealing machine

capacity: 42 tins/ munit



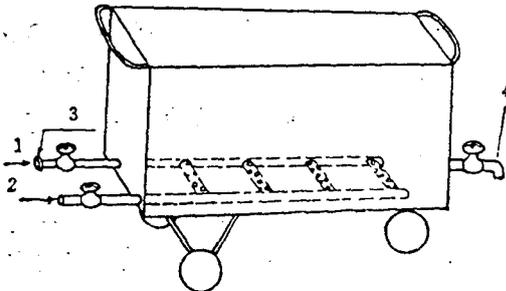
d) germicide machine

1) steam

2) water enter

3) joint

4) water out



The preserved fruit processing line

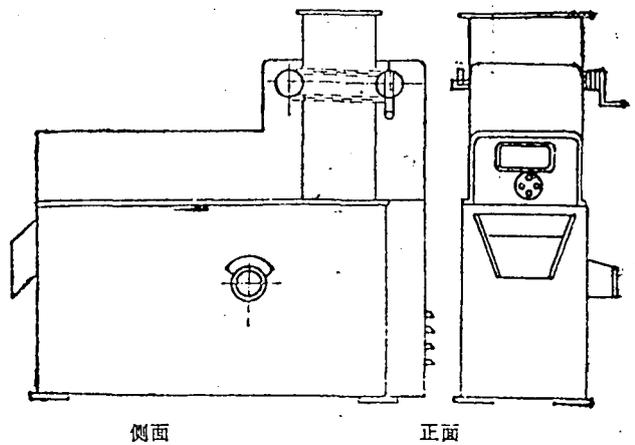
sorting → cutting → hardprocess → washing → sugar soaking →  
sugar boiling → sugar soaking → baking → check

The jam processing line

sorting → washing → pit out → boiling → cutting → liquiding →  
adding → concentration → containning → germcide → check

The main facilities:

- a) cauldron      b) liquid machine      c) sealing machine
- d) germicide machine



the liquid machine  
to break fruit into  
liquid

侧面                                  正面  
图12 GS20多功能水果破碎机外形图

The juice processing line

pressing → filter → hot process → centrifuge → centrifuge →  
composition → filter → germicide → containing → check

The main facilities:

- a) juice press machine

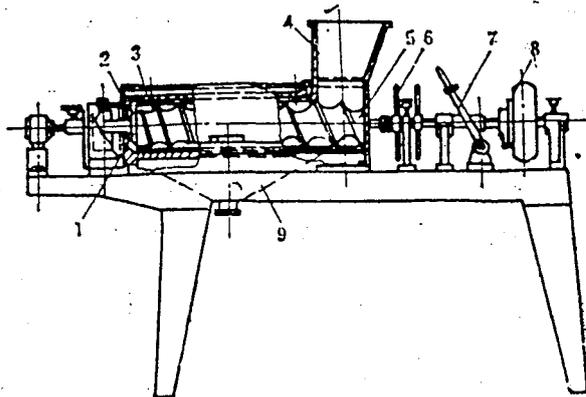


图25 GT, G, 型螺旋连续榨汁机

- 1. 螺杆锥形部分    2. 螺杆锥形部分与圆筒之间的空隙    3. 圆筒    4. 料斗
- 5. 传动轴    6. 传动轴上的零件    7. 把手    8. 皮带轮    9. 锥形收集斗

## b) germicide machine

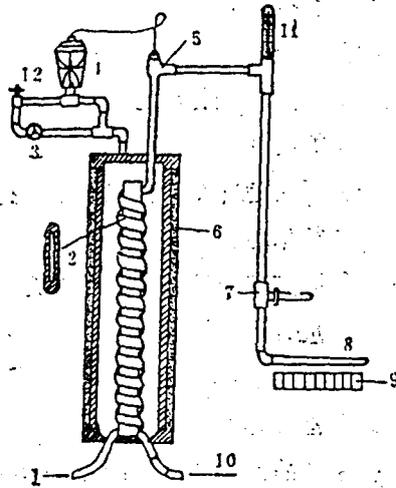


图27 巴氏瞬时杀菌器

- 1.果汁入口 2.果汁管断面 3.支管阀  
4.调节器 5.球心阀 6.绝缘物 7.果汁调节阀  
8.果汁出口管 9.罐(或瓶) 10.蒸气出口  
11.温度计 12.蒸气入口

- 1) juice enter  
2) juice exit  
3) bottle  
4) steam exit  
5) steam enter

## The soft drink processing line

water → filter → germicide → frozen → CO<sub>2</sub> water mixture  
juice → filter → composition → mixture → watering → cover →  
check

## The quality standards:

- 1) weight + - 3%
- 2) Sugar sauce consistency on the tinned fruit: 14% to 18%  
Tinned jam sugar consistency: 50%
- 3) PH of the tinned fruit 3 to 4.3
- 4) Per kg Tin lower 200 mg, copper lower 10 mg, Lead lower 2 mg
- 5) Meet germicide standard.

The finished products are temporarily stored in the warehouse for sale.

THE PROPOSED OUTPUT PER YEAR ( ton )

	juice	jam	tin	pre. fruit
apple	340	170	120	40
pear	120	60	100	35
strawberry	240	200		
hawghron		30	60	45
apricot			60	30
peach			60	30
jujube				30
tomato		120		
wax ground				20
sweet potato				48
carrot				56
total 2014	700	580	400	334

THE RAW MATERIAL CONSUMPTION PER YEAR (ton)

	juice	jam	tin	← preserved	Total
apple	408	134	132	64	738
pear	144	70	110	105	429
strawberry	240	80			320
hawghron		40.5	74	98	212.5
apricot			66	105	171
peach			66	120	186
jujube				40	40

	Juice	Jam	Tinned fruit	Pre. fruit
apple	70	125	90	62
pear	85	85	90	35
strawbery	100	250		
Hawthorn		75	82	50
Apricot			90	30
Peach			90	25
Jujube				75
Tomato		90		
Wax gourd				85
Carrot				85

- 2-6-1 Referring to Table 2-6-1 page 19A.
- 2-6-2 The strawbery is not processed in to preserved fruit in this project, but the price is given on page 43.
- 2-6-3 Variety of fruits are not given, but in case of preserved fruits and finned fruits (A) Grade Quality will be procured, Where as for fain and juice (B) Grade Quality will be procured. The price of each type of fruits are mentioned on page 41,42,43 and Quantity of fruits is mentioned on page 19.
- 2-6-4 Contribution of each fruit cannot be worked out as come of the data are in China. However, contribution of each product now is worked out on page 26 and 27.
- 2-6-5 The Processing capicity per day of this factory for Juice. Jam funed and Preserved fruit will be 12 ton, submitting on page 20.
- 2-6-6 Production cycle, working capital requirement and cashflows have been given on new annexes page 20A & 20B.
- 2-6-7 As the different varieties of fruits are procured in different time and the profit out of the different finished product is quite same, it is not desirabale to work out the linear programming.

THE PRODUCTION PLAN OF THE PROCESSING FACTORY

NAME	PER YEAR T	PER YEAR T <i>day</i>	1	2	3	4	5	6	7	8	8	9	10	11	12
			(month)												
straw berry juice	240	4					✓	✓							
apple juice	340	4	✓										✓	✓	✓
pear juice	120	4													
straw berry jam	200	4					✓	✓							
tomato jam	120	2							✓	✓					
haw jam	30	1	✓	✓											
apple jam	170	2	✓										✓	✓	✓
pera jam	60	2												✓	
tin apricot	60	2					✓	✓							
tin peach	60	2						✓	✓						
tin pear	100	2									✓		✓	✓	
tinapple	120	2												✓	✓
tin haw	60	2	✓												
preserved apricot	30	1						✓	✓						
pre. peach	30	1							✓	✓					
pre pear	35	1										✓	✓		
pre. jujube	30	1										✓	✓		
pre. wax ground	20	1											✓	✓	
pre. carrot	140	1	✓	✓	✓	✓									
pre apple	40	1												✓	✓
mixed pre fruit	45	1				✓	✓							✓	
soft drink	250	4								✓	✓	✓	✓		

✓ indicates the production months.

The working days are 250 per year.

*The capacity of this processing factory is 12 tons per day.*

WORKING CAPITAL REQUIREMENT

( MONTHLY BASIS )

20A

	PRODUCT	ENERG	MAN. EXP.	SALARY	TOTAL
Jan.	490,815	11,933	5,237	8,520	516,505
Feb.		11,933	5,237	8,520	25,690
Mar.	27,400	11,933	5,237	8,520	53,090
Apr.	27,400	11,933	5,237	8,520	53,090
May	428,724	11,933	5,237	8,520	454,414
Jun	123,204	11,933	5,237	8,520	148,894
Jul.	199,800	11,933	5,237	8,520	225,490
Aug.	172,800	11,933	5,237	8,520	198,490
Sep.	783,085	11,933	5,237	8,520	808,775
Oct.	608,886	11,933	5,237	8,520	634,576
Nov.	618,096	11,933	5,237	8,520	643,786
Dec.	313,885	11,933	5,237	8,520	339,575

MONTHLY INFLOW - OUTFLOW TABLE

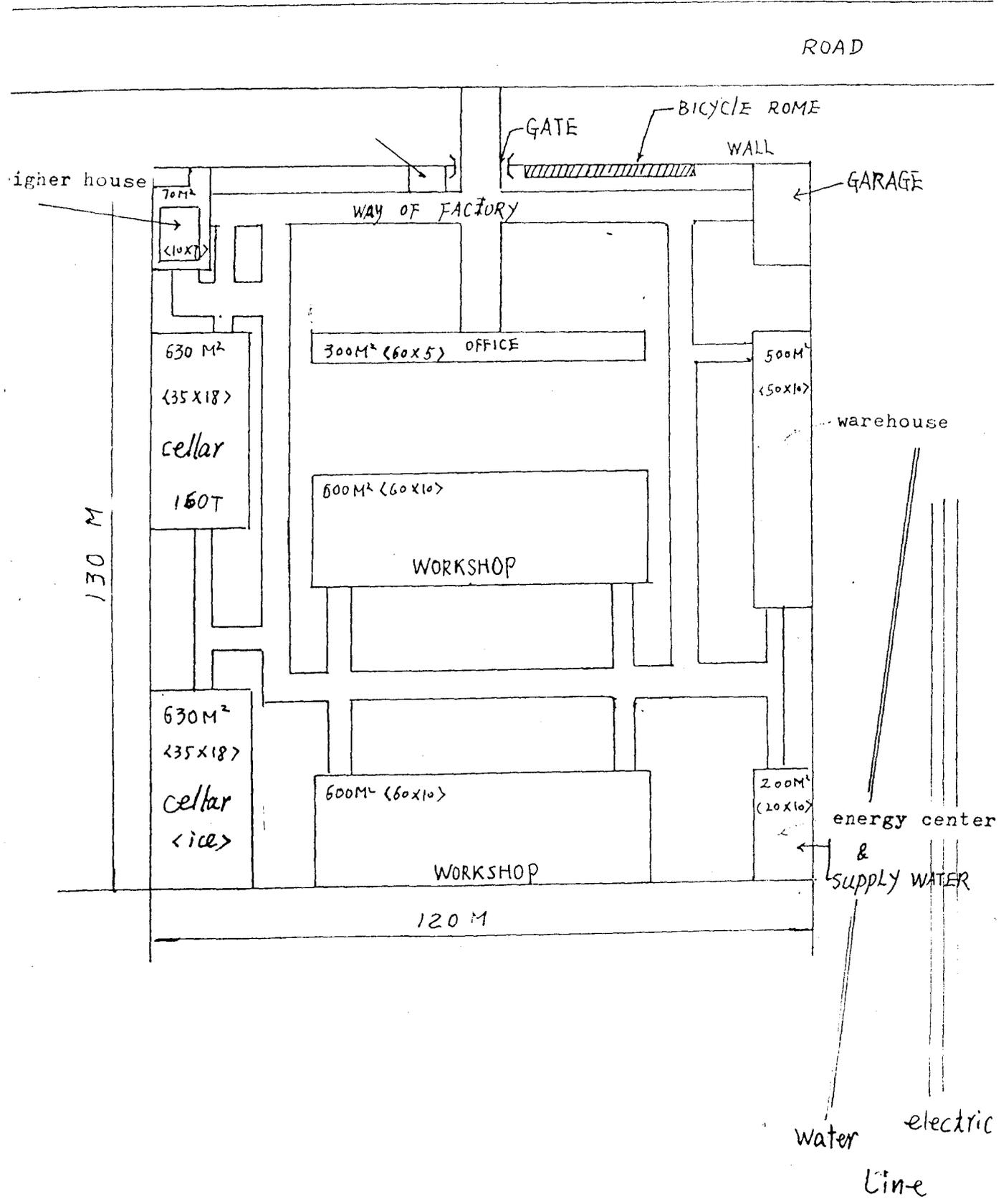
20B

	OUTFLOW	INFLOW	SURPLUS/DIFCIT POSITION	COMULATIVE LIQUIDITY POSITION
Jan.	516,505	472,882.5	- 43,622.5	- 43,622.5
Feb.	25,690	623,065.5	+ 597,375.5	+ 553,753
Mar.	53,090		- 53,090	+ 500,663
Apr.	53,090	96,096	+ 43,006	+ 543,669
May	454,414	96,096	- 358,318	+ 185,351
Jun	148,894	524,591	+ 376,597	+ 561,948
Jul.	225,490	576,410	+ 350,920	+ 912,868
Aug.	198,490	221,431.5	+ 229,415	+ 1,142,283
Sep.	808,775	169,612.5	- 639,162.5	+ 503,120.5
Oct.	634,576	513,999.52	- 120,576.48	+ 382,544.02
Nov.	643,786	279,892.02	- 363,893.98	+ 18,650.04
Dec.	339,575	355,336.02	+ 15,761.02	+ 34,411.06

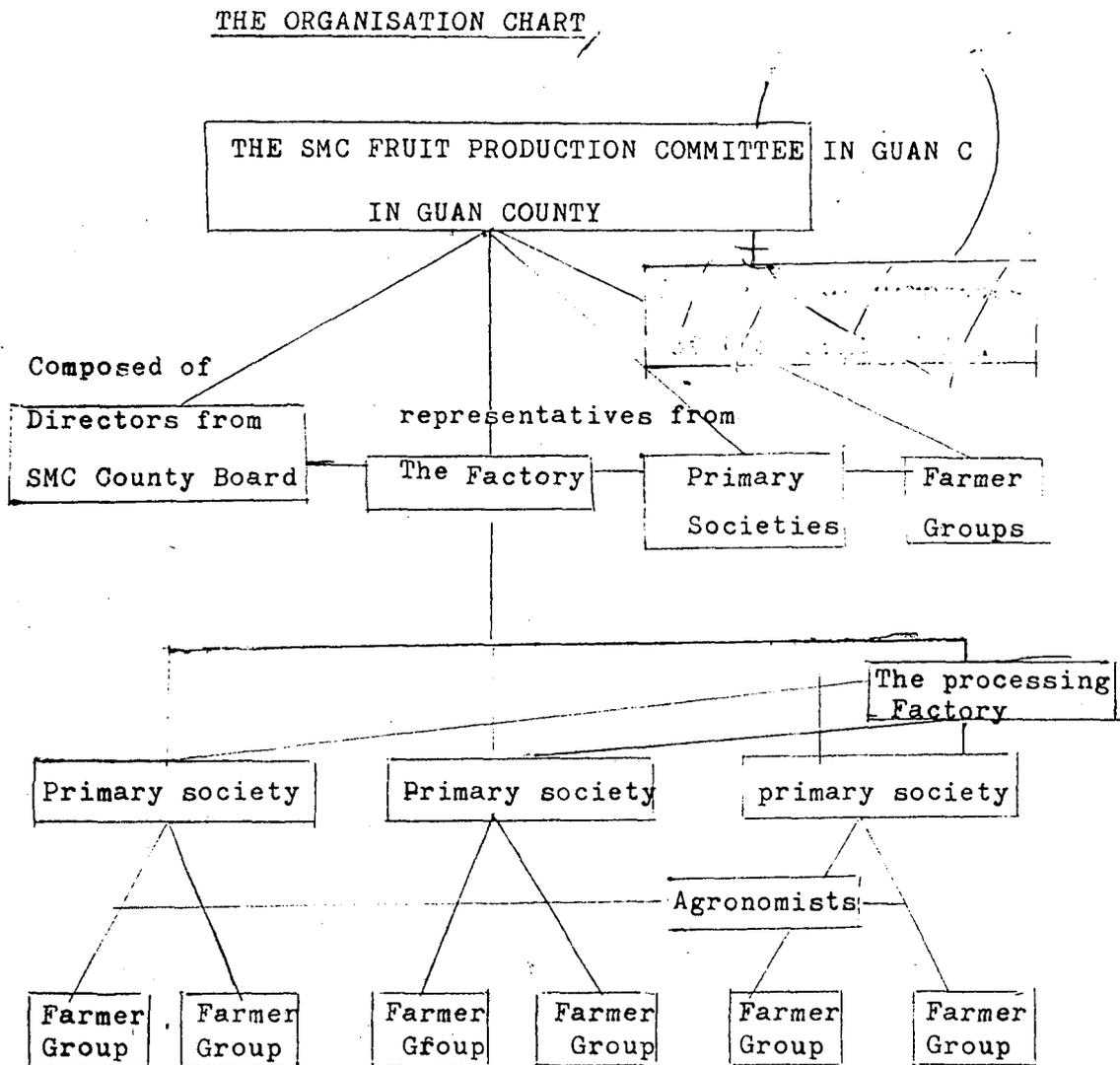
TABLE OF FACILITIES OF THE PROCESSING FACTORY

	facility	quantity	unit price (Yuan)	cost (Yuan)
1	Washing Fruit Machine	1	20,000	20,000
2	Liquid Making Machine	1	3,000	3,000
3	Cauldron	3	4,300	12,900
4	Baking Making	1	50,000	50,000
5	Air Extract Machine	1	8,000	8,000
6	Germcide Machine	1	8,000	8,000
7	Ting sealing Machine	1	4,000	4,000
8	Boille Washing Machine	1	6,000	6,000
9	VVA#	100	50	5,000
10	Cart	10	300	3,000
11	Packer	1	1,000	1,000
12	Electrical Equipment	1	12,000	12,000
13	Boiler	1	70,000	70,000
14	Water Steam Pipe			70,000
15	Jam Juice facilities	1	437,000	437,000
16	Othbr Facilities			85,000
17	Truck	1		20,000
18	Lab. Equipment	1	50,000	50,000
	Total Cost			875,000

THE LAYOUT OF THE PROCESSING FACTORY



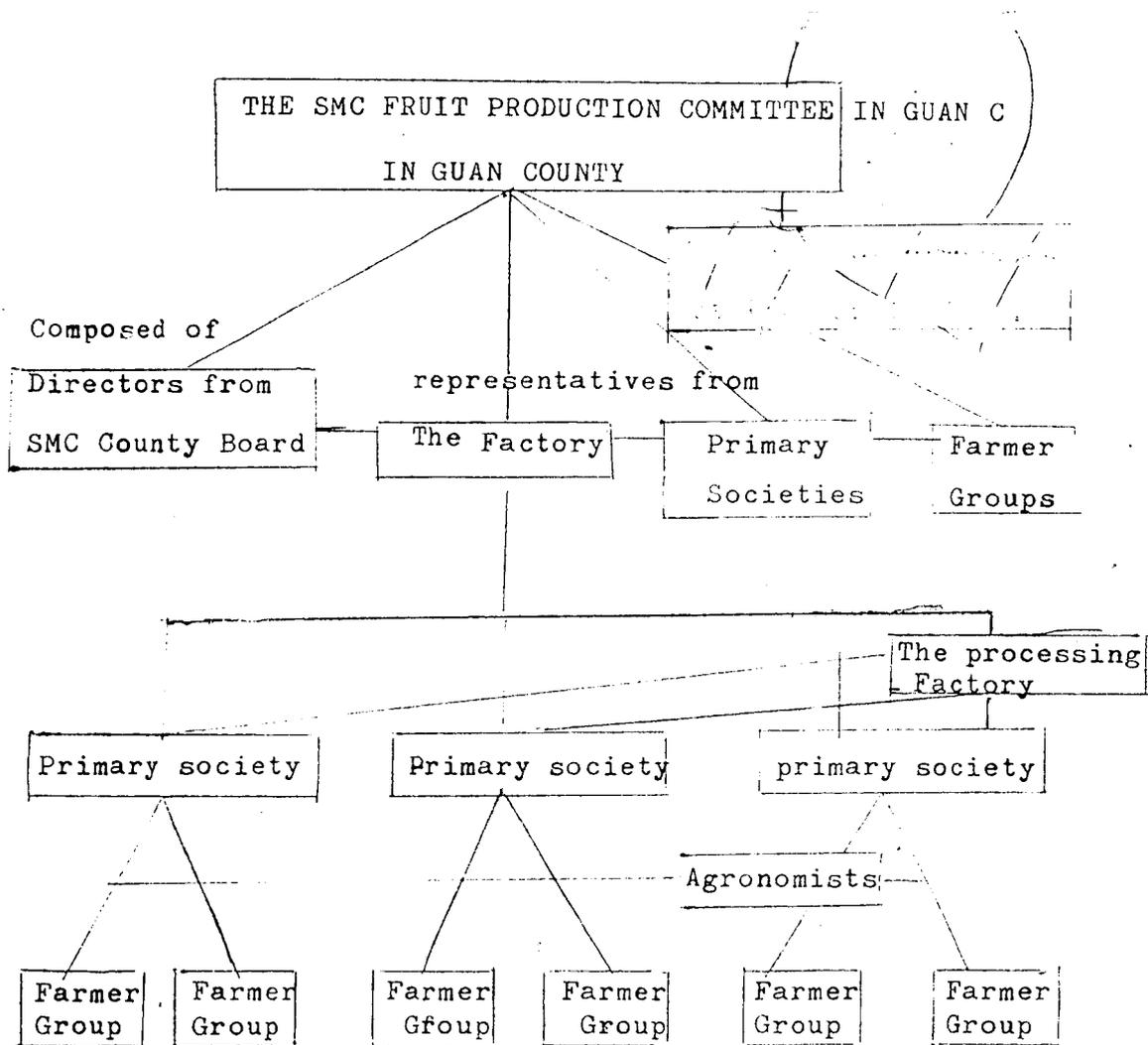
5. Organisation and Management



It is suggested that the SMC Fruit Production Committee is the leading and policy making body in Guan County for developing fruit production, marketing, processing and storage. It is supposed to consist of 13 members, of which two members are from the County Union Board, two from

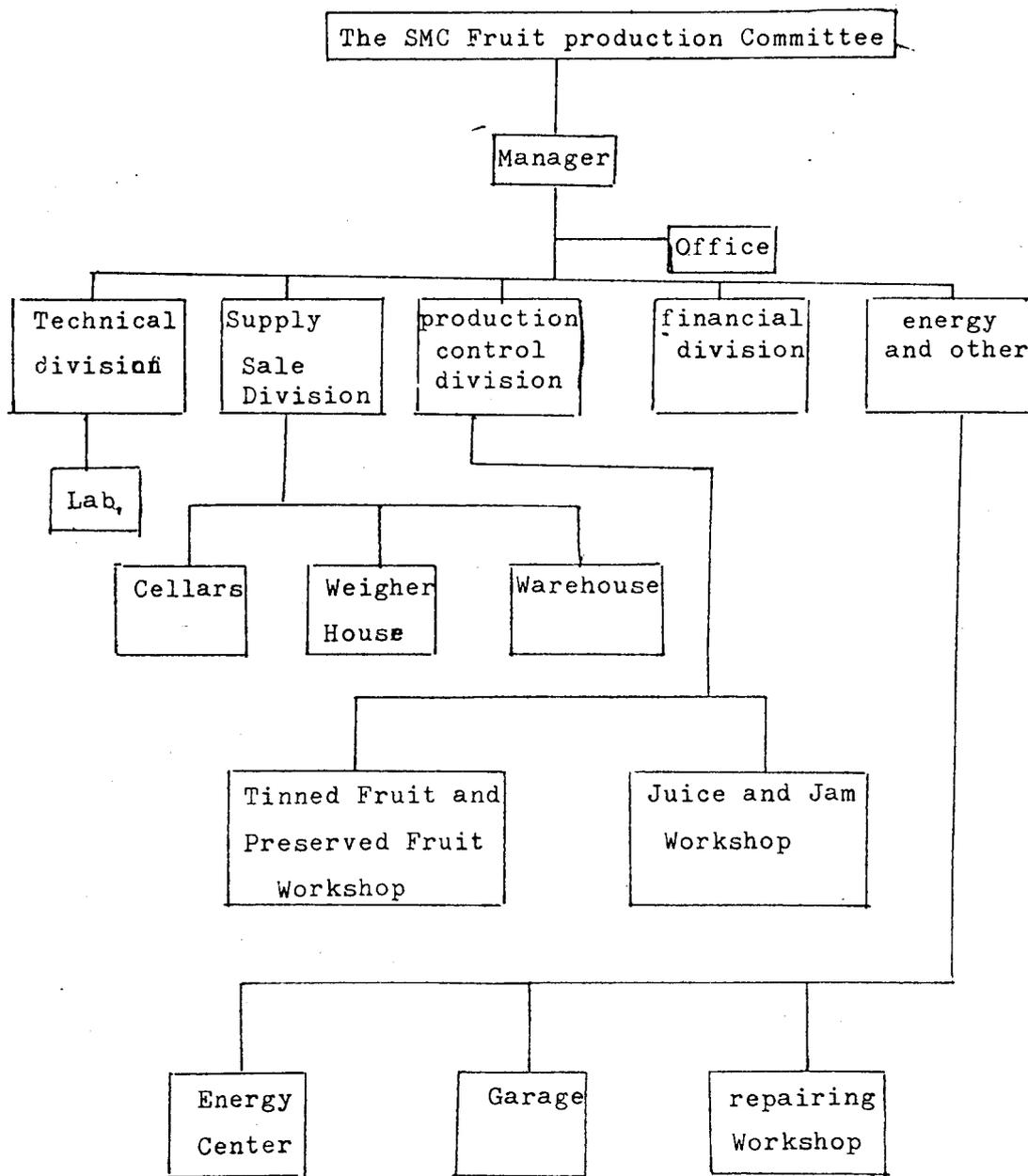
5. Organisation and Management

THE ORGANISATION CHART



It is suggested that the SMC Fruit Production Committee is the leading and policy making body in Guan County for developing fruit production, marketing, processing and storage. It is supposed to consist of 13 members, of which two members are from the County Union Board, two from

THE MANAGEMENT CHART OF THE PROCESSING FACTORY



## 6. Financial Analysis

THE VARIABLE COST OF TINNED FRUIT PRODUCTS

500kg/bottle

	APPLE	PEAR	HAWTHRON	APRICOT	PAECH
output per year bottles	240,000	2000,000	120,000	120,000	120,000
total 800,000 bottles					
unit cost Yuan/ bottle					
material	0.44	0.28	0.55	0.28	0.33
bottle cover and package	0.22	0.22	0.22	0.22	0.22
sugar	0.119	0.10	0.126	0.150	0.091
other	0.02	0.02	0.02	0.02	0.02
total cost per bottle	0.799	0.62	0.916	0.625	0.661
total	191760	124000	109920	75000	79320

The total variable cost is 580,000

## THE FIX COST OF TINNED FRUIT PRODUCTS PER YEAR

SALARY	16,000 Yuan
Management fee	16,000
Depreciation	16,000
Energy	24,000
Total	72,000

Total sale: 775382 Yuan. Total cost: 652,000. Profit: 123882

Break even point: about 294,055 bottles on average

Contribution : 195322 Yuan

The same calculation method is used in the preserved fruit production.

Total sale 1,158,816 Yuan,	Total output: 334 tons
The variable cost: 821,250 Yuan	Fixed cost: 193720 Yuan
Total cost: 1,014,970 Yuan	Profit: 143,846 Yuan
Break-even Point: 191 tons on average	Contribution: <del>337186</del> Yuan

#### Fruit juice

Total sale: 1090,340 Yuan	Total output: 700 tons
The variable cost: 850,160 Yuan	Fixed cost: 98,000 Yuan
Total cost: 948,160 Yuan	Profit: 142,180 Yuan
Break-even point: 285.7 tons on average	Contribution: 240,180 Yuan

#### Fruit jam

Total sale: 837,100 Yuan	Total output: 580 tons
Variable cost: 703,000 Yuan	Fixed cost: 58,000 Yuan
Total cost: 761,000 Yuan	Profit: 76,100 Yuan
Break-even point: 250 tons on average	Contribution: 134,100 Yuan

#### Soft drink

Total sale: 110,000 Yuan	Total output: 1000,000 bottles
Variable cost: 60,000 Yuan	Fixed cost: 30,000 Yuan
Total cost: 90,000 Yuan	Profit: 20,000 Yuan
Break-even point: 600,000 bottles	Contribution: 50,000 Yuan

Total sale of the processing factory per year is 3,972,138 Yuan

Total variable cost per year:	3,014,410 Yuan	
Total fixed cost per year:	451,720 Yuan	
Total cost per year:	3,466,130 Yuan	
Total profit:	506,008 Yuan	
Industrial and commercial tax		198,607 Yuan
Income tax		84,535 yuan
Net profit		222,866 Yuan

The fixed cost includes:

salary	102,240 Y
management expenditure	62840 Y
depreciation	143,440 Y
energy expenditure	143,200 Y

The working capital requirement: 577,688 Y, borrowing from bank with the interest rate <sup>0.6%</sup> 0.006% per month. The overdue interest rate will be <sup>0.72%</sup> 0.0072% per month. (The term of payment is 3 months.)

## 7. Budget

## THE INVESTMENT BUDGET

ITERM	VALUE ( thousand Yuan)
a) Building	
Construction	<u>399.5</u>
1) Workshops	244.8
2) Office and Lab.	36
3) Cellars and Warehouse	97.8
4) Other	20.9
b) Equipments	<u>975</u>
1) Equipment	875
2) installation	100
c) Project preperation	<u>31</u>
1) Layout and design	13
2) Worker Training	8
3) Other	10
d) Unestimated Expenditure	<u>30</u>

Total investment : 1435.5 thousand Yuan

The total fund for investment in the proposed processing factory is 1435.5 thousand Yuan, of which the County Union can invest 300 thousand Yuan from its own fund, the rest of 1135.5 thousand Yuan borrowed from the bank.

The interest rate of the loan for food processing industry is <sup>0.56%</sup>~~0.0036%~~ per month. It is possible for the cooperatives running the processing industry to exempt taxation in the beginning of 3 years through the negotiation. The total profit before tax is 506,008 Yuan, part of which can be partly as the payment.

It takes 3 months to finish the construction and equipment installation.

As the government encourage the rural area developing farm product processing, there is no problem to get loan from the bank if the project is needed and justified. The pay-back period of 1200 thousand loan is suggested to be 3 years and FIRR and EIRR are not practised in China.

## THE SCHEDULE OF LOAN PAYMENT

Total loan: 1200 thousand Yuan

Interest rate:

~~0.0036%~~

0.36%

or 3.6%

1) First payment 15 months later including 3 months construction and one year production.

interest: 64800 Yuan

principle: 420,000 Yuan

total : 484,800 Yuan

2) Second payment 12 months after first payment

interest: 33696 Yuan

principle: 420,000 Yuan

total: 453696 Yuan

3) Third payment 12 months after the second payment

interest: 15552 Yuan

principle: 360,000 Yuan

total: 375,552 Yuan

AS above payment method is main for caluclation, in fact the loan payment time can be practised before the Schedule.

## 8. Recommendations

a) It is suggested that the SMC fruit production committee should be soon organised to make the overall plan for fruit production, procurement, marketing, processing, storage and cultivation extension, so as to change the backward situation in this county. SMC County Union has a number of tasks to serve rural production and people's life, it is necessary for the special task of fruit production to separate from others.

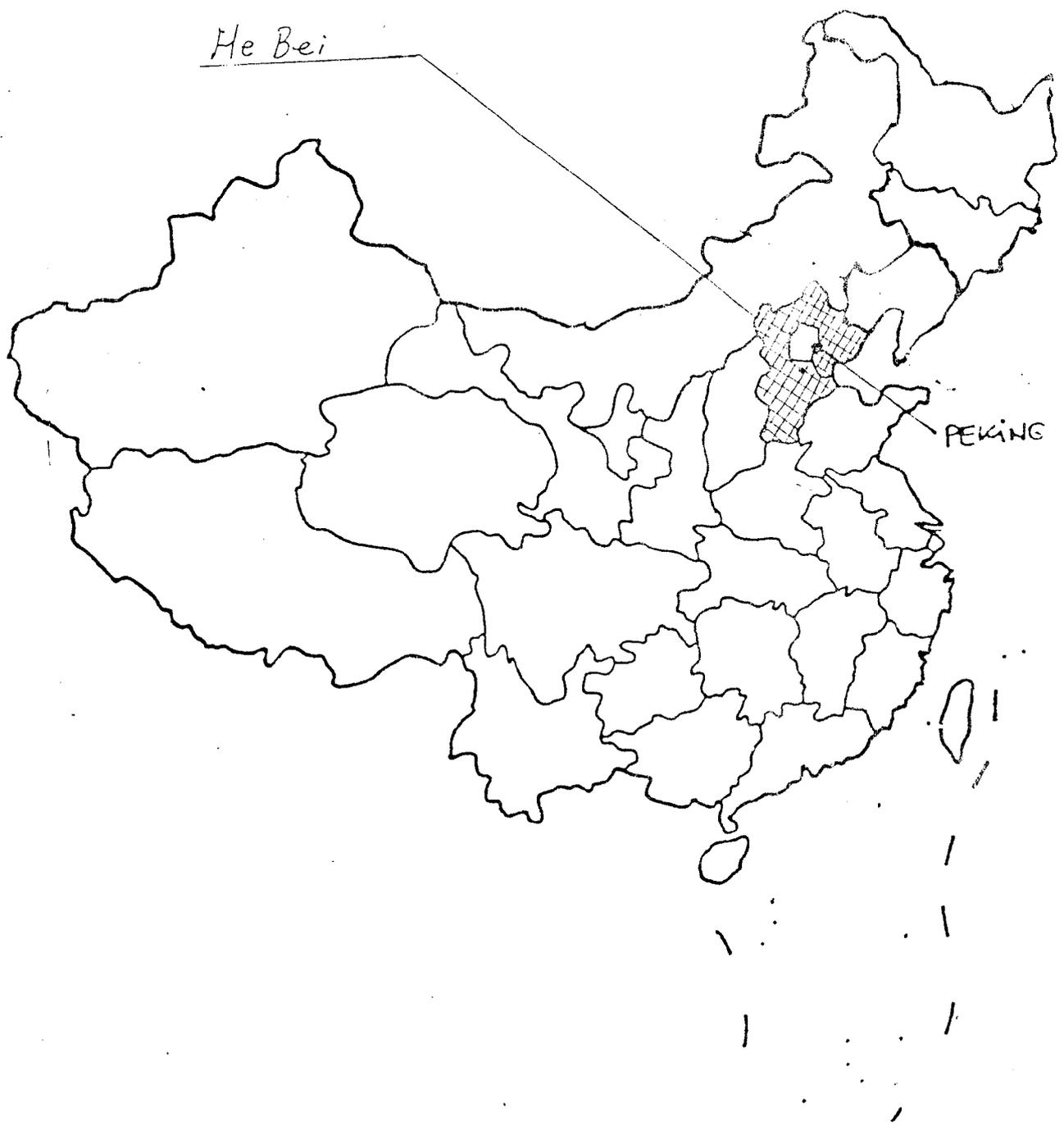
b) As the anchor of the project, the management of the processing factory should be efficient that means any loss caused by poor management will destroy whole project. So it needs qualified manager, staffs and workers. The intensive training should be started the complement of the factory for the workers, because they are mainly recruited from local area without experience working even in any factory.

c) The processing factory is supposed to provide more benefit to the growers, but in the early years of distribution of profit, the Committee should pay more attention to investment in orchard improvement, irrigation projects and other fundamental construction.

d) Keeping with the high quality standard required by the

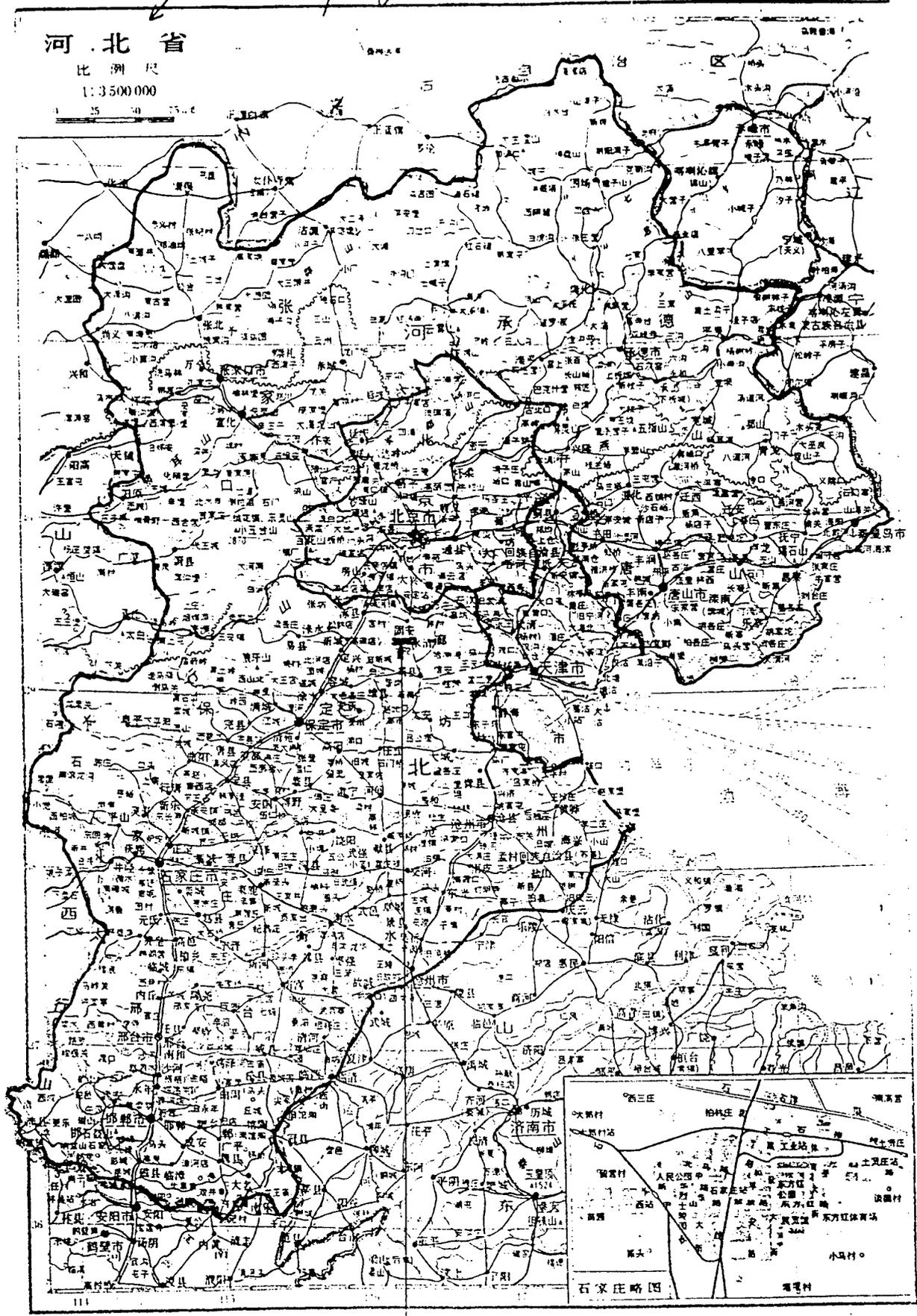
processing factory, it is important for the primary SMCs to organise farmers to improve fruit quality and control harvest time by introducing new varieties and advanced cultivated skills. So every primary society should assign the task to the staffs who are specially in charge of fruit business.

f) It is an effective way for farmer group to contract the village's orchard. The contract once signed should be valid over 30 years, so as to encourage growers making land investment and learning cultivation skills. The value addition income generated from the services provided by the SMC project will not only benefit the fruit growers, but also benefit the villagers as a whole, because the fruit growers will contribute more profit to the village in proportion of their increased income.

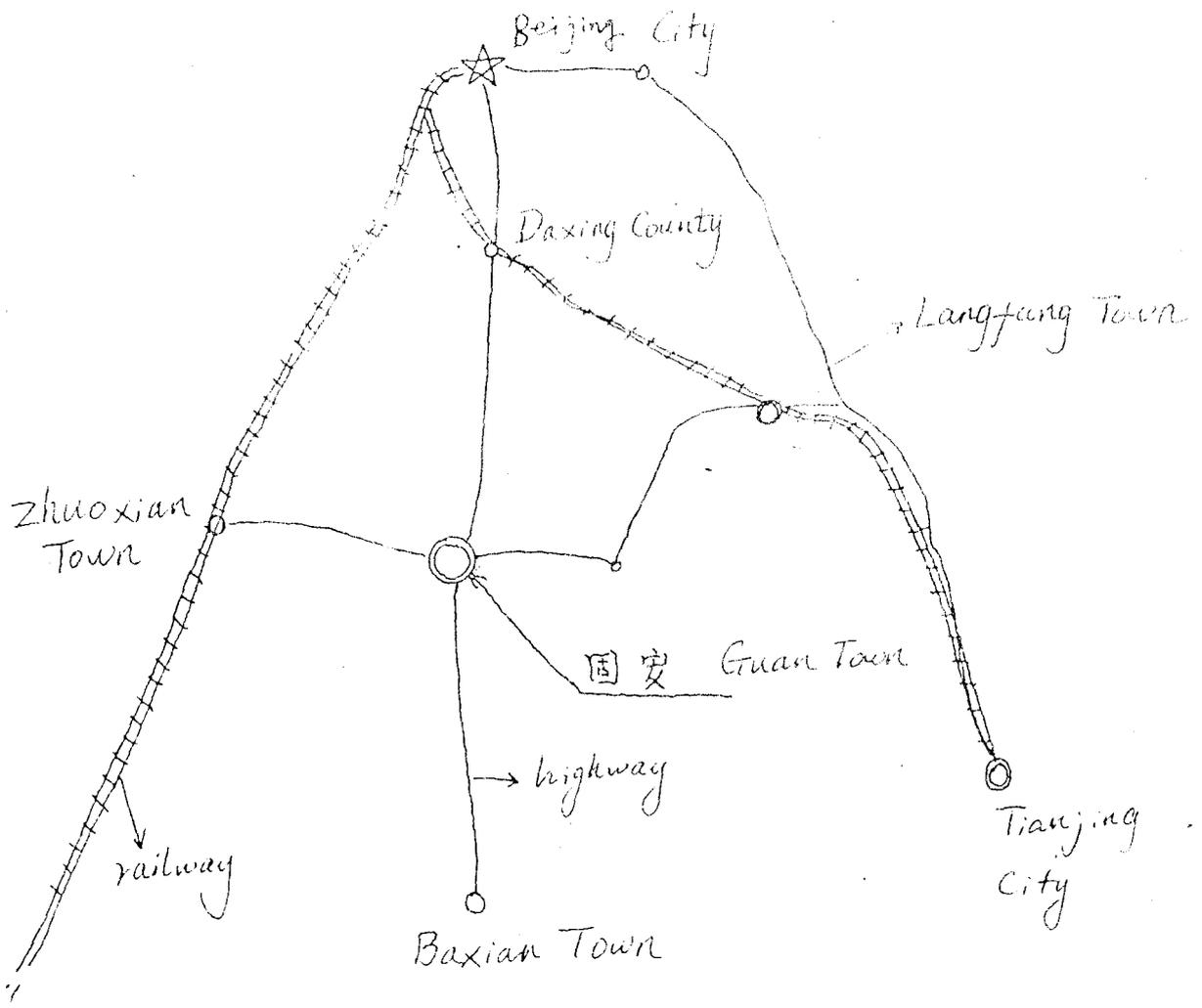


The map of China

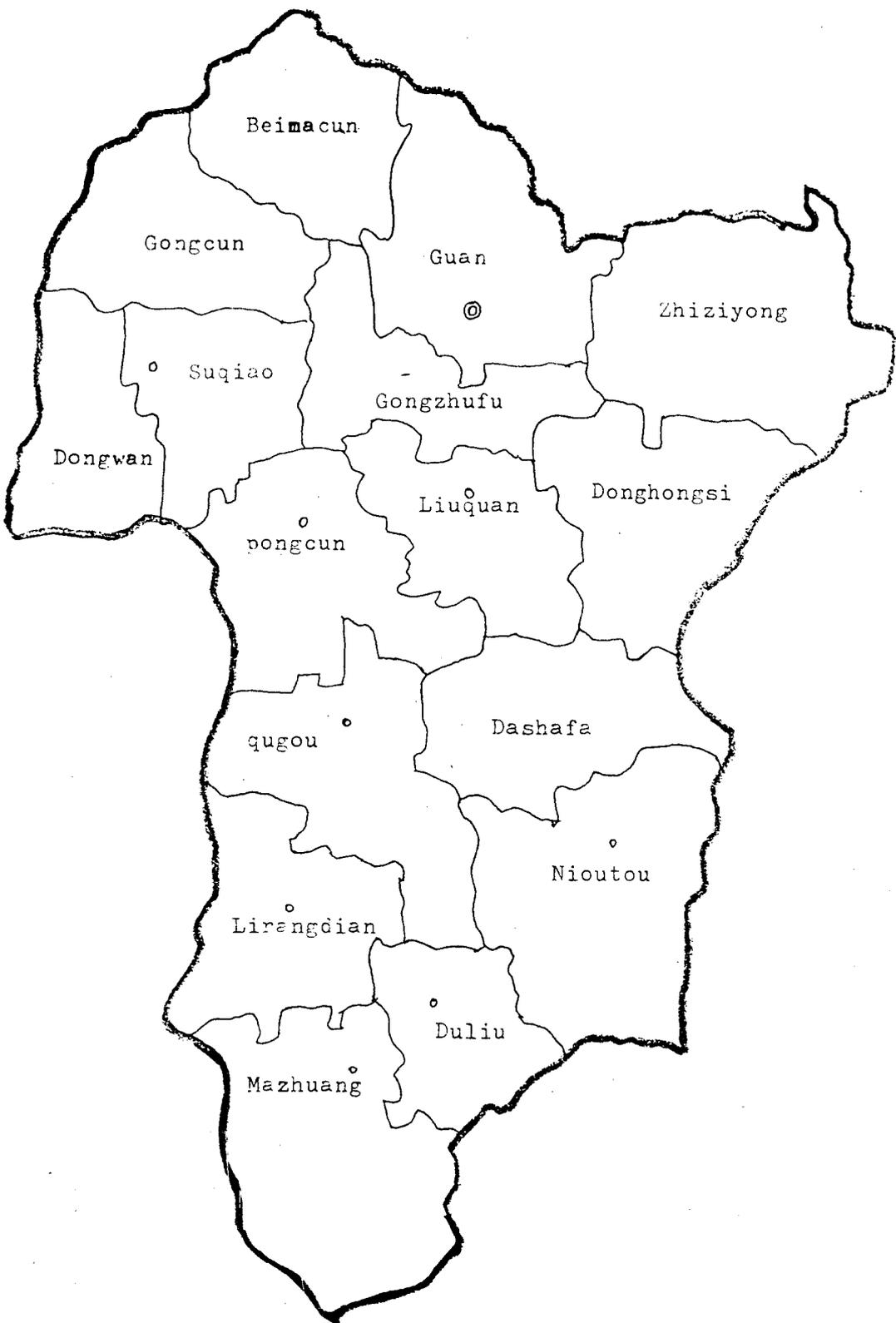
The Map of Hebei Province



固安 Guan County in Hebei Province

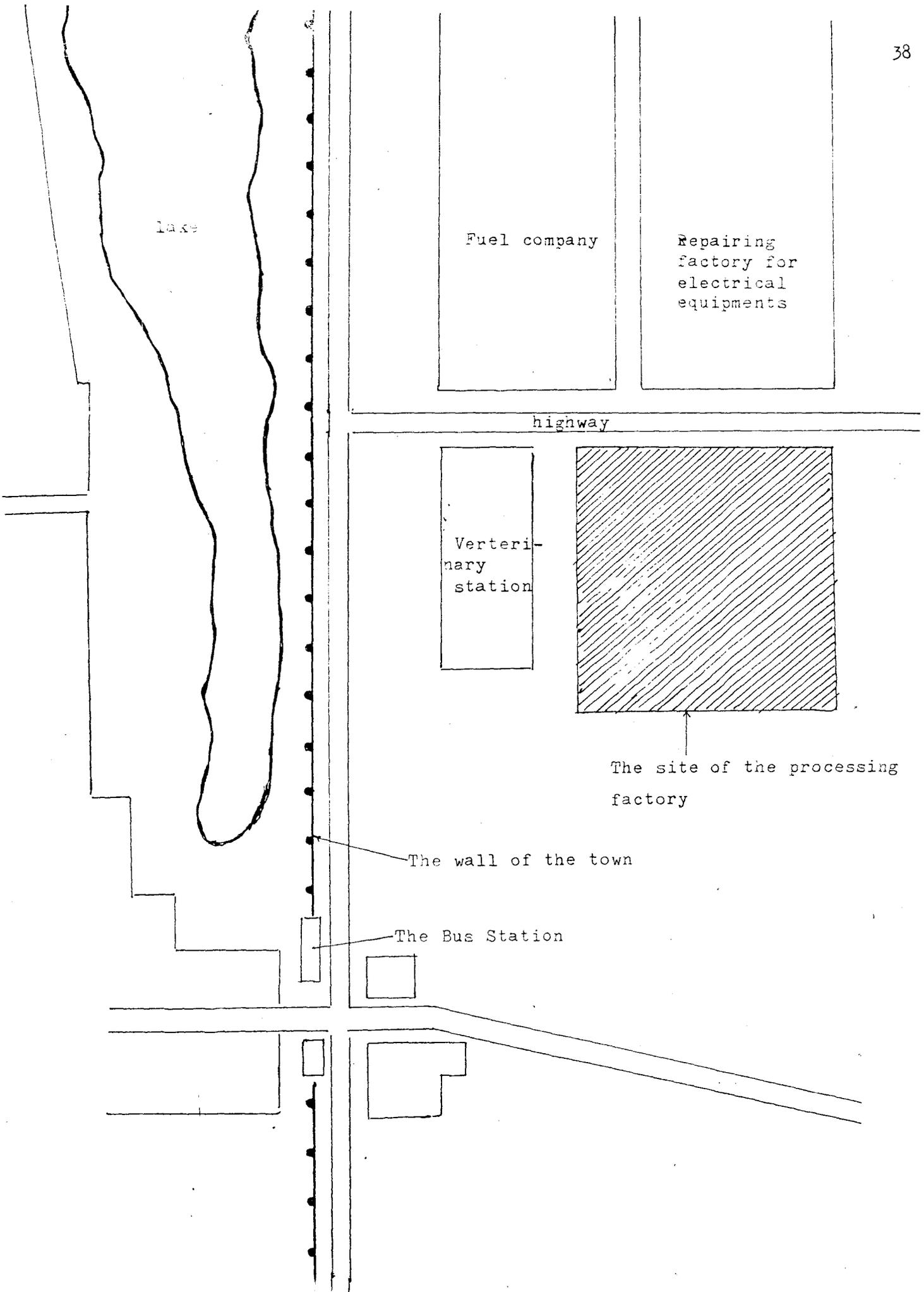


The distance between Daxing and Guan is 50 km  
Guan to Zhuoxian is 25 km  
Guan to Tianjing is 50 km



The Map of Guan County

- ⊙ Guan Town
- project townships



THE PRODUCTS PRICE OF THE PROCESSING FACTORY

Yuan/ T

fruit juice	apple 1343	pear 1173	strawberry 2054
tinned fruit	apple 2044.7 apricot 2056.2	pear 1646.8 peach 1727.3	hawthorn 2313.8
fruit jam	apple 1089 tomato 1691.25	pear 1144 hawthorn 2046	strawberry 1595
preserved fruit	apple 3335 apricot 3795 wax gourd 2056.2	pear 3496 peach 4542.5 sweet potato 1848	strawberry 3401.7 jujube 9131 carrot 1716
soft drink	0.1 Yuan/bottle	400 Yuan/T	

THE ANNUAL SUGAR CONSUMPTION OF THE PROCESSING FACOTY

	juice		Jam		tinned fruit		pre. fruit	
	ratio	T/year	ratio	T/year	ratio	T/year	ratio	T/year
apple	0.32	108.8	0.55	93.5	0.17	20.4	0.7	28
pear	0.3	36	0.6	36	0.145	14.5	0.6	21
strawberry	0.39	93.6	0.65	130				
tomato			0.6	72				
hawthorn			0.65	19.5	0.18	10.8	0.1	4.5
apricot					0.145	8.7	0.6	18
peach					0.13	7.8	0.65	19.5
jujube							0.6	18
wax gourd							0.7	14
sweet potato							0.6	28.8
carrot							0.6	33.6
total		238.4	351			62.2		185.4
<p>Ratio: sugar / raw material = T/T</p> <p>The total consumption of sugar: 837 T per year</p>								

THE VARIABLE COST OF FRUIT JUICE

	apple	pear	strawberry
output per year	340	120	240
unit cost (Y/T)			
fruit material	480	360	1000
sugar	448	420	546
pack	40	40	40
other	60	60	60
total	1028	880	1646

The total variable cost of fruit juice is 850,160 per year.

THE VARIABLE COST OF SOFT DRINK

OUTPUT PER YEAR	1000 thousand bottles
unit cost (Y/bottle)	
raw material	0.05
other	0.01
total	0.06

The total variable cost of soft drink is 60,000 Yuan peryear.

## THE VARIABLE COST OF PRESERVED FRUIT

Yuan/T

annual output (T)	apple	pear	hawthorn	apricot	peach	jujube	wax gourd	sweetpotato	carrot
40		35	45	30	30	30	20	48	56
unit cost (Y/T)									
fruit material	1280	1560	2178	1820	2400	6400	168	200	80
sugar	980	840	140	840	910	840	980	840	840
packing	40	40	40	40	40	40	40	40	40
other	20	20	20	20	20	20	20	20	20
total	2320	2460	2378	2720	3370	7300	1208	1100	960

The total variable cost of preserved fruit is 821,250 Yuan per year.

The procurement price: Y/kg

apple: 0.80

pear: 0.36

hawthorn: 100

apricot: 0.36

peach: 0.00

jujube: 1.60

wax gourd: 0.06

sweetpotato: 0.20

carrot: 0.08

THE VARIABLE COST OF FRUIT JAM

OUTPUT	apple	pear	strawberry	tomato	hawthorn
PER YEAR (T)	170	60	200	120	30
unit cost (Y/T)					
raw material	80	60	400	557.5	810
sugar	770	840	910	840	910
pack	40	40	40	40	40
total	890	940	1350	1437.5	1760

The total variable cost of fruit jam is 1212.06 Yuan per year.

The procurement price: k Y/kg

apple: 0.40      pear: 0.30/kg      strawberry: 1.00

tomato: 0.10      straw hawthorn: 0.60

FIRST  
ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA

NEW DELHI / BANGKOK / TOKYO / SEOUL

1st November 1986 - 3rd May 1987

PROJECT PREPARED DURING HOME COUNTRY ASSIGNMENT

Project Title: Project for Potato Marketing  
by Jahangirj Coop Society, Farukhabad.  
Country: India  
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Funded by the Government of Japan  
and  
Executed by the International Cooperative Alliance  
in collaboration with its member organisations in  
India, Thailand, Japan and the Republic of Korea.

## CHAPTER 1

### SUMMARY

- 1.1. The project area is Jahanganj Cooperative Society, Farakhabad District of U.P. in India having 29 Villages in its area of operation. The project area is one of the most important potential potato growing area of the District.
- 1.2. The main object of the project is to arrange marketing and processing of potato so as to fetch remunerative prices to the potato growers, thus the cooperative society will automatically be strengthened. By having a sound marketing and processing activity at society level, additional employment to 18 permanent skilled employees and about 30 unskilled seasonal labour.
- 1.3. The project area was contacted and the position of the existing society was examined and some of the potato growers were contacted and the Secretary was interviewed. Also Potato Federation and Potato Development Officer, Farakhabad were interviewed. At National level NDCD and NAFED were also consulted while collecting information and formulating the project. At present the society is having about 2 hactares of land and a building. The value of the existing assets is around Rs.10 lacs. The investment proposed in the project is Rs.70.00 lacs of which Rs.10.00 lacs, the societies present value of assets will be taken as margin for borrowing. The society at present has owned funds of Rs.2.71 lacs, which will be utilised as pre-operative expenses.
- 1.4. The society will procure entire potato production of the area from the farmgate and transportation and packing cost will be borne by the society. The farmers will be getting Rs.900 per metric ton as compared to the present prices of Rs.500 to 520/ton.
- 1.5. The society will have a chips making machine having the capacity of 4 ton in a day (working 25 days). The society will process 100 mt per month and will get 20 mt. potato chips, which will be packed and sold to potato Federation U.P.
- 1.6. The society will plough back 10% of the net profit to potato growers as bonus.
- 1.7. The B.C.k. of the project comes to 1.17.
- 1.8. The IRR comes to ~~Rs.~~15.623.

CHAPTER - IIB A C K G R O U N DINTRODUCTION

2.1 Potato is one of the few foods capable of nourishing a large number of population. Besides energy it supplies nitrogen and a high quality protein necessary for a healthy growth of body. It also provides valuable ~~minerals and~~ vitamins. It has been found that people largely dependent on potatoes as their basic food do not suffer from nutritional deficiencies. The major component of potatoes are protein (1.6 per cent), Carbohydrates (22.6 per cent), fat (0.1 per cent) and water (76 per cent). Comparative nutritive value of potato vis-a-vis other fruits and vegetables has been indicated in Annexure -I. It is estimated that one medium sized backed potato yields approximately 100 calories, which is almost the same of an apple or a banana.

PRODUCTION

2.2 Potato is grown in varying agro-climatic zones of India. The Planting and harvesting period of potato in various climatic zones of the country have been given in Annexure-II. It has been estimated that 80 per cent of the total crop is harvested during the winter months of January-March, which causes glut in the market. The area under production; average production and total production of potato in the country have been given in Annexure-III.

2.3 In India Uttar Pradesh (U.P.) is the leading potato growing state, followed by West Bengal, Bihar, Punjab, Assam and Madhya Pradesh. As per the production figures, about 45 per cent of the total potato production of the country is contributed from U.P. State-wise

production, consumption and availability of potatoes for inter-state trade for the year 1984-85 have been given in Annexure-IV. The main potato growing areas in U.P. have been shown in Map at Annexure-V. In U.P. the Farrukhabad District contributes 8 per cent of the total production of the country and 19 per cent of the State. The area under production, total production and per hectares production of potato of the district has been given in Annexure-VI. In Farrukhabad district, the Kamalganj block is important for potato production. In Kamalganj block there is one marketing society and at the base level 9 primary agricultural cooperative societies known as Farmer's Service Societies (F.S.S.).

#### AREA OF PROJECT

##### Jahanganj Cooperative Society

2.4 The Farmer's Service Society (F.S.S.) Ltd., Jahanganj was registered on 14.2.1978. There are 29 villages in the area operation of the society with its headquarters at Jahanganj. The maximum distance of the last village from the society's headquarters is 14 K.M. The village Jahanganj is on the metalled road and most of the villages in the society area are linked through metalled roads. The nearest railway stations are at Farrukhabad and Kamalganj at a distance of 15 K.M. The district Headquarters from the society office is <sup>also</sup> at a distance of 15 K.M. and connected by a metalled road as well as rail.

2.5 The total population in the area operation of Jahanganj Society is 30502, as on 30th June, 1986 and out of which 14090 are agriculturists. The membership of the society is 5805 with land holdings of 8913 hac. During

and there is no major irrigation resources

the year 62 new members have joined the society. Majority of the farmers are small and marginals. The total cultivated area in the command area of the society is 60,000 ha., out of which about 40,000 ha. is irrigated. The agriculture is predominantly rainfed/such as river or canal in the area of the society. However, the minor irrigation resources such as wells, tube-wells and pump-sets used for the irrigation purposes are 805,489 and 456 respectively.

2.6 The mixed cropping pattern of 3 to 4 crops in a year is adopted by most of the farmers. The main crops in the society area are potato, wheat, rice, pulses, maize, oil seeds, mangoes and vegetables. The production wise position of crops during 1985-86 in respect of society members was:

Sl.No.	Crops	Area under production (in Ha.)	Total production (in tonnes)
i)	Potato	1427	18400
ii)	Wheat	1229	4896
iii)	Maize	1490	2235
iv)	Pulses	310	186
v)	Oil seeds	242	1452
vi)	Rice	256	384
vii)	Other crops	851	N.A.
viii)	Mangoes		160

#### Potato Production

2.7. It may be seen from the above production details that the potato is the main crop in society area. It was also reported by the Secretary of the Society that this year in the early crop of the potato there was

some disease problems and the per ha. production was low in comparison to previous years production. He said that in the last one decade the per ha. increase in yield of potato has been due to use of high yielding varieties like Kufri-Jyoti and increasing use of fertilisers, plant protection measures and increased irrigational facilities (Annexure-III refers). It is estimated that potato harvested after 75 days is good for immediate consumption and after 90 days fit for storage. The Secretary said that only 5 per cent of the total production of potatoes, the society members are harvesting after 75 days.

#### Marketing

2.8. At present the society is taking up the marketing activities of some quantity of wheat, maize, rice and oil seeds. During the year 1985-86 the society has sold goods worth Rs. 1036412.47. However, the society has not taken any part in potato marketing. Almost all the quantity of potato is being marketed by the individual farmers to the private traders, who pay through away price to the farmer. As 70/80 per cent of the potato crop is harvested in the area during the period January to March, which causes glut in the market and consequently prices are lowest. A month-wise minimum and maximum market rate of potatoes in the market yard of Farrukhabad are given at Annexure - VIII. The Secretary further stated that about 10-15 per cent of the potato goes as waste and out of the remaining 5 per cent

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is being kept for personal consumption by the farmers. At present there are 4 employees with the society i.e one secretary, one assistant, one salesman and one peon.

2.9 The Secretary of the FSS Jahanganj has attended a seminar organised by the potato federation of the Uttar Pradesh, in the month of August 1986, and knows a number of potato products being made in other countries. A list of such potato products is given at Annexure viii.A. He is very much enthusiastic about the potato processing activities should be taken up as a value adding activities by the

society. He said that in our country no potato processing is under taken. This was also revealed during the discussion with the officers of Potato Federation and further noted from the 'Potato Atlas' - Published by International Potato Centre, Lima-peru (July, 1978) that in India not even one per cent of the potato production is processed.

2.10. As regards the cold storage facilities, the Secretary said that there are 4 cold storages in this area, owned by private traders. In this regard the farmers are facing great difficulties such as the cold storage rates charged by these owners are very high and even give receipt of money for less amount; no claim in case potato deteriorate in storage, some time the farmers have to wait for days together for storage space and by that time potato deteriorated etc. The data on cost of production of potato was not available. During course of discussion with the officers of Potato Federation, U.P., Farrukhabad, some data was work out as Rs. 10500/- per hec. The item-wise details are given in Annexure-IX. In respect of society's financial position it is revealed from the records that the working capital of the society as on 30.5.1986 was Rs. 104.09 lakhs (10.41 million). The share-capital of the society stood at Rs.2.17 lakhs. Under the National Cooperative Development Corporation (NCDC) scheme the society got a margin money of Rs. 14.56 lakhs. As a special case this margin money has been provided to this society. During the year 1985-86 the society purchased and marketted <sup>grain</sup> ~~potatoes~~ worth Rs. 10.36 lakhs. The society was not paying dividend to its members. Without providing for the statutory reserves, the society earned a profit of Rs.4.92 lakhs during the year 1985-86.

Other cooperative organisation in the area

2.11. As mentioned on pre-page 3 that there was one marketing society in the Kamalganj block with a membership of 10795 individual agriculturists and 25 PACS/PSS. A few years back the society constructed a cold storage of 2000 tonnes capacity. In a couple of years it was found from the running cost and income from the cold storage that 2000 tonnes capacity cold storage is uneconomical. Upto 1983-84 the society has also marketed potato about 1000 tonnes worth Rs.80,000/- per year, but at present, the cold store and marketing operation have been stopped. Since then the society has accumulated losses. Now the society has applied for additional loan to NCDC for the construction of additional chamber of 2000 tonnes capacity.

2.12. Another cooperative organisation at Farrukhabad city is potato Development and Marketing Federation Ltd. Farrukhabad. The main objectives of the Federation includes to arrange the requirement <sup>PACS</sup> in respect of improved potato seeds, fertilisers, agricultural implements, plant protection chemicals etc; marketing of potato (specially of cooperative societies); initiate steps leading the processing of potato and provide assistance in grading, packing and marketing, transportation and to improve technical knowledge of potato growers. From the records of the Federation it is revealed that they have purchase potato outright basis amounting to Rs. 11.09 lakhs and ~~has earned a~~ <sup>commission</sup> worth Rs. 1.11 lakhs during the year 1985-86. As such the overall expenditures of the federation were more than the profits, they have accumulated losses, but as on 31.12.1986 the federation was in profit of Rs. 12483.96 only. The Federation began its operation in January, 1985. <sup>field officer's said that the</sup> The main problem in r/o of marketing of potato was that the farmers preferred to sell potatoes in single lot but the federation

purchased only graded potatoes, which meant that the rejected potatoes had to be sold in the open market at throw away prices. The Federation has started two regional offices, one for Agra, Meerut and Gaziabad and other for Kanpur, Lucknow and Farrukhabad.

2.13. In Farrukhabad district in addition to the above cooperatives, there is a District Potato Development Officer, who keep record of the potato rates and advise steps required to be taken for the increased production and marketing. The problem of 10/15 per cent wastages of potato was further discussed, who clarified there is 5 per cent wastages are at farmers level in digging operations, further 5 per cent in transportation and rest 5 per cent in storage were estimated.

District  
Potato  
Develop  
ment  
officer

Problems faced by Farmers

2.14. It has been estimated that about 80 per cent of the potato crop is harvested during winter months of January to March, which causes glut in the market. The potatoes are highly periciable commodity and after harvesting cannot be stored without cold storage. The majority of the potato growers of the area were marginal and small farmers. The private traders, who have such facilities exploit and do not provide proper services to the farmers. In this regard the main problems includes :-

- (a) the private traders create such conditions that the potato produce of the farmers they can purchase on throw away prices, and earn high profits.
- (b) for cold storage facility of the private traders, the farmers some time have to wait in open outside cold storage and quality of potato start deteriorating.

- (c) the private cold storage owners charge high rate of rent and do not <sup>even</sup> ~~even~~ to bear the losses of storage period.
- (d) the private traders do not advance pledge loan, but keep potato on custom basis and at the same time charge high rate of interest for the advances.
- (e) there is no processing or value adding facilities, so that remunerative prices of potatoes may be received.

Need of Potato-Growers of Jahanganj society area

2.15. In order to overcome the problems of the potato growers and provide an <sup>anchor</sup> ~~activity~~ **anchorage activity** in the area, it is necessary that the F.S.S., Jahanganj should provide the following services :-

(a) Farm-guidance :

The majority of the potato growers of the area still adopt age old pattern and practices of production which resulted in low yield. It is therefore, necessary that society may provide farm guidance services alongwith the farm inputs <sup>which</sup> the society is already providing.

(b) Cold storage In view of the marketing problems of potato there is a need of cold storage, <sup>at</sup> 4000 tonnes capacity, which may be economically inable. This facility will improve the bargaining strength.

(c) Potato Processing the processed potato marketing raise the level of of income and also the increasing rate of employment to the people of the area. It is therefore, necessary that some potato processing activity may be undertaken by the society.

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Marketing

- (d) The Jahanganj society should take up the marketing activity of potato and provide remunerative prices to the farmers.

CHAPTER - III : OBJECTIVES OF THE PROJECT

3.1. The project aims at undertaking marketing of 18400 tonnes of potatoes from the area of operation of FSS Jahanganj for achieving the following objectives :-

- (a) to help the potato growers in increasing per hec. yield and reduce wastages.
- (b) to enable the growers to retain the stock of potato produce and sell at an opportune time, so as to get remunerative price of the produce.
- (c) to market the potatoes of the members of the society, directly or through an appropriate agency.
- (d) to promote the economic interests of the society members by undertaking value adding activities of potato produce.

3.2. The rationale of these objectives is to help the producer members and secure a better market for their produce by increasing stock retention capacity and processing activities.

Area Operation

3.3. The area of operation of the proposed project will be the operational area of Farmers Service Society Jahanganj, Farrukhabad having headquarters at Jahanganj village, which is well connected by road from Farrukhabad city (14 km.)

3.4. The existing society is having 2 hec. of land and the proposed cold storage will be constructed on the same piece of land having road side location. The main feature of the location of the site is that the three villages of the society having concentration of potato growers.

Project Component

3.5. The following will be project component :

(a) Farm Guidance Unit - Through the services of Farm-supervisors, the potato growers will be educated in modern technic of production use of machinery and protection practices.

(b) Cold Storage and Procurement Unit

The F.S.S., Jahanganj will construct a cold-store of 4000 tonnes capacity from the loan facilities available through NCDC for the purpose. The procurement unit of the society ~~will~~<sup>will</sup> procure ~~produce~~<sup>potato</sup> of farmers.

(c) Processing Unit - The processing unit will undertake the potato processing activities/value adding activity. To begin with a 100 tonnes potato will be processed into chips.

(d) Marketing Unit - The potato as whole and finished product as chips shall be marketed by the unit.

Project Period :

3.6. The Project envisages that the marketing plan would be achieved to the capacity of 18400 tonnes by using cold storage facility of 4000 tonnes and undertaking processing activity over a time span of five years. The pfoject would be reviewed for evaluation and expansion thereafter.

CHAPTER - IVDetails of operations under each component

4.1. The following are the operational details of each component:-

(a) Farm Guidance

Each field of the potato growers will be **inspected** by the Agricultural Supervisor and proper advice in regard to preparation and digging of field, soil testing, use of fertilizers, sowing, timings, irrigation timing and harvesting etc. will be given as per a plan to the farmers. The growers will be educated in regard to improved practices of cultivation and proper use of farm machinery.

(b) Cold Storage

The maximum utilization of cold store will be ensured as per the storage-plan prepared on the basis of Potato arrival and dispatches, given in annexure-X. During the period from June to December the vacant space of the cold storage will be utilized for the purpose of storing mangoes and vegetables grown in the area. A cycle of procurement quantity, processing, marketing and storing is to be followed so as to increase the bargaining strength of the potato growing members of the society.

(c) Processing

The processing of potato into chip will be undertaken @100 tonnes per <sup>month</sup> ~~month~~. This activity will be done as under.

- Washing and cleaning of potato.
- Boiling
- Drying
- Frying
- Salt mixing

**The processing cost of potato into chips/wedges is given in** <sup>months</sup> ~~month~~ **annex IX A Annexure IX A.**

(a) Marketing

The marketing and procurement operations should be planned together, so as to achieve maximum economy of transport. For procurement arrangements, the F.S.S. Jhanganj will enter into agreement with member-farmers <sup>and</sup> the input <sup>and</sup> supply will be given on the condition that the potato produce **must** be given to the society at a common place in each village. As regard marketing the society will enter into agreement with Potato Federation to receive the quantities of potato on market price as per the despatches plan given in Annexure X.

CHAPTER - V

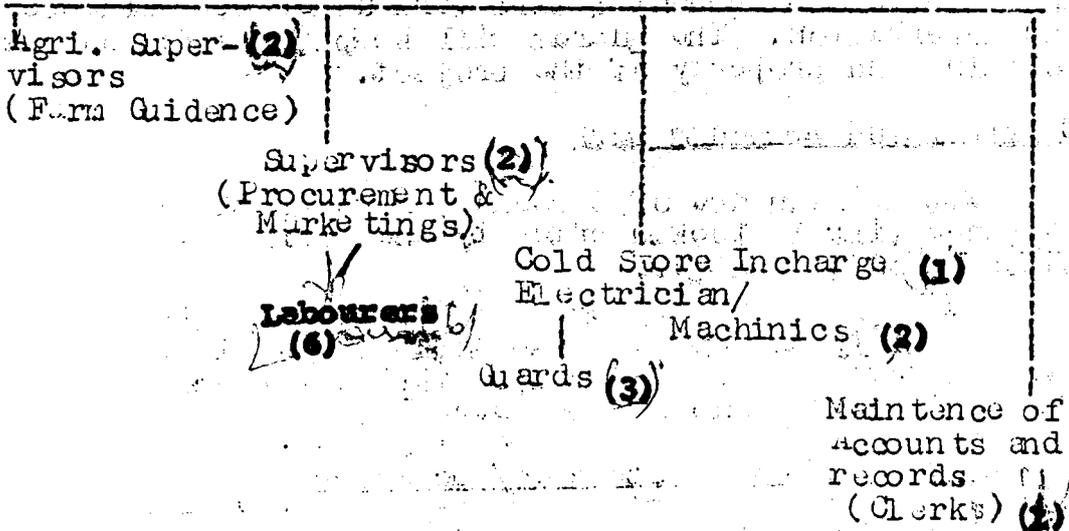
Organisation and Management

Management

The appended below is the organisation chart of the project:-

Board of Directors

Manager/Secretary (1)



Board of Director

There will be a member of the Board from each village. The Board will be headed by a Chairman and a Vice-Chairman. The Manager/Secretary will also be the member of the board, but will not have the right of vote. All policy decisions ~~are to be taken~~ by the Board.

Manager/Secretary

There will be one Manager/Secretary who will be responsible to the Chairman and Board of Director for ~~execution of~~ the decision and policy decided by the Board. He will supervise the work of all the employees of the project and give guidance to them.

Agriculture Supervisor (Farm Guidance)

The work of farm guidance will be divided among the two Agri. Supervisors by clear demarkation of their area i.e. all the villages of the project area into two part as per the number of potato growers.

Supervisors, (Procurement and Marketing)

The work of procurement and marketing will also be divided into two part and each Agriculture Supervisors will be responsible for procurement and marketing of potato of their area.

Cold Store I/C & Electrician/Machenics

The Cold Store Incharge will be responsible for maintenance and repair of the cold storage. The Electrician and Machenics will work under his guidance and supervision. The guards will keep the vatch on the building and property of the project.

Clerical and Accounts Work

The Maintenance of accounts, records and correspondence will be looked after by the clerk, under the **direct** supervision of Manager.

## Financial Analysis

- 6.1 The project envisages 100 per cent of potato from the potato-growers of the area of operation of the society.
- 6.2 It is proposed to instal electric chipsmaking machine which cost Rs. 5 lakhs having a capacity of processing 5 ton raw material in a day i.e. 2 shifts of 8 hours each.
- 6.3 The potato will be procured from the farm gate and transportation cost etc. will be borne by the society.
- 6.4 The so procured potato will be parked and stored in cold storage and will be marketed in summer season to Potato Federation U.P., **Parukhabad**.
- 6.5 The farmers at present are getting the prices ranging between Rs. 50/- to Rs. 55/- per quintal on average basis which will be increased to Rs. 70/- per quintal and sold to potato federation at Rs. 90/- per quintal.
- 6.6 Potato chips will be sold to potato federation in packets.
- 6.7 The benefit cost ratio comes to 1-113.
- 6.8 The IRR comes to 15-623.
- 6.9 The break even product comes to 36-38 per cent.
- 6.10 The farmers will get an additional price of Rs. 6.80 to Rs. 11.64 per ton as bonus. Thus an element of ploughing back the returns has been introduced.
- ~~6.10 The farmers will get an additional price of Rs. 6.80 to Rs. 11.64 per ton as bonus. Thus an element of ploughing back the returns has been introduced.~~
- 6.11 As far as the economic benefits are concerned the major contribution will be by way of general market awareness in the area.
- 6.12 Labour employment will be generated to a limited extent.
- 6.13 Through farm guidance, farmers will be in a better position to increase the quality of potato and will also be in a position to save losses to a considerable extent,

Economic And Social Benefits

Implementation of the project will have the following impact.

- Farmer beneficiaries: The potato grower <sup>will have the</sup> ~~s may have the~~ benefits of continuous demand of his produce. They will not depend upon the fluctuations of market demand. A secured and continuous demand for potato would involve them in taking more interest in increasing their production quantitatively and qualitatively. They thus would take potato cultivation more like a business than a way of life which earlier they were practicing. They <sup>will</sup> ~~will adopt~~ better practices, use better seed etc. for improving production. This would result in upliftment of their economic conditions. In addition to improving the economic conditions, the increased production would generate more labour at the field level.
- Saving of the wastages: In absence of cold storage there was a 5 per cent wastage at the storage and 5 per cent ~~in~~ transportation. This wastage saving would further benefit the potato growers.
- Employment Generation: Besides economic gain by processing potato into chips, this activity will generate additional employment in the project area.
- Consumers Benefit: The project implementation would result in planned and continuity of supply of potato at reasonable price.

CHAPTER - VIII

With a view to achieve effective implementation of the project the following is recommended :

1. ~~In addition~~<sup>to</sup> taking up processing activities of potato, such as chips, wafers, patties, flakes, flour, etc. it is desirable to increase adaptability of these potato products.
2. In addition to 5 per cent wastage at the farmers level, there is additional 10 per cent wastage at storage and transportation levels. This wastage of percentage is more in comparison to other countries, such as in case of USA, ISRAEL, JAPAN, FINLAND, GERMANY and NETHERLAND, the similar wastages are less than 3 per cent only. It is therefore desirable that suitable steps should be taken to reduce this high percentage of wastages.
3. In order to create acceptability of the potato product, it is desirable that the processed product must have attractive colour, acceptable texture and good flavour so as to fetch better price and quick acceptability in the market.
4. Late ~~blight~~<sup>blight</sup> of potato is common problem of potato crop <sup>in the area</sup>. Agriculture Supervisor of the project should arrange soil-testing, before cropping, ~~and plant protection~~<sup>and plant protection</sup> ~~measures~~.
5. With a view to improve yield per hectare, the harvesting operations should be rescheduled and proper farm guidance is provided so as to reduce digging losses alongwith increasing production.

ANNEXURE - INUTRITIVE VALUE OF POTATO IN COMPARISON  
WITH OTHER FRUITS AND VEGETABLES

(Per 100 Gm. of edible portion)

Name of the fruit and vegetable	Protein (g)	Carbohy- drates (g)	Fat (g)	Calories (g)	Minerals (g)
<u>VEGETABLES</u>					
1. Potato	1.6	22.6	0.1	97	0.6
2. Onion	1.2	11.0	-	49	0.4
3. Tomato	0.9	3.6	0.2	20	0.5
4. Okra	1.9	6.4	0.2	35	0.7
5. Peas	7.2	15.8	0.1	98	0.8
6. Cauliflower	2.6	4.0	0.4	30	1.0
7. Carrot	0.9	10.6	0.2	47	1.1
8. Cabbage	1.8	4.6	0.1	27	0.6
9. French Beans	1.7	4.5	0.1	26	0.5
10. Brinjal	1.4	4.0	0.3	24	0.3
<u>FRUITS</u>					
1. Mango	0.6 to 1.1	11.8 to 21.1	0.1 to 0.9	50 to 89	0.3 to 0.6
2. Banana	0.8	24.4	0.8	107	0.8
3. Orange	0.6	7.3	0.2	33	0.8
4. Guava	0.9	11.2	0.3	51	0.7
5. Pineapple	0.4	10.8	0.1	46	0.4

Contd.....

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6.	Grapes	0.5	16.5	0.3	7.	7.6
7.	Apples	0.2	14.9	0.5	65	0.4
8.	Pears	0.3	13.4	0.3	58	0.
9.	Peaches	1.2	10.5	0.3	50	0.8
10.	Apricots	1.0	11.6	0.3	53	0.7

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Name of the fruit and vegetable	Vitamin A.I.U.	Thiamin (mg.)	Riboflavin (mg.)	Nicotinic acid (mg)	Vitamin C (mg.)
1. Potato	40	0.10	0.01	1.2	17
2. Onion	0	0.08	0.01	0.4	11
3. Tomato	585	0.12	0.06	0.4	27
4. Okra	88	0.07	0.10	0.6	13
5. Peas	139	0.25	0.01	0.8	9
6. Cauliflower	51	0.04	0.10	1.0	56
7. Carrot	3150	0.04	0.02	0.6	3
8. Cabbage	2000	0.06	0.03	0.4	124
9. French Beans	221	0.08	0.06	0.3	14
10. Brinjal	124	0.04	0.11	0.9	12

FRUITS

1.	Mango	500 to 25940	0.04 to 0.11	0.05 to 0.2	0.0 to 6.3	13 to 85
2.	Banana	93	0.03	0.07	0.5	0
3.	Orange	1800	-	-	0	30
4.	Pineapple	30	0.20	0.12	0.1	39
5.	Guava	0	0.03	0.03	0.3	22
6.	Apples	0	0.12	0.03	0.2	1
7.	Pears	0	-	-	0.1	2
8.	Peaches	0	0.02	0.03	0.5	6
9.	Grapes	0	0	-	0	-
10.	Apricots	2160	0.04	0.13	0.6	6

ANNEXURE - IIPLANTING AND HARVESTING PERIOD OF POTATO IN INDIA

Region	Crop	Planting	Harvesting
<u>PLAINS:</u>			
Northern	Autumn	Sept.-Oct.	Dec.-Jan.
	Winter	Oct.-Nov.	Feb.-Mar.
	Spring	Dec.-Jan.	Mar.-April
Plateau	Kharif	June	Sep.-Oct.
	Rabi	Oct.-Nov.	Feb.-March
<u>HILLS</u>			
1. North-Western	Winter	Jan.-Feb.	July-Aug.
2. North-Western	Summer	Mar.-April	Sept.-Oct.
3. Southern	Summer	Mar.-April	Aug.-Sept.
	Autumn	Aug.-Sept.	Dec.-Jan.
	Spring	January	May-June.

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Source: Potato in India, CPRI (ICAR)

ANNEXURE - IIIAREA, PRODUCTION AND YIELD OF POTATO  
IN INDIA (FROM 1979-80 TO 1984-85)

YEAR	AREA (ooo ha.)	PRODUCTION (000 tonnes)	YIELD (
1979-80	685	8,326	122
1980-81	729	9,667	133
1981-82	771	10,075	131
1982-83	750	10,108	134
1983-84	793.9	12,149.2	153.03
1984-85	853.1	12,640.13	148.17
1985-86	850.0	10,700.00	125.90

SOURCE : Directorate of Economics and Statistics,  
Ministry of Agriculture, Govt. of India.

## ANNEXURE - IV

STATE-WISE PRODUCTION, CONSUMPTION AND AVAIL-  
ABILITY OF POTATOES FOR INTER-STATE TRADE  
DURING 1984-85

(000 Tonnes)

Sl. No.	State	Potato Period	Wastage	Net Avail for Cons.	Cons. in State	Avail for Inter-State (3-6)	Addl. Reg. (6-3)
1	2	3	4	5	6	7	8
1.	A.P.	0.6	0.03	0.47	855		854.4
2.	Assam	325.2	16.00	244.20	492		166.8
3.	Bihar	1343.9	67.00	1008.00	1310	33.0	0.0
4.	Gujarat	322.6	16.00	243.00	733		410.4
5.	Haryana	173.1	8.50	130.00	240		66.9
6.	H.P.	40.9	2.00	14.00	101		60.1
7.	J & K	4.1	0.20	1.90	119		149.9
8.	Karnataka	152.0	7.00	115.00	565		
9.	H.P.	378.8	19.00	284.00	661		
10.	Maharashtra	59.9	3.90	45.00	1128	120.1	
11.	Manipur	6.8	0.40	3.00	34	7.5	
14.	Meghalaya	139.1	7.10	62.00	19		
13.	Nagaland	19.5	1.00	9.00	12		
14.	Orissa	92.3	4.30	70.00	591		
15.	Punjab	496.2	25.00	372.00	436	66.0	
16.	Rajasthan	6.8	0.40	5.00	371		
17.	Sikkim	21.3	1.00	10.00	4	17.3	
18.	Tamil Nadu	66.9	3.50	50.00	783		
19.	Tripura	38.4	2.00	17.00	43		
20.	Uttar Pradesh	5799.9	290.00	4350.00	1874	3925.9	

Contd....

: 24:

West Bengal	3135.3	152.00	2356.00	1620	1515.3
Arunachal	16.0	0.80	7.20	7	9.0
Delhi	1.7	0.00	1.40	284	-
Mizoram	0.7	0.00	0.40	-	-
Other States				285	

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ALL INDIA	12642.0	626.13	9397.57	12609	5688.1	565
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Note: Figures of consumption indicated in Col. 7 are on pro-rata basis, with reference to 1982-83 consumption pattern mentioned in Exhibit D of Case Study (U.P. Potato Dev. Federation).



ANNEXURE VIPOTATO PRODUCTION, AREA UNDER PRODUCTION AND  
PER HEC. PRODUCTION IN FARRUKHABAD DISTRICT

YEAR	Production (in Lakh M.T.)	Area under Production	Per Hec. Production
1	2	3	4
1980-81	8.10	38608	212.00
1981-82	7.02	39277	179.00
1982-83	6.63	37650	177.00
1983-84	10.70	40000	251.94
1984-85	11.00	41500	255.00
1985-86*	8.21	40252	204.00
1986-86			

Source: Office of the District Potato Officer,  
Farrukhabad.

\* Note: 1. Low production due to diseases in  
early crop of potato in the Farrukhabad  
District.

2. The maximum yield attained by a few progressive  
cultivators of the area was to the extent of  
310 metric tons per hectare during 1984-85.  
This can be taken as present potentiality  
of increasing the yield of potato per  
hectare.

ANNEXURE - VIITHE FARMER'S SERVICE SOCIETY LTD., JAHANGANJBALANCE SHEET AS ON 30TH JUNE 1986

PROFIT		LOSS	
	Rs.		Rs.
1. Share received	22132.00	13. Share returned.	4320.00
NCDC	195000.00	14. a) Deposits returned to members	31198.70
a) Deposits from members	51676.88	b) Deposits returned to non-members	2340.00
b) Deposits from non-members	2800.00	15. Loan returned to Central Bank	1902943.14
2. Loan from Central Bank	2253314.50	16. Deposits returned to Distt. Coop. Bank	825000.00
3. Deposits from society	1455700.00	17. Loan returned to Govt.	-
4. Loan from Govt.	-	18. Loan given to members	1221729.00
5. Loan from members	65741.00	19. Deposits with Central Bank	385497.01
6. Deposits returned from the Bank	201520.35	20. Deposit with Society	979795.50
7. Deposits returned from society	876574.40	21. a) Share invested in Central Bank	46870.00
a) Share received from Central Bank	-	b) Amount invested in other places	3731.70
b) Return from investment	-	22. a) Interest paid to Central Bank	308954.85
8. a) Interest from members	220944.14	b) Interest paid to others.	-
b) Interest from Central Bank	155.46	23. Profit/bonus given to members	-
c) Interest received from others.	-	24. Value of goods purchased	1018980.89
9. Value of N.T. sold.	1036412.47		

contd...

: : :

7. a) Other income from Central Bank	-	25. Pay and Share Expenditure	67707.89
b) Other income from others	304947.87	26. Other amount given to Central Bank	3705010.02
1. Total income of the year.	<u>10409763.93</u>	27. Total expenditure of the year	<u>10905935.20</u>
2. Cash Balance in the beginning of the year.	<u>134.08</u>	28. Cash balance	3962.81
Grand Total (11+12)	<u>10409898.01</u>	Grand Total (26+27)	<u>10409898.01</u>

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ANNEXURE - VIII

MONTH-WISE MINIMUM AND MAXIMUM MARKET  
RATES OF POTATO IN MARKET YARD FARRUKHABAD (U.P.)

Month	Years				
	1983	1984	1985	1986 *	1987
January	40-80	42-70	26-40	55-90	65-90
February	50-80	60-81	25-45	60-95	
March	80-82	75-85	20-35	100-180	
April	50-63	85-112	25-45	180-198	
May	50-63	109-112	30-52	180-200	
June	50-63	100-115	30-60	172-215	
July	110-115	N.A.	60-90	180-230	
August	40-62	N.A.	70-110	160-190	
September	50-55	N.A.	80-110	150-200	
October	60-62	N.A.	85-130	147-280	
November	57-145	N.A.	85-135	152-280	
December	32-55	N.A.	85-130	80-175	

Source : Office of the Potato Development Officer,  
Farrukhabad (U.P.)

\* Note : High rates due to Blit of Potato was  
spread as a weather condition.

N.A. : Not available.

List of popular Products made from Potato

- I. Potato chips
2. Forzen frech fries
- 3.. Patties
4. Mashed
5. Diced and hashbrown potatoes.
6. Cream of potato scups
7. Dahydrated potato granules
8. Potato flakes
9. Potato starch for paper textiles.
- IO, Potato starch for food industries and for adhesives
- II. Potato flour for backing industries
- I2. Canned white potatoes
- I3. Canned prepeched potatoes
- i\$. Alcohol
- I5. Potato pulp to feed the livestock

Note - As per Potato Atls the more quantity of potatoes is fed to livestock than that used for humen consumption in many of the potato producing countries.

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Source - "Potato Atlas - on International statistics on potato production and utilization - Compiled by International Potato Centre Lima-peru, Jul'78.

Annexure - IXCost of Cultivation of Potato per hac.

<u>Sl. No.</u>	<u>Operation</u>	<u>Cost (Rs.)</u>
1.	Cost of seed (Rs.250 per Qtl. X 12 Qtl.)	3000.00
2.	Fertiliser (150 Kg. + 100 Kg + 100Kg.) N P K	2750.00
3.	Cost of Preparatory & Tillage	750.00
4.	Sowing/interculture/Softening/ Digging	2500.00
5.	Irrigation charges	750.00
6.	Pesticide with Labour charges	1250.00
	Total Cost =	Rs.10500.00
		=====

PROCESSING COST OF ONE QTL. POTATO INTO CHIPS/WAPORSChips

-Price of one Qtl potato	-	800.00
-labour charges of chips-making including cleaning etc.	-	150.00
-drawing cost	-	100.00
-frying material & frying cost	-	350.00
-salt mixing and packing cost	-	100.00

Total Rs. 1500.00

Note - Net weight of one Qtl potato into chips will be about 200 KG. and wholesale marketing price @ Rs.10/- per Kg. will be Rs.2000.00 and - total cost of processed potato Rs.1500.00 = net profit Rs.500.00

Wapors

-Price of one Qtl .potato	-	800.00
-labour charges for wapors making and cleaning etc.	-	150.00
-frying material and labour cost	-	450.00
- Salt mixing and packing cost	-	100.00

Total Rs. 1500.00

Note Net weight of one Qtl potato into wapors will be about 200 Kg and whole sale marketing price @ Rs.10/- will be Rs.2000.00 and - total cost of processing Rs.1500.00 = net profit Rs.500.00

Note: The cost of manually operated chips/wafors making machine from a Delhi firm has been quoted at Rs.250 and power operated machine at Rs.5000 only.

Annexure - A

Potato Arrival and dispatches Vis-a-Vis  
Mktg.-Processing and stock position ~~of monthwise~~ **in**  
**the Project in a year.**

(M.T.)

Sl.No.	Month	Arrival	Dispatches		Stock
			Mktg.	Processing	
1	Jan.	3000	-	100	2900
2	Feb.	4000	2800	100	1100
3	March	6500	3500	100	2900 *
4	April	3500 <sup>f</sup>	2000	100	1400 *
5	May	-	4200	100	4000
6	June	-	1900	100	2000
7	July	-	1000	100	900
8	August	300	900	100	200
9	Sept.	300	-	100	400
10	Oct.	-	-	100	300
11	Nov.	-	100	100	100
12	Dec.	800	-	100	800

Note: - \* Stocks of Jan. & Feb. will be sold in April & May and the ~~fresh~~ arrivals of March & April above 4000 mt. will be kept in open for few days. Alongwith the dispatches, open stock will be kept in cold storage.

MONTHLY CASH INFLOW AND OUTFLOW STATEMENT

<u>Month</u>	<u>In-flow</u>	<u>Out-flow</u>	<u>Monthly surplus/deficit position</u>
January	2.00	26.822	-24.822
February	27.00	35.412	- 8.212
March	33.50	56.902	-23.402
April	20.00	31.112	-11.112
May	39.80	1.052	+38.748
June	19.10	1.053	+18.047
July	11.10	1.052	+ 9.948
August	10.10	2.802	+7.298
September	2.00	2.803	- 0.803
October	2.00	1.052	+ 0.948
November	2.90	1.052	+ 1.848
December	2.00	7.092	- 5.092

Annexure - XI

Organisational chart of Potato Marketing  
for the Society.

<u>Posts</u>	<u>No.</u>	<u>Rate (Rs.)</u>	<u>Amount (Rs.)</u>
1. Manager	1	1000.00	12000.00
2. Supervisor	2	800.00	19200.00
3. Agril. Supervisors	2	800.00	19200.00
4. Cold Storage Incharge	1	800.00	9600.00
5. Electrician/ Machenics	2	500.00	12000.00
6. Clerk	1	800.00	9600.00
7. Permanent Labour	6	400.00	28800.00
8. Guard	3	400.00	14400.00
			124800.00

or say Rs. 1.25 lakhs

Establishment Cost for Project period  
@5% increase every year.

<u>Year</u>	<u>Rs. in Lakhs</u>
I -	1.25
II -	1.31
III -	1.38
IV -	1.45
V -	1.52

Annexure - XII

Working Capital requirement and Interest thereon @ 15% p.a for a stock of 6500 MT for 3 months

	(Rs. in Lakhs)
1. Procurement of 6500 MT. (@Rs. 50/- per MT)	= 3.25
2. Interest (@ 15% for 6 months)	= 0.24

Working Capital Requirement of Processing for 100 tonnes of processing

1. Labour charges per tonnes	Rs. 1000.00
2. Packing material	Rs. 500.00
	<hr/>
	Rs. 1500.00 per tonnes
	for 100 tonnes Rs. 1.50 lakhs

interest @ 15% for 1.50 lakhs for one month  
Rs. 1875.00 say Rs. 0.02 lakhs or say 0.24 per year.

\* Note: Maximum procurement of March as 6500 MT has been taken as the maximum limit, which would be marketed and amount realised within a period of six months.

## Cash Flow Statement

	I	II	III	IV	V
1. Procurement	18400	20240	22264	24490	26940
2. <u>Waste</u> (5)	17480	19228	21151	23265	25593
Remaining of which available for mktg.	17380	19128	21051	23165	25493
Process	100	100	100	100	100
3. Cost of Transportation Rs. 5/Ton	0.87	0.96	1.06	1.16	1.28
4. Cost of Grading. Rs. 1 per ton.	0.17	0.19	0.21	0.23	0.26
5. Cost of Packing in Gunny bags (12.5 Gunny bag) Rs. 4/bag & Rs. 0.25 labour charges per bag i.e. Rs. 4.25/ bag. i.e. Rs. 53/ton.	9.26	10.19	11.21	12.33	13.56
6. Cost of storage (a) Electricity/mt Rs. 8.125/mt. (b) Labour cost Rs. 20/mt.	1.42	1.56	1.72	1.89	2.08
7. Establishment Cost	1.25	1.31	1.38	1.45	1.52
8. Intt. on working Capital for Mktg./ processing	0.48	0.48	0.48	0.48	0.48
9. Packing & Labour cost of finished goods.	1.50	1.50	1.50	1.50	1.50

	I	II	III	IV	V
10. Cost of maintenance & repair @ 5%	0.30	0.31	0.33	0.35	0.37
11. Insurance	0.50	0.50	0.50	0.50	0.50
12. Cost of procurement	15.75	17.00	18.39	19.89	21.55
	122.36	134.60	148.05	162.66	178.45
	138.11	151.60	166.44	182.75	200.00

Cost-Vis-a-Vis- Revenue

(Rs. in lakhs)

S.No.	Particulars	Year I	Year II	Year III	Year IV	Year V
1.	Capital Cost	70.00	-	-	-	-
2.	Interest on fixed capital (Borrowings) @ 12%	8.40	6.72	5.04	3.36	1.68
3.	Variable Cost	138.11	151.60	166.44	182.75	200.00
4.	Total Cost	216.51	218.32	231.48	249.11	271.68
5.	(a) Revenue-Mtg. of Potatoes @ Rs. 900/-MT	156.42	172.15	189.46	208.49	229.44
	(b) Processing @ 1/5 of Potatoes-i.e. Chips 20 MT @ Rs. 10 MT	2.00	2.00	2.00	2.00	2.00
6.	Net Benefit	158.42	174.15	191.46	210.49	231.44
7.	15% D.F. on Net Benefit	11.91	15.83	19.98	24.38	29.76
8.	Present Worth of Cost	127.46	149.69	172.83	196.45	222.24
9.	Present Worth of Benefits	137.82	131.65	125.98	120.40	115.02
10.	BCR					1.113

	0	I	II	III	IV	V
11. Net Benefits	(70.00)	11.91	15.83	19.98	24.38	29.76
12. Add 20% junk value of assets	-	-	-	-	-	14.00
13. Total Net Benefits	(70.00)	11.91	15.83	19.98	24.38	43.76
14. Net Present Worth at 15% D.F.	(70.00)	10.36	11.97	13.15	13.94	21.75
15. Total N.P.W. @ 15% D.F.			70.00	71.17	71.17	71.17
16. Net Present Worth at 20% D.F.	(70.00)	9.92	10.98	11.55	11.75	17.59

17. IRR =  $\frac{15 + 5 \times X}{1.17 - (-) 0.21} = 15.623$

70.00 - 61.79 = (-) 8.21

18. Break even = Fixed Cost (Ins. cost of Ment. & Rep. + Ass't. Cost + Intt. on Fixed Capital) = 7.27 + 19.98 (Contribution) x 100 = 36.38

AD

Annexure - XV

Payment of Bonus to Potato growers  
Vis-a-Vis repayment Schedule

Year	Net income (Rs. in lacs)	10% of net income (Rs. in lacs)	Per ton bonus to growers in Rs.	Net surplus in Rs. lacs. Schedule	Principal	Interest provision already made in cost benefit analysis
I	11.91	1.19	6.80	10.72	8.00	
II	15.83	1.58	8.21	14.25	12.00	
III	19.98	2.00	9.45	17.98	14.00	
IV	24.38	2.44	10.48	21.94	18.00	
V	29.76	2.98	11.64	26.78	18.00	
					<u>70.00</u>	

FIRST  
ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA

NEW DELHI / BANGKOK / TOKYO / SEOUL

1st November 1986 - 3rd May 1987

PROJECT PREPARED DURING HOME COUNTRY ASSIGNMENT

Project Title: Orange Development in Jalawar District,  
Rajasthan State  
Country: India  
Prepared by: Mr N.N. Joshi

Funded by the Government of Japan  
and  
Executed by the International Cooperative Alliance  
in collaboration with its member organisations in  
India, Thailand, Japan and the Republic of Korea.

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( N.N. JOSHI )

ORANGE DEVELOPMENT PROJECT IN JHALAWAR DISTRICT OF  
STATE OF RAJASTHAN, INDIA

CHAPTER - I

SUMMARY

- 0.1 The project focuses on design and rationale of integrated marketing and processing of oranges in Bhawani Mandi of Jhalawar District of Rajasthan State.
- 0.2 The project envisages a better marketing alternative for growers by organising their own co-operative institution which will procure 50 per cent of the total production in the area. Fresh fruits will be marketed in Delhi, Jaipur and Kota markets.
- 0.3 Project envisages a minimum price of Rs.1500 per ton to the grower members as their farm gate prices and increase of Rs.1600 per MT during the sixth year of operation. These prices have been assumed on normal production and market conditions.
- 0.4 Picking and harvesting charges shall also be borne by the marketing society.
- 0.5 Project has envisaged procurement by way of contract with the growers at the flowering stage giving them 1/4 of the estimated value in advance and remaining would be paid at the time of final picking.
- 0.6 It has been envisaged that State Government will stand guarantee for providing working capital to society. Thus the margin money required will be only 10%. Rate of interest on working capital will be 15%.
- 0.7 A capital investment of Rs.20.00 lacs for necessary infrastructure for the society is made, which will be raised as equity from State Government and members Rs.2.00 lacs and long term loan of Rs.18.00 lacs from State Co-operative Bank.

0.8 It has been envisaged that after undertaking the market of fruits, the society will enter into the processing activity in 6th year by setting up of orange juice concentrate plant at Bhawani Mandi having a capacity of 32 MT raw material in two shifts per day. The investment for construction of processing plant will start from third year. In second year the project will be got sanctioned from financial institutions and other agencies.

0.2 Processing plant will require a fixed capital investment of Rs.110.00 lakhs, which is to be raised as under:

<u>Sources</u>	<u>Amount (Rs.in lakhs)</u>	
Members share 7½%	8.25	
State Govt. shares 32½%	35.75	44.00
Long term loan		<u>66.00</u>
		<u>110.00</u>

0.10 Initially the plant will run below 100% capacity for 3 years. From 4th year to 10th year it will run for 3 shifts in a day for few days in a year (180 days). The maximum capacity of 130.21 per cent will be achieved in 11th year.

0.11 The benefit cost ratio of the project comes at 1.012 per cent and IRR more than 50%.

0.12 While attempting sensitivity test the benefit cost ratio comes at 1.04 per cent and IRR 28.93 per cent, assuming that revenue will be reduced by 10% due to decrease of prices of fruits and concentrate by 10%.

0.13 The interest on fixed capital will be accumulated for first five years, as during first five years the society will not be in position to pay interest. Therefore, the interest on fixed capital will be accumulated for first five years and the total borrowing of Rs.84 lacs will be paid in 10 equated and annual instalments from 6th year.

0.14 The project will motivate the farmers towards extension of orange plantation and better management of existing orchards.

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## CHAPTER - II

### BACKGROUND

- 2.1 India is endowed with rich Horticultural resources: Fruits and vegetables are being grown in approximately 3 million hectares in the country, of which 0.148 million are under citrus fruits cultivation (Annexure-1). Out of these 20,000 hectares of land is under horticultural cultivation in Rajasthan State, though the state has a 15 million hectares net cropped area. There is thus substantial scope of increasing the horticultural cultivation in the state. In Rajasthan State, fruits like orange, Mango, Guava, bor etc. are grown commercially on limited scale.
- 2.2 Nagpur oranges (loose skinned oranges) are being grown traditionally in Jhalawar District of Rajasthan State. In 1972, orange plantation was undertaken in the district on large scale with the assistance of NABARD (National Bank for Agriculture and Rural Development). The position in respect of targets and achievement under different NABARD schemes for orange plantations is given at Annexure-2.
- 2.3 Presently about 2800 hectares is under orange plantation in Jhalawar District. The total estimated production, at present, is about 15,000 tonnes and crops worth Rupees 25 to 30 million is marketed in the country. Bhawani Mandi has developed into an important marketing centre for orange growers. This part of the State favours the commercial raising of citrus fruits like 'Loofe Skin Oranges' and good quality lemons.

2.4 Location: Jhalawar is situated in South-East part of Rajasthan bordering Madhya Pradesh state on North-west and on the north-west and North borders Kota district of the state is situated (Annexure-3). The District is one of the smallest district of the state comprising 1.82% area of the State i.e. 9950 Sq.Kms. The population of the district as per district as per 1981 census was 784998, of which 77 per cent population depends on the agriculture.

The district comprises of six blocks namely Jhalara Patan, Bakani, Khanpur, Manohar Thana, Farwa Sunnel and Dug. The district is characterised by hills, rocky out-crops, undulated lands and vast plains. There is a plain belt from Bhawani Mandi to Asnawer village.

The soils of Jhalawar are grey to Black, well drained and deep which favour the commercial cultivation of different types of fruit crops. The net cultivated area in this district is 48 per cent of the total geographical area which comprises 22 per cent fallow land, 15 per cent forests, 8 per cent uncultivated and remaining 7 per cent is not available for cultivation. The percentage of small and marginal farmers in the district is quite substantial. The average rainfall is 35" (Annexure-4). The total irrigated area of the district in 1985 was 16.35 per cent of the total cultivated land, mostly irrigated by canals, tanks and wells. The sub-soil water table in the district varies from 6.4 meters to 13 meters.

2.5 Availability of Produce: At present a total yield of 15,000 tonnes of oranges is estimated from the bearing plants in an area of 800 hectares. In an area of 2000 hectares plantation ranging from 1-5 years age is estimated. Further an average increase of 400 hectares every year is anticipated with the financial assistance from ongoing schemes in the district. As per the recommended practices of State

Agricultural Department 250 plants can be grown in a hectare excluding mortality (10%). It has been estimated that during next 5 years an additional yield of 4000 tonnes will be there due to increased trend of plantation. By the end of 1989-90 the total yield is expected to be to the extent of 21000 tonnes which will further increase to 60,000 MT by the year 1997-98.

2.6 Labour: Plenty of labour force is available in project area. If the local labour is trained and used in harvesting and packing of oranges, it can provide better employment opportunities to them. As the female labour is mostly used in packing, sorting, grading and packing by the fruit contractors, the local female labour should be trained for these works. In long run, the female labour should be deployed in other farm and non-farm works by forming and promoting women co-operative societies.

2.7 Nursery : Presently, farmers are getting plants from Nagpur and Agra which costs them Rs.4-5 per plant at Jhalawar and Bhawani Mandi. Recently two farmers have started nurseries in the Bhawani Mandi area and they are supplying the plants at a cost of Rs.3.50 per plant. Besides these, there are two Government nurseries at patan and Jhalawar having 450 good quality mother plants of Nagpur variety. But still farmers are getting plants from Nagpur and Agra private nurseries.

2.8 Existing Marketing System: There are two seasons for orange marketing. The winter crop on a small scale is harvested and marketed in December and January. The main marketing seasons for oranges is from February to April. The orange growers sell their crop to private contractors at flowering stage i.e. pre-harvest sell. The amount and volume of contract will depend upon the crop condition in Nagpur area. These contractors make payment of the contracted amount, mostly in two instalments and sometimes in 3 instalments. 25 to 30 per cent contracted amount is paid by the contractor at the time

of making contract and remaining at the time of final picking. Sometimes second instalment is paid in two parts depending upon the mutual consent. These contractors do not provide any input services to farmers. As picking, sorting, packing and transportation is a specialised job, the contractors bring skilled labour from Nagpur depriving the local people from job opportunities.

Some small growers generally sell their produce in the Bhawani-Mandi market. As per the practice the growers carry their produce in smaller vehicles like Matadors having a capacity of about 2 tonnes of fruit unpacked. Such fruits are transported in the night or early morning so that they can attend auction in Bhawani Mandi Market. The auction takes place in a fruit market which is not regulated by the State Government. There, the system of auction is not open but it is traditional close auction and the farmers are generally not aware of the highest bid as a cloth is covered on hands by the auctioneer and the commission agents catch the figures of the auctioneer to indicate the prices of the fruit lot, which they are willing to offer under covered cloth in a traditional system. Since last 3 years farmers have been fetching prices from Rs.1100 to 1250 per metric tonne. The growers will be very happy to receive the price of Rs.1200 to 1250 per metric tonne at their orchards without incurring any harvesting and transportation cost.

As mostly the contracts are decided at flowering stage, the farmers are generally unaware of the actual value of their produce and rates prevailing in different markets of the country. Thus, their ignorance for market trend brings less returns, Similarly the practice of commission agent and traders in buying the oranges also does not help farmers in getting better returns. Further, farmers do not want to incur harvesting and transportation cost and do not want to take risk. The farmers feel satisfied if the orchard is sold on contract even at lower price. The contractors have links with

the wholesale agents of Mandis in large cities like Delhi, Jaipur, Indore and Udaipur. The contractors work as middle man between the growers and wholesale agents. They usually get advance from the wholesalers to purchase orchard on contract

2.9

Storage Facilities: Orange being a perishable fruit cannot be stored for a longer period. Mostly farmers want immediate returns as soon as the crop is ready. The farmers have been misguided by the contractors that by storing orange, they would incur loss due to loss in weight and spoilage. At present, there are two private cold storages at Jhalara Patan and Bhawani Mandi with a capacity of 500 tonnes each, which are not fully utilised. Storage is available @ Rs.250 per tonne per season of two months.

2.10

Transport Facility : Jhalawar is situated on the National Highway number 12 connecting Bombay-Bhopal via Indore and Ujjain Bhawani Mandi is at a distance of 45 Kms. from Jhalawar. It is a well developed orange market due to availability of orange and transport facility. Bhawani Mandi Railway Station is on Bombay Delhi line. Railway freight by train for Delhi is Rs.225 per tonne and for Bombay Rs.300 per tonne. Railway parcel vans are easily available for transporting oranges from this station. Railway transport is cheaper to road transport by 40-50 per cent. Sufficient truck transport is easily available at Bhawani Mandi, Jhalara Patan and other important town of the district for despatching oranges to any other part of the country.

2.11

Processing Facility : In Jhalawar and nearby districts, there is no processing unit. Because of the industrial development of Kota Division, there is a demand for processing facility.

2.12

Fruit Marketing Co-operative Society: There is only one co-operative fruit marketing society in Jhalawar District i.e. Jhalawar Phal Utpadak Kraya Vikraya Sahkari Samity (JAFCO), head-quartered at Bhawani Mandi. This society was

organised in 1978 with an objective of marketing of fruits mainly oranges but so far it has not undertaken marketing business. This society is, however, doing the business of distribution of agricultural inputs. The area of operation of this society extends to whole of the district and it can open its branches in any part of the country for expanding its business. Its membership and share capital position as on 30.6.86 is as under:

<u>Particulars</u>	<u>Number</u>	<u>Amount in Rs.</u>
Orange growers	129	5140
Co-operatives	42	5600
Government Shares	1	125000
	-----	-----
	172	135740
	-----	-----

It is essential that an organised marketing system of growers should be developed so that growers are assured of reasonable price for their produce. Such an organisation would not only ensure better returns to farmers by providing them appropriate marketing avenue but will also provide backward and forward linkages to further increase their income by increasing their productivity and processing their produce. Therefore, it becomes necessary to revitalize and strengthen the existing co-operative society.

### 2.13

#### Need for Project :

- (A) Due to present availability and anticipated growth in the orange production in Bhawani Mandi and adjoining areas, it is essential that a co-operative organization with the involvement of growers is created to assure marketing of their produce at remunerative prices and exploiting the potential for value addition of their produce by establishing a fruit processing unit.
- (B) With the organised marketing and processing facility, the available labour in the area, can be provided employment opportunities to a good extent.

- (C) By establishing processing unit, atmosphere for industrial development can be created. Subsidiary industry like packing, carton, cork, etc., may come up.
- (D) There is a good scope of employing labour in picking of fruits, sorting, grading, packing and filling work in the processing industry.
- (E) With the organisation of growers co-operative marketing society, a better alternative for fruit marketing will be possible and the monopoly of private contractors will be restricted.
- (F) The objective of co-operative is not to maximise profits at the cost of growers or the consumers. Its main objective is to ensure remunerative return to the orange growers and fair price to the consumers.

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## CHAPTER - III

### THE PROJECT

#### OBJECTIVES

- 3.1 The basic objective is to increase the income of orange growers of Jhalawar District. This objective will be achieved by promoting the following:
- a) To provide a strong and a sound alternative marketing channel for oranges which will be run and controlled by the growers themselves.
  - b) To improve the productivity of oranges by providing better technical know how, plant protection, disease control and organic practices.
  - c) To provide processing facilities for value addition.
  - d) To establish a nursery for supply of healthy plants to members on a reasonable price.
  - e) To motivate orange growers through interaction and involvement to develop local leadership for developing the economic and social activities.
  - f) To provide market informations to orange growers.

#### 3.2 Area of Operation:

Oranges are grown in all the six blocks of Jhalawar district, the plantation is mainly concentrated in Jhalara Patan, Pirwan and Pach Pahar Talukas and in another 3 Talukas the plantation is scattered.

The Jhalawar district is proposed as the project area as it has all the requisites for growing oranges.

#### Project Component:

The following are the project components:

### 3.3 Input Supply :

There are 61 societies in the orange growing areas of Jhalawar district, these societies are already providing inputs except orange plants to the orange growers. For supply of orange plants, provision of Nursery is essential. It is proposed that the society will provide plants to orange growers at a reasonable price by establishing a nursery, for which provision of Rs.2.50 lacs has been made.

### 3.4 Farm Guidance:

Though the project area has sufficient staff of the State Agricultural Department at the headquarters of the society, i.e. Bhawani Mandi, One Assistant Director assisted by Assistant Agricultural Officer ( Horticulturist ) is working. But it was felt that farm guidance was inadequate and no specific efforts were made to increase the productivity of orange growers. Therefore, it is essential to have a separate farm guidance cell comprising of three Horticultural Extension Officers and 15 Horticultural Extension workers in the society who can advise the farmers in adopting better agricultural practices and increase the productivity of orchards, improve system of irrigation, encourage interculture in plantations between 1 to 5 years etc.

- 3.5 (A) Marketing: The Society will make a start by procuring 20% i.e. 3000 tonnes of the total produce and would reach a procurement level of 30,000 tonnes in 11th year, when the total production would be around 60,000 tonnes, which account for 50% of the total production.
- (B) The traders are also performing a useful function in the area by collecting surplus oranges and selling the same to the consumer. The purpose is not to eliminate the traders completely but to regularise marketing practices and set a healthy trend. If the society procures 50% of the total produce, it would be reasonably good intervention and would

be able to control market and would create healthy atmosphere of competition between traders and co-operatives. This will ultimately result into achieving the goal of economic benefit to producers.

- (C) The society would pay an average price of Rs.1500 per tonne to orange growers as against Rs.1100 to 1250 per tonne, the growers are getting at present. This would be raised to Rs.1600 tonne after the processing unit is started.
- (D) An element of ploughing back in the form of additional price of 25% of gross profit to grower members in ratio to the produce sold by them to society has also been envisaged in the project.
- (E) Establishment cost has been estimated at Rs.16.00 lacs. (Annexure-7).

### 3.6 Processing (Anchor Activity):

- 1) It has been proposed that in the 6th year of the running, the society would commission a processing plant of the capacity of 2 metric ton per hour. The plant would process 32 MT of oranges and would get 8 MT of orange concentrate in 2 shifts of 8 hours each. From the 9th year, it would also run the 3 shifts for few days in a year to utilise 'C' grade procured oranges. Upto 5th year all grades of oranges will be marketed as fresh fruits.
- 2) Plant and Location : The location of the processing plant would be in the headquarters of the society, which is located at Bhawani Mandi. Bhawani Mandi is well connected by rail and road. Transport contractors also operate from this mandi. Most of the orange growing villages are within 60-70 Kms. Considering these and other factors like administration, control, saving in transport etc, the plant will be located in the Head Office of the society.

3) Juice concentrate plant has been proposed to be setup, as cooperative structure is already existing having the marketing of fruits and fruit products as its objectives. The society will sell the finished product directly to Delhi, Kota and Jaipur through NAFED at 10% commission. NAFED has its offices at all the 3 places. The Assistant Manager (Marketing) of the society to be placed at Delhi for marketing of fresh oranges would also be incharge of this activity. The society will also advertise its product to build up the market.

### 3.7 Marketing potential:

There is a huge potential for production of oranges in Jhalawar District. The production in the first year of its operation is around 15000 mts. and the same would increase to 60,000 MTs. at the end of 11th year of its operation. The entire trade cannot be entrusted in the hands of the private traders, who would take advantage of increased production by covering the purchase price to their advantage, whereas the orange growers will not be able to reap benefits of their increased production. The need, therefore, has arisen to strengthen the Jhalawar co-operative orange growers Marketing Society. The society would be required to make an investment of Rs.20.00 lacs (Annexure -5) for purchase of land, construction of an office building, grading and storage centres etc. This cost will be met as under:

Share Capital of the members	0.50 lacs
Share Capital of the Co-operative	0.25 lacs
Share capital contribution by State Government.	1.25 lacs
	-----
Total	Rs. 2.00 lacs
	-----
Long term loans for construction of Godown etc. from Rajasthan State Co-operative Bank under NCIIC Schemes	18.00 lacs
	-----
	20.00 lacs
	-----

Rs.18.00 lacs loan will be repaid in 15 years with a five year moratorium of interest and principal loan instalment.

Note: we do not expect for the present that the State Government will contribute share capital before the end of June, 1987. Therefore, existing contribution has been taken as such. However, the society would increase share capital from members and co-operative societies.

In addition to above, the society would also be provided with a margin money for raising working capital. The society intends to submit proposals for getting margin money under IFFCO-NCIC scheme for Rs.10.00 lacs.

### 3.8 Processing Potential:

- 1) In order to add value to the fruits and to also meet the demands of Hotels, consumers, defence services etc. it is proposed to install a processing unit for oranges, which will prepare Juice Concentrates. The project cost would be as under: (Annexure- 6 & 6A)

<u>Items</u>	<u>Cost(Rs.in lacs)</u>
Civil works	16.00
Plant and Machinery	70.00
Furniture and Fixtures	2.00
Other fixed Assets	2.50
Contingency at 10%	9.05
Pre-operative Expenses	1.30
Margin money for working capital	9.07
Total fixed cost	Rs.109.92 or say Rs.110.00 lacs.

- ii) The funds for this project would be raised as under:

<u>Sources</u>	<u>Amount ( Rs.in lacs)</u>
Members shares(7½%)	8.25
State Government shares 32½%	<u>35.75</u> 44.00
Long term loan	<u>66.00</u>
	<u>110.00</u>

- iii) Jhalawar is classified as a backward district. The industrial project, therefore, as per the State Government long term policy is entitled for a subsidy of Rs.20.00 lacs. This subsidy is provided by the State Government after the processing plant starts production. This amount would be utilised by the society as working capital.
- iv) Establishment cost of this unit has been estimated at Rs.6.42 lacs, which is proposed to be incurred and would increase by 5 percent every year ( Annexure-8).
- v) Marketing cost of the processing unit packing, utilities, chemicals has been estimated at Rs.90.72 lacs. The procurement would be done by marketing unit of the society ( Annexure- 6B).
- vi) An expenditure of Rs.1.30 lacs will be incurred on pre-operative expenses. This expenditure has also been capitalised.(Annexure-6A)

3.9 Setting up of by product Industry:

The society after establishing itself in marketing of fresh oranges and concentrates should study the viability of processing plant for the by products and may prepare projects for implementation if feasible.

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## CHAPTER - IV

### DETAILS OF PROJECT IMPLEMENTATION

#### 4.1

Implementation and Extension : The Project implementation agency will be Jhalawar Phal Utpadak Kraya Vikraya Sahkari Samity (JAFKO). The project period will be 15 years. During implementation the society will provide package of services. It will provide backward linkages such as supply of plants, extension, co-ordination, transport services etc. supervision of member orchards, increase in area and increase in yield. Also forward linkages for marketing of fresh fruits and processing of juice concentrate will be provided.

#### 4.2

Procurement: It will buy the oranges from growers with the approach of maximising the share of the growers in the sale proceeds of their produce. The prices will be fixed by the Board of Directors keeping in view the market trend. In September, when flowering starts, the members will be paid 25% as advance money of the determined prices of the expected yield. Rest amount will be paid to the farmers at the time of final picking. It is suggested that price will be paid as per the quality of oranges and should not be paid on the basis of average price. If an average price of Rs.1500 is fixed, then A, B & C grades should be paid as under:

<u>Grade</u>	<u>Diameter</u>	<u>Price</u>
'A'	9" & above	Rs.1800
'B'	6" to 8-9"	Rs.1500
'C'	Less than 6"	Rs.1200

The prices should be so fixed that selective price system will help the farmers in improving the quality of the fruits.

All costs from picking to transportation will be borne by the society. It has been projected to pay a price of Rs.1500/-/MT upto 5 years and Rs.1600 per ton after a period of 5 years. The growers will be given an additional price at the end of year in relation to value of oranges handed over to society which in initial 4 years will be credited into their share capital contribution to the society. Here it should be mentioned that the society will be marketing the oranges on behalf of farmers members.

4.3 Picking, Grading and Storing : At present contractors are arranging labour from Nagpur area for picking purposes. Local un-employed workers can be trained by the society in a phased manner with the help of local Agriculture Department Officers and District Rural Development Agency.

At the time of picking, the fruits will be graded in 3 categories A, B & C on the spot and transported to Bhawani Mandi. A cost of Rs.20/ MT is envisaged for internal transportation because catchment area is between 60-70 Kms. A & B grade oranges will be packed in wooden boxes of 20 Kgs each costing Rs.10 and 'C' grade oranges will be sent to Delhi, Jaipur and Kota in Gunni bags for marketing. On an average 'A', 'B' and 'C' quality oranges will be in the rate of 30%, 40% & 25% & spoilage will be 5%.

4.4 Marketing : Delhi being the big market, it is planned to sell A & B grade oranges in the wholesale market using NAFED as commission agent. The price of packed material is estimated @ Rs.3500 per tonne for 'A' grade and Rs.3000/- tonne for 'B' grade. The 'C' grade fruit is normally in demand in Delhi, Jaipur and Kota markets at the rate of Rs.1300 per MT and after 5 years, the society will utilise entire 'C' grade fruit for processing purposes.

4.5 Transportation : Bhawani Mandi is situated on Delhi-Bombay main line. The parcel vans are easily available from Bhawani Mandi at a freight of Rs.220/MT for Delhi. For 'C' grade

oranges which will be transported to Jaipur and Kota, the transportation cost is taken as Rs.220/MT by trucks. However, to be on safer side, cost of transportation is taken at Rs.230/MT for all grades of fruits.

4.6 Procurement and Marketing Schedule : The growers will be paid 25% of the estimated yield at flowering stage as an advance in September and rest will be paid at the time of final picking normally from December to April.

4.7 Processing

(a) Anchor Activity:

The society shall make it as an anchor activity to install the proposed processing unit by the end of V year. In the beginning of ~~IV~~<sup>II</sup> year, the society shall submit project report to the State Government/Co-operative Bank and get the project sanctioned by the end of the year. The civil works, installation of plant and machinery shall be completed within 5th year. Recruitment of key personnel and agreement for marketing of finished product with NAFED, and system of marketing at Kota should be finalised by the end of 5th year.

(b) Preliminary Expenses:

Though JAFECO would already be in existence with all necessary infra-structure even then a provision of Rs.1.30 lakhs has been made in the project cost towards preoperative expenses. The Government has already deputed an inspector of co-operative societies as Manager of the marketing so that the preparation and submission of project can be assured. But in the project it is envisaged that the society should have its own cadre of personnel and no officer of the co-operative department should be posted.

(c) Capacity Utilisation:

The processing plant will be utilised in the production of concentrate orange juices. Its capacity will be 32 MT per

day in two shifts for 180 working days per year. This way its total capacity in 180 days in two shifts will be 5760 MT oranges. In the VI year of the project and I year of the plant, the society will be working for 124 days utilising 3938 MTs raw material having a capacity utilisation of 69%. In the second year, it will work for 156 days utilising entire 5000 MT. 'C' grade oranges and in 3rd and 4th year it will work for 176 and 180 days and in subsequent years it will utilise 97% and 109% plant capacity. From 9th year to 15th year it will run in 3 shifts for few days in a season. The procurement of raw material i.e. 'C' grade oranges will be done by the marketing wing of the society.

#### 4.8

Process : The fruit pulps are extracted from fully matured ripe fruits. The process of manufacture of fruit concentrate is divided into following operations:

- Fruits receiving the ripening
- Washing
- Blanching (optional)
- Preparation
- Pulp extraction
- Aroma Recovery
- Pulp concentration
- Concentrate standardization
- Concentrate sterilization
- A-12 (canfilling)
- Storage

#### (1) Fruits Receiving and Ripening:

Raw but matured fruits are received in the factory by trucks. Sorting is done to remove the blemished damaged fruits. Get riped in two to four days depending upon the stage of maturing fruit are sorted every alternate day to sort-out the ripe fruits for the manufacture of pulp.

(ii) Washing :

Lot of dust and dirt is adhering to the fruits during picking transportation and ripening. This is removed by washing the fruits in potable water with a chlorine dose of 3 ppm. Fruits are washed in agitating and flowing water. Besides removal of dirt and dust, the load of total micro-organisms are also reduced which helps in manufacture of better quality of pulp.

(iii) Blanching :

Blanching is a process of heating fruits in boiling water for a short time and cooling. This helps in softening the meet of fruit in order to facilitate pulping. It helps in reducing the bacterial load also. Fruits are blanched in boiling water for about one minute and then cooled in running water. Cooling helps easy handling of fruits and prevents over cooking and preserves the flavour.

(iv) Preparation :

Fruits are prepared to facilitate easy pulping and also to remove the defective portion of fruits. Fruits are prepared by cutting both the sides with the stainless steel knives.

(v) Pulp Extraction :

This process extracts the pulp from the prepared fruits. Pulp is separated by rejecting the skin and stones in two stages, coarse and fine. Fine pulp from the pulper is received in stainless steel tanks.

(vi) Aroma Recovery :

The pulp obtained is first subjected to aroma recovery by vaporisation of about 10% of the pulp which comprise most of the aroma, revaporisation and reconsideration.

(vii) Pulp Concentration :

The pulp is concentrated from a normal 8-14 Brix to 16-18 Brix. The concentrate fruit pulp can be utilized as a base for making single strength fruit juices or ready to serve beverage or nectars. Fruit pulps are most

commonly concentrated in low temperatures vacuum evaporators. The de-aromatised pulp is then concentrated to above 28 Brix in a multiple effect evaporator.

(viii) Concentrate Standardisation :

The prepared concentrate is standardized in stainless steel pans for acidity. Acidity is maintained at minimum 0.5%.

(ix) Concentrate Sterilization :

Product sterilization is a process which destroys the living micro-organisms in the concentrate which causes spoilage. The concentrate is sterilized at 180° to 190°F for a short time and cooled before filling into A-12 cans. Care to be taken that the concentrate does not get overheated and charred.

(x) A-12 Cans Packing :

The sterilized hot products are filled in sterilized A-12 cans.

(xi) Storage :

After sealing four A-12 cans are placed in one corrugated Box.

4.9

Sales Realisation:

Since market is readily available it has been estimated that there will be gap of 15 days between the despatch of material and realization of amount.

4.9

(i) Depreciation:

Depreciation on building has been assumed @ 5% and on plants and machineries @ 10%.

(ii) Project Period :

Life of the plant has been estimated as 10 years though actual life of unit will be much more. The project will be of 15 years' period.

4.10 Training:

Two types of training has been proposed i.e. training to farmer members (orange growing members) in technique of orange growing, through horticultural extension officers. Also the members will be given training on cooperative principles through cooperative extension officers posted in Bhawani Mandi Panchayat Samity and the instructor of State Cooperative Union of Jhalawar district. The farmers will be taken to Nagpur to show the ~~orange~~ orange growing techniques.

## CHAPTER - V

### ORGANISATION AND MANAGEMENT

5.1 The Project will be implemented by JAFCO established under Rajasthan Co-operative societies Act with the objectives of providing better marketing alternative to the growers for their orange produce and value addition of their increased production by way of establishing orange processing plant. The society will also have a very important task of providing backward linkages including farm guidance to the orange growers of the area. The overall management policies will be regulated by a Management Committee.

Managing Committee will comprise of 9 members, out of which 6 members will be elected from the grower members, one each from each block. The General Manager of the society shall work as member secretary of the Committee. Other two members will be nominated as under:

1. Representative of State Co-operative Bank.
2. District Agricultural Officer, Jhalawar.

Chairman and Vice-Chairman will be elected out of the grower members of the Managing Committee. By-laws of the marketing society will be framed in accordance with the State Co-operative Act.

5.2 The Management of the society is broadly classified as follows:

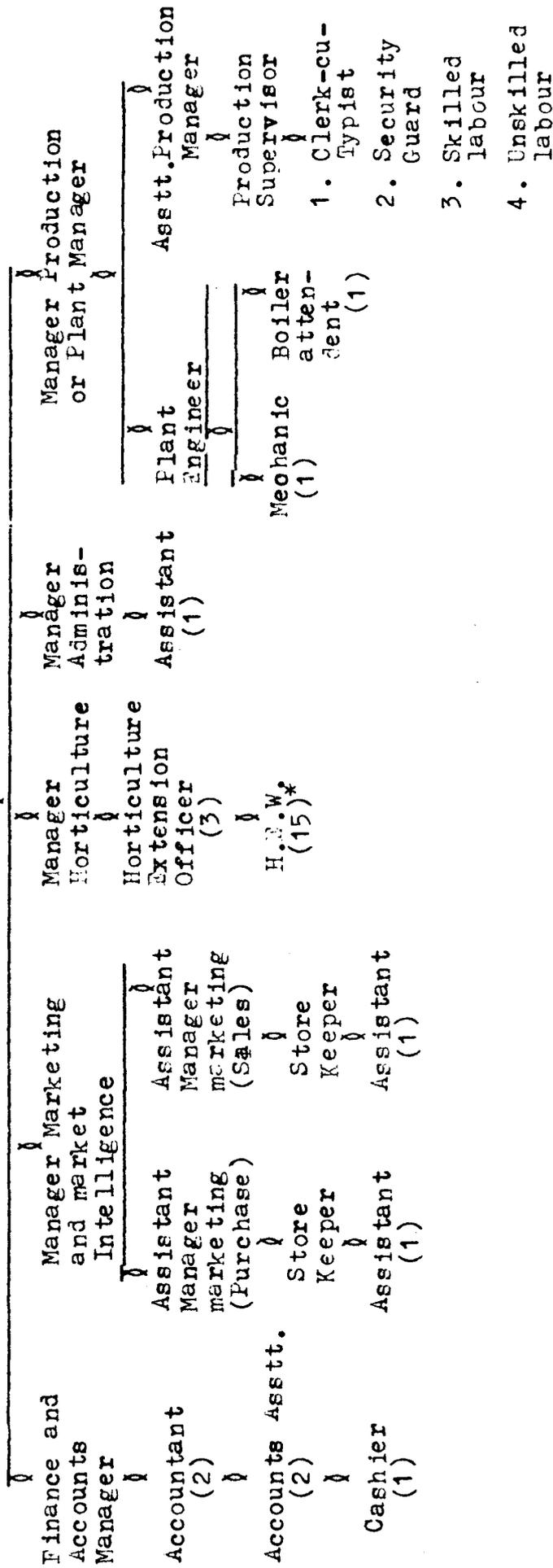
1. General Manager and Administration.
2. Accounts and finance.
3. Marketing, procurement of raw material and sales.
4. Farm Guidance.
5. Processing-production, maintenance and security.

5.3 Powers of the day-to-day management and project execution will be vested with the General Manager of the society, who will work as per the policies and directions given by the management committee from time to time.

5.4 The organisational Chart of the society will be as shown in following chart: 

Board of Director

General Manager - ( Steno Typist One )



\* Out of 15 Horticultural Extension worker one will be nursery supervisor

2.5 The General Manager will be assisted by various officers as indicated below:

- (a) Accounts and Finance: Manager, Accounts and Finance will be incharge of the Division and he will be assisted by 2 Accountants, 2 Accounts Assistants and Cashier. This division will be responsible for arranging finance, banking, adjustment of sales realisation, cost accounting and maintenance of all accounts.
- (b) Marketing Division: Manager marketing will be assisted by two Assistant Managers – one will be headquartered at Delhi, who is supposed to provide market intelligence regarding arrival of fresh fruits, existing price, feed back about consumers reaction, realisation and remittance of sale proceeds at various intervals of time, creation of market for twice concentrate, rapport and business relationship with NAFED etc. The other Assistant Manager will be Head-quartered at Bhawani Mandi will be responsible for the despatch of fresh fruits, orange concentrates, marketing operation etc. Liaison with Horticulture Manager so that picking can be adjusted with market demand and local market intelligence. The Assistant Manager will be assisted by Store Keeper and Assistant.
- (c) Horticultural Division: Manager Horticulture will look after orange development programme, which includes increase in production, area, irrigated area, for credit facilities liason with various financing agency. He will also co-ordinate input supply like fertiliser, pesticides, orange plants, maintenance of Nursery, training, demonstration, technical guidance, visit of farmers group to demonstration plots, government orchards, liason with Agricultural University, Krishi Gyan Kendras, State Agricultural Department etc. He will also be responsible for development of co-operative relationship with farmer members and increasing the membership of the society.

Horticultural Division will also undertake evaluation studies at farm level to assess the benefits of farm guidance system. Manager ( Horticulture) will be assisted by three Horticultural Extension Officers and 15 Horticultural Extension workers, of which one will be responsible for development and maintenance of nursery and supply of plants to growers. Each worker will look after a cluster of 100-125 growers. The sole purpose of this intensive approach is to provide backward linkages to farmers to increase their productivity, which in turn will increase the income of the farmer. The Manager(Horticulture) will keep close liason with Manager (Marketing) and Manager(Production) cum-plant Manager for procurement of members produce in maintaining the time schedule for harvesting and keeping the processing plant running.

- (d) Manager (Production) cum Plant Manager: He will be the incharge of processing plant. He will look after the maintenance, production schedule, utilization of plant capacity etc. with the help of plant Engineer and Assistant Production Manager. He will keep liason with Manager Marketing and Manager Horticulture for procurement of raw material and marketing of finished product. The Plant Manager will also be responsible for quality control of the product. He will also keep watch on the similar products of other competitors in the market.
- (e) Manager (General Administration of MIS) : The Manager (Administration and MIS) will be incharge of Administration, unskilled labour, MIS and other matters relating to legal provisions and secretariate. This division will process all informations received under MIS and functionaries. The flow chart of MIS division will be shown in following Chart.

<u>Input</u>			<u>Output</u>		
Member in Take	Proce- ssing	Report	User	Purpose	
1. Bio-data of Members (A)	P R O C E S S I N G	1. Current Production	MM & MP	Planning Production & Marketing	
2. Expected Crop (A)		2. Next Year Plan	GM & MM	Plan for support activities	
3. Target programme in next Yr (A)		3. Member Benefit	GM & BOD	Indication of Benefits given to the Members	
4. Purchase Control (A)					
5. Manager Hort. ( )					
<hr/>					
1. Marketing Intelligence (D)	O F I N F O R M A T I O N	4. Market Information	MP&GM	To plan despatches and Harvesting	
2. Sale Realization (D)		5. Demand for Output	MP/GM	To plan Production and Marketing Strategy	
3. Cash Requirements (D)					
4. Procurement Programme (A)					
5. Manager (Mktg) ( )					
<hr/>					
1. Operation of production unit (D)	B Y (M I S D I V I S I O N	6. Sales (Credit)	MP&GM	Liquidity Position	
2. Consumption of raw material (D)		7. Inventory, Production, Efficiency indicating Labour and Cost of Production and Quality Control	GM/BOD	Level of Production Inventory and Monitoring Production Cost.	
3. Production Cost (D)					
4. Performance report of the unit (A)					
5. Manager Production ( )					
<hr/>					
1. Cash Position (D)	( )	8. Financial Progress	CM	To plan financial requirements	
2. A/o R & P (D)					
3. Tribal Balance (M)					
4. Financial Position (A)					
5. Manager-Finance ( )					

## CHAPTER - VI

### Benefits

6.1

By undertaking marketing and processing of oranges by a "Growers Own Co-operative Institution," it is presumed that growers interest shall be very well taken care of. From the very beginning farmers shall be paid a reasonable price of their produce i.e., @ Rs.1500 per ton and it has been envisaged to increase procurement price from Rs.1500 to Rs.1600 per ton and there is scope to still increase the purchase price, if the market price of the fruits goes up. Further the marketing society can give extra benefits to the members by way of bonus or dividend, with the increased production in fruits, which is highly perishable in nature, there is an increased need of preserving them so as to increase their shelf life. Thus by establishing the processing unit, objective to increase production of fruits, to process and preserve them shall be fulfilled.

By locating the project in backward District, there will be a direct contribution to the entrepreneurial and industrial development.

Since the provision has been made for the extension staff in the society, the upkeep and maintenance of existing orchards will be very well looked after and the orange growers will become quality conscious because of the differential pricing system sorting on the farm itself.

Because the marketing society will procure atleast 50 per cent of the production, it will be in a position to control market and farmers will get competitive prices from private traders also through better market practices.

With the increased volume handled by the co-operatives, year after year, direct employment to the surplus labour will be possible in the season of picking. At the maximum level of handling i.e. 7500 MT it is estimated that 1000 labour days will be required per season for picking only. During harvesting time, for picking, 3 MT oranges 4 labours per day are required.

A permanent staff of 66 persons, from different disciplines, managerial, technical and skilled persons will be employed in the society.

It is presumed that more than 50 per cent of the seasonal/ unskilled labourers from the un-employed women will be employed.

A good quality concentrate juice supply will be assured, preferably, to defence services, tourism department, Government Hotels, Co-operative consumer stores and squash manufacturing units.

Introduction of the co-operative institution will certainly provide a better marketing alternative to the fruit growers and promote co-operative atmosphere in the district.

Farmers of the area will be motivated for additional plantations by getting an assured minimum price even in the period of gluts.

Overall the project will certainly contribute to the upliftment of general standard of living of farming community.

## 6.2 Financial Analysis :

It has been envisaged that upto 5th year, the society will procure fruits @ Rs.1500 per ton and from 6th year onwards, a procurement price of Rs.1600 per ton has been estimated. The society will also plough back minimum 25 per cent of the gross profit, which will in the initial years will be ~~very low~~ <sup>nil</sup> i.e. ~~as low as Rs.5.02 per ton in II year.~~ After 5 years the return per ton will range from Rs.143.80 to Rs.157.00 per ton.

125.96 to Rs 146.30.

100000 KWH electricity consumption	0.75
and 250 MT furnace oil @Rs.3000/M	<u>7.50</u>
	Rs.8.25 lacs

i.e. Rs.0.0011 lac/MT

- 7) Chemicals for 7500 MT will cost Rs.0.75 lacs i.e. Rs.0.0001 lac per MT.
- 8) For marketing of oranges, two systems are prevailing in Delhi, Jaipur and Kota markets for established fruit traders, which are as under:
- i) 50 per cent advance money of the value of oranges is paid to commission agents and remaining amount is paid after 7 days of the receipt of fruits. This system fetches Rs.3500, Rs.3000 and Rs.1300 per ton for 'A' 'B' & 'C' grade oranges respectively. In this system no commission is charged.
  - ii) In the second system, no advance money is paid and value of oranges is paid only after 15 days @ Rs.3650 to Rs.3700, Rs.3200 to Rs.3300 and Rs.1500 for A, B & C grade oranges respectively.
- Jhalawar oranges are considered better for its longer keeping quality as compared to Nagpur oranges and are much in demand by the fruit traders. In the project, the former system of lower prices, with 50% advance money, has been adopted, so that no commission, to wholesalers, has to be paid and also the interest received on advance money nullifies the effects of interest amount receivables.
- 9) For processed product i.e. oranges concentrate, the marketing channel will be NAFED at 10 per cent commission on sale. The society will also advertise its product. Still, for the entire project period, 10% commission on sale has been taken with the assumption that if in later years, the society, with its product reputation may not depend NAFED

for marketing, a separate office of society can be opened, at the same cost, at Delhi to handle the marketing activity. Till then, the Assistant Manager ( Marketing ), headquartered at Delhi, shall use the office of NAFED.

10. In case of inflationary situation, the inflation will have impact on costs as well as benefits.

#### 6.4 On the above Assumptions:

FIRR comes to <sup>7.50%</sup> and NPV at the end of project period comes to Rs. <sup>12.107</sup> lakhs. The benefit cost ratio ( B C R ) at 15% comes to <sup>1.07</sup>. It indicates that value addition is approximately <sup>12</sup> per cent.

The FIRR <sup>more than 50</sup> per cent indicates that the investment will bring returns upto <sup>at least 50</sup> per cent. But this is meaningless in present case, as in Bhawani Mandi, there is no other opportunity where investment can be made at <sup>50</sup> per cent return. Break even point of the project comes to 112 days or 62.18% capacity utilisation or 3582 MT oranges processing (Annexure-19). The unit will break even from the 1 year of its running.

Return on investment has been worked out in Annexure-22.

#### 6.5 Sensitivity Analysis :

Assuming that 10 per cent reduction in revenue, because of decrease in prices of fruits and juice concentrate, BCR would be 1.04 at 15% and the IRR would be 28.93.

#### 6.6 Repayment Schedule and Bankability :

The sensitivity analysis shows that with the 10 per cent decrease in benefits, in the first five years, the project would be in loss. It is therefore, considered to accumulate the interest @ 12% simple interest on Rs.18.00 lacs of initial loan for first five years and then the total loan of Rs.84 lacs i.e. Rs.18 lacs and Rs.66 lacs together with the interest accumulated and now charged, will be paid to the Bank in 10 equated annual instalments i.e. till the end of project period from the sixth year.

## 6.7 Economic Analysis:

In this kind of projects, where capital investment is low and area of operation is limited, it is difficult to measure the impact on National Economy or Society as a whole. However, following direct and indirect economic benefits can be enumerated:

### Direct Benefits:

Because of the intensive efforts of horticulturists and adequate supply of inputs and farm guidance. The orange growers will be benefits by:

- a) Increase of economic life of plant, which is at present 10-12 years, can be further increased to 15 years, which, inturn, will reduce the cost of plantation and increase the production.
- b) Reduce Mortality rate:  
At present 10% mortality rate in plants is there, of which 5% mortality is within one year of transplantation and 4% before first flowering and 1% after flowering. The growers are not maintaining the 6m x 6m space between plants and rows. By adequate maintenance of spacing and treatment, the mortality rate can be reduced by at least 5 per cent, which inturn will increase the income of the farmer by at least 5 per cent.
- c) Increase Productivity:  
At present the average yield per plant per year in the area is 58.33 Kgs. A few farmers, by adopting improved practices, have successfully harvested 125 Kg/plant per year. Thus, there is a scope of increasing productivity by providing intensive farm guidance. This will also increase the value of their output.

Besides above, with the intervention of cooperatives, the prices of the produce will automatically increase because

of pressure on the market and monopoly of private traders will be reduced to a considerable extent. Which, consequently, will increase the income of the farmer.

#### Indirect Benefits

1. Because of the productivity of land, the rental value and value of land will increase in the area.
2. Additional employment will generate in picking season.

#### 6.8 Improvement in Irrigation Practice

At present farmers are using ring system of irrigation. In orange plantation drip system of irrigation can be more productive and will save irrigation water to the extent of 8 to 10 per cent. Thus, the water so saved, by adopting drip irrigation system, can be used in bringing more area under irrigation.

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## CHAPTER - VII

7.1 The Budget for first five years has been given below:

(Rs. in lacs)

S. Item No.	Y E A R				
	I	II	III	IV	V
1. Capital Investment	20.00	-	-	-	110.00
2. Operating Costs	81.10	111.76	154.35	208.43	279.85
3. Revenue	77.25	112.67	162.22	225.31	309.00
4. Surplus	- 3.85	0.91	7.87	18.88	29.15
5. Distribution of 25% surplus	-	0.22	1.97	4.22	7.29
6. Net Revenue	-	0.69	5.90	12.66	21.86
7. Tax @ 30%	-	0.21	1.77	3.80	-
8. Surplus available for repayment	-	0.48	4.13	8.86	21.86
9. Repayment of loans with interest on capital investment	-	-	-	-	-
10. Dividend @ 15%	-	-	-	-	-
11. Statutory reserve @ 25%.	-	-	0.19	2.22	5.46
12. Other reserves	-	-	2.57	6.64	16.40

7.2 Tax in Ist year and Vth year will not be paid, because the net revenue in these two years will be deficit because of capital investment of Es .20.00 lacs and Es.110.00 lacs respectively

7.3 Though, the surplus available for repayment will be available in Ist and IInd year, but the repayment will not be made and interest will be capitalised for first five years.

7.4 Other reserves will include education and training to farmers fund, bad and doubtful debt fund, risk fund etc.

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## CHAPTER - VIII

### RECOMMENDATIONS

- 8.1 Looking to the growth of orange plantation in the project area, it is inevitable to arrange and organise a systemic marketing so that growers are assured of a reasonable price for their produce.
- 8.2 By strengthening the "growers own marketing institution," it can be possible to provide a better alternative of marketing and exploitation of the farmers by the contractors will be eliminated. Therefore, State Co-operative Bank should come forward to provide the longterm loan for setting up of the processing plant.
- 8.3 Agriculture Department should provide all necessary inputs. Technical guidance to the growers in coordination with the marketing society. State Agriculture Department should also strengthen and develop its mother fruit nurseries so as to provide good quality plant material to the growers at reasonable cost. Agriculture University, Udaipur should take up research programmes to provide latest technology to the growers in the area.
- 8.4 Marketing society should start working with the objective of establishing the proposed processing unit by the end of 5th year of marketing operation. All necessary arrangements should be completed in a phased manner so that unit could be installed and commissioned in time.
- 8.5 State Government should provide its proposed share of equity and subsidy for the processing unit and also give guarantee to the long-term financing institutions.

- 8.6 The marketing society should capture the maximum share of orange produce and also try to increase the yield per acre.
- 8.7 The processing unit should increase its production by procuring more production gradually so that capacity of the plant can be increased.
- 8.8 Marketing society should appoint the best available managerial and technical personnel for management of marketing/processing unit. The society should recruit its own employees so that they can feel that their fate is linked with the society.
- 8.9 State Government should allot the required land and other facilities to the society for establishing its complex at Bhawani Mandi in Jhalawar District.
- 8.10 The marketing society with the help of State Co-operative department should tie up marketing strategy with the institutions like NDBB, State Dairy Development Federations, NAFED, Defence Services and Tourism Departments etc.
- 8.11 State Government should help in obtaining the required license for processing unit.
- 8.12 The marketing society should arrange for training in picking of oranges in order to provide gainful employment to the local youth.

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ANNEXURE -1

Area and Production of Citrus Fruits in India

S.No.	Variety of Citrus fruits	Area (Hactares)	Percentage of total area	Production	
				Tons	Percentage of total production
1.	Mandarines	61,074	41.1	702038	42.1
2.	Sweet Oranges	42,187	28.4	510823	30.7
3.	Limes and Lemons	34,272	23.0	369716	22.2
4.	Others	11,174	7.5	83250	5.0
Total		1,48,707	100.00	16,65,827	100.0

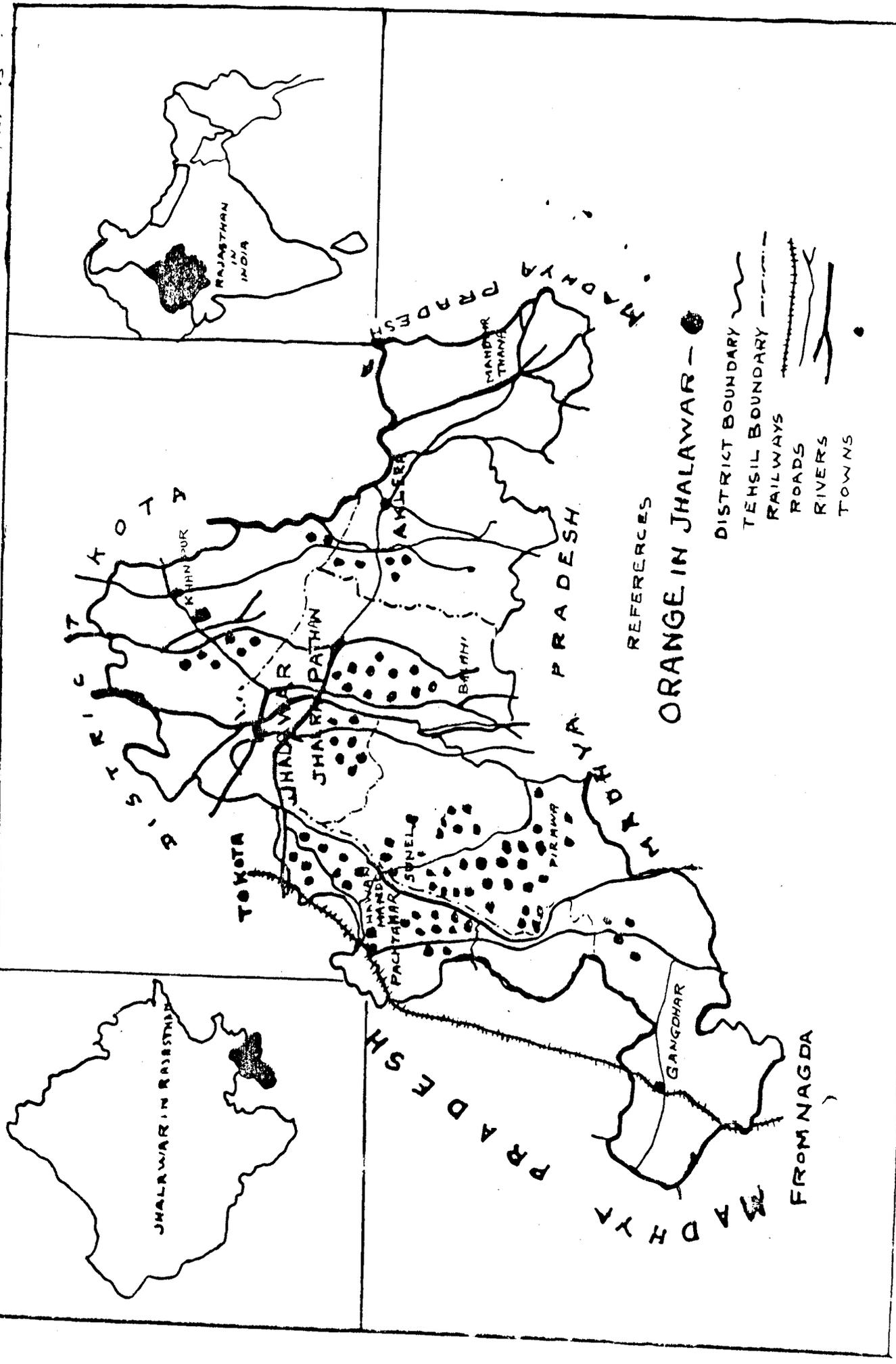
ANNEXURE -2

Statement showing the Targets and Achievements of  
Different NABARD Schemes of Plantation from the  
year 1972 to 1986

S.No.	Name of Block	Year of Start	Target		Achievement		Re- marks
			Physical (Hactare)	Financial (Rs .in lacs)	Physi- cal (Rs.in lacs)	Finan- cial (Rs.in lacs)	
1.	Patan and Sunnel	1972-73	200	15.00	194	6.938	Scheme completed
2.	Patan and Sunnel (Supplementary)	1978-79	160	13.00	149	5.515	-do-
3.	Bakani	1978-79	200	17.50	182	8.019	-do-
4.	Khanpur	1980-81	180	11.08	111	3.391	-do-
5.	Jhalawar	1983-84	2000	89.691	1160*	21.220*	Conti- nuing upto (1990-91)

\*Achievements upto 31.10.1986.

Annexure - 3



ANNEXURE-4

Rainfall during last 17 years in Jhalawar District  
Rajasthan ( India )

S.No.	Year	Rainfall in MMs.
1.	1970	1037.2
2.	1971	1575.0
3.	1972	788.0
4.	1973	1265.0
5.	1974	903.0
6.	1975	992.0
7.	1976	1072.0
8.	1977	810.0
9.	1978	1089.3
10.	1979	1490.0
11.	1980	572.8
12.	1981	715.0
13.	1982	894.0
14.	1983	719.6
15.	1984	906.8
16.	1985	1120.3
17.	1986	902.0

ANNEXURE-5

Fixed Cost-Marketing Society

S.No.	Particulars	Amount in lacs of rupees
1.	<u>Land and Buildings</u>	
	A) Land - 2 Hactares	5.00
	B) Office Building 2700 Sq.Ft. @ Rs.100/-/Sq.Ft.	2.70
	C) Stores and Godowns 3000 Sq.Ft.@Rs.50/-/ Sq.Ft.	1.50
	D) Packing and Grading Centre	0.50
	E) Farmers' Rest House and Meeting Hall 1800 Sq.Ft. @ Rs.100/-/ Sq.Ft.	1.80
	F) Boundary wall	1.00
	G) Garages	0.50
	H) Water supply	0.50
	I) Nursery	1.50
	J) Miscellaneous	0.80
		<u>16.80</u>
2.	<u>Vehicles</u>	
	i) Jeep-1	1.25
	ii) Matadors-2	2.75
	iii) Misc.implements	0.20
		<u>4.20</u>
	Grand Total	<u>20.00</u>

ANNEXURE -6

Estimate of Total Fixed Cost  
(Processing Unit)

	<u>(Rs. in Lacs)</u>
1. Land and Building	15.00
2. Plant and Machinery	70.00
3. Furniture and Fixture	2.00
4. Other Fixed Assets	2.50
	-----
	90.05
5. Contingency 10%	9.05
	-----
	99.55
6. Pre-operative Expenses	1.30
7. Margin money for working capital.	9.07
	-----
Total Fixed Investments	109.92
	-----
Or Say Rs.	110.00
	-----

Investment Plan for Processing Plant : (as per annexe 6, 6A and 6B)

2nd year: Preparation of project, submission to banks and other agencies and getting sanction.

3rd Year: Investment on land, building, furniture, fixture, other fixed assets, 50% preoperative expenses and 10% contingency = Rs. 23.25 lacs.

4th Year: Investment on washer, boiler, pulper, storage tank, preheater and weigh bridge + 10% contingency = Rs. 22.50 + 2.25 = 24.75 lacs.

5th year: Concentrator can filling and referring machine and electrical instalation + 50% pre operative expenses + contingencies (10%) + margine money = 62 lacs.

2nd year	No investment
3rd "	Rs.23.25 lacs
4th year	Rs. 24.75 lacs

ANNEXURE -6(A)

Civil Structure Cost  
(Processing Plant)

Rs.in Lacs

Buildings

1.	Processing Area 5000 Sq.ft. Height 16 ft. @ Rs.100	5.00
2.	Storage area 800 Sq.ft. Height 10 ft. @ Rs.100	8.00
3.	Office and Laboratory area 2000 Sq.ft. @ Rs.150	3.00
		<u>16.00</u>

Plant and Machinery (2 MT oranges/hour)

S.No.	Item	Total Cost (Rs.in Lacs)
1.	Washer	0.50
2.	Boiler	6.00
3.	Conveyor for sorting	1.50
4.	Elevators	2.00
5.	Pulper or Juice extractor	6.00
6.	Storage Tanks	2.00
7.	Pre-Heater	1.50
8.	Pressurizer-cum-concentrator	38.00
9.	Can filling Machine	3.00
10.	Can referring Machine	1.50
11.	Weigh Bridge	3.00
12.	Electric installations	<u>5.00</u>
	Total	<u>70.00</u>

Pre-operative Expenses

1.	Salaries	0.50
2.	Travelling Expenses	0.20
3.	Legal Charges	0.10
4.	Advertisement Expenses	0.20
5.	Taxes, Rent Etc.	0.10
6.	Postage and Stationery	0.10
7.	Miscellaneous	0.10
		<u>1.30</u>

Working Capital of Processing Plant

(Rs. in Iacs)

Processing of 7500 M.T. Oranges.

1. Raw Material: To be procured by Marketing Section	
2. Packing Material (7500 MT oranges or 1875 MT Juice concentrate)	
Packing cans (6 Kgs).	31.25
Cartoons (4 cans in 1 cartoon) 78125 @ Rs.15/cartoon	11.72
3. Utilities	
Power Connection 200 K.W. Energy consumption	
100000 KWH      Rs.0.75/KWH	0.75
Furnance Oil 250 MT Rs.3000/MT (For steam generation)	7.50
4. Chemicals Like Acitic Acid	0.75
5. Transportation concentrate (final prod.)	4.31
	<hr/>
	56.28
Annual Over Heads	8.19
Receivable 1875 MT x Rs.14000 = Rs.262.50 Iacs	26.25
(10% will remain receivable)	<hr/>
	90.72

Total working capital requirement will be Rs.90.72 lacs, for which 10% margin money on Government guarantee will be required i.e., 9.07 lacs.

Statement of Establishment Costs Marketing Society

				<u>(Rs. in Lacs)</u>
1.	<u>Staff</u>			
	(a)	General Manager ...	1	0.48
	(b)	Manager (Finance, Marketing.... Hort.General)	4	0.44
	(c)	Assistant Marketing Manager ...	2	0.60
	(d)	Horticulture Extension Officer ...	3	1.44
	(e)	Horticulture Extension Workers ...	15	1.80
	(f)	Store Keeper ...	2	0.24
	(g)	Accountants ...	2	0.30
	(h)	Accounts Assistants...	2	0.24
	(i)	Assistants ...	4	0.48
	(j)	Steno Typists ...	1	0.18
	(k)	Peons and Chowkidars.	6	0.45
	(l)	Drivers ...	3	0.30
	(m)	Helpers ...	4	0.24
2.	Travelling Allowance and Dearness Allowance Expenses.			0.35
3.	Vehicles maintenance			0.50
4.	Office maintenance and Stores			0.76
5.	Miscellaneous Expenses.			0.20
6.	Cost of training the farmers for 200 every year at Rs.3000 per farmer			6.00
				-----
Total				16.00
				-----

NB: Total establishment costs will  
annually increase by 5%.

Statement showing Establishment Cost  
( Processing Unit )

S.No.	Designation	Number of posts	Annual Total Pay (Rs. in Lacs)
<b>I <u>Staff Salaries</u></b>			
1.	Plant Manager	1	0.30
2.	Assistant Production Manager	1	0.18
3.	Plant Engineer	1	0.24
4.	Production Supervisor	2	0.24
5.	Lab. Supervisors	2	0.18
6.	Boiler Attendant	1	0.09
7.	Mechanic	1	0.09
8.	Clerk-cum-typists	2	0.18
9.	Security Guards	2	0.12
10.	Peon	2	0.12
11.	Skilled Labour	2	0.12
12.	Un-skilled labour(seasonal) 45 members @Rs.15/- day for 180 days		1.22
			<u>3.08</u>
	Benefits @ 25 of the permanent Salary Charges		<u>0.46</u>
			<u>3.54</u>
<b>II <u>Overhead Charges</u></b>			
1.	Repair and Maintenance on P&M 2%		1.40
2.	Civic Structure @ 0.5%		0.08
3.	Insurance on Machinery Buildings 0.75%		0.64
4.	Publicity charges		0.50
5.	Miscellaneous		<u>0.26</u>
			<u>2.88</u>
	Total	3.54 + 2.88	= 6.42 lacs.

Orange Product System

Orange

Juice	Pulp	Peel
47%	29%	24%
-----	-----	-----
-----100%-----		

Canned Juice

Juice	Sugar
95%	5%
-----	-----
-----100%-----	

Products

Oil	Pectin	Meal
4%	3%	93%
-----	-----	-----
-----100%-----		

Jam

Sugar	Pulp
70%	30%
-----	-----
-----100%-----	

Juice Concentrate

Orange

|

Juice concentrate 25%

- Note: 1. Peel Oil is used for squashes and other orange products.  
 2. Pectin is used for marmalades.  
 3. Meal is used for cattle feed mix.

CASH FLOW OF ORANGE PROCESSING PLANT AT BHAWANI MANDI, IN JHANSAR DISTRICT OF RAJASTHAN STATE (INDIA)

Amount in Lakhs  
Quantity in Metric Tonnes.

I t e m	M o n e t h															
	I	II	III	IV	V	VI	A	B	C	IX	X	XI	XII	XIII	XIV	XV
<b>PROCESSED</b>																
Total Produce	15000	17500	21000	25000	30000	35000	40000	45000	50000	55000	60000	60000	60000	60000	60000	60000
Percent procured	10	25	30	35	40	45	50	50	50	50	50	50	50	50	50	50
Quantity Procured	3000	4375	6300	8750	12000	15750	20000	23500	25000	27500	30000	30000	30000	30000	30000	30000
Grade of Produce																
A 30 %	900	1313	1890	2625	3600	4725	6000	6750	7500	8250	9000	9000	9000	9000	9000	9000
B 40 %	1200	1750	2520	3500	4800	6300	8000	9000	10000	11000	12000	12000	12000	12000	12000	12000
C 25 %	750	1094	1375	2188	3000	3938	5000	5525	6250	6875	7500	7500	7500	7500	7500	7500
Wastage 5 %	150	218	315	438	600	788	1000	1125	1250	1375	1500	1500	1500	1500	1500	1500
Out of 'C' Grade available for Processing	-	-	-	-	-	3938	5000	5525	6250	6875	7500	7500	7500	7500	7500	7500
Marketing (All Grades)	3850	4157	5995	8312	11400	11025	14000	13750	17500	19250	21000	21000	21000	21000	21000	21000
<b>PROCESSED</b>																
Mo. of days/year	-	-	-	-	-	180	180	180	180	180	180	180	180	180	180	180
2 shifts/days	-	-	-	-	-	124	136	174	180	180	180	180	180	180	180	180
3rd. Shift/Day	-	-	-	-	-	-	-	-	31	79	109	109	109	109	109	109
Capacity Utilisation percentage	-	-	-	-	-	-	68.37	86.81	97.66	108.51	119.36	130.21	130.21	130.21	130.21	130.21
Juice Concentrate Obtained	-	-	-	-	-	-	994.50	1250.00	1406.25	1562.50	1718.75	1875.00	1975.00	1975.00	1975.00	1975.00

Amortization - 9 (1)

ITEM	PAA METER	YEARS														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
(A) COSTS FIXED COST VARIABLE COST	20.00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	45.00	65.63	94.10	131.25	180.00	252.00	320.00	360.00	400.00	440.00	480.00	480.00	480.00	480.00	480.00	480.00
	0.60	0.88	1.26	1.75	2.40	3.15	4.00	4.50	5.00	5.50	6.00	6.00	6.00	6.00	6.00	6.00
(B) Packaging charges	10.50	15.31	22.05	30.63	42.00	55.59	69.00	82.50	96.00	109.50	123.00	136.50	150.00	163.50	177.00	190.50
	0.60	0.88	1.26	1.75	2.40	3.15	4.00	4.50	5.00	5.50	6.00	6.00	6.00	6.00	6.00	6.00
	6.90	10.06	14.49	20.13	27.60	35.36	42.20	48.22	54.25	60.27	66.30	72.33	78.36	84.39	90.42	96.45
(C) Distribution Transport	0.60	0.88	1.26	1.75	2.40	3.15	4.00	4.50	5.00	5.50	6.00	6.00	6.00	6.00	6.00	6.00
	0.60	0.88	1.26	1.75	2.40	3.15	4.00	4.50	5.00	5.50	6.00	6.00	6.00	6.00	6.00	6.00
	6.90	10.06	14.49	20.13	27.60	35.36	42.20	48.22	54.25	60.27	66.30	72.33	78.36	84.39	90.42	96.45
(D) Estimated material cost	16.00	16.80	17.64	18.52	19.45	20.42	21.44	22.51	23.64	24.82	26.06	27.36	28.73	30.17	31.68	33.25
	1.50	2.20	3.15	4.40	6.00	7.97	10.12	11.38	12.64	13.88	15.17	15.17	15.17	15.17	15.17	15.17
	1.50	2.20	3.15	4.40	6.00	7.97	10.12	11.38	12.64	13.88	15.17	15.17	15.17	15.17	15.17	15.17
(E) Depreciation at the rate of 5% on equipment	112.76	112.76	155.35	207.43	280.43	351.64	441.76	548.78	600.84	652.93	705.03	757.13	809.23	861.33	913.43	965.53
	112.76	112.76	155.35	207.43	280.43	351.64	441.76	548.78	600.84	652.93	705.03	757.13	809.23	861.33	913.43	965.53
	112.76	112.76	155.35	207.43	280.43	351.64	441.76	548.78	600.84	652.93	705.03	757.13	809.23	861.33	913.43	965.53
Sub Total A	102.10	112.76	155.35	207.43	280.43	351.64	441.76	548.78	600.84	652.93	705.03	757.13	809.23	861.33	913.43	965.53
	102.10	112.76	155.35	207.43	280.43	351.64	441.76	548.78	600.84	652.93	705.03	757.13	809.23	861.33	913.43	965.53
	102.10	112.76	155.35	207.43	280.43	351.64	441.76	548.78	600.84	652.93	705.03	757.13	809.23	861.33	913.43	965.53

ITEM	PARAMETER	YEARS															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
B. PROCESSING PLANT																	
1) FIXED COST		-	-	23.25	24.75	62.00	-	-	-	-	-	-	-	-	-	-	-
2) VARIABLE COST		-	-	-	-	-	-	23.44	26.04	28.65	31.25	31.25	31.25	31.25	31.25	31.25	31.25
a) Packing Materials Cans	6kg/can P&L Can	-	-	-	-	-	-	8.79	9.77	10.74	11.72	11.72	11.72	11.72	11.72	11.72	11.72
Cartons	6cm Carton P&L Carton	-	-	-	-	-	-	6.18	6.87	7.56	8.25	8.25	8.25	8.25	8.25	8.25	8.25
b) Cost of utilities	P&L coil/ MT	-	-	-	-	-	-	0.56	0.62	0.68	0.75	0.75	0.75	0.75	0.75	0.75	0.75
c) Cost of chemicals	P&L coil/ P&L	-	-	-	-	-	-	0.50	0.52	0.58	0.65	0.65	0.65	0.65	0.65	0.65	0.65
d) Int. on working Capital	15% P&L	-	-	-	-	-	-	3.16	3.52	3.87	4.22	4.22	4.22	4.22	4.22	4.22	4.22
e) Establishment Cost	5% max	-	-	-	-	-	-	7.08	7.43	7.80	8.19	8.60	9.03	9.48	9.95	10.43	10.90
(1) Cost of Transportation	P&L/MT	-	-	-	-	-	-	3.23	3.59	3.95	4.31	4.68	5.05	5.42	5.79	6.16	6.53
(2) Commission on sale of product to NAFED	10%	-	-	-	-	-	-	19.69	21.88	24.06	26.25	28.44	30.63	32.82	35.01	37.20	39.39
b) Depreciation at the rate of 7.5% on Rs 1600 less 20% on 74.05		-	-	0.80	3.05	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25	9.25
Sub Total B.				24.05	27.80	71.25	61.19	73.81	88.97	96.56	104.19	104.60	105.03	105.46	105.89	106.32	106.75
Total Cost - A + B.		102.10	112.76	179.40	237.23	351.68	412.83	515.57	576.54	649.90	760.22	761.93	763.73	765.62	767.60	769.59	771.58
Income - Sale of P&L	P&L/MT P&L/MT P&L/MT	77.25	112.67	162.22	225.31	309.00	354.37	430.00	506.25	582.50	675.00	675.00	675.00	675.00	675.00	675.00	675.00
Sale of land		-	-	-	-	-	157.83	175.00	218.75	240.62	262.50	262.50	262.50	262.50	262.50	262.50	262.50
Total		77.25	112.67	162.22	225.31	309.00	442.20	625.00	781.25	859.37	937.50	937.50	937.50	937.50	937.50	937.50	937.50
NET BENE FIT.		(24.85)	(0.09)	(17.18)	(11.92)	(42.68)	79.37	109.43	143.50	162.44	177.28	175.57	173.77	171.88	169.90	167.91	165.92



PROCESS OF MANUFACTURE OF FRUIT PULP

Fully matured and ripe fruits

Fruit receiving & ripening

<u>Water</u>	<u>Washing</u>	<u>Water with dirt and dust</u>
Cold Water	Balancing	
Steam	Preparation	Defect portion and spiled wead seeds and skins
	Pulp Extraction	
Steam	Aroma Recovery	Arona
Steam	Concentration	Water
Citric Acid	Standardisation	Arona
	Sterlisation	
	A-12 Can filling	
	Storage	

---

Procurement of Oranges

Year Production	Procurement percentage	Procurement in tonnes	'A' 30%	Of which 'B' 40%	'C' 25%	Wastage 5%	A	Of which Available for marketing B	C	Processing
1	20%	3000	900	1200	750	150	900	1200	750	-
2	25%	4375	1313	1750	1094	219	1313	1750	1094	-
3	30%	6300	1890	2520	1575	315	1890	2520	1575	-
4	35%	8750	2625	3500	2188	438	2625	3500	2188	-
5	40%	12000	3600	4800	3000	600	3600	4800	3000	-
6	45%	15750	4725	6300	3938	788	4725	6300	-	3938
7	50%	20000	6000	8000	5000	1000	6000	8000	-	5000
8	50%	22500	6750	9000	5625	1125	6750	9000	-	5625
9	50%	25000	7500	10000	6250	1250	7500	10000	-	6250
10	50%	27500	8250	11000	6875	1375	8250	11000	-	6875
11	50%	30000	9000	12000	7500	1500	9000	12000	-	7500
12	50%	30000	9000	12000	7500	1500	9000	12000	-	7500
13	50%	30000	9000	12000	7500	1500	9000	12000	-	7500
14	50%	30000	9000	12000	7500	1500	9000	12000	-	7500
5	50%	30000	9000	12000	7500	1500	9000	12000	-	7500

## Annexe 11 B

MONTHWISE WORKING CAPITAL REQUIREMENTS OF J A F C O  
FIRST YEAR( Rs. in 100,000)  
lacs

Month	Procurement advance & final payment	Picking, transportation packing charges etc.	Establishment charges	Intt on working capital	Total	Remarks
September	11.25	-	1.33	-	12.58	
October	-	-	1.33	-	1.33	
November	-	-	1.34	-	1.34	
December	3.375	1.86	1.33	0.75	7.315	Payment of intt to bank
January	3.375	1.86	1.33	-	6.565	
February	6.75	3.72	1.34	-	11.81	
March	6.75	3.72	1.33	-	11.800	
April	6.75	3.72	1.33	-	11.80	
May	6.75	3.72	1.34	-	11.81	
June	-	-	1.33	0.75	2.08	
July	-	-	1.33	-	1.33	
August	-	-	1.34	-	1.34	

=====

ANNEXURE -12

Marketing Expenditure (at procurement price of Rs.1500 for first 5 years and Rs.1600 for 10 years)

Quantity in MT  
Amount in Lacs of Rs.

Year	Quantity handled (MT)	'A' Grade	'B' Grade	'C' Grade	Procurement cost Rs.1500/MT Rs.1600/MT	Picking charges Rs.20/MT	Packing charges for Rs.350/MT	Internal transport Rs.20/MT	External transport Rs.230/MT	Total Cost
1	3000	900	1200	750	45.00	0.60	10.50	0.60	6.90	63.60
2	4375	1313	1750	1094	65.63	0.88	15.31	0.88	10.06	92.76
3	6300	1890	2520	1575	94.50	1.26	22.05	1.26	14.49	133.56
4	8750	2625	3500	2188	131.25	1.75	30.63	1.75	20.13	185.51
5	12000	3600	4800	3000	180.00	2.40	42.00	2.40	27.60	254.40
6	15750	4725	6300	3938	252.00	3.15	38.59	3.15	25.36	322.25
7	20000	6000	8000	5000	320.00	4.00	49.00	4.00	32.20	409.20
8	22500	6750	9000	5625	360.00	4.50	55.12	4.50	36.22	460.34
9	25000	7500	10000	6250	400.00	5.00	61.25	5.00	40.25	511.50
10	27500	8250	11000	6875	440.00	5.50	67.37	5.50	42.27	560.64
11	30000	9000	12000	7500	480.00	6.00	73.50	6.00	48.30	613.80
12	30000	9000	12000	7500	480.00	6.00	73.50	6.00	48.30	613.80
13	30000	9000	12000	7500	480.00	6.00	73.50	6.00	48.30	613.80
14	30000	9000	12000	7500	480.00	6.00	73.50	6.00	48.30	613.80
15	30000	9000	12000	7500	480.00	6.00	73.50	6.00	48.30	613.80

Note: After 5th year packing and external transport charges not included as Grade 'C' will be procured.  
Picking Charges: 4 Labourer in a day will pack 5 MT oranges i.e. Rs.60 for 3 MT i.e. Rs.20/MT.  
Packing Charges: For 1 to 5 year Rs.368.40/MT for A, B & C Grade  
6 to 15 year: Rs.350/MT for A & B Grade

## Working Capital requirement for Marketing and interest on it

Year	Quantity handled	Procurement advance 25% 1-5th Yr. Rs.375/MT 6-15 Yr. Rs.400/MT	Final payment 75% Rs.1125/MT(upto 5 Yrs) Rs.1200/MT(upto 10 Yrs)	Other charges picking/Packing Transportation Rs.620/MT upto 5 Yrs.for ABC Grades. Rs.620/MT for 10 Yrs for 'A' 'B' grade Rs.40/MT for 'C' grade*	Total Cost	Total of Col.4 & 5	15% Interest for 6 mon.1 mon. on Col.3	15% Interest for 6 mon.1 mon. on Col.3	Total of 8 & 9
1	3000	11.25	33.75	18.60	63.60	52.35	0.85	0.65	1.50
2	4375	16.41	49.22	27.12	92.76	76.34	1.25	0.95	2.20
3	6300	23.62	70.87	39.06	133.56	109.93	1.78	1.37	3.15
4	8750	32.81	98.44	54.25	185.51	152.69	2.47	1.93	4.40
5	12000	45.00	135.00	74.40	254.40	209.40	3.38	2.62	6.00
6	15750	63.00	189.00	70.25	322.25	259.25	4.73	3.24	7.97
7	20000	80.00	240.00	89.20	409.20	329.20	6.00	4.12	10.12
8	22500	90.00	270.00	100.34	460.34	370.34	6.75	4.63	11.38
9	25000	100.00	300.00	111.50	511.50	411.50	7.50	5.14	12.64
10	27500	110.00	330.00	120.64	560.64	450.64	8.25	5.63	13.88
11	30000	120.00	360.00	133.80	613.80	493.80	9.00	6.17	15.17
12	30000	120.00	360.00	133.80	613.80	493.80	9.00	6.17	15.17
13	30000	120.00	360.00	133.80	613.80	493.80	9.00	6.17	15.17
14	30000	120.00	360.00	133.80	613.80	493.80	9.00	6.17	15.17
15	30000	120.00	360.00	133.80	613.80	493.80	8.00	6.17	15.17

\*Note: This Cost includes picking charges internal transportation of spoiled fruits also.

Establishment Cost of the Marketing Society

Year	Cost with 5% increase (Rs. in Lacs) every year
1	16.00
2	16.80
3	17.64
4	18.52
5	19.45
6	20.42
7	21.44
8	22.51
9	23.64
10	24.82
11	26.06
12	27.36
13	28.73
14	30.17
15	31.68

ANNEXURE - 15

Total Revenue from Marketing of Fresh Fruits

Value per M.T. 'A' Rs.3500  
'B' Rs.3000  
'C' Rs.1300

Year	Total Procurement (Quantity in M.T)	Of which available for marketing as fresh fruits			Revenue (Rs. in Lacs of Rs.)			Total Revenue
		A	B	C	A	B	C	
1	3000	900	1200	750	31.50	36.00	9.75	77.25
2	4375	1313	1750	1094	45.95	52.50	14.22	112.67
3	6300	1890	2520	1575	66.15	75.60	20.47	162.22
4	8750	2625	3500	2188	91.87	105.00	28.44	225.31
5	12000	3600	4800	3000	126.00	144.00	39.00	309.00
6	15750	4725	6300	-	165.37	189.00	-	354.37
7	20000	6000	8000	-	210.00	240.00	-	450.00
8	22500	6750	9000	-	236.25	270.00	-	506.25
9	25000	7500	10000	-	262.50	300.00	-	562.50
10	27500	8250	11000	-	288.75	330.00	-	618.75
11	30000	9000	12000	-	315.00	360.00	-	675.00
12	30000	9000	12000	-	315.00	360.00	-	675.00
13	30000	9000	12000	-	315.00	360.00	-	675.00
14	30000	9000	12000	-	315.00	360.00	-	675.00
15	30000	9000	12000	-	315.00	360.00	-	675.00

Capacity of Processing Plant vis-a-vis Fruits processed and  
Capacity Utilisation

Assumptions: (1) Plant capacity will be 2 mt/hr.  
 (2) Normally plant will run for 2 shifts in a day for 180 days in initial years.  
 (3) In later years i.e. from 9th year plant will have to run for 3 shifts in a year for some number of days.  
 (4) The Plant capacity is, assumed as 32 tonnes. In later years the plant will be run for more than its capacity i.e. in 3 shifts.

Year	Capacity for the shifts	Shifts	Tons processed	Number of days per year	Capacity utilisation taking capacity as 5760 MT/Year for 180 days
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
6	32	2	3938	124	68.37
7	32	2	5000	156	86.81
8	32	2	5625	176	97.66
9	32	2) 3)	6250	180) 31)	108.51
10	32	2) 3)	6875	180) 79)	119.36
11	32	2) 3)	7500	180 109	130.21
12	32	2) 3)	7500	180) 109)	130.21
13	32	2) 3)	7500	180 109)	130.21
14	32	2) 3)	7500	180 109	130.21
15	32	2) 3)	7500	180) 109)	130.21

## Variable Costs on Processing Plant

Year	Cost of Cans	Cost of Cartons	Cost of Utility	Cost of Chemicals	Cost of Transportation charges Rs.230/MT con.	Total	Interest for 6 months	Establishment Cost	Grand Total
1	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-
6	16.40	6.15	4.33	0.39	2.26	29.43	2.21	6.42	38.06
7	20.83	7.81	5.50	0.50	2.87	37.51	2.81	6.74	47.06
8	23.44	8.79	6.18	0.56	3.23	42.13	3.16	7.08	52.37
9	26.04	9.77	6.87	0.62	3.59	46.89	3.52	7.43	57.84
10	28.65	10.74	7.56	0.68	3.95	51.58	3.87	7.80	63.25
11	31.25	11.72	8.25	0.75	4.31	56.28	4.22	8.19	68.69
12	31.25	11.72	8.25	0.75	4.31	56.28	4.22	8.60	69.10
13	31.25	11.72	8.25	0.75	4.31	56.28	4.22	9.03	69.53
14	31.25	11.72	8.25	0.75	4.31	56.28	4.22	9.48	69.98
15	31.25	11.72	8.25	0.75	4.31	56.28	4.22	9.95	74.45

Revenue from Processing Plant

Year	Juice Cane in tonnes	Sale of Juice Income Concentrate from sale @Rs.14000/tonnes of product	(Rs. in Lacs)
1			
2			
3			
4			
5			
6	984.50		137.83
7	1250.00		175.00
8	1406.25		196.87
9	1562.50		218.75
10	1718.75		240.62
11	1875.00		262.50
12	1875.00		262.50
13	1875.00		262.50
14	1875.00		262.50
15	1875.00		262.50

Profit and Loss of processing Plant and Break  
Even Analysis at 108.51% Plant Capacity Utilisation

	<u>Amount in Lacs of Rupees</u>
<u>A. Revenue</u>	218.75
<u>B. Variable Costs</u>	
a) Procurement Cost 6250 MT x Rs.1600	100.00
b) Packing Cost	
1. Cans	26.04
2. Cartoons	9.77
c) Utility	6.87
d) Chemicals	0.62
e) Transportation	3.59
f) Interest @ 15% on working capital	3.52
g) Commission on sales of product to NAFED	21.88
	<u>-----</u>
Total	<u>172.29</u>

C. Contribution 218.75 - 172.29 = 46.46 lakhs.

D. Fixed Cost

a) Over heads	7.43
b) Depreciation on Land and Building @ 5%	0.80
c) Depreciation on Plant and Machinery @ 10%	7.45
d) Interest on fixed capital @ 12%	13.20
	<u>-----</u>
Total	<u>28.88</u>

$$\text{Break Even Point : } \frac{\text{Fixed Cost}}{\text{Contribution}} \times \text{Plant Capacity Utilized in \%}$$

$$= \frac{28.28}{46.46} \times 108.51 = 62.18\% \text{ or } 3582 \text{ MT or } 112 \text{ days.}$$

\*\*\*

ANNEXE 20

MONEY DISTRIBUTED TO GROWERS OUT OF PROFITS

Surplus	25% of net surplus	M/Tonnes of oranges procured	Money distributed m/ton
- 24.85	-	3000	-
- 0.01	-	4375	-
- 17.18	-	6300	-
11.92	-	8750	-
42.68	-	12000	-
79.37	19.84	15750	125.96
109.43	27.35	20000	136.75
126.58	31.64	22500	140.62
143.50	35.87	25000	143.48
162.47	40.61	27500	147.67
177.28	44.32	30000	147.73
175.57	43.89	30000	146.30
173.77	43.44	30000	144.80
171.88	42.97	30000	143.23
169.90	42.47	30000	141.56
0 0 00=	= = = = =	= = = = =	= = = = =

## SURPLUS EXCLUDING CAPITAL INVESTMENT AFTER PAYING TAX

Year	Capital operating investment	Costs	Revenue	Surplus	Distribution of 25% of surplus	Net Revenue	Tax at 30%	Surplus available before payment
1	20.00	102.10	77.25	- 24.85				
2		112.76	112.67	- 0.09				
3	23.25	179.40	162.22	- 17.18				
4	24.75	237.23	225.31	- 11.92				
5	62.00	351.68	309.00	- 42.68				
6.		412.83	492.20	79.37	19.84	59.53	19.84	39.69
7.		515.57	625.00	109.43	27.35	82.08	24.62	57.46
8.		576.54	703.10	126.58	31.64	94.94	28.48	66.46
9.		637.75	781.25	143.50	35.87	107.63	32.38	75.35
10.		696.90	859.37	162.47	40.61	121.86	36.55	85.31
11.		760.22	937.50	177.28	44.32	132.96	39.88	93.08
12.		761.93	937.50	175.57	43.89	131.68	39.50	92.18
13.		763.83	937.50	173.37	43.44	130.33	39.09	91.24
14.		765.62	937.50	171.88	42.97	128.91	38.67	90.30
15.		767.60	937.50	169.90	42.47	127.43	38.22	89.21

25% income tax  
5% other taxes including mandi tax.

30%

Repayment Schedule of Loan of Rs.84 Lacs

---

Year	Surplus	Repayment	Net surplus
6	39.69	16.78	22.91
7	57.46	16.78	40.68
8	66.46	16.78	49.68
9	75.35	16.78	58.57
10	85.31	16.78	68.53
11	93.08	16.78	76.30
12	92.18	16.78	75.40
13	91.24	16.78	74.46
14	90.30	16.78	73.52
15	89.21	16.78	72.43

---

- Note: 1. Grace period of 5 years on Rs.18.00 lacs.  
2. Simple interest @ 12% calculated on Rs.18.00 lacs and accumulated at Rs.10.80.  
3. Interest @ 12% charged on a sum of Rs.10.80 + 18.00 + 66.00 = 94.80 lacs and amount recovered in 10 equal instalments.  
4. Capital recovery factor at 12% for 10 years 0.176984.  
5. Out of net surplus 15 per cent dividend, 25 per cent statutory reserves and return to capital will be provided

\*\*\*

FIRST  
ICA TRAINING COURSE FOR STRENGTHENING MANAGEMENT OF  
AGRICULTURAL COOPERATIVES IN ASIA

NEW DELHI / BANGKOK / TOKYO / SEOUL

1st November 1986 - 3rd May 1987

PROJECT PREPARED DURING HOME COUNTRY ASSIGNMENT

Project Title: Integrated Paddy Cooperative  
Project,

Country: India

Prepared by: Mr C D Singhal

Funded by the Government of Japan  
and

Executed by the International Cooperative Alliance  
in collaboration with its member organisations in  
India, Thailand, Japan and the Republic of Korea.

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C.D. SINGHAL

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## SUMMARY

### 1.1 SUMMARY

1. The organisation of a Paddy Growers Coop<sup>Marketing-cum-Processing & Service Society Ltd.</sup> is justified for enabling the paddy growers to reap the benefits of marketing & processing of paddy, its products & by products.
2. The household coverage of existing mini banks is substantial but it does not reflect in their business turn over and efficiency. Their contribution is negligible because of internal weaknesses and lack of clarity in objectives & approach. The present Primary Coop<sup>Marketing-cum-Processing Societies</sup> have been reduced to the status of Procurement Agencies and Marketing & Processing of members produce has no room in their business curriculum.
3. In the Project area of 14249 hectares, the farmers sow paddy on 90% of total sown area during Kharif Crop. The other Crop wheat occupies 98% of total area during Rabi season. Farmers use inputs but for better farm~~xxx~~ management and timely availability of inputs-yield per hectare has been more or less stagnant, it has rather fallen down.
4. No paddy processing unit that mills paddy or processes its products and by products for farmer exists in project area or in near vicinity. The existing 24 rice mills of 24 Ts capacity in private sector pocket the benefits of processing & Marketing of about 20000 M.T. of paddy. Of the rest of about 23000 tonnes of market arrivals- Basmati paddy is procured and despatched to other centres in Punjab & Karnal distt. in Haryana for processing & marketing of rice under

special trade marks of big private traders.

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5. The straw has no value/and is mostly burnt to clean the fields for wheat. Bran is purchased by private Solvent Extraction Plants at throw away price. HAFED Solvent Extraction Plant at Rati a(Hissar distt) sometimes processes Hafed rice bran. Bran has ready market @ 1750/- P.T. Husk is used as fuel and can fetches about 350/- P.T. No husk fuel bricketing or husk board unit exists in the area.
6. Finding the paddy growers helpless & exploited, it is proposed to organise their Commodity based Integ-rated Rice Cooperatives with the sole object of increasing their income by raising their production and productivity and by reaping the benefits of marketing and processing of paddy and its by products.
7. Considering the availability of paddy of 17600 tonnes with members, the cost of production and returns- society has / decided to set up 2 Modern Rice Mills, one near village Ismailabad and the other near village Thol on Haryana Highway. The units (Paddy) will be 2.2 T.P.H/capacity each and will operate for 20 hours a day and for 200 days a year at 100% capacity from 2nd year onwards.
8. The plants will produce Basmati, superfine and Common variety rice. Basmati variety is free from 75% levy, applicable to other varieties. Rice has a ready market; Sometimes there is export order for basmati because of its special flavour and it fetches very good margins to the millers/exporters.
9. Society will take up general services and inputs supply at no profit-no loss basis with stress on time supply of

quality inputs and farm guidance/planning). It also aspires to operate as model procurement & Marketing agency of agri. produce. It also proposes to run a spare-cum-repairs section and to assist in establishing one reliable repair shop for agri.machinery in each village by getting 22 youths trained for one year.

10. The society will be managed by member farmers without govt. interference and members will have active participation through village groups.
11. The total cost of setting up of 2 Modern Rice Mills is estimated at Rs.41.44 lacs or 4.14 millions. A brief of the financial feasibility of the Project is presented on the next page.
12. The society is expected to raise additional income of members growing Basmati, Superfine and common varieties, by Rs.1776.66, 1626.60 & Rs.1626.60 per hectare per crop respectively.

1.2. Summary of financial feasibility of 2 Modern Rice Mills 4

	<u>1st Mill</u>	(In lacs) <u>2nd Mill</u>
1. <u>Project-cost-estimate</u>		
a) Land & its development	2.00	2.00
b) Building & other civil works	6.67	6.67
c) Plant & Machinery	4.30	4.30
d) Misc.fixed assets	1.01	1.01
e) Pre-operational exp.	0.61	0.61
f) Contingencies	0.73	0.73
g) Margin money for working capital	5.40	5.40
	<u>20.72</u>	<u>20.72</u>

Say Rs. 2.07 million each.

<u>2. Working Capital Requirements</u>	At 100% capacity each	
a) Raw materials	32.50 lacs	32.50 lacs
b) Salaries & wages	0.16 lacs	0.16 lacs
c) stocks in process & finished goods	6.09 lacs	6.09 lacs
d) Debtors	3.82 lacs	3.82 lacs
e) Others expenses	<u>1.56 lacs</u>	<u>1.56 lacs</u>
Total:	46.13 lacs	or Rs. 4.613 million each unit

3. Mode of Finance

a) Share capital members	1.86	1.86
b) Share capital govt.	5.39	5.39
c) Long term loan	<u>13.47</u>	<u>13.47</u>
	20.72 or	20.72

Say Rs. 2.072 million per unit.

Contd....

4. Profitability (2 TPH Capacity)	1st	2nd	3rd	4th	5th
a) Total annual cost of production	201.20	293.32*	293.32	293.32	293.32
b) Total annual sales receipts	224.47	298.25	298.25	298.25	298.25
c) Profits before tax	23.27	4.93	4.93	4.93	4.93
less Pre. Exp. written off	- 0.06	0.06			
d) Profits after tax	23.01	4.87	4.93	4.93	4.93
e) Sharing of profits* with members as					
-Addl. Paddy Rate Amount	19.40	..	..	..	..
-Community Welfare activities	1.00	1.00	1.00	1.00	1.00
<u>i. Break Even Point</u>					
BEP at 100% utilisation	42				
Margin of safety	57.77% tonnes				
Break Even Sales (Rs.)	125.95 lacs				

\* From next year additional amount @ Rs. 200 P.T. for C.V. & S.F. & Rs. 500/- P.T. for Basmati over and above the support price is proposed to be paid to members.

NEED OF INTEGRATED RICE COOPERATIVES

2.1 BACKGROUND

Rice is the foremost cereal crop of India and the economy of the country is closely bound up with this crop. It is the staple food of more than half of its population. In Haryana State itself more than 35% area during Kharif is under paddy and its production exceeds 1363000 tonnes p.a. The economy of Kurukshetra district also crystalizes around paddy as its 88% area during kharif is under paddy crop and its paddy production of 434000 tonnes accounts for 95% of foodgrains production in Kharif of the district and 32% of the state production. With the introduction of high yielding varieties and tapping of water potentials, the paddy has already engulfed the entire cultivable land of the district. During last 6 years, area under paddy has increased from 172000 hectares to 196000 hectares. In the district 92% of the total cropped area is irrigated. Percentage of net irrigated area to net sown area exceeds 87%.

In Kurukshetra district there are 2 crops viz; Kharif (June to Oct.) and Rabi (Nov. to May). During kharif paddy can be seen for hundreds of Kms. It is only here and there one may get a glimpse of maize (corn) or sugarcane. It is sown from 15th May to 25th June and is harvested in mid October to 20th November depending upon the variety grown. Soon these field are mechanically ploughed and wheat replaces paddy. Paddy is grown only in irrigated areas whereas wheat has the advantage of cultivation under semi-irrigated and rainfed conditions.

The farmers have adopted improved agronomic practices and plant protection measures. The traditional high and seeds

7

have been replaced by the tractor and harrows and high yielding variety seeds. He now makes the optimum use of chemical fertilizers and pesticides. For harvesting, combines have already made an entry.

The farmer, however, continues to understand farming in terms of his hard labour, efforts to meet with the debt obligations, home consumption and family requirements. Over a period of time, he has semi-mechanised his farming by reinvesting his earnings and by resorting to heavy borrowings, but his yield per hectare has more or less has been stagnant - it has rather decreased. (Average paddy yield 2.85 T.P.H. in 1981: 2.38 tonne per hectare in 1985). According to a study by Haryana Agri. University, Hissar average income from one hectare of IR-8 paddy is Rs.514/- only which is not adequate to meet family obligations. Maximum yield in Kurukshetra district is 6 tonne per hectare for coarse, super fine and 3 tonnes for basmati. His debt has increased manifold. Apparent reason is unproportionate increase in cost of inputs as compared to rise in his gross income.

He has taken the technology to his fields, but he is not a partner in the benefits from industrialization. Consumer pays a much higher price for products and by products from paddy but our paddy grower is not a co-sharer in the benefits. The primary cooperatives claim to aim at increase in social and economic standard of farmer, but their contribution is negligible because of internal weaknesses and lack of clarity in approach and objectives. The Primary Marketing societies have been reduced to the status of procurement agents only and marketing and processing of agri. produce of members is none of their business. There is too much interference in the working of cooperatives by the Govt. specially by the Coop. Department.

Contd.....

What is required under these circumstances to ameliorate the fate of paddy grower is to conceive an integrated rice cooperative institution with the sole object of increasing his income by undertaking processing as the anchor activity. The functions of this Coop. Society will include supply of inputs, farm guidance, marketing and processing of agri. produce of members and the earning out of these activities will flow back to the members. This organisation will be managed by the members with no govt. interference. The whole approach has to be that of an integrated rice cooperative.

In an effort to develop a paddy growers body on Coop. principles with appropriate management system, this project has been taken up for a small area of 22 villages in Kurukshetra district, where 90% of agri. land is under paddy during kharif crop. An attempt has been made to develop a model of paddy grower coop. society with discreet tasks and objectives and to establish that through active participation of members it is possible to increase the income of a member from 1460/5000 to Rs. 1731.10/5592 (Common/Basmati) from one tone of paddy/through service, marketing and processing activities.

## 2.2: Project Area

Paddy is more or less the exclusive kharif crop in Kurukshetra district and contributes main income for livelihood to the farmers with average land holding of only 3.69 hectares. Paddy is consumed only after processing. Paddy plants produce straw (about 50% by weight) Husk (10.5% by weight) Bran (3.5%) and rice carnal (36%) and could be converted into no. of products. A table showing Paddy By-Product System is attached at T-I.

Considering vast potential of value addition through marketing and processing of paddy, the paddy has selected

as the anchor activity of this project. It is proposed to take up service and input supplies for cutting at cost of production and increase in production and productivity and Marketing & processing activities for securing the benefits of industrialization to farmer.

### 2.3 PROBLEMS FACED BY FARMERS

The farming community has adopted modern techniques of farming, introduced high yielding varieties of paddy and use optimum doses of inputs, yet they have tales of woes on their faces. Investment/cost of inputs continues to increase constantly without matching rise in output prices. The yield (average yield) per hectare of paddy has been more or less constant during last 6 years; rather it has fallen down. (Average yield 2854 kg Rice per Hectare-1981 ; 2383 kg rice in 1985). The reasons are many as under:-

1. The fertilizers of their requirement are not available in time, e.g. Zinc Sulphate was not available during whole of Kharif 86.
2. There exists no extension agency to advise varieties of paddy as per likely demand of consumers. During 1985 on account of big foreign demand of Basmati rice, farmers who had basmati fetched very high rates. The other farmers swiftly changed from IR-8 and PR-106 varieties to Basmati - 370, bringing about 50% area under this variety in 1986. This year there are no export orders and farmers have been forced to sell basmati at distressed rates. Many farmers still have their stocks at home. <sup>The</sup> Poor farmers are the sufferers. Had some extension agency advised them properly, they would have decided the right variety.
3. There exists no agency in the Project Area, with two regulated market yards, to market the farmers produce on their behalf, mill their paddy into rice, process the by-products and add value.

The named - State Marketing Coop. Federation owns a 4 TPH capacity modern rice mill with par-boiling and dryers at Shahbad (about 20 KM) and another one TPH MRM at Pehowa (about 17 KM) - but Hafed makes outright purchases from the market and the profits are not shared with the paddy growers. This year Hafed has purchased no paddy and mills stay un-used.

4. The two regulated markets at Ismailabad and Thol do provide no facilities to farmers in terms of extension education about market rates and trends etc. Once a farmer brings his produce - he has to sell to the private millers.

5. The farmers experience great difficulties in getting payments from commission agents or from millers. They have to wait for months for full payments.

6. Since 90% of the total area in Kharif is under paddy-farmers have huge quantity of paddy straw. It is neither used as fodder in this area nor enjoy any sale value at present. Farmers need to clear their fields for wheat cultivation - hence straw is burnt these days. A few % of farmers use straw as a compost. Straw could be used for making many items including straw Boards/Papers etc. by some agency but it continues to be a problem for farmers.

7. Wheat is grown on 98% area in Rabi. Farmers are made to sell it to Govt. agencies at just support price which they find is not in commensurate with increased rates of inputs over the last 6 to 10 years. Farmers have developed resentment and continue to demand higher prices for wheat.

#### 2.4 JUSTIFICATION FOR THE PROJECT

Solution to the problems of farmers lies in adopting an approach that increases their income from farm produce. Additional income is feasible by a cut in the inputs rates, by increase in

production and productivity and by securing remunerative prices for the produce, its product and by-products. For increasing production, some institution must take available timely the quality inputs at cheapest rates. Farmers need to be educated in Farm Management and Farm planning. The life line of farming is water and this agency should provide for/facilitate availability of adequate water. In production decisions e.g. cropping pattern, variety of a crop etc. farmers must take prudent decisions in consonance with the market predictions and fore-casts. Some agency whom farmers can trust should take up marketing of their produce and watch their interests at the regulated markets. This institution needs to process the product and by-products so as the benefits of industrialization are realised by to producers. This body will belong to farmers themsel/<sup>ves</sup> and managed by the farmers for their mutual benefits. All activities of this organisation shall aim to increase in the income of constituent members.

The existing 7 Coop.Credit Societies are engaged in credit and inputs distribution and there exists no organisation for marketing and processing of agricultural produce on behalf of the farmers. Their coverage of household is substantial but it does not reflect in their business turn-over and efficiency. The analysis and evaluation of their services reveals that their contribution per member/household is quite negligible. The primary Copp. & Marketing Society at Shahbad (about 20 KM from the area and our area is also a part of it) is more or less the procurement agency for Hafed/State Govt. Processing and marketing are its enlisted objects but society has not taken up either marketing or processing for and on behalf of the members. As regards its efficiency and profitability or value addition to members, the society has suffered a loss of Rs.295/- per member (Rs.343 per farmer member) during 1985-86.

These societies as such can not fulfil the dreams of the farming community.

Hence the area, the farmers demand a Paddy Growers Coop. Marketing-cum-Processing Society - a body wholly owned by paddy growers, managed by paddy growers and for securing the best part of the difference between producer rate and the consumers price of paddy and its by products. This society will under-take backward linkages for maximum level of production and productivity, horizontal linkages for farmers involvement, for coordination between various other parallel cooperatives for services to members and develop vertical integration/<sup>with</sup> Distt. level/Apex level structures for maketing rice in domestic as well as foreign markets, for undertaking capital intensive processing of husk and bran etc. by installing solvent extraction plants and husk bricketing units etc. Agri. Extension Deptt. of State Govt. has not yet educated the farmer in farm planning and management-perhaps our farmer is too literate for the extension deptt. Paddy growers society will have this as an important activity in Ismailabad area.

----

PROJECT OUTLINE

3.1 OBJECTIVE

The principal objective of the Project is to increase the income of paddy growers by minimising the costs of production, by raising production and productivity and by securing remunerative price of the produce by undertaking marketing and processing of paddy and <sup>its</sup> By-Products.

3.2 AREA OF OPERATIONS

In North-West at a distance of about 40 KM from Kurukshetra (Distt. H.Q.), there lies a big village Ismailabad. It is located on State Highway (Ambala-Bhiwani) about 40 KM from Ambala, a well renowned city in South-East and about 17 KM from Pehowa Town (a Historical Place) in North-West. Our project area extends to Ismailabad and 20 more villages surrounding it in all the sides. The other big villages - Thol/<sup>is</sup> about 5 KM from this village has a market yard. This area is identified as areas in the 7 revenue circles of Ajrawar, Thol, Rohti, Ismailabad, Jalbehra, Thaska Mira Ji and Bhuni. A Table showing the names of 22 villages with revenue circles is attached at T.2.

Our project area is boarded by Patiala Distt. of Punjab in South-West and Ambala Distt. of Haryana in North-West. In East, North-East and South-East lies the rice bowl of Haryana, India (Kurukshetra and Karnal districts). 3 Maps/plans showing Haryana on Indian Map, Kurukshetra and Project Area of Haryana Map and Project Area with other villages and existing cooperatives are attached at Annexure I, II & III.

Of the total area of 14249 hectares, 98.52% are is irrigated by canals - 26.53% and Wells/tube-wells 73.47%. All the 22

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villages are connected by mettaled roads and have been provided electricity.

Holdings

The project area contains 3857 holdings with 14249 hectares area with average land holdings of 3.694 hectares. The break up of holdings under Project Area according to size into marginal, small, medium and large holdings vis-a-vis number of holdings in Kurukshetra district and Haryana State are as under:-

	<u>Kurukshetra</u>		<u>Project Area</u>		<u>Haryana</u>	
	% to total	% to total Area.	% total holdings	% total Area	% to total holdings.	% to total area.
i) Marginal (0.5 hect)	18.23	1.26	18.23	1.26	18.58	1.59
ii) Small more than 0.5-3 hect.	43.71	21.02	43.74	21.02	44.99	20.29
iii) Medium more than 3-5 hect.	15.77	17.11	15.74	17.11	15.28	17.20
iv) Large above (above 5 hect.) % to total holdings & area in State.	22.29	60.61	22.29	60.61	21.15	60.92
v) % to total holdings & area in Distt.			4.52%	4.52		
vi) % to total holding & area in India.					1.13%	2.19%

Source: Economic and Statistical adviser  
Planning Deptt. Govt. of Haryana  
All India Report on Agri. Census  
1980-81.

Pattern of Number and size of holdings in Project area is more or less in confirmity and identical to state pattern. Marginal holdings which constitute 18.58% of total number occupy only 1.59% of total area whereas 21% large holdings sh 60.92% of total

area in the project area as against 22.29% number of holdings covering 60.61% of total area in Kurukshetra Distt. About 61 holdings extend to only 22% of total command area; whereas only 22% holdings have the privilege of 61% area. Of our universe 22% area is cultivated in 62% small holdings. Average holdings in command area work out to 3.694 hectares, as against average holdings of 3.69 hect., 3.52 hectares and 1.82 hectares in Kurukshetra Distt. Haryana State and our beloved India, respectively.

#### CROPPING PATTERN

Farmers grow 2 crops viz paddy in Kharif and wheat in Rabi. Wheat follows paddy. There are 3 main varieties namely common variety (IR-8), Super-fine (PR-106) and Basmati 370 of paddy. 90% of the total sown area in Kharif is cropped by paddy. No separate variety-wise data of production is maintained either by revenue department or by Agri.Extension department. Other crop, wheat is grown on 98.24% of the total crop area and it can also be cultivated in semi-irrigated or rainfed conditions. In one village Sugarcane is also grown at about 90 hectares. In rest of the cultivated areas the crop cycle followed is fodder, potato, wheat.

#### CLIMATE

Region experiences extreme hot & extreme cold climate i.e. maximum 42°C - Minimum 3°C. From 15th April to 15th June it is hot, from 15th June to 15th August it is rainy season and from 15th Oct. to 15th Feb. it is winter with very cold nights from mid Dec. to Jan. end. Average rainfall is 83.8 cms. Sometimes there are winter rains also in Dec./Jan and these are very useful for rabi crops.

#### FARMING COMMUNITY

In 22 villages there live 4571 Households of which 2262 are the farming households. Main occupation of these people is farming, directly or indirectly. There exists no

supplementary source of income to the farming community. Almost all farmers, small or big, maintain atleast one milch cattle for their home consumption. There exists a milk plant at Pehowa in private sector at a distance of about 19 KM but the farming community has its religious reservations for selling the milk.

### 3.3 PROJECT COMPONENTS

#### FUNCTIONS

- 1) Input Supply
- 2) Marketing
- 3) Procurement
- 4) Processing
- 5) Farm Guidance
- 6) Custom Services & repairs
- 7) Community Welfare

#### 3.3.1 SERVICE INPUT SUPPLY

- i) Seed-Timely supply of certified seed of high yielding varieties of paddy and wheat.
- ii) Fertilizers - Timely supply of required types of chemical fertilisers - F.O.R. destination.
- iii) Pesticides-Loss control - pesticides/weedicides
- iv) Irrigation - Liason with Electricity Board/Irrigation Deptt and supply of diesel pumps at Govt. subsidy.
- v) Extension of better Agri. practices, soil testing plant protection methods, farm management & planning
- vi) Agri. machinery-Custom service and repairs shops-supply of genuine spares.

#### 3.3.2 MARKETING

- i) On the spot payment to farmers.
- ii) Collection at places convenient to members:
- iii) Transport facilities
- iv) Better supervision to cut down costs/losses
- v) Undertake marketing of agri. produce of members and also of non-members to increase volume of business and have better earnings due to economy of scale.

- vi) Processing of members produce and marketing of products and by-products, so as value added is transferred to members.

### 3.3.3 PROCUREMENT

1. Number and location of procurement centres at mill gates.
2. Whether farmers will bring paddy or centre would procure from them - the farmers will deliver paddy at centre-system in Haryana. Society proposes to compensate for fuel @ 50/- per tonne.
3. Standard of procurement about moisture level - 14 to 16% Admixture of varieties, standard size of weight bags, grading, drying, cleaning etc.

### 3.3.4 PROCESSING

The Primary task of our society will be processing of paddy of our members. The processing will be:-

- a) For members produce only
- b) Milling of paddy into rice.

To begin with, the society will take up processing/milling of paddy into rice and marketing of rice and the By-Products. Indue course, it proposes to go for processing as under:-

STRAW: Straw board unit/Straw Paper Mills.

BRAN: State Federation will set up bran solvent extraction plant for making industrial oil and edible oil.  
Cattle Feed Plant from deoiled rice bran for sale to farmers.

HUSK: Husk bricketing/Husk Board.

### 3.4.1. PATTERN OF HOME CONSUMPTION:

One peculiar feature about paddy/rice consumption in Haryana or Kurukshetra Distt. or Project Area is that farmers produce paddy but they are not rice eaters. Their staple food is wheat. Rice, they eat occasionally or on festivals. There is only one section of farmers i.e. Labana Community that consumes rice regularly but only once in a day, that too in

in addition to pulses and wheat. As such home consumption is very negligible.

Farmers also do not retain paddy for seeds. During last three years the farmers have deserted the practice of using their own seeds and now they purchase only certified seed of specific varieties processed by State Seeds Corporation or National Seed Corporation or Maryana Agri. University at Hissar.

### 3.4.2 MARKETABLE SUEPLUS

With the shift in cultivation of varieties from IR-8 and PR-106 to Basmati - 370 - now about 50% area is under Basmati varieties and rest is under common varieties and superfine varieties.

Yield from one hectare of Basmati is about 3 tonnes as against yield of about 6 tonnes from other coarse and fine varieties. Accordingly, our member farmers will produce paddy as under:-

Total Paddy Area (Members 3.694 acres)	3694 Hectares.	<u>Present optimum yield</u>	
		<u>Yield per h.</u>	<u>Production</u>
Basmati	1847 "	3 T.	5541
Other varieties	1847	6 T	11082
Total			<u>16623 T.</u>

A table showing paddy arrivals in 2 market yards is attached at T.3.

### 3.4.3 EXISTING RICE MILLING CAPACITY

As indicated earlier there is no Coop. or Govt. Rice Mills in the Project area. There exist 24 rice mills with 24TPH capacity near or around the two market yards. On an average, these private millers run the units for about 8 hours a day and for

about 150 days in a year. These units processed about 28800 tonnes of paddy during 1985. During 1986 on account of heavy cut in electric supply/higher rates of common varieties, and poor demand of Basmati rice, only 17 mills have purchased paddy and are likely to process only about 20000 tonnes of paddy. Whatever are the basmati arrivals, their representatives purchase this paddy on the outskirts of market yards at market rates. The Basmati paddy is despatched to Amritsar (Pb) and Tarori (Karnal Distt. of Haryana) where 2 big millers process paddy and market basmati rice in metro-poles with their own brand. The State Coop. Marketing & Supply Federation (HAFED) that owns 4 modern Rice Mills in Thanesar Sub Division of Kurukshetra Distt., of which 2 mills at Shahbad and Pehowa, that falls in our Project, are has not purchased any paddy.

3.4.4. EXISTANCE OF BRAN SOLVENT EXTRACTION PLANTS : BRAN PROCESSING.

No such plant exists in the Project area. However, there exists 7 such plants of varying capacity in Kurukshetra district of which one is owned by Haryana Agro. Industries Corporation (A Govt. Undertaking) and 6 are in private sector as under:- At Shahbad - there are 3 such units in pvt. sector. Hafed has converted ~~its~~ cotton oil solvent plant into rice bran solvent extraction plant at Ratia (Hissar Distt. about 130 Kms from Shahbad) and has succeeded in making industrial oil. The deoiled bran is supplied to its cattle feed plant at Rohtak (a Distt. H.Q. in Haryana about 156 KMs in South East from Ismailabad).

3.4.5 STRAW PROCESSING & HUSK PROCESSING

There exists no straw processing unit or husk processing unit in project area. Straw is burnt and husk finds ready market to be used as fuel in boilers - it fetches about Rs.350/- per tone.

MANAGEMENT OF OPERATIONS

4.1 General Services & Input Supply

The Paddy society will assist the member farmer in raising their production and productivity by taking up the supply of inputs and service activities as under:-

- a) Seeds
- b) Chemical fertilizers
- c) Pesticides
- d) Custom Service & Repairs services
- e) Farm guidance

4.1.1 SUPPLY OF SEEDS

Member farmers require certified quality seeds of High Yielding varieties of paddy including coarse, super-fine and Basmati and wheat. He needs 16.25 kg. of Basmati-370 or 19.27 kg. of superfine (PR-106) or 20.25 kg. of common varieties (IR-8) seeds for each hectare of land, proposed to be cultivated. Seed is required by the mid of May at the time <sup>of</sup> nursery sowings.

As per existing arrangements Haryana Seeds Development Corporation prepares certified seeds and sells it through the net work of its service centres, through Mini Banks & Primary Mktg. Societies and through A.D.O. Offices of Agri. Deptt. to farmers. Through Mini Banks, it is available on credit. It supplements its supplies by acquiring Seeds from Haryana Agri. University and National Seeds Dev. Corp. A few centres of IFPCO also offer seeds for cash sale during season. Total sale of paddy and wheat seeds in Project area through Mini Banks amounted to Rs.54000/- during 1985-86. Presuming that for, paddy, seed of half the amount of i.e. Rs.27000/-

... , seed supplies per hectare work out to Rs.2.11 as against to seed requirements of Rs.165/- per hectare.

Paddy society will sell paddy and wheat seeds to members with credit requirements from Cooperative Bank and supply arrangements with Seeds Dev. Corp. through its plant at Umri (Kurukhsetra) on no profit no loss basis. It will need funds from CCB for 3 weeks for purchasing and stocking of seeds on cash and carry basis. Seeds Corp. allows an interest free period of 15 days for payment and as such society will try to pay no interest to bank and the entire commission of 9% on seeds will be paid back to farmers. On each hectare farmer will save Rs.14.85. Society should finalize delivery schedule with Seed Corp. after consulting group Chairmen as Corporation has a system of F.O.A. supplies at village level.

#### 4.1. 2) FERTILIZERS

Our members are conscious of the optimum use of fertilizers and our society will make the available fert. required for both the crops of paddy and wheat. For draft coarse and fine varieties and Basmati - Nitrogenous, Phosphate, Potash and Zinc ~~Sulph~~ Sulphate are required. At 1985 price index on optimum dose of fert. for one hectare, a farmer spends Rs.882/-, 941/- & 442/- for coarse, fine and Basmati varieties respectively.

#### EXISTING ARRANGEMENTS

The Mini Banks have been entrusted with the work of supplies of Agri. Inputs on credit basis with supply arrangements from State Coop. Marketing Fed. who acts as wholesaler and provides fert. through its buffer stocks/Rail Head Agencies or Primary Coop. Marketing Societies. Of the total average margin of about 200/- per tonne available from suppliers and 60 days grace period for payment, it shares about Rs.40/- per tonne and 10 days grace period with Mini Banks. No other concessions, even off-season rebates of equivalent

amount are passed on the farmers. To begin with, our society will arrange to supply various ferds. for paddy and wheat crops to our members with supply arrangements through IFFCO-KRIBHCO Fert. manufacturers in Coop. Sector under NCDC and IFFCO Scheme. Under this scheme entire margin and grace period for payments will be available to our society, barring a nominal amount of Rs.5/- per tonne to Hafed, the wholesaler. The arrangements will be with finance from CCB K/shetra and on credit to farmers.

During 1985-86, 7 Mini Banks sold ferds. of Rs.3.05 millions which work out to Rs.106.99 per hectare for 2 crops as against optimum requirement of Rs.884/- per hectare for coarse variety of paddy only. During 1985-86 total 2113-4 tonnes of ferds. were supplied to farmers by Mini Banks. Paddy society will supply fert. at no profit no loss basis. Taking average stocks of 500 tonnes for 3 months, our financial requirement works out to about Rs.1 million- which will be available on credit from CCB on 10% margins. Economics of fert. business is projected as under:-

<u>Expenditure (P.A)</u>		<u>Income (P.A)</u>
Interest on loan 10 lacs @ 16/- p.a.	160000.00	Commission-Average 150/- per tonne on 2000 tonnes=300000.
Rent Godown @ 600/-p.m.	7200.00	
Exp. on FOR Destination @ 10/-per tonne	20000.00	
Staff one Asstt.@600/-p.m.	7200.00	
Misc.	3000.00	
Net Income	102600.00	
Appropriation of net Income:	Capital Formation for Margin Rebate on fert. to members }	52600.00
Net profit for margin @ 25% per tonne i.e. Rs.1.25/- per bag		<u>50000.00</u>
		<u>102600.00</u>

ASSUMPTIONS

- i) Financial requirement- one million in the form of CC @ 16% p.a. interest;
- ii) Average stocking 500 tonnes for 3 months;
- iii) Storage capacity of 100 M.T. each is available unutilised with 6 mini Banks in project area on rent @ 100/- p.m.per godown;
- iv) Supplies will be F.O.M. Destination by wholesaler at proposed 6 centres at Mini Bank Godowns;
- v) Actual procurement schedule, disbursement scheme and stocking plan will be finalized in consultation with Group Chairman.

Each member will save about Rs.6/- per acre in fert. per acre of paddy and Rs.4/- on transportation of fert. on account of free FCR distribution supplies-hence Rs.10/- per acre or Rs.25/- per hectare.

4.1.3 PESTICIDES

There exist virtually no regulated/arranged supply arrangements for providing genuine, quality pesticides and weedicides for both crops. None of the existing 7 societies deal with this plant protection device. For one hect. of paddy a farmer is supposed to spend about Rs.225/- on optimum dose of pesticides and weedicides. It would mean paddy growers need these devices worth Rs.3.19 million. Our members need exceeds 0.8 M. for paddy alone. Our society intends to take up this activity right in the beginning with supply arrangements from selected manufactures. Average margin on pesticides, as confirmed from the distributors, is 15-25%. During discussions Hated- The State Mktg. Fed. has offered to supply full requirements of these chemicals on consignment basis at a margin of 9%. During next 5 years, society proposes to take up this activity with following projections:-

<u>Sale</u>	<u>1st</u>	<u>2nd</u>	<u>3rd</u>	<u>4th</u>	<u>5th</u>
Sale	0.2 M	0.4 M	0.6 M	1.0 M	1.0 M
Margin available	18000	36000	54000	90000	90000
Discount to grower members @ 5% net.	10000	20000	30000	50000	50000
Supplies	8000	16000	24000	40000	40000
Salary of Plant Protection Asstt.	7800	15000	16600	17200	17800

He will be paid 650/- p.m. as fixed pay consolidated during probation period & Rs. 15000/- p.a. from 2nd year.

Net capital formation +200 +1000 + 7400 + 22800 + 22200

Every farmer will save at least Rs. 12.50 for one hectare of paddy towards cost besides expert advice and timely supply of quality chemicals.

#### 4.1.4 CUSTOM SERVICE & REPAIRS

In Project Area, every 3 out of 5 farmers own and maintain a tractor and every 5 out of 10 have installed either an electric tubewell/pumping set or a diesel pumping set for irrigation but there exists no arrangements in Coop. or Public Sector for reliable repairs of Agri. Machinery. The society will have a spare section and shall procure genuine spares of standard mechanical and electrical manufactures. To begin with, the society will engage the service of a mechanic-cum-electrician for maintaining this section and spend about Rs. 25000/- on spares. The society will select 22 matriculate youths one from each village, get them trained as mechanics and electricians from Govt. ITI/IMI or Zeter Workshop and pay them stipend @ 100/- p.m. for one year. These youths will be required to open their shops one in each village in our area for repairs. Society will help them in getting loan for purchase of

necessary equipment and tools and start their business. Repair rates for particular jobs will be fixed by the society and these young people will use spares provided by the society only. Society will run this service on no profit no loss basis. Financial implications of the activity will be as under:-

	<u>Spare &amp; tools (Rs.)</u>
Loan component	20000.00
Own involvement	5000.00
	<u>25000.00</u>

<u>Expenditure</u>	<u>Income</u>
Interest @ 6 p.a. 3200	Sale of tools 2500
Salary/wages 7200	Repairs <u>36000</u>
Rent & Misc. 7200	<u>38500</u>
Profit 20900	Stipend @ 1200 p.a. 22 persons 26400
<u>30500</u>	Less surplus 20900
	Out of other income of society <u>5500</u>

4.1.5 FARM GUIDANCE

Farm scientist with adequate knowledge about the use of inputs and plant protection methods will arrange for intensive Farm guidance for prudent farm management and planning in collaboration with input manufactures and Agri. Ext. Deptt. of State Govt. His salary has already been taken care under pesticides head. Contingency will be borne by general Estt. His main activities will include:

- Education & training of group Chairmen & other group leaders in improved agri. practices and use of technology.
- Demonstration to farmers about the benefits of new varieties and practices.
- Guidance to farmers about plant protection methods-about devices to control losses etc. and about latest technology

and education of paddy growers by arranging visits of H.A.U. and other paddy experts etc.

#### 4.2 PROCUREMENT

The society will take up procurement of paddy from members for processing/milling into rice. It also intends to take up procurement on behalf of higher agencies. In the months of May/June - Govt. makes bulk purchases of wheat. The society will facilitate marketing of wheat of members - taking up procurement business. This will bring revenue to the society, besides services to its members.

##### 4.2.i. PROCUREMENT OF PADDY OF MEMBERS

<u>i. Availability</u>	<u>1st Year</u>	<u>2nd Year</u>
a) Basmati (50% area)	5535 T @ 3 TPH	5600
b) Common (25% area)	5535 T @ 6 TPH	6000
c) Super Fine (25% area)	5535 T @ 6 TPH	6000
Total:	<u>16605</u>	<u>17600 T</u>

##### Note: ASSUMPTIONS

- i. Our members do have the yield of Basmati @ 3 T.P.H., common & super fine variety @ 6 T.P.H. but with better farm management - yield will increase from 1987 onwards.
- ii. They will retain only very nominal quantity of Basmati (Best quality) for home consumption.
- iii. Members since equipped with a tractor/trolleys will deliver the paddy at collection centres. Society will compensate for fuel @ Rs.50/- per tonne.
- iv. Society will accept paddy with 14 to 16% moisture only.
- v. Members will grow varieties as is decided in general body meeting in consultation with experts and group leaders.
- vi. Timely availability of quality inputs is assured.
- vii. Society will have 1000 members to begin with.

##### 4.2.2 PROCUREMENT REQUIREMENT:

Society will have 2 Modern Rice Mills of 2.2 T.P.H. paddy capacity <sup>each</sup> equipped with Gen. set. For running each mil at 20 hours

a day for 200 days from November to mid June, 8800 tonnes of paddy is required at full utilisation. During 1st year-expected utilization is 80%, hence 7040 tonnes of paddy will be required. During 2nd year yield of C.V. & S.F. is expected to exceed 6.5 tonne per hectare, making available total paddy of 17600 tonnes to two mills.

#### 4.2.3 OPERATIONS

##### (i) PROCUREMENT CENTRES

Since no village will be at a distance of more than 6 K.M., members will supply the paddy to the mills directly at millgate as per delivery schedule finalized for each member in consultation with group chairman by the mill Manager.

##### (ii) STANDARD OF PROCUREMENT

Standards will be decided in consultation with group leaders and the Managers Mills in Board meeting. The recommended standards would be:-

- a) Moisture contents- 14 to 16%. Members will have space in mills for drying and cleaning;
- b) Mills will classify & procure varieties in 3 categories e.g. common, super fine & basmati-370;
- c) Packaging will be in ~~70~~ 70 kg. bags -Indian Standard.
- d) Each mills will have small size moisture testing meter.

##### (iii) PAYMENT SYSTEM

Payment for paddy will be "delivery and cash", but it will not be final payment as society is not purchasing paddy but is processing for members. The society will open accounts of all the members and credit the intial payment. During 1st year, society will make initial paddy payment to members equivalent to support price right at the time of delivery. For varieties with no support price average price of last year will be paid, as decided by the Board. whatsoever profits are reaped, by processing and marketing, will

betransferred to members after the season is over in the form of final price and welfare activities. From next year onwards, society proposes of pay higher rate of paddy as compared to market rate. Amount of loan from Mini Banks/COB will be got adjusted and for remaining deposit (Balance), members will have free access for withdrawals. They will be allowed interest on these accounts, @ 12% p.a. on minimum balance between 10 to 30th of every month of the pattern of interest payment by banks on Savings Bank Accounts.

iv. PROCUREMENT SCHEDULE

The society will prepare procurement schedule and work out warehousing requirements. Since harvesting commences from mid of October and lasts upto 1st week of December depending upon variety and sowing schedule, the procurement will extend over 3 months of November, December and January.

Before preparing the schedule-procurement supervisor must discuss with farmer groups and prepare schedule for each farmer group for receiving paddy to minimise waiting period for members and assure prompt services to them.

v. COST OF PROCUREMENT

	<u>Per 100 kg. of paddy</u>
a) Price of common variety (support price)	146.00
b) <del>Price</del> <sup>Fuel</sup> reimbursement to farmers.	5.00
c) Cleaning, loading & unloading into stags.	0.90
Total:	<u>151.90</u> per qtl.

2'

4.3.1 The society will take up processing of 17300 T. of paddy (14080 T. -1st year at 80% utilization) of members into Rice and indue course, with the attainment of financial health, working experience and managerial expertise, processing of by-products will also be taken up. It is proposed to instal 2 Modern Rice Mills of 2.2 T.P.H. paddy capacity each in the Project area. Considering the milling efficiency, capacity requirement for available paddy with members and technology involved, it has been ascertained that 2.2 TPH capacity modern rice mill will suit our requirements for obtaining best out-turn ratio.

#### 4.3.2 Process Outline

The paddy is stored near elevator and process starts with its cleaning in the Paddy Sieve (CLEANER). Elevator carries Paddy to sieve and after cleaning, it travels to a tanker built over the 2 huskers with a capacity of about 2.5 tonne. Paddy flows down into huskers where it is dehusked with the help of rubber rollers. The whole mix is lifted and carried to separator. On the way husk goes out with the help of a fan and only brown rice with small quantity of paddy is fed into separator. Separator separates paddy from brown rice sending the later back to paddy tanker and forwarding thē brown rice to the polishers. Here polishing of brown rice is done by mild friction created within the polishing chamber. It passes the bran out and rest of the rice goes to grader sieve. Here also the husk/kinki mix is flown out through a pipe and resultant polished rice is collected separately. Rice is stored in an adjoining room where it is bagged in the bags of appropriate quantity for marketing.

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4.3.3. Technology:

In Kurukshetra district there exist 137 rice mills both in Private sector and Coop. Sector with capacity and technology as under:-

Particulars of ownership	Total	No. according to capacity			Technology			
		Less than 1 TPH	1 to 2	2 to 5	Sim-ple	Modern Rice Mills with out dryer	Parboi-lic with dryer	Parboi-lic without dryer
a) Private	133	19	108	6	-	124	9*	-
b) Coopera- tive	4	-	2	2	-	3	1	(Boiler not used)
c) Total	137	19	110	8		127	10	

\* Most of the units resort to sun drying.

\* For want of adequate demand for boiled rice and in the absence of additional payment by FCI for parboilic rice most of them make only raw rice.

\*Only parboilic in Coop. Sector has not been used for the last 5 years.

From the comparative efficiency of rice mills of various capacities both in private and cooperative sector as shown on attached Table No. T.4 it has been ascertained that with two huskers at 85% pressure and 3 polishers, it is feasible to get the desired quality of rice from both the units. No doubt with par-boiling-rate of recovery of whole rice increases by 3 to 5% and oil percentage in bran ~~also~~ also increases from 15 to 22 %, but on account of the following factors parboilic system and mechanical dryers have not been selected:-

- i) There is no demand of Boiled Rice in North India and available rice has to be sold in South India or to Middle men in Delhi.

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- ii) There is not adequate return on sizeable capital investment on parboilic.
  - iii) The operational cost of parboilic is very high and the economic results of the unit are not in-proportionate to the costs;
  - iv) Like-wise mechanical dryer has the benefit of ready availability of dried paddy for processing unit but it invites extra cost of about Rs. 0.60 per bag (70 kg) of Paddy as compared to sun-drying.
  - v) It has been the experience of the rice mills that the % of broken increases by almost 4 to 5% with mechanical dryer.
  - vi) In North India barring winter rains for few days in Dec./January, rainy season (Monsoon) starts after 15th June -with the benefit of hot sun during the entire milling period.

Under these circumstances, our society has decided to equip its mills with the technology of Modern Rice Mills with 2 Huskers with rubber rollers and 3 polishers. The introduction of rubber roller is of great advantage both in increasing the out turn ratio and giving economic return to the Mills as these rollers reduce the percentage of broken and increase the percentage of head rice.

#### 4.3.4. Size

Considering the handling costs of Paddy as paddy contains almost 25 to 28% husk weight and economies of scale, it is advisable to have scattered approach and set up 2 Rice Mills of 2.2 TPH capacity each. While deciding the size, the economy in fixed costs and operational costs in comparison to 1 TPH units and 4 TPH unit has been considered. The 2.2 TPH unit will have an edge over 4 TPH unit on account of handling costs of paddy and utilization of installed capacity. In one 4 TPH unit even for replacement of roller- the whole mill has to be stopped and the entire process comes to a stand still.

#### 4.3.5 Location of Plants

The Project area is located on both sides of State Highway and maximum distance from North-West to South-East and from East to West is about 11 KM each side. The society has decided to locate 2 mills right at points quite closer to production area near State Highway. One Mill will be located at a distance of about 1 KM from Ismailabad towards Jalbehra and other Mill is proposed to be located near Thol on the West side of the road near BHUNI link road. The two sites have ~~xxxx~~ added advantage of:-

- a) Maximum distance to members will be only about 6 K.M. & it will be very convenient to members to deliver paddy at least expenses at these place;
- b) The adjoining 2 big villages are equipped with Sub stations of Haryana State Electricity Board and our mills will have required power within the availability of power to the area.
- c) For marketing of Rice to city centres and Basmati to best markets - it will be at least cost.
- d) For unprocessed by-products - Society will get the better market rates as buyers will have to incur minimum costs on transportation from State Highway.
- e) In due course, society proposes or may decide to take up processing of straw and husk into paper/straw board and fuel brickketings - it will be economical to transport the raw materials and the finished products.

#### 4.3.6 WAREHOUSING

Each unit of society will process 6000 tonnes of levy varieties of paddy and 2800 tonnes of basmati. The society will first get the levy paddy of 4500 tonnes in each unit processed and deliver to FCI over a period of 17 weeks i.e. by the last week of February. Immediately thereafter, processing of other paddy-that of Basmati will commence and it will be over by

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1st week of May i.e. before the sun is very hot. The unit will finish the processing as per schedule.

From the stocking plan and processing schedule at Table No. T-5, it is apparent that each unit will have the stocking of 5160 tonnes of paddy at the end of January. Society needs to raise platforms for open storage of paddy with tarpaulin covers.

#### 4.3.7 Inventory of Spare Parts

Society will procure spare parts of consumable stores from the suppliers/manufacturers of main plant.

#### 4.3.8 Cost and quality control

Our managers will ensure greater efficiency in use of resources by exercising control on cost of consumable stores, cost of labour and cost of power.

It will be ensured that quality in respect of out-turn ratio and utilization of capacity shall be maintained. Machines will be got overhauled before next milling.

#### 4.3.9 Power

Besides Electric Power 60 H.P. our mills will have diesel generators of 75 K.V.A. each.

#### 4.4 MARKETING

Our society will have dual marketing functions of facilitating marketing of agri. produce of members and non-members by functioning as a commission agent (Arhtiya) in market yards of THOL and ISMAILABAD and marketing of Paddy Products and by-products viz Rice, Bran, Husk on behalf of members.

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4.4.1. MARKETING OF AGRI. PRODUCE AS AN AGENT (ARHTIA)

Members and non members bring their produce to yards, but they do not get the payment of produce in time. They are also subject to certain malpractices in the yard. Our members will deliver paddy at mill gate, but other non members of the area specially the members of other cooperatives need a reliable and trust -worthy commission agent. During Rabi, the members will sell wheat in the market through society shops. It will be ensured that the farmers are not subjected to any malpractices and are paid immediately after their produce is weighed and delivered. It is expected that society will have turnover of about 2500 tonnes of paddy and an equal quantum of wheat at each shop. From this business, with ~~xx~~ hired shops and 2 employees- one Manager-cum-Accountant and one Clerk-Cum-Sashier each shop will earn Rs. 97312/- during 1st year:

Interest on capital (100 days-500 Qtl. (32500/- P.D. 5 days credit @ 16½% = 412500	@ 16½% 13647	<u>Income</u> Commission sale of 25000 Qtls. of Paddy @ 146/-
Rent @ 1000/ P.M.	12000	73000
Salary 1600 P.M.	19200	Wheat @ 165/- 81000
Water, Electricity	1800	
Stationery Etc.	1800	
Telephone etc.	2500	
Misc	741	
Profit	97312	
	154000	154000

The society shop will function as model shop in the market yard.

4.4.2 MARKETING OF AGRI. PRODUCE ( OF MEMBERS)  
AND BY PRODUCTS THEREOF

Since our society is taking up initially only milling activity in processing area, society will market at full capacity utilization.

- a) Levy rice 5935 to FCI/Govt at predetermined milling rates ( 75% of coarse and fine varieties)

- b) Free sale coarse and super fine rice of 1995 tonnes (25% of total) 35
- c) Basmati rice of 3640 tonnes - 25 T. for subsidised sale to 3615 members.
- d) Sale of Rice Bran -C&SF = 360 TCV + 420 T.S.F.V.  
Basmati = 392 T. = 1172 TS
- e) Sale of Paddy Husk 3520 tonnes
- f) Levy Rice: Govt. allows Rice rates for IR-8(CV)-2750/- P.t. and PR-106(SFV) @ 2930/- P.T.

Govt. pays milling charges @ 55% per tonne of rice. There is no levy on Basmati. Society's 2 mills will mill levy rice and complete the supplies by last week of February.

B) FREE SALE COARSE AND SUPER FINE:

1995 tonnes of free sale rice of coarse and super fine variety enjoys ready market in cities. This rice will be sold in open market directly or through State Coop. Marketing Fed. Current rate of IR-8 and PR-106 rice are Rs. 3250 P.T. 3750 P.T.

c) BASMATI RICE:

Basmati Rice enjoys hot cake market because of its superior quality and flavour. Society will brand its rice as 'Jyotisar' Basmati and make the rice available to Delhi, Super Bazar where it enjoys ready market. In the even of export agreement abroad - the whole JYOTISAR BASMATI will be handed over to NAFED at a predetermined rate. <sup>- through NAFED</sup> Last year because of export order, Basmati was selling at Rs. 12/- per kg to Rs. 15/- per kg in open market. NAFED procured Basmati from Coop. processings.

Current price of our quality Basmati is about Rs. 10000 P.T.

Each member will be allowed 25 kg of Basmati rice at subsidised rate of 7/- per kg in the month of May (25 tonnes).

Hafed has agreed to market the entire rice for society to Nafed/ Delhi super market at a commission of 8% including advertisement expenditure.

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d) BRAN: Society has rice bran of 1172 T. This is not an adequate quantity for taking up processing of bran. Bran processing is capital intensive. During next 3 years our society will enrol addl. 1000 members and set up 2 more rice units. It is expected that 5 more paddy owners Coop. M.P.S. societies on this model will be organised during next one year - in adjoining paddy producing districts of Ambala and Karnal, Jind, where bulk of paddy is available (area under paddy and production table at T.6). State level Fed. of these societies will take up processing of bran by installing solvent extraction plants, processing of Husk by setting bricketing plant etc. For straw - our society has a plan to set up straw board unit next year and is in search of appropriate technology.

Meantime - Bran will be sold to Hafed - Haryana State Coop. Supply & Marketing Federation for its solvent extraction plant originally set up for cotton seeds - now being utilized for making industrial oil from rice bran at predetermined rate. Current market rate of bran is 1750/- per tonne.

e) Husk: Husk has numerous use; now main consumption is as fuel for boilers in Industrial Establishments.

In Project area, Husk is saleable at Rs. 350/- per tonne but it enjoys a price of 600/- per tonne at Industrial Estate of Faridabad (220 K.M. from Ismailabad - 25 K.M. from Delhi). Management will attempt to enter into agreement with Industries at Industrial centres for ex-godowns supply of Husk at pre-determined but remunerate rates i.e. market rate at buyer's place-transportation and handling charges. These arrangements are for about 2 seasons till paddy Growers State Federation installs Husk processing unit with latest technology. We will have about 3520 T. of Husk during a year at 100% utilization.

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Under the Project, a new output based Organisation on cooperative principles, namely "The Paddy Growers Coop. Marketing-cum-Processing & Service Society Ltd;" with H. Q. at Ismailabad is proposed to be formed. The area/operations of the society will extend over 22 villages as per list attached at T.2.

The new organisation has to be an institution with the sole objective of increasing income of farmer members. Its all activities will be aiming at both reduction in the costs of production and increase in income from the produce. Income of members will be raised by raising production and productivity and by securing remunerative prices for their produce and its by-products and by developing linkages with other Distt./State/National Level Coop. Institutions in the country. It will be managed by the farmers themselves with no Govt. interference.

5.1 Main Functions:

Main activities of the society will be as under:-

- i) Supply of certified seeds, chemical fertilizers, pesticides and Agri. implements;
- ii) Provision of custom services, mechanical and electrical repair services for Agri. implements & machinery;
- iii) Farm Guidance: Farm Planning & Management independently or in collaboration with Agri. Extension Deptt. of State Govt. or Agri. University Centre or Inputs Manufacturers;
- iv) Marketing of Agri. produce & by-products thereof;
- v) Processing of paddy and its By-Products-Straw, Husk, Bran etc; by setting up processing units.
- vi) Arrange for finance (short, medium and long term) for members as per their requirements from Coop. Bank; Kurukshetra through its branch at Ismailabad.

- vii) To operate into market yards as commission agent both for members and non-members.
- viii) To act as procurement agent for State Federation/ FCI or State Govt. with the object of capital formation:
- ix) To undertake distribution of consumer goods;
- x) Liaison with Irrigation & Electricity Board for timely and adequate water and power for irrigation and also to encourage farmers to instal or to make available -diesel engines for emergency.
- xi) To undertake common welfare activities for members and their family members;
- xii) To undertake any other activity that may facilitate the achievement of defined objectives.

5.1.1 Discreet tasks: The discreet tasks of the society shall be:-

- A.1. Procurement and supply of inputs to members;
- 2. Procurement & marketing of paddy;
- 3. Processing of paddy & marketing of Rice & by-products.
- 4. Farm Guidance;
- 5. Custom service and general services - processing will be the primary task.

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5.1.2 Integrated Rice Cooperatives

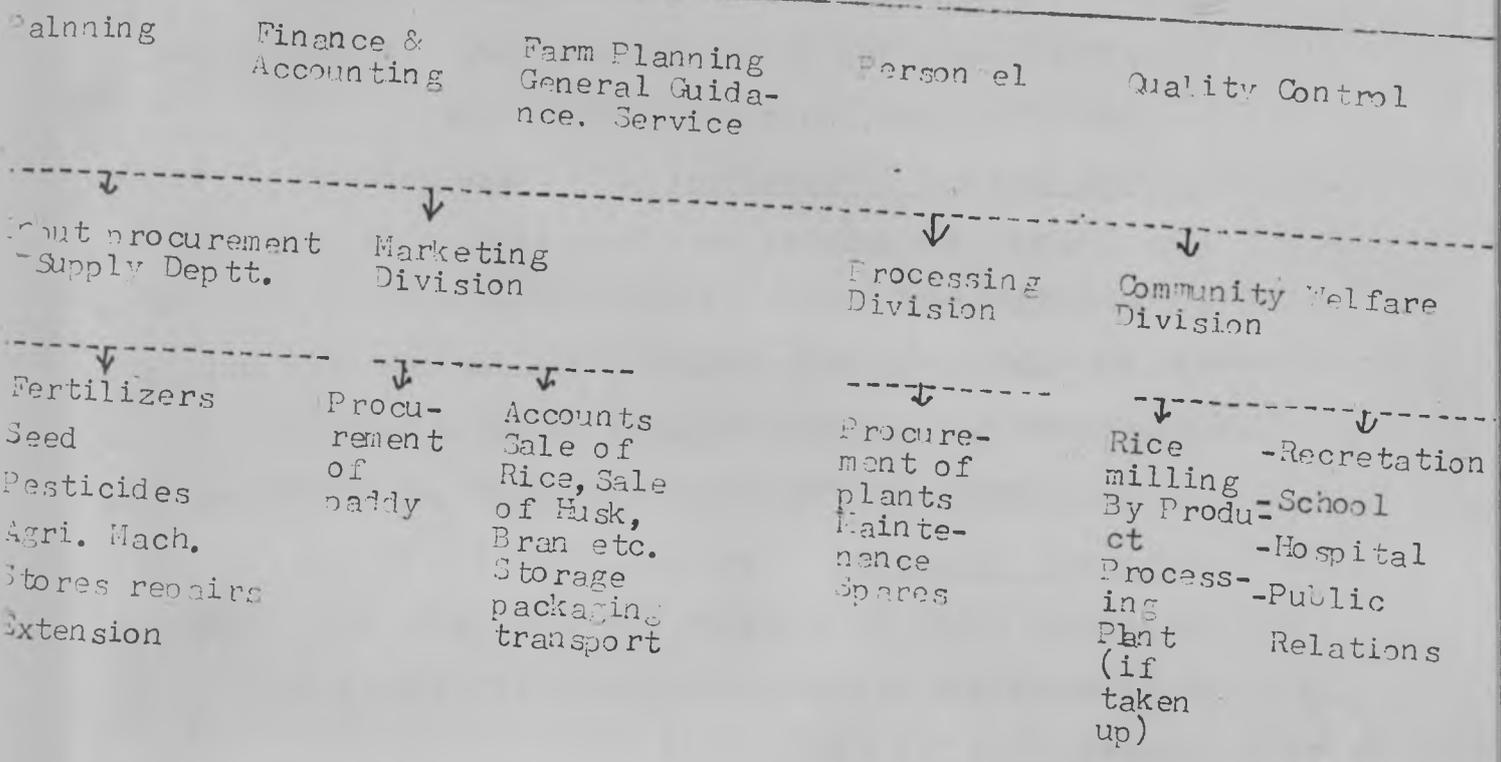
39 ~~40~~

FARMERS: GROUPS / MEMBERS

~~XXXXXXXXXXXXXXXXXXXX~~

BOARD & COMMITTEES

GENERAL MANAGER



Rice Mill-1

Rice Mill-2

- \* Paddy Procurement
- \* Storage & Godown
- \* Paddy Processing
- \* Farm Extension
- \* Finance & Accounts
- \* Off Farm Activity etc.

As per one.

A Chart -Integrated Rice Cooperatives with linkages is attached at Annexure 4.

Contd..

## 5.2 Linkages

It will have backward, horizontal and vertical linkages with concerned agencies as under:-

- i) Backward linkages: With groups in villages, primary Coop. credit and service societies for crop loan to our members, IFFCO, KRIBHCO for fertilizers supply under IFFCO-NCDC scheme; State seeds Dev. Corpn. for supply of seeds, Agri. University for farm extension etc. with manufacturer for (MIT) Agri. spares and machinery;
- ii) Forward/Vertical integration: With State Marketing Federation (Hafed) for sale of Rice Bran till paddy growers cooperatives, Federation at State level takes up processing of bran and for sale of coarse and superfine rice and with NAFED for export of Basmati or super Bazar/Confed for domestic sale of Rice in Metropolises and big cities etc.
- iii) Horizontal linkages: With Coop. Bank for Finance, other processing units in Industry for standards, with other paddy societies for common interest of members etc.

## 5.3 Qualification for Membership:

**Membership of the society will be open to all paddy growers in the area. He should also be a resident in the area of operations of the society and must be engaged partly or exclusively in farming business or must be a paddy grower. Each member will be required to subscribe to at least 5 shares of Rs. 100/- each; members with less than 1 acre will have the option of purchasing shares in 2 yearly instalments within 13 months. Members with more than 3.69 hectares i.e. who own more than average holdings will be persuaded to contribute additional 500/- each or even more but no member will own more than 10% of total share capital.**

Contd...

5.4 Organisational Chart & Overall Management 41

5.4.1 Organisational chart of our society has been depicted at P. 41-A.

5.4.2 General Body: It will consist of 1000 members to begin with. In 22 villages on the basis of number of formal members - 20 Groups each group with 50 members will be formed. For each group there will be one elected Chairman, one elected group Secretary and one elected group treasurer. All the members will constitute General Body.

5.4.3 **Board of Directors: Board will have 14 members**  
- 10 elected and 4 coopted. The board shall be elected by the members by direct election as per the election rules.

**Tenure of the Board will be for six years.**

There will be 4 nominated members and these fellows will be experts in Agriculture (Rice), Processing, Finance & Marketing. They will participate in discussions and would have right of franchise except in the election of office bearers. Their tenure will be 6 years or as per discretion of the 2/3 majority of elected Board.

Board of Directors will elect among themselves one President, one Vice-President, one Director each for Finance, Processing, Marketing and Inputs Supply.

5.4.4. Sub Committees

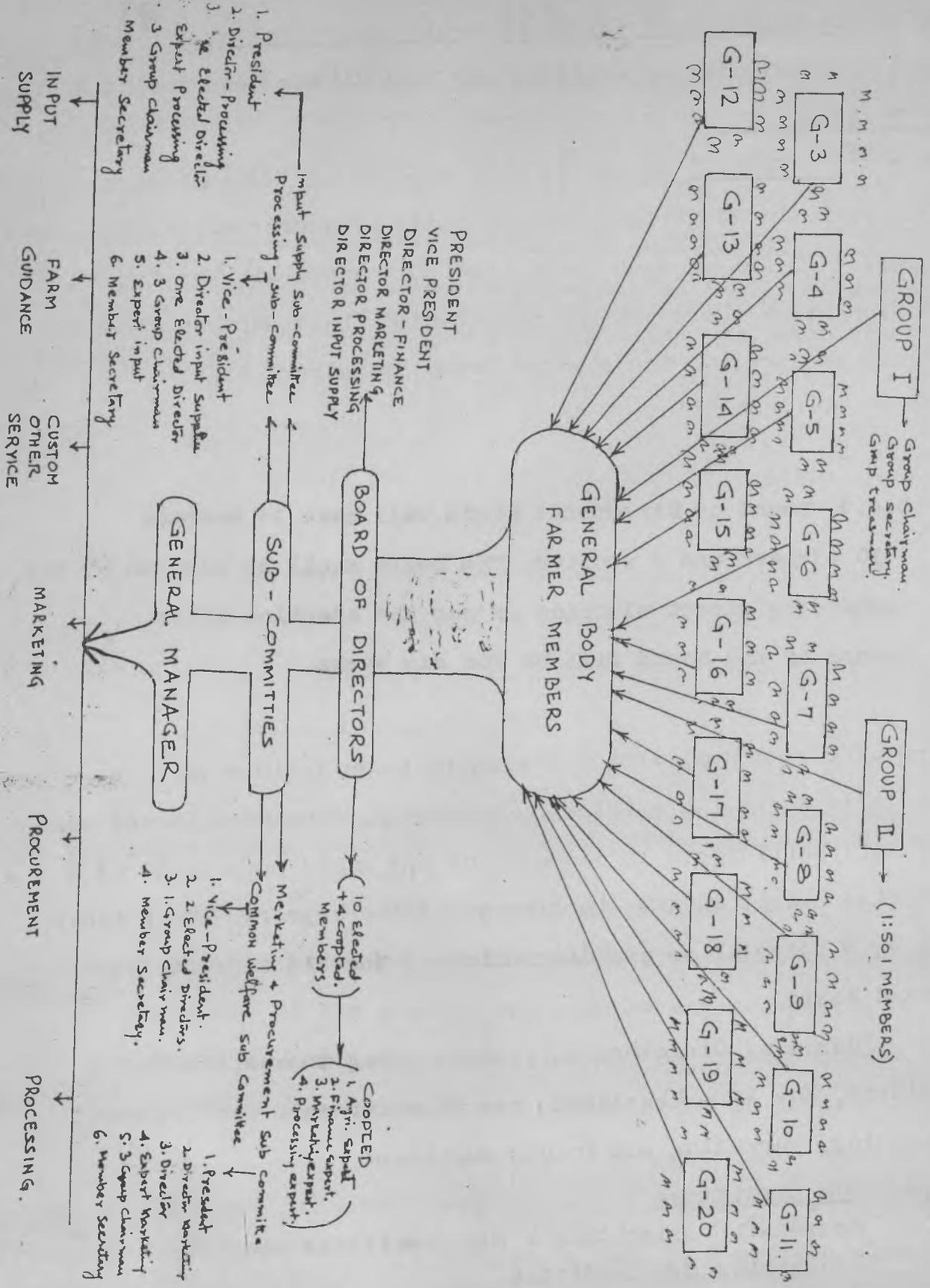
Board will constitute 4 Sub-Committees namely:-

- (1) Processing Sub Committee
- (2) Inputs Supply & Service Sub Committee
- (3) Procurement & Marketing Sub Committee
- (4) Common Welfare Sub Committee.

Contd...

# ORGANISATION CHART: PADDY GROWERS COOP. MARKETING-CUM-PROCESSING SOCIETY LTD.

X-41A



(a) Processing Sub Committee will be responsible for processing functions and will consist of 8 members including President, Director Processing, Processing Expert, one elected Director, 3 Group Chairmen (Nominated) and General Manager as member secretary.

(b) Inputs Supply & Service Sub Committee: It will look after input supplies and custom services and repairs service etc. and its members will be Vice President as Chairman, Director Inputs Supply, Expert Inputs, One Elected Director, 3 Group Chairmen (nominated) and G.M. as member Secretary.

(c) Procurement & Marketing Sub Committee: This Sub Committee will consist of President, Director Marketing, Expert Processing, Director Processing, 3 Group Chairmen and G.M. as Member Secretary.

(d) Common Welfare Sub Committee: This committee will look after Welfare of members and their families and will have Vice President as Chairman, one elected Director, one Group Chairman and G.M. as Member Secretary.

(iv) General Manager: He will be the Chief Executive of the Society and will be the Member Secretary of the Board.

5.5 Division of Work:

BOARD

- \* Planning
- \* Control
- SUB COMMITTEES
- GENERAL MANAGER
- \* Personnel
- \* Service

Manager Input Procurement & Supply	Manager Finance & Accounts	Manager Procurement & Marketing	Manager Processing	Manager Commission Agent Shops	Manager Personnel
------------------------------------	----------------------------	---------------------------------	--------------------	--------------------------------	-------------------

<u>Rice Mills I</u>	<u>Rice Mills -2</u>
<u>Manager -1</u>	<u>Manager-2</u>
-Procurement of paddy	
-Processing	Same as for 1
-Storage	
-Finance Accounting	
-Input Sales	
-Farm Planning	

5.6.1 Personnel Policies: Society will have right persons for right job. The guiding factors will be:- 43

- (a) Staff recruited will be with rural orientation;
- (b) Candidates with adequate experience & basic reasonable qualifications will be recruited;
- (c) The principle will be what the candidate can do for the society and not vice-versa;
- (d) Salary will be comparable with units in Industry but capacity to pay will be always kept in view;
- (e) Society will act as a Model Employer.

5.6.2 STAFFING :

<u>Sr.No.</u>	<u>Category</u>	<u>No.</u>	<u>Qualifications</u>	<u>Pay</u>
1.	General Manager	1	Graduate with 8 years experience	24000/- p.a.
2.	Manager (Marketing, processing, procurement, inputs supply)	1	Graduate with 5 years experience	20000/- p.a.
3.	Accountant	1	Commerce Graduate with 3 Yrs. Exp.	12000/- p.a.
4.	Asstt./ Supervisors	2	Graduate	10000/- p.a. each
5.	<u>Rice Mills</u>			
(i)	Manager	1	Graduate with 5 years experience in Rice Milling	20000/- p.a.
(ii)	Acctt.	1	Commerce Graduate with 3 Yrs exp.	12000/- p.a.
(iii)	Clerk-cum-Cashier	1	Commerce Graduate	9600/- p.a.
(iv)	Mechanic-cum-Electrician	1	5 Yrs. experience Rice Mills	9600/- p.a.
(v)	Chowkidar/Peon	2	Primary-Ex-service-man	6000/- p.a. each
(vi)	Helpers (Casual)			Rs. 500/- p.m. each
6.	Agri. Specialist	1		15000/- p.a.
7.	Commission Agent (Shop)			
(i)	Mgr.-cum-Acctt.	-1	Graduate with 3 Yrs. Exp.	12000/-
(ii)	Cashier-cum-Clerk	-1	Commerce Graduate	9600/- p.a.
8.	Mechanic-cum-Foreman (Repairs Shop)	1	5 Yrs.Exp.	8400 - p.a.

PROJECT COST ESTIMATES AND FINANCIAL ANALYSIS

5.1 Project finance estimates for the total block investment for setting up a Modern Rice Mill of 2.2 tonnes capacity per hour (Paddy) shall be as follows:-

S.No.	Description	(% in lacs)	Financial estimates
1.	Land Cost (4 acres)		
	i) Land cost and conveyancing	1.62	
	ii) Land Dev. and internal roads	0.38	
2.	Building and other civil works.	6.67	
3.	Plant & Machinery	4.30	
4.	Other fixed assets	1.01	
5.	Pre-operation and preliminary Expenses	0.61	
6.	Contingencies	0.73	
7.	Margin Money for working capital at optimum capacity	5.40	
	Total:-	20.72	Say Rs. 2.072 Million

The details of the above estimates are as follows:-

5.1.1 LAND

Society proposes to purchase 4 acres of land for each mills near Ismailabad and Thol. The average cost of land comes to Rs. 36000/- per acre. Total cost of land for one mill has been estimated at Rs. 162000.00 including cost of land, conveyance charges and registration charges etc. This land will be sufficient for immediate requirement and has provision for accommodating future expansion programme. An amt. of 38000/- has been kept for land development and internal roads etc.

5.1.2 BUILDING AND OTHER CIVIL WORKS:

It is proposed to construct buildings as under:-

DETAILS OF BUILDING TO BE CONSTRUCTED

Sr. Particulars No.	Type of construction in details (Mentioning the material is to be used) flooring and roofs and wall.	Dimension (In ft.)	Total covered area (in Sq. ft.)	Rate per Sq. ft./rft cost. (Rs.)	Estimated cost.
1. Temporary raw material storage (490 T)	Bricks in cement mortar, walls plastered inside & tubular trusses, A.C.C. sheet roofing on R.B.C. Columns, steel door, C.C. flooring.	75 35 20/36	2625	65/-	170625.00
2. Machine Shed	-do-	60 35 16/20	2100	65/-	136500.00
3. Rice Godown (Finished goods godown)	-do-	40 30 16/20	1200	60/-	72000.00
4. Misc. Store (for keeping stores and spares)	-do-	12 15 12	180	55/-	9900.00
5. Motor Room	-do- but R.C.C. roofing	12 10 12	120	70/-	8400.00
6. Kinki room for keeping small pieces of rice of bran etc.	-do-	12 10 12	120	70/-	8400.00
7. Office (22' x 17') with verandah outside & toilets.	Ver-Brick masonry in cement mortar cement plaster inside & outside RCC slab roofing, wooden doors & windows, conduit wiring modern sanitary fittings.	30 25 12	750	90/-	67500.00
8. Labour quarter (3)	Bricks in cement mortar, ACC sheet roofing on tubular trusses, brick flooring wooden doors & windows, cement plastering inside & pointing outside.	12 9 10 (3 quarters)	324	55/-	17820.00
9. Generating Set room	Bricks in cement mortar, ACC sheet roofing on tubular trusses wooden doors and windows, cement plastering inside and point CC flooring.	25 20 10	500	60/-	30000.00
10. Boundry wall	Brick in cement sand mortar, cement pointing	836 ft. 6 (running ft.)	836	48/-	40128.00
11. Steel gates (No. 2) (Wide 15' Main) (Wide 3' side)					
12. Handpump					
13. Storage Plate Form (8 Nos.)	Brick masonry on side walls in Cement mortar and cement plaster inside & outside & cement flooring	100 50 2	40000	2.50 PS	100000.00
					2000.00
					4000.00
					100000.00
					667273.00

Say Rs. 6.67 lacs.

The building will have adequate storage capacity for raw material, finished goods, stores and spares and accommodation for plant etc. The society will procure No Objection from Country and Town Planning Department which indicates that the proposed area does not come under their purview.

1.3 PLANT AND MACHINERY - (Rs.4,29,976.60p)

There are number of firms dealing in supply and erection of Modern Rice Mills of 2.2 T.P.H. (Paddy) capacity. The main rice plant would be purchased from M/s Hindustan Industrial Corporation, Taran Taran (Punjab), a renowned supplier in the field. The total price of plant excluding electricals is Rs.2.10 lacs as against the rates of Rs.2.40 lacs and Rs.2.60 lacs quoted by M/s Harbhajan Singh of Pipli and M/s Mohan Singh of Chandera Pur at Pipli respectively. For each unit Kirloskar make 60 H.P. Motor and one Generator set of 75 K.V.A. will be purchased from approved dealer. The details of plant and Machinery and estimated costs are as under:-

Sr. No.	Description	Estimated cost	Name of supplier
1.	Modern Type shelling plant 2.2 ton Hr.(Paddy) capacity comprising paddy cleaning sieve Rubber roller Paddy Huskar (2 No.) Cone polishers 30" (3 Nos.)-36" (1 Nos) Paddy separator 54 compartments (1No.) Husk Separator with sieve 60"x66" (1No.).Round motion sieve with fan (8'x3') (24") 1No.,Elevators 5"(6) 6"(2) 7"(1),Main shaft 3"dia, Elevator shaft 2" dia with pulleys (Wood work of Teak)	2,10,000/-	M/s Hindustan Industrial Corp. Taran Taran.
2.	Motor 60 H.P. 'Kirloskar' make 960 RPM slippering running on 415 V,3 phase A.C.Supply.	45,672.13	M/s Meera and Co. Ltd.,Karnal or other Kirloskar dealer.

Contd...

3. Starter MEI Make, Manually operated Star/Delta oil immersed.	11364.15	M/s Meera and Co. Ltd., Karnal or Other Kirloskar dealer.
4. G.Set - 75 K.V.A. Kirloskar cummins Engine - No.495 G Vertical water cooled 4 stroke self start-battery operated with accessories coupled with Kirloskar make self excited self regulated SPDP Alternator generating 415 V,75 KVA, 50 C/S 3 Ph & 8 Pf.	125400.00	-do-
5. 'Havells' 4 pole change over switch 200 A.	1564.00	-do-
6. Main Switch 'Havells' 3 phase 200 A	1147.50	-do-
7. Weighing Balance 200 kgs.	2000.00	Open Market
	<hr/>	
Total	407147.78	
	<hr/>	
8. C.S.T. on item No. 1 i.e. Rice sheeler @ 4%	8400.00	
9. Installation, commissioning freight, transit insurance, wiring, cabling etc. @ 6%.	24428.82	
	<hr/>	
	429976.60	
	<hr/>	
	Or say Rs. 4.30 lacs.	

1.4 OTHER FIXED ASSETS (Rs. 100800.00)

In addition to office furniture and fixture and fire fighting equipments, other fixed assets required include a weigh bridge, a Moisture testing meter, Small grinder(Paddy), a scale for testing of contents of Paddy and one cycle.

Contd...

The detailed description of Misc. fixed and cost estimates are as under:-

	<u>Description</u>	<u>Estimate</u>
a)	Weigh bridge 'Avery' of 4 T.capacity complete with erection and accessories.	40,000.00
b)	Moisture Testing Meter	5,000.00
c)	Small grinder with scale	1,000.00
d)	Cycle	800.00
e)	Furniture and fixture	10,000.00
f)	Fire Fighting	4,000.00
g)	Tarpolin/Polythene Covers	40,000.00
Total		1,00,900.00

Or Say Rs. 1,01 lacs.

#### CONTINGENCIES (Rs. 72,900.00 )

A provision of Rs.72,900/- towards contingencies in the event of price escalation of building, plant and machinery item has been made @ 5% on building and 10% on machinery.

#### PRELIMINARY AND PRE-OPERATIVE EXPENSES (Rs.61,000.00)

A provision of Rs.61,000/- has been made to take care of preliminary and pre-operative expenses as under:

a)	Security with Electricity Board	5000.00
b)	Telephone security	1000.00
c)	Misc., Printing and Stationery etc.	5000.00
d)	Interest during implementation period (4 months)	40000.00
e)	Trial run	10000.00
		61000.00

Say Rs. 0.61 lacs.

### 6.1.7 MARGIN MONEY FOR WORKING CAPITAL (Rs. 5.40 lacs)

Margin money for working capital for one rice mill works out to Rs. 5.40 lacs. Table showing working capital and margin requirements is attached at Annexure-VII. As per Banking requirements a margin of 10% only on Paddy is required.

### 6.1.8 FINANCIAL ARRANGEMENTS

Each Modern Rice Mill is proposed to be financed as under:-

		(In lacs)	
i)	Share capital		
	(a) Members	1.86	
	(b) State Govt. (26%)	5.79	
ii)	Loan from NCDC/Bank (65%)	13.47	
		-----	
	Total:-	20.72 lacs	Say Rs. 2.07 million
		-----	

Note: State Govt. has agreed to provide share capital @ 26% of Project cost and a provision in 7th Five Year Plan already exists against establishment of Rice Mills in the State.

### 6.2 BREAK EVEN POINT

The calculations of Break Even Point are given in Annexure-V. At 100% capacity utilization, the unit will break even at 42%.

### 6.3 DEBT EQUITY RATIO:

Based on given means of financing, the debt equity ratio works out to 1:9:1. The members contribution will be 9% and State Govt. will contribute 26%.

Contd...

6.4 PRODUCTION, SALE & ANNUAL PROFITABILITY

(Rs. in lacs)

	<u>1 Mill</u>	
	<u>Ist year</u> (80%)	<u>2nd Year</u> (100%)
(i) Total sales Revenue	224.47	298.25
(ii) Total Manufacturing expenses	201.20	293.32
(iii) Operating Profits	23.27	4.93
(iv) Preliminary Expenses Written off	0.06	0.06
(v) Net Profits	23.21	4.87 lacs

Details of Estimates of Costs of Production, total revenue and profitability are given in Annexure-VI. Details of working capital requirements, details of raw material required and sales realizations are shown on Annexure-VII & VIII.

6.5 DEPRECIATION ON FIXED ASSETS

A schedule of depreciation on written down value method is attached at Annexure-IX.

6.6 CASH FLOWS

The Projections of cash inflows and out-flows have been worked out for 5 years. A schedule of cash flows is attached at Annexure-X.

6.7 REPAYMENT SCHEDULE FOR TERM LOANS

The repayment of term loans & interest thereon will be over a period of 10 years in annual instalments, with Ist year as moratorium period of principal as per schedule attached at Annexure-XI.

6.8 FINANCIAL INTERNAL RATE OF RETURN (FIRR)

The expected financial rate of return computed on the basis of the Projected Cash flows with interest on term loans added back works out to about 20%. This has been worked out on the basis of an expected useful life of 10 years. Calculations of F.I.R.R. are attached at Annexure-XII.

Contd...51

	Balance	Collect- tion	Outst- andings	Opening Balance	Colleo- tion	Rep- ayed	Outst. ndings
) <u>Share Capital</u>							
a) Members	-	4.00	4.00	4.00	1.00*	-	5.00
b) Govt.	-	10.78	10.78	10.78	-	-	10.78
Sub-Total	-	14.78	14.78	14.78	1.00	<del>15.78</del>	15.78

*Popular Note Receipt*

	Balance	Collect- tion	Outst- andings	Opening Balance	Colleo- tion	Rep- ayed	Outst. ndings
) <u>Borrowings</u>							
i. <u>Rice Mills</u>							
a) Long term	-	-	26.94	26.94	-	3.10	23.84
b) Working Capital Rice Mills(2)	-	-	54.66	54.66	-	-	54.66
ii. Fert. Business	-	-	10.00	10.00	-	-	10.00
iii. Custom & repairs	-	-	0.20	0.30	-	-	0.30
iv. Commission Agency (2 shops)	-	-	8.25	8.25	-	-	8.25
Sub Total	-	-	100.05				150.79

	Turnover	Income	Exp.	Profit/ loss	Turn over	Income	Exp.	Profit loss
Input seeds	8.25 Laos	0.74	0.74	-	8.25 laos	0.74	0.74	-
Fertilizer	40.00 "	3.00	2.47	0.53	40.00 "	3.00	2.47	0.53
Pesticides	2.00 "	0.18	0.10	0.08	4.00 "	0.36	0.20	0.16
Repairs & Stores	0.25 "	0.38	0.17	0.21	0.30 "	0.39	0.18	0.21
Form guidance	-	-	0.08 (-)	0.08*	-	-	0.15 (-)	0.15*
Arhtiya shops	155.50 "	3.08	1.13	1.95	155.50 "	3.08	1.13	1.95
Processing of paddy (2 Mills)	371.78 "	46.42	38.80*	7.62	540.78 "	9.74	-	9.74
<b>Total</b>	<b>577.78 "</b>	<b>53.80</b>	<b>43.49</b>	<b>10.31</b>	<b>748.83 "</b>	<b>17.31</b>	<b>4.87</b>	<b>12.44</b>

Admn. & Other Exp.

a) Salary & other allowances	0.94 p.a.	1.05
b) Rent office & premises	0.12 p.a.	0.12
c) Printing & stationery	0.12 p.a.	0.15
d) TA & Other allowances	0.10 p.a.	0.11
e) Postage etc.	0.12 p.a.	0.12
f) Miscs.	0.50 p.a.	0.50
	<u>1.90</u>	<u>2.05</u>

Net surplus	Total surplus	10.30	12.44
	less adm. exp.	-1.90	2.05
	less loan repayment	-	3.10
	Net surplus	Rs 8.40 laos	29 laos

The new integrated approach will offer an opportunity to all those who have concern for the farmers and the cooperatives to analyse and <sup>re</sup>evaluate the role and contribution of existing cooperatives in achieving the object of increasing the income of farmers through their efforts. They would be convinced that it is only through Output based cooperative organisations with integrated approach, use of latest technology, with active participation of members and with no Govt. interference - this objective can be achieved. Since the project varies in three ways in approach, methodology and objectives namely:-

- (i) Society will be formed only for a particular group of producers e.g. paddy growers with a minimum land holdings;
- (ii) The society will function for the members only but with their active involvement through groups and with no Govt. interference; and
- (iii) All the benefits reaped by the society would flow back to the member farmers in the form of monetary gains and community welfare services.,

from existing cooperatives in north India, an appreciation and understanding on the part of all concerned is a pre-requisite. Indian Institute of Management, Ahmedabad has already conducted a Workshop on this approach for the custodians, friends, guide and philosophers of Cooperatives.

The other recommendations for over-coming various constraints/problems/difficulties in implementation of

this project are as follows:-

- (i) The Govt. of Haryana will contribute share capital at the established norms of 26% of the total project cost out of existing provision in VIIth Plan for Rice Mills.
- (ii) The State Legislature will remove/ mitigate the existing restrictive provisions in the cooperative law, so as to ensure the democratic control of coop. societies namely (a) Section 27 of Coop. Societies Act of 1984 that empowers the Registrar to rescind any resolution of a Coop. Society; (b) Section 29 -that enables the Govt. to nominate 3 persons on the managing committee of a Pry. society with financial assistance of not less than one lac; (c) Section 31-that vests powers for appointment of Govt. officer as Managing Director (Chief Executive) (d) Section 34-Removal of elected Managing Committee; etc.
- (iii) The Deptt. of cooperatives will permit our society to have input supplies from coop. manufacturers under existing NCDC-IFFCO Scheme.
- (iv) The Coop. Deptt. of State Govt. will facilitate organisation of commodity based societies and their federations.

—ए-२१०१८— - THANKS

ANNEXURE:- 1

INDIA



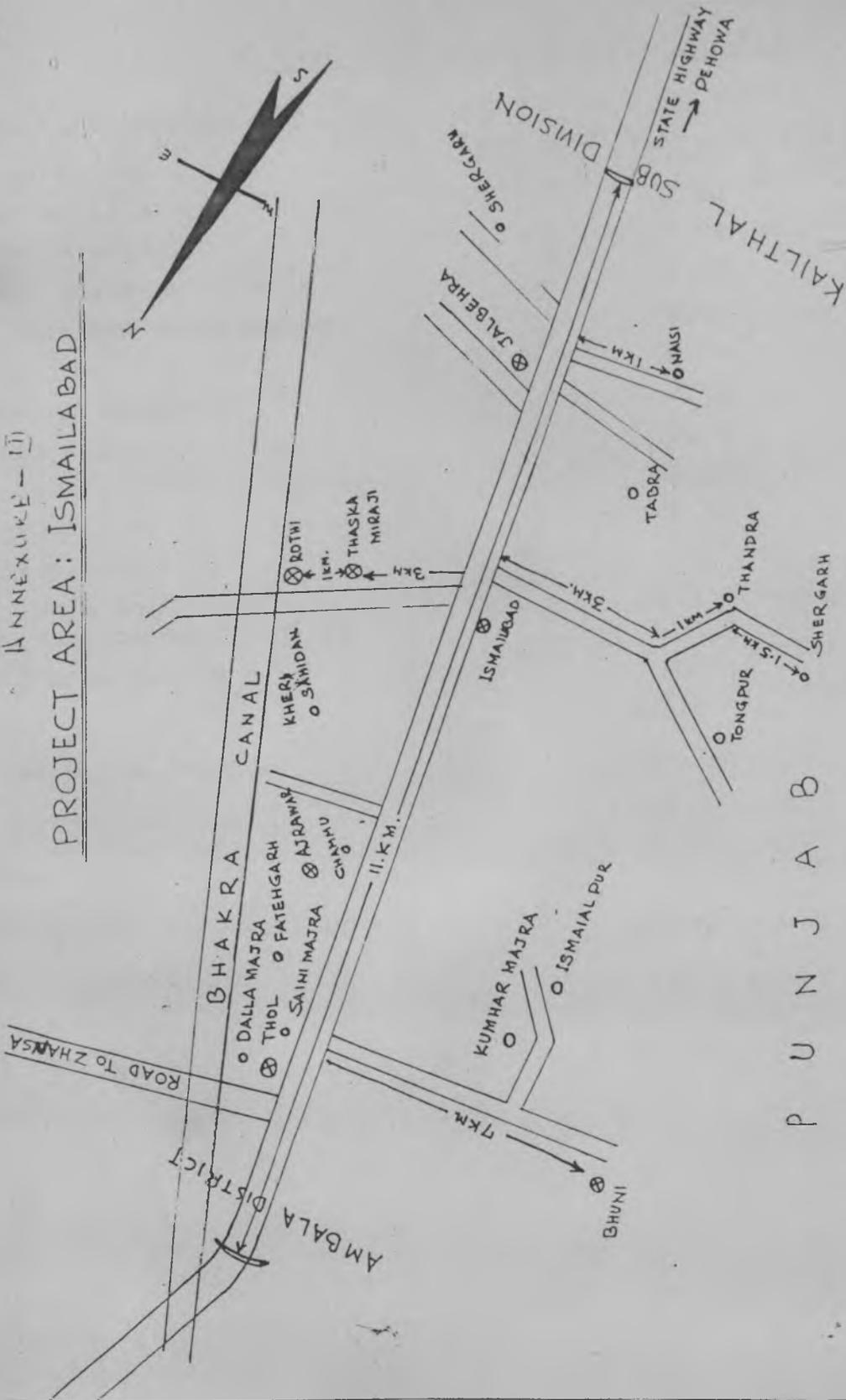
# haryana



### REFERENCES

STATE BOUNDARY	— — — — —
DISTRICT BOUNDARY	— · — · — · —
TAHSIL BOUNDARY	— · — · — · —
STATE CAPITAL	★
DISTRICT HEADQUARTERS	⊙
TAHSIL HEADQUARTERS	⊙
BLOCK HEADQUARTERS	▲
OTHER TOWNS	●
TAHSIL BOUNDARY HEADQUARTERS	○

ANNEXURE - (I)  
PROJECT AREA: ISMAILABAD



P U N J A B

MINI BANK SHOWN THUS :- (Symbol: a circle with a cross inside)  
VILLAGE SHOWN THUS :- (Symbol: a simple circle)

## ANNEXURE - VI

Estimate of cost of Production & Profitability (Rs. in lacs)

	<u>Ist Year(80%)</u>	<u>2nd year(100%)</u>
A. <u>Manufacturing Expenses</u>		
1. Raw material	185.89	270.39
2. Consumable stores & spares	0.60	0.80
3. Wages & salary	1.93	2.20
4. Light Power and fuel	1.12	1.44
5. Repairs and maintenance	0.18	0.30
6. Insurance	0.24	0.32
7. Packing expenses	2.72	6.72
8. Other Adm.exp.	0.24	0.36
9. Miscs	2.00	2.80
10. Depreciation	0.51	0.47
11. Interest on		
a) Term loan $11\frac{1}{2}\%$	1.55 (1 year)	1.55
b) Working capital $16\frac{1}{2}\%$	3.00	4.48
12. Selling expenses $\frac{1}{2}\%$	1.22	1.49
Total	201.22	293.32
B. Total Sales Revenue	224.47	298.25
C. Operating Profits	23.27	4.93
D. Taxes	-	-
E. Preliminary exp. written off	0.06	0.06
F. Net Profits	23.21 lacs	4.87 lacs

ANNEXURE-V

BREAK EVEN POINT

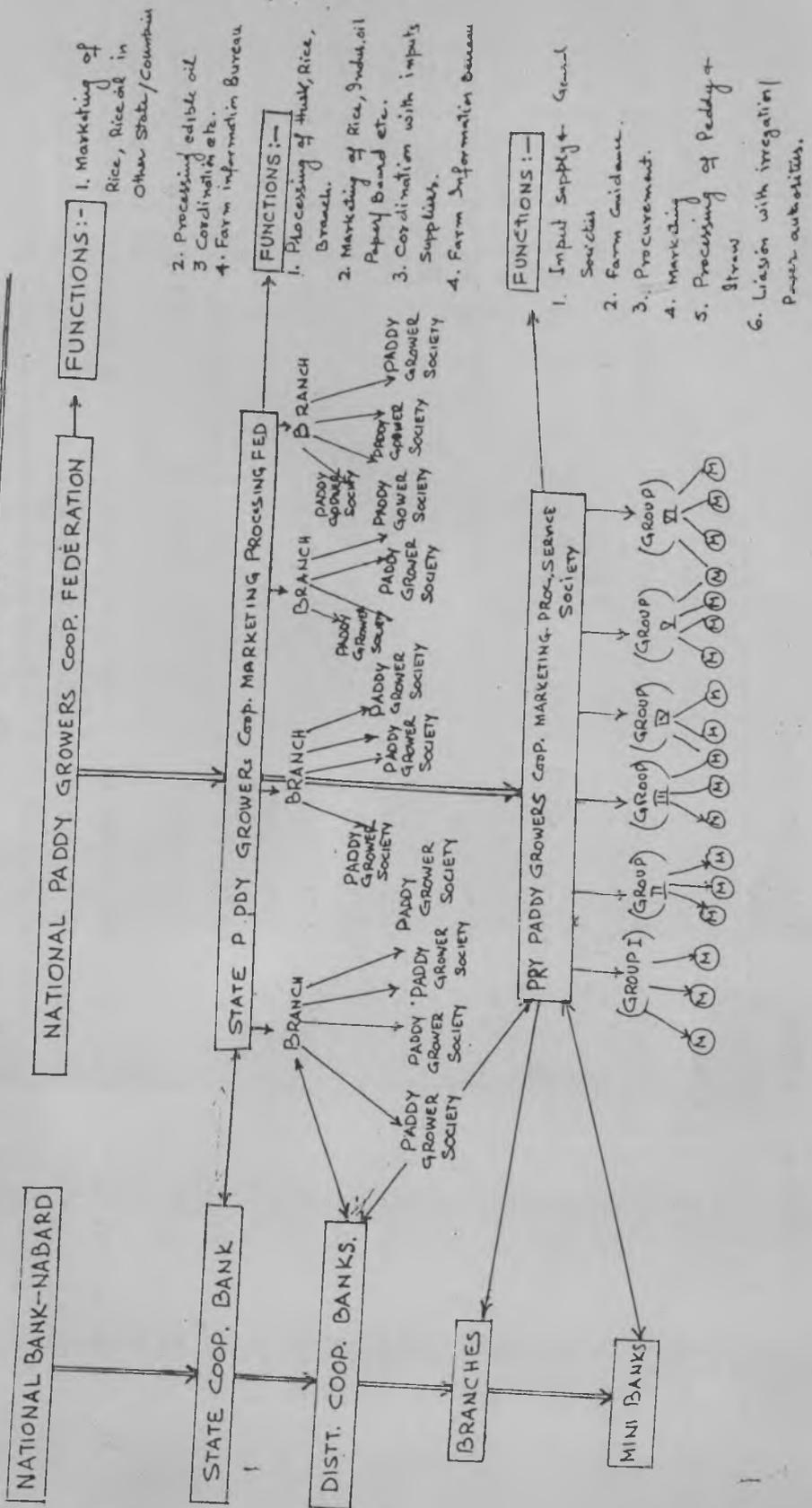
(in lacs)

	Optimum capacity 100%
A. Sales Receipts	298.25
<hr/>	
B. Total variable cost	
(a) Raw material	270.39
(b) Consumable/stores/spares	0.80
(c) Power & fuel	1.44
(d) Intt. on working capital	4.48
(e) Direct wages	1.70
(f) Selling expenses	1.49
(g) Packing expenses	6.72
(h) Misc. expenses	2.80
TOTAL:	289.82
<hr/>	
C. Surplus A-B	8.43
<hr style="border-top: 1px dashed black;"/>	
D. Total Fixed Cost	
<hr style="border-top: 1px dashed black;"/>	
(a) Repairs & Maintenance	0.30
(b) Indirect salaries	0.50
(c) Depreciation	0.47
(d) Intt. term loans	1.55
(e) Other Admn. Exp.	0.36
(f) Insurance	0.32
(g) Intt. on long term liability	-
(h) Preliminary Exp. written off	0.06
TOTAL:	3.56
<hr style="border-top: 1px dashed black;"/>	
BEP	3.56 X 100

8.43  
42.23% *Say 42*

Margin of safety: 57.77%  
Break Even Sales (Rs.) = Rs. 125.95 lacs.

ANNEXURE:- IV  
INTEGRATED RICE COOPERATIVES :- An Approach.



ANNEXURE-VII

2.60

WORKING CAPITAL REQUIREMENTS

(Rs. in lacs)

Sr.No.	Particulars	Period	30% utilization		100% utilization working required	Margin		Bank borrowings	
			Bank margin	30% utilization		Margin	Margin		
1.	Raw material-paddy	1 Month	10%	23.24	2.32	20.92	32.50	3.25	29.25
2.	Consumables stores & spares	-do-	-	0.08	0.08	-	0.10	0.10	-
3.	Wages & Salaries	-do-	-	0.22	0.22	-	0.16	0.16	-
4.	Light, power & fuel	-do-	-	0.14	0.14	-	0.13	0.13	-
5.	Repairs & maintenance	-do-	-	0.02	0.02	-	0.02	0.02	-
6.	Stock in process	One week	10%	3.80	0.38	3.42	3.80	0.38	3.42
7.	Insurance	One month	-	0.03	0.03	-	0.04	0.04	-
8.	Admn. expenses	-do-	-	0.03	0.03	-	0.03	0.03	-
9.	Misc. Expenses & selling	-do-	-	0.03	0.03	-	0.03	0.03	-
10.	Packing Exp. 1.26 lacs bags @ 8/-	-do-	-	0.28	0.28	-	0.35	0.35	-
11.	Stock of finished goods	1 week	10%	1.65	0.16	1.49	0.84	0.08	0.76
12.	O/S debtors Rice (levy)	5 days	10%	-	-	-	4.29	0.43	3.86
13.	O/S debtors Rice non-levy	7 days	10%	1.67	0.17	1.50	2.39	0.24	2.15
14.	O/S Bran/Husk	7 days	10%	-	-	-	1.32	0.13	1.19
							0.11	0.01	0.10
TOTAL:				31.47	4.14	27.33	46.13	5.40	40.73

DETAILS OF RAW MATERIAL REQUIRED & SALES REALISATIONS

GENERAL INFORMATION

- a) Capacity P.H. per Rice Mill - per day 2.2 T.P.H.  
44 Ts - 20 hrs. a day
- b) No. of processing days 200 days
- c) Paddy required per season 8800 Ts (100% capacity)

Availability of total paddy-1986		Per Unit Processing	
		1st Year (80%)	2nd Year (100%)
i. Basmati	5000	2000	2800
ii. Common variety	5535	2520	3000
iii. Super Fine	5535	2520	3000
	<u>16070 T.</u>	<u>7040 T</u>	<u>8800 Ts.p.unit</u>

2. Cut-turn Ratio	Rice	Bran	Husks	Total
(i) Common variety 1R-8	68	6	26	100 kg.
(ii) Super fine (PR-106)	65	7	28 20%+ impur-100 kg.	
(iii) Basmati-370	65	7	28 <sup>ties</sup> 100 kg.	

3. Paddy Purchase Rate (Per tonne)

	1st Year	2nd Year*
i. 1R-8 1460*50 fuel + 9.0 cleaning & staging etc. charges	= 1519	1719/- per tonne
ii. PR-106 1500*50 fuel + 9.0 charges	= 1559	1759/- " "
iii. B.M. 5000*50 fuel + 9.0 charges	= 5059	5559/- " "

Addl. rate of 200 PT. for 1R-8 & PR-106 & Rs. 500/- P.T. for Basmati.

4. Total Exp. on Raw Material

	1st Year	2nd Year
C.V. 2520 x 1519	= 38.28 lacs	3000 x 1719 = 51.57
S.F. 2520 x 1559	= 39.28	3000 x 1759 = 52.77
S.F. 2000 x 5059	= 101.18	2800 x 5559 = 155.65
	<u>178.74</u>	<u>259.99</u>
+ 4% purchase tax	7.15	+ purchase tax @ 4%
	<u>185.89</u>	<u>270.39</u> laos.

5. Sales Realization

	1st Year	2nd Year
a) Rates		273.3
Sale Rates	Levy	Levy
	Non-levy	Non-levy
Rice C.V.	2750/-	C.V. 2750/-
S.F.	2980/-	S.F. 2980/-
Basmati	8500/- P.T.	B.M. whole-11500 PT (45%) broken 3000 PT (20%)

Bran =	1750/- PT	Bran =	1750/- P.T.
Husk	350/- PT	Husk =	350/- P.T.

b) Ist Year

*fixed-mixed*

B.M.	1300 x 8500	(28/50 kg.)	110,50,000
C.V.	1713.60 L & Non.L	<del>35,34,300</del>	35,34,300
S.F.	1638 T	"	1392300

Husk 1750 x 350 = 492800  
 Bran 467.50 x 1750 = 818300  
1311100

1535625  
21173155  
1311100  
22484255  
37500  
22446755

Say Rs. 224.47 lac.

c)	<u>Paddy</u>	<u>Rice</u>	<u>Sale proceeds</u>
C.V.	3000 T	1950 T	4207500 1657500
S.F.	3000 T	2040 T	4358,250 1820,125
B.M.	2800 T	1820 T	14490000

(whol. 1250 x 11500 per T = 14490000

crack 560 x 3000 per tonne = 1680000

Bran & Husk 1641500  
29862875

Less 25 T @ 37500  
 1500/- T 29825375

538 x 1750 =  
 1760 x 350 =

Say Rs. 298.25 lacs

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ANNEXURE - IX

DEPRECIATION CALCULATIONS

	Building @ 2½%	Machinery @ 10%	Gen. set @ 10%	Other fixed amount @ 10%	Total depreci- ation	(Depreciation for 8 months)
Ist year	6.67	3.84	1.25	1.01	0.77	51
	0.17	0.38	0.12	0.10		
2nd Year	6.50	3.46	1.13	0.91	71	47
	0.16	0.35	0.11	0.09		
3rd year	6.34	3.11	1.02	0.82	65	43
	0.16	0.31	0.10	0.08		
4th year	6.18	2.80	0.92	0.74	59	40
	0.15	0.28	0.09	0.07		
5th year	6.13	2.52	0.83	0.67	55	37
	0.15	0.25	0.08	0.07		
6th year	5.98	2.27	0.75	0.60	51	34
	0.15	0.23	0.07	0.06		
	5.83	2.04	0.68	0.54	47	32
	0.15	0.20	0.07	0.05		

CASH FLOW PROJECTIONS FOR THE YEAR ENDING

ANNEXURE 'X'  
(Rs. in lacs).

PARTICULARS/YEARS	ERRECTION I PERIOD		PRODUCTION PERIOD		II	III	IV	V	VI	VII	VIII	IX	X
	PERIOD	PERIOD	PERIOD	PERIOD									
<u>SOURCES</u>													
Equity Capital	7.25	-	-	-	-	-	-	-	-	-	-	-	-
Long Term Loan	13.47	-	-	-	-	-	-	-	-	-	-	-	-
Working Capital Loan	-	-	27.33	13.40	-	-	-	-	-	-	-	-	-
Profit for the year	-	-	23.78	5.40	5.57	5.75	5.92	6.09	6.26	6.44	6.61	6.78	
Total A:	20.72	51.11	18.80	5.57	5.75	5.92	6.09	6.26	6.44	6.61	6.78		
<u>APPLICATIONS</u>													
Fixed Assets	13.98	-	-	-	-	-	-	-	-	-	-	-	
Preliminary Exp.	0.61	-	-	-	-	-	-	-	-	-	-	-	
Contingencies	0.73	-	-	-	-	-	-	-	-	-	-	-	
Term Loan Repayment	-	-	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.47	
Income Tax	-	-	-	-	-	-	-	-	-	-	-	-	
To Members	-	-	19.40	-	-	-	-	-	-	-	-	-	
Increase in Working Capital	-	-	31.47	14.66	0.72	0.72	1.09	1.09	1.09	1.09	1.09	1.09	
Dividends	-	-	-	-	-	-	-	-	-	-	-	-	
Total: B	15.32	40.87	16.16	2.22	2.22	2.59	2.59	2.59	2.59	2.59	2.59	2.59	
Opening Balance	-	5.40	5.64	8.28	11.63	15.16	18.49	21.99	25.66	29.51	33.53	37.75	
Net Balance	5.40	0.24	2.04	3.35	5.53	7.53	9.53	11.53	13.53	15.53	17.53	19.53	
Closing Balance	5.40	5.64	8.28	11.63	15.16	18.49	21.99	25.66	29.51	33.53	37.75		

ANNEXURE - XI

REPAYMENT SCHEDULE OF LOANS

Year	Outstanding amount	Interest @ 11.50% p.a.	Principal repaid	Total Payment
1st	13.47	1.55	-	1.55
2nd	13.47	1.55	1.50	3.05
3rd	11.97	1.38	1.50	2.88
4th	10.47	1.20	1.50	2.70
5th	8.97	1.03	1.50	2.53
6th	7.47	0.86	1.50	2.36
7th	5.97	0.69	1.50	2.19
8th	4.47	0.51	1.50	2.01
9th	2.97	0.34	1.50	1.84
10th	1.47	0.17	1.47	1.67

0.65

## ANNEXURE-XII

A. Cost of Project = Rs. 20.72 lacs: Computation of F.I.R.R.

Year	Cash in-flow	Discount Factor 20%	Discounted value 20%
Ist	7.19	0.833	5.989
2nd	4.19	0.694	2.907
3rd	4.73	0.578	2.733
4th	4.73	0.482	2.280
5th	4.36	0.401	1.748
6th	4.36	0.335	1.460
7th	4.36	0.279	1.216
8th	4.36	0.232	1.011
9th	4.36	0.193	0.841
10th	4.37	0.161	0.703
			-----
			20.888
			-----

## ECONOMICS OF PADDY CROP

Sr. No.	Item	KURUKSHETRA DISTT						STATE AVERAGE					
		Coarse		Superfine		Basmati		Coarse		Super fine		Basma	
1.	2.	Qty.	Va.	Qty.	Va.	Qty.	Va.	Qty.	Va.	Qty.	Va.	Qty.	
		3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	
1.	Preparatory tillage	7	270	7	275	7	270	6	240	6	249	6	246
2.	Pre-sowing irrigation	-	52	-	51	-	51	-	57	-	48	-	46
3.	Sowing	-	148	-	147	-	141	-	145	-	137	-	138
4.	Ridging	-	8	-	8	-	8	-	9	-	9	-	7
5.	Seed(Kg)	7.94	66	8.54	66	7.33	66	9.08	63	8.22	64	7.77	65
6.	FYM(q)	19	56	8	25	5	15	16	48	8	24	5	15
7.	Fert. nutrients (kg)												
a)	Nitrogenous	52.6	246	53.28	249	26.69	125	50.73	236	51.34	240	24.4	114
b)	Phosphatic	12.25	77	13.12	82	7.78	49	11.51	70	8.62	69	8.08	51
c)	Potassic	2	5	7.40	15	1	2	1.12	3	4.54	9	1.41	3
d)	Zinc Sulphate	7.3	29	8.68	35	1.36	3	6.80	20	5.91	29	1.39	6
	Total Fert. Investment	-	357	-	381	-	179	-	329	-	347	-	174
8.	Fert. application	-	8	-	8	-	4	-	10	-	8	-	8
9.	Irrigation	13	418	13	422	11	371	13	433	12	415	10	415
10.	Hoeing/Weeding	2	81	-	76	-	63	-	57	-	72	-	54
11.	Plant Protection	-	10	-	13	-	9	-	30	-	25	-	14
12.	Harvesting/threshing	-	251	-	248	-	222	-	238	-	225	-	216
13.	Miscellaneous	-	10	-	10	-	10	-	17	-	10	-	10
14.	Intt. on working capital	-	104	-	104	-	85	-	100	-	98	-	85
15.	Management charges	-	184	-	183	-	150	-	177	-	173	-	150
16.	Risk factor	-	184	-	183	-	150	-	177	-	173	-	150
17.	Transportation charges	-	56	-	53	-	22	-	50	-	46	-	20
18.	Rental value of land	-	453	-	422	-	443	-	470	-	499	-	482
19.	Total Cost	-	2716	-	2695	-	2260	-	2650	-	2622	-	2295
20.	Production(q)												
a)	Main	21	2924	20	2920	8.89	3192	19.65	2695	17.77	2624	7.96	2843
b)	By product	-	40	-	40	-	40	-	36	-	41	-	42
21.	Gross return	-	2964	-	2960	-	3232	-	2731	-	2665	-	2885
22.	Net return	-	248	-	265	-	972	-	81	-	43	-	590

Source : HARYANA AGRICULTURAL UNIVERSITY, HISSAR

### PADDY BY-PRODUCT SYSTEM

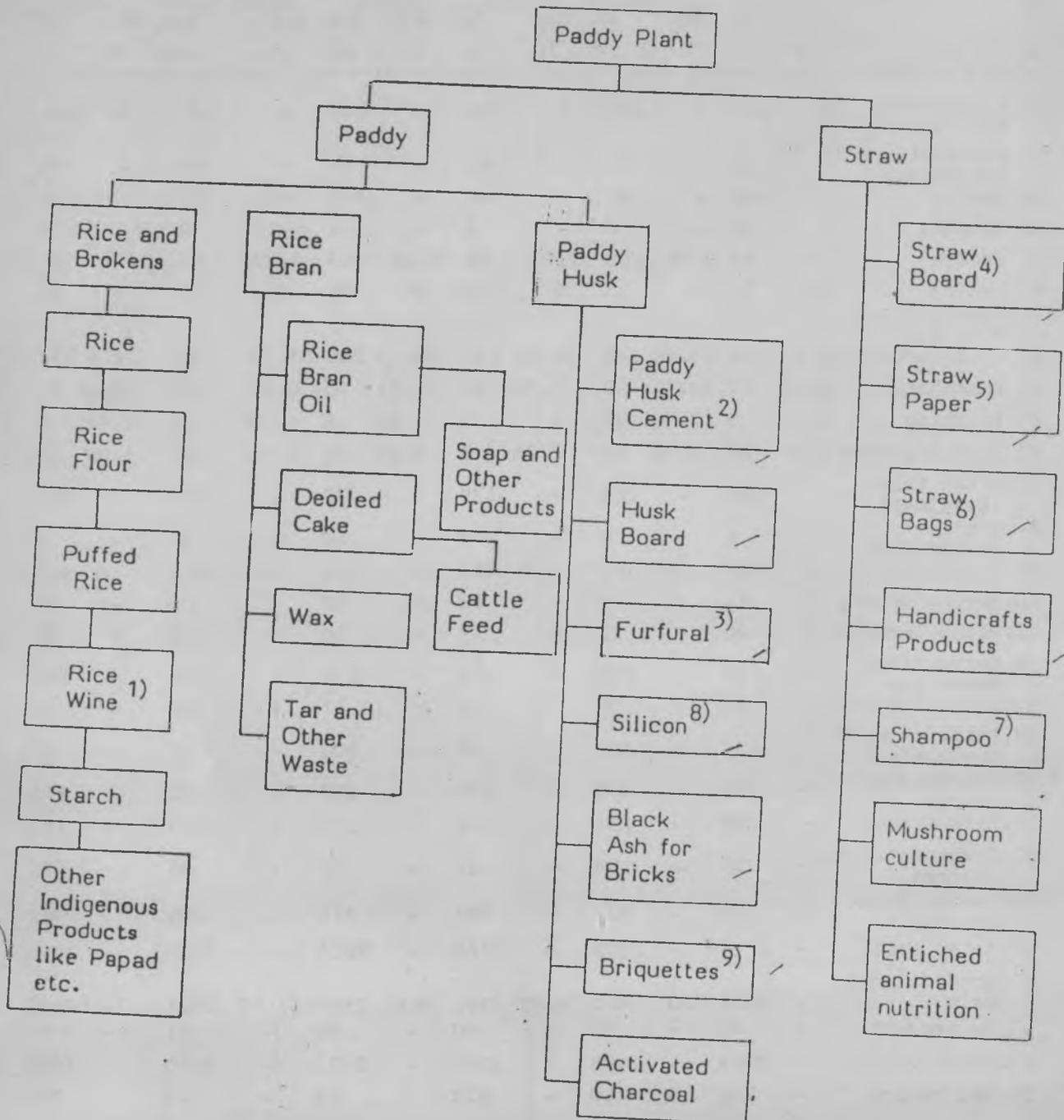


TABLE NO. 2

P. 69

List of Villages in Command Area

<u>Sr.No.</u>	<u>Revenue Circle</u>	<u>Sr. No.</u>	<u>Village</u>
1.	AJRAWAR	1.	Ajrawar
		2.	Mira Pur
		3.	Fatehgarh Channau
		4.	Chamu Kalan
2.	BHUNI	5.	Bhuni
		6.	Kumhar Majra
		7.	Ismailpur
3.	ISHAILABAD	8.	Ismailabad
		9.	Shergarh
		10.	Thandra
		11.	Tangour
4.	THOL	12.	Thol
		13.	Della Majra
		14.	Throli
		15.	Saini Majra
5.	ROHTI	16.	Rohti
		17.	Kheri Sahidan
6.	THASKA MIRAJI	18.	Thaska Miraji
7.	JAL BEHRA	19.	Jal Behra
		20.	Naisi
		21.	Suraj Garh
		22.	Tabra

TABLE NO.3

B. 70

PADDY ARRIVALS: ISRAIA AL & TICALAIKETA FARMS

<u>Year</u>	(1981-1986)	
	<u>Paddy arrivals</u>	<u>in tonnes</u>
1980-81	44041.8	✓
1981-82	50688.9	✓
1982-83	49677.5	✓
1983-84	43345.0	✓
1984-85	48704.9	✓
1985-86	69230.8	✓

SOURCE: H.A.M. Board  
P. KUCA

Table: 3A

Paddy Prices (Monthwise)-1985-86

<u>Month/Variety</u>	<u>Per Tonne.</u>					
	<u>Common</u>		<u>Fine</u>		<u>Basmati</u>	
	<u>Min.</u>	<u>Maxim.</u>	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>
Oct. 85	1280	1600	1450	1490	1820	5100
Nov.	1200	1500	1450	1500	2000	4250
Dec.	1300	1500	1480	1490	2600	5270
Jan. 86	1300	1500	1300	1600	2270	5250
Feb.	"	"	"	"	"	"
Mar.	"	"	"	"	"	"
Apr.	"	"	"	"	"	"
May	"	"	"	"	"	"
Jun	"	"	"	"	"	"
Jul	"	"	"	"	"	"
Aug.	"	"	"	"	"	"
Sep.	"	"	"	"	"	"

(Source - Food & supply Dept , Govt of Haryana)

Table No 4

P 71

## EFFICIENCY OF RICE MILLS/TECHNOLOGY: KURUKSHETRA/HARYANA

Sr No.	Name of Unit	Pvt./Coop.	Ownership Capacity	Technology	Rice			OUT-Turn Ratio 100 % of paddy		Total	
					C.V.	S.F.	B.M.	Bran	Hush		Impurities
1.	2.		4.	5.							
1.	Khosla Trading Co. Pvt. 1973	Pvt.	1 TPH	Modern rice mills with 2 huskers with rubber rollers 1 Seperator, 2 polishers with par boiler but not used for last 5 years. (Dandekar type)	C.V. 68	S.F. 65	B.M. 65	7	25	-	100
2.	Pehowa Rice Mills Coop.	Coop.	1 TPH	Modern rice mills with one husker with rubber rollers & 2 polishers & one separator	C.V. 67	S.F. 65	B.M. 64	6	18	7	100
3.	Dhand Rice Mills Coop.	Coop.	4 TPH	Modern rice mills with 2 seperators, rubber rollers, 2 polishers without par boiler & dryer.	C.V. 67	S.F. 65	B.M. 64	7	20	6	100
4.	Kaithal Rice Mills	Coop.	1 TPH	Modern Rice mills	C.V. 67	S.F. 65	B.M. 64	8	20	7	100
5.	Pundri Rice Mills	Coop.	1 TPH	Modern rice mills with huskers with rubber roller, 2 polishers & one seperator	C.V. 65.7	S.F. 65	B.M. 64	7.3	15	8	100
6.	Ladwa Rice Mills	Coop.	1.8 TPH	MRM with 2 huskers with rubber rollers, 2 polishers & one seperator	C.V. 68	S.F. 65	B.M. 65	6	17	17	100
									17(6% moisture 3% other impurities.) =9	11%	100
									17	11%	100
									17	11%	100

CONTD.....2/-.....



STOCKING PLAN: PROCESSING SCHEDULE

75

<u>Nov.</u>	<u>Arrival</u>	<u>Processing</u>	<u>Balance</u>
1	800	264	
2	800	264	
3	800	264	
4	800	264	
	-----	-----	
	3200	1056	2144
	-----	-----	-----
<u>Dec.</u>			
1	800	264	
2	800	264	
3	800	264	
4	800	264	
	-----	-----	
	3200	1056	4233
	-----	-----	-----
<u>Jan.</u>			
1	800	264	
2	600	264	
3	500	264	
4	200	264	
5	100	264	
	-----	-----	
	2200	1320	5163
	-----	-----	-----
<u>Feb.</u>			
1	100	264	
2	100	264	
3	-	264	
4	-	264	
	-----	-----	
	200	1056	4312
	-----	-----	-----
<u>March</u>			
1	-	264	
2	-	264	
3	-	264	
4	-	264	
5	-	264	
	-----	-----	
		1056	3256
		-----	-----
<u>April</u>			
1	264	264	
2		264	
3		264	
4		264	
		-----	
		1056	2200
		-----	-----
<u>May</u>			
1		264	
2		264	
3		264	
4		264	
5		264	
		-----	
		1320	330
		-----	-----
<u>June</u>			
1		264	
2		264	
3		264	
		-----	
		792	98
		-----	-----

Table No. 6 A  
Area, Production & yield per hectare. Imp. crops in Haryana  
K/shehra distt. & Project Area (1961-65)

Name of Territory	Crops	1961		1962		1963		1964		1965		1966	
		A	F	A	F	A	F	A	F	A	F	A	F
INDIA	a) Paddy												
	b) Wheat												
	c) Maize												
HARYANA STATE	a) Paddy	4839	1259	2606	506	1452	2475	490	1276	2604	536	2485	557
	b) Wheat	1479	3490	2306	1564	3686	2357	1722	4347	2524	1784	4458	2499
	c) Maize	71	81	1134	68	72	1052	56	56	1002	54	63	1168
HARYANA STATE	a) Paddy	172	491	2854	179	466	2602	173	481	2782	187	460	2558
	b) Wheat	226	502	2220	234	636	2718	243	668	2750	249	698	2694
	c) Maize	12	13	1072	11	15	1385	9	10	1164	8	8	1046
PUNJAB AREA	a) Paddy	12699	2521	2854	12503	32550	2602	12641	35146	2782	12688	31211	2458
	b) Wheat	12678	25161	2220	13331	36249	2718	13740	37771	2750	13914	37495	2694
	c) Maize	605	950	1072	768	1047	1385	657	730	1164	542	542	1046

Note: This data is compiled at distt. level on the basis of crop culturing experiments. Source: DIRECTOR OF AGRICULTURE, HARYANA, INDIA.

\* Area in 000 Hectares  
\* Production in 000 Tonnes  
\* Yield in kg of rice per hect.  
Figures in Roman Numerals

TABLE NO. 6 -- B

Area, Production & yield per hectare, Imp. crops in Haryana  
K/shetra distt. & Project Area (1981-86)

Area in 000 hectere  
Prod. in 000 tonnes  
Yield in kg. of per hect.

Name of Territory	1981		1982		1983		1984		1985		1986						
	A	Y	A	Y	A	Y	A	Y	A	Y	A	Y					
<b>KURUKSHETRA</b>																	
a) Paddy	172	2854	1786	466	2602	173	481	2782	187	460	2558	182	434	2382	196	535	2728
b) Wheat	226	2220	234	636	2718	243	668	2750	259	671	2694	250	779	3116	247	833	3371
c) Maize	12	1072	11.2	15	1385	9	10	1164	8	8	1046	8	12	1449	8	11	1313
<b>KARNAL</b>																	
a) Paddy	148	2719	157.7	406	2570	158	440	2782	159	413	2495	170	446	2625	171	499	2819
b) Wheat	209	2445	218	554	2540	224	598	2670	230	664	2887	231	714	3089	252	853	3384
c) Maize	12	843	11.7	11	956	9	9	1038	9	9	1011	9	11	1199	8	11	1313
<b>AMBALA</b>																	
a) Paddy	65	2071	64.8	125	1924	62	121	1945	90	165	2493	71	162	2280	75	199	2658
b) Wheat	112	2066	123.7	256	2068	124	268	2159	139	291	2090	123	220	1788	129	335	2597
c) Maize	37	1371	37.5	40	1070	31	30	969	28	40	1424	34	48	1417	30	39	1302
<b>JIND</b>																	
a) Paddy	35	2395	38.6	95	2438	34	68	1991	40.8	85	2075	41	86	2093	48	128	2662
b) Wheat	121	2634	135.6	299	2200	152	335	2205	160	374	2335	166	408	2460	163	487	2986
c) Maize	2	308	1.1	1	566	1	1	897	1	1	1168	1	1	1307	1	1	1246
<b>HISSAR</b>																	
a) Paddy	19	2658	20.09	67	3202	21	70	3316	26.8	80	2957	33	90	2728	31	100	3225
b) Wheat	155	2629	178.94	406	2322	205	555	2705	559	559	2530	210	550	2619	209	700	3348
c) Maize	2	782	1.4	1	566	1	1	897	1.5	1	569	2	2	771	1	1	911

220.5

(-4)

TABLE NO 7

COMPARISON OF FINANCIAL POSITION: Business Operations: CREDIT SOCIETIES IN PROJECT AREA

THANISHANKAR ROHITH

S.No. Particulars	Total	Business Operations								
		Agriwar	Banba	Small-bus	Cal-bellu	Thul	Thul	Thul	Thul	Thul
1. Year of registration	1958 (1976)	1959 (1976)	1957 (1976)	1958-1958 (1976)	1959 (1976)	1956 (1976)	1959 (1976)	1959 (1976)	1960 (1976)*	
2. No. of villages covered	22	4	3	4	4	4	4	4	2	
3. Area (Hecs)	14249	2340	1360	1579	1865	3590	2480	1035		
4.i. Last date of election	-	27.1.03	25.6.82	1.10.82	21.12.86	7.10.82	17.12.82	4.11.82		
ii. No. of members										
a) Elected	x	9	9	9	8	9	7	9		
b) Nominated										
c) Bank		1	1	1	1	1	1	1		
d) Govt.										
Total	x	10	10	10	9	10	8	10		
iii. Staff										
a) Secretary		1	1	1	1	1	1	1		
b) Salesman		1	1	1	1	1	1	1		
c) Clerk		-	1	1	1	1	1	1		
d, e, etc.		1	1	1	1	1	1	1		
e) Chowkidar		-	-	-	-	-	-	-		
Total		3	4	4	5	4	4	4		
5. Total membership	2237	267	188	353	455	513	259	203		
a) Agriculturists	1172	194	108	175	210	253	125	107		
b) S.P.	1065	73	80	178	245	260	133	96		
c) D.P.	2500	396	176	596	209	231	502	350		
G.Total	4737	663	364	949	654	794	760	553		
A. Total Households	4571	355	305	1101	555	640	635	550		

\* Recognised & amalgamated from village level to revenue circle level society in 1976.

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FINANCIAL POSITION

	1	2	3	4	5	6	7	8	9 (1/2 year)	10
<b>6.i. Share capital</b>										
a) Members	1.20	1.20	1.20	1.20	1.91	2.40	2.40	2.47	1.44	1.09
b) Govt.	0.01	0.23	0.23	0.50	0.50	0.63	0.63	0.20	0.17	0.63
c) Total	1.21	1.43	1.43	2.41	2.41	3.03	3.03	2.67	1.61	1.72
<b>7.2 Reserve fund</b>	-	-	-	-	-	-	-	0.06	0.01	-
<b>7.3 Other funds</b>	0.01	0.15	0.15	0.11	0.11	0.04	0.04	0.39	0.16	0.31
<b>8. Member deposits</b>	0.04	0.40	0.40	0.17	0.17	0.07	0.07	1.38	0.09	0.08
<b>9. Borrowings deposits</b>										
a) C.C.B. Agri.	9.89	8.48	8.48	13.85	13.85	13.81	13.81	20.70	8.00	9.24
b) Govt. Non-Agri.	1.81	1.56	1.56	6.85	6.85	1.27	1.27	2.61	1.38	2.30
Total	11.71	10.04	10.04	20.70	20.70	15.08	15.08	23.32	9.38	11.54
<b>10. Outstanding borrowings</b>										
a) C.C.B. - Agri.	9.44	7.37	7.37	9.01	9.01	18.74	18.74	14.57	9.65	6.93
b) Govt. Non-Agri.	1.42	1.63	1.63	5.54	5.54	1.40	1.40	2.79	3.75	2.05
Total	10.86	9.00	9.00	14.55	14.55	20.14	20.14	17.36	13.41	8.98

Contd.....

BUSINESS OPERATIONS

No. Particulars	Airwar	Bhumi	Samalabad	Jal-Bekra	Thol	THASKA Umrisa Miraji	Rohiti	I.Y.
11. Business activities								
a) Fert.	3.47	0.09	3.85	0.13	5.45	0.46	3.53	0.16
b) Seeds	0.05	0.01	0.05	0.01	0.10	0.02	0.07	0.01
c) Pesticides	-	-	-	-	-	-	-	-
d) Cons. Goods	0.01	-	0.01	-	-	-	-	-
Total	3.53	0.10	3.91	0.14	5.55	0.48	4.45	0.23
11.2 Other Income	-	0.01	-	-	-	0.05	-	-
11.3 Total	3.53	0.11	3.91	0.14	5.55	0.53	4.45	0.23
11.4 Credit Business								
S.P.	10.74	1.64	8.93	1.58	14.41	1.88	19.15	1.86
M.T.	0.12	0.02	0.07	0.01	0.14	0.03	0.99	0.04
Total	10.86	1.66	9.00	1.59	14.55	1.92	20.14	1.90
Grand Total	14.39	1.77	12.91	1.73	20.10	2.44	26.59	2.13
12. Total expenditure	1.38	-	1.40	-	2.28	-	2.31	-
13. Net profit	0.39	-	0.33	-	0.16	-	-0.58	-

TABLE No 8

Membership coverage: Primary Coop. Credit & Service Societies in Project Area (As on 30.6.86)

S.No.	Name of the Society	Year of re-organisation	No. of villages	Total house-holds	Total farmers	Families covered farmers	Total	% of farmers on covered to total
1.	Ajrara	1976	4	210	355	132	249	53%
2.	Bhuni	1976	3	220	335	188	269	82%
3.	Smallabad	1976	4	426	1101	363	949	85%
4.	Jalbehra	1976	4	397	555	396	548	100%
5.	Thol	1976	4	515	840	477	746	93%
6.	Thaska Miraji	1976	1	290	835	258	760	89%
7.	Kohbi	1976	2	204	550	204	550	100%
x.	Total		22	2262	4571	2018	4070	89%

TABLE NO 9

P-8

Wheat : Area, Production & Yield-Haryana, K/shetra & Project Area

Year	Haryana		Y	K/shetra		Y	Project Area		
	A	P		A	P		A	P	
1981	1479	3490	2306	226	502	2220	12.678	28.161	2220
1982	1564	3686	2357	234	636	2718	13.337	36.249	2718
1983	1722	4347	2524	243	668	2750	13.740	37.771	2750
1984	1784	4458	2499	249	698	2694	13.914	37.495	2694
1985	1705	4421	2593	250	779	3116	14.024	43.699	3116
1986	1699	5257	3097*	247	833	3371*			

\*Estimated.

SHAHABAD FARMERS COOP. MARKETING - PROCESSING SOCIETY LTD.  
SHAHABAD

Membership, Financial Position & Comparative  
Business Operations

	1981	1984	1986
<b>I. MEMBERSHIP</b>			
i. Farmers	1306	1110	1123
ii. Societies	95	27	151
iii. Government	1	1	1
iv. Others	-	129	27
TOTAL :	1402	1267	1302
<b>II. SOURCE OF FUNDS</b>			
1. Share Capital			
a) Members (Individual & Societies)	616356	524563	187876
b) Government	51561	145000	337624
c) Others	667917	669363	130000
Total	667917	669363	655500
2a) Reserve Fund	565830	793933	794743
b) Other funds	2960690	3516375	3849774
<b>III. BORROWINGS</b>			
a) HAFED	-	-	-
b) Coop. Bank	2952077	2195839	3349462
c) S.C.B.	-	-	-
d) Govt.	-	-	-
e) Others SBI	-	61796	-
<b>IV. INVESTMENT</b>			
1. Fixed Assets			
a) Land & Building	473807	794189	1036451
b) Machinery	279632	382699	384642
c) Vehicles	-	-	-
d) Furniture & Fixture	108473	321668	557320
e) Others	85702	89822	94489
<b>V. CURRENT ASSETS</b>			
Business Assets	16684476	44404782	42242818
i) Supply & Marketing			
a) Fert.	13057565	13605694	10977485
b) Seed	684350	157594	60608
c) Pesticides	194010	429809	113270
d) Consumers goods	2748551	2181270	3145660
TOTAL :	16684476	16374367	14297093
ii) Procurement			
a) Paddy	8231267	761682	4322922
b) Cotton	-	-	-
c) Wheat	12560567	28363278	23622803
d) Others	-	-	-
TOTAL:	20791834	27124960	27945725

Contd

	<u>1981</u>	<u>1984</u>	<u>1986</u>
VI. <u>Total Expenditure</u>			
1. Mktg./Fert. trading	944898	715371	772633
2. Procurement	425029	33741	135714
3. Others	375131	482220	562227
TOTAL :	1745058	1231332	1470574
VII. Net Profit/Loss	+441452	+192845	-314483

TABLE NO. 11

HOLDINGS : No. & SIZE - HARYANA STATE PROJECT AREA

	Haryana		Kurukshetra		Project Area	
	No.	% to Total Area	No.	% to Total Area	No.	% to total Area
1. Marginal upto 5 hec.	187966	18.58%	15560	18.23%	703	18.23%
2. Small 0.5 hec. to 3 hec.	455116	44.99%	37311	43.71%	1687	43.74%
3. Medium 3 hec. to 5 hec.	154518	15.28%	13456	15.77%	607	15.74%
4. Large (above 5)	213964	21.15%	19024	22.29%	860	22.29%
5. Total	1011564	35616747	85351	315283	3857	14249
6. India	89353000	11.32	162792000	2.10%		
7. Average holding	1.92 hec.	3.52 hec.	3.69 hec.		3.034 hec.	

Table No. 12

P. 84

Area, Irrigation - Mode of Irrigation - Cultivable Area:  
Project Area: HARYANA; INDIA

S.No. Circle	Total area	Total cultivable area	Net sown area	Total cropped area	Net irrigated area canals & wells	Canals & wells	Total	Gross irrigated area	Percentage of irrigated to cropped area	Percentage of net irrigated to net sown area
1. INDIA (1980-81)	304280	197134	142002	177041	15292	17734	5779	38005		27.66%
2. HARYANA STATE (1983-84)	4394	3659	3600	5688	1185	1000	5	2190	53.2%	60.8%
3. K/SHETRA DISTRICT 1983-84	358	345	339	557	78	286	-	294	92	87
(1984-85)	(358)	(344)	(338)	(546)	(78)	(216)	-	(294)	(92.2)	(87.2)
4. SUBJECT AKIA *	14249	14249	14249	26396	3724	10315	-	14039	98.2	99.2

Area in hectares.  
\* In hectares.

Table No. 13

No. & Size of holdings according to area-Haryana  
(1950-51)

1074

Size (hectares)	Haryana		Kharukhetra		Project Area		Marginal Small Medium Large
	No. 2	Area 3	No. 4	Area 5	No. 6	Area 7	
0-0.5	187966	56932	15560	3968	703	179	Marginal
0.5-1.0	137559	108117	11964	8342	541	377	Small
1.0-2.0	194079	305213	14705	27375	665	1260	Small
2.0-3.0	123478	309176	10642	30062	481	1359	Medium
3.0-4.00	87387	312694	7908	28645	356	1294	Medium
4.0-5.00	67131	299795	5548	25305	251	1144	Large
5.00-7.50	98133	615150	8799	60515	398	2735	Large
7.50-10-00	50398	432797	4324	41470	195	1874	Large
10.0-20.0	<del>53578</del> 53467	749811	5256	72229	238	3264	
20.0-30.0	7711	189235	505	10906	23	493	
30.0-40-0	2075	71997	82	2791	4	126	
40.0-50.0	741	31605	33	1392	1	63	
Above 50.0	339	79152	25	1783	1	81	
Total	1011564	2561674	85351	315283	3857	14249	
		Average size 3.52		Average size 3.59		Average size 3.694	

Source: Economic & Statistical Adviser, Planning Deptt., Haryana  
Haryana, - All India Report on A Gri. Census 1950-51.

1074  
Average size 1.92

Tak. No T. 14

P. 26

Rice Mills in K/shetra distt-According to Size, ownership = Total milling capacity 31.3.86

S.No.	Ownership	Large		Medium		Small		Total	Remarks	%age of total paddy production of 271 THH	%age of total paddy production 1985	%age of total paddy production 31.3.86	Proposed of milling capacity
		No. THH	TPH	No. THH	TPH	No. THH	TPH						
1.	Private	6	24	108	216	19	19	259	9 with par boiler	95.57%	375052	99.88%	Very High
2.	Coop.	2	8	2	4	-	-	12	1 with par boiler	4.43%	465	0.12%	Very Low
3.	Total	8	32	110	220	19	19	271					

100% 375517 100%  
tonnes

Tak. No T. 14

P. No. 1

Rice Mills in K/shetra distt-According to Size, ownership = Total milling capacity 31.3.86

S.No.	Ownership	Large		Medium		Small		Total	Remarks	%age of total paddy production of 271 THH	%age of total paddy production 1985	%age of total paddy production 31.3.86	Proposed of milling capacity		
		No. THH	TPH	No. THH	TPH	No. THH	TPH								
1.	Private	6	24	24	108	216	19	19	133	259	9 with par boiler	95.57%	375052	99.88%	Very High
2.	Coop.	2	8	2	8	4	-	-	4	12	1 with par boiler	4.43%	465	0.12%	Very Low
3.	Total	8	32	26	116	220	19	19	137	271					

100% 375517 100%  
tonnes